

## Variation in water quality and zooplankton communities in selected microhabitats within the Bellanwilla-Attidiya marsh

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Wetlands comprise a mosaic of microhabitats of varying quality and species assemblages. The objective of this investigation was to document variations in water quality and zooplankton assemblages in selected aquatic microhabitats within the highly threatened Bellanwilla-Attidiya urban wetland. Water samples were collected from five selected microhabitats i.e. covered with *Azolla* (ii) covered with *Eichornia* (iii) open and with *Hydrilla* (iv) shady and murky pools without aquatic plants (v) pools near garbage dumps, once a month over four months (from April to July 2013) giving a total of 100 samples, to ascertain eleven water quality parameters. Additionally, 1 L of water was collected (n=100) for enumeration of plankton communities.

Water quality in the five microhabitats were varied, and ranged from pH =3.4 -7.6, conductivity = 91-1042  $\mu\text{Scm}^{-1}$ , turbidity =7.7 - 298.4 NTU, salinity = 0 -0.5 ppt, dissolved oxygen (DO) = 0 - 8.4  $\text{mg l}^{-1}$ , biological oxygen demand ( $\text{BOD}_{3 \text{ day}}$ ) = 0.1- 5  $\text{mg l}^{-1}$ ,  $\text{NO}_3^-$  and  $\text{NO}_2^-$  = 0.014 – 13  $\text{mg l}^{-1}$ ,  $\text{PO}_4^-$  = 0.64 – 21.07  $\text{mg l}^{-1}$ , chlorophyll a = 0.15 – 34.86 and chlorophyll b = 0.01 – 8.06  $\text{mg l}^{-1}$ . Significant differences ( $p < 0.05$ ) between microhabitats were noted for pH, conductivity, turbidity, salinity, DO, BOD, nitrates, phosphates and chlorophyll a and b. Although monthly variations were not marked significant differences ( $p < 0.05$ ) were evident for pH, conductivity, salinity, nitrates, BOD and chlorophyll b. Considering zooplankton, pools near garbage dumps recorded the highest abundance (14970  $\text{l}^{-1}$ ) whilst the species richness was the lowest. The dominant species recorded were from *Macrothricidae* and *Diaphanosoma*. Microhabitats with aquatic vegetation had high species richness. The lowest abundance (3995  $\text{l}^{-1}$ ) was in the murky pools. All microhabitats except for those with *Hydrilla*, were dominated by cladocerans, while *Hydrilla* pools had greater numbers of copepods. In all microhabitats the least abundant were the rotifers. Despite the high degree of connectivity, the present investigation has shown that microhabitats within wetlands are unique in terms of water quality and zooplankton communities and may therefore show greater sensitivity to anthropogenic disturbances.