Study of Migratory Patterns of Zooplankton in "Lanka Pokuna" at Royal Botanic Gardens, Peradeniya

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Plankton are free floating organisms that occur in aquatic habitats including fresh, brackish and salt water. Most of them are microscopic and some are macroscopic. They are mainly divided into two broad groups as zooplankton and phytoplankton. Many zooplankton and some phytoplankton exhibit vertical and horizontal migration within aquatic systems for various purposes such as to find food, to avoid sunlight and predators. Such migrations are important for the survival of biota and to maintain the ecological balance and stability of the system. A study was conducted to investigate the daytime migratory pattern of zooplankton in a shallow ornamental pond in the Kandy region of Sri Lanka ("Lanka Pokuna" at Royal Botanic Gardens, Peradeniya). The study was carried out for three months from 14th of January to 15th of March, 2011 and sampling was done biweekly. Samples were collected from the surface and 0.5 m below the surface.

According to the results obtained it was found that many zooplankton exhibit migratory patterns during daytime. The relative abundance of some zooplankton such as *Eucyclops serullatus*, *Dunhevedia* sp., chironomid larvae and ostracod sp. decreased gradually from morning to evening. This could be due to migration of zooplankton to deeper locations or attaching to different substrates such as aquatic plants and stones. The relative abundance of *Eudiaptomus cinctus*, *Keratelle tropica*, *Brachionus falcatus*, *Notholca* sp. and nauplius larvae decreased from morning to noon and increased from noon to evening. Therefore, it can be stated that they tend to migrate downward from morning to noon and upward from noon to evening. Some other zooplankton such as *Lecane* sp., *Diaphanosoma* sp., insect larvae and protozoa sp. show completely different phenomena than the above where they tend to migrate upward from morning to noon and downward from noon to evening.

According to Friedman test, *E. cinctus* and *K. tropica* exhibited a significant variation of their relative abundance in daytime, which indicates that they exhibit significant migration in daytime. Therefore, many zooplankton species exhibited migratory patterns during daytime, which was species specific and light intensity could be the potential factor for their migration. They may tend to migrate to different locations which have favourable light intensities for their survival. As the temperature of the water column fluctuates during daytime, this could be another reason for their migration. Therefore, some species tend to migrate in daytime to deeper locations, which have lower temperature and some tend to migrate upward towards higher temperature.

However, detailed studies that cover all the environmental conditions and nighttime are also required to understand complete migratory behavior of zooplankton in "Lanka Pokuna" at Royal Botanic Gardens, Peradeniya.