

**Abundance and distribution of Calanoid copepods
(*Acartia species* & *Phyllodiaptomus annae*) in Malala lagoon, Bundala
National Park-Sri Lanka, are partly water quality dependent: effects of
sand bar opening on copepod dynamics**

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Zooplanktons are considered as an important component of ecosystem functioning and they are abundant in tropical waters. Nevertheless more studies are necessary to establish ecosystem-habitat-species relationships of Calanoids. The objective of the present study was to investigate distribution patterns of Calanoid copepod species in Malala lagoon, Bundala National park, under different water quality conditions. Recently we experienced man made hydrological alteration of Malala lagoon due to sand bar opening and intrusion of seawater. We made continuous analysis of Calanoid copepod species along with other physico-chemical parameters along established transects. Two Calanoid species (*Acartia species* & *Phyllodiaptomus annae*) were selected for further studies. Relative abundance of *Acartia species* increased remarkably (from 10 individuals/ml to 120 individuals/ml) after sand bar opening. *Phyllodiaptomus annae* showed a correlation ($P < 0.039$ before the sand bar opening, $P < 0.046$ after the sand bar opening) with spatial distribution pattern along the transect. Apparently salinity changes did not affect the spatial distribution of *Acartia species* but *P. annae* decreased to undetectable levels with the salinity changes. Due to the sand bar opening by humans there was a great influx of phosphates coupled with a high abundance of *Acartia species*. However, *P. annae* was further reduced to very low numbers. It may be hypothesized that the two species behave differently with water quality alterations due to their salinity sensitivity. Sudden changes of water from fresh water to saline may destroy habitat and niche characteristics. Our study clearly indicates that distribution of copepod zooplankton in Malala lagoon, *Acartia species* and *P. annae*, at least were partly dependent on different physio-chemical parameters. Such interactions may be important for ecosystem management.

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