



INTRODUCTION

- ❖ Microhabitat heterogeneity is an important factor in structuring zooplankton communities and ensuring stability of lentic ecosystems.
- ❖ Macrophytes increase habitat diversity, provide refuge against predators, and offer suitable spawning and foraging substrate to zooplankton communities¹.
- ❖ Macrophytes are often removed from water bodies to lower nutrient release or improve the aesthetic and recreational value of lakes.
- ❖ Patterns of zooplankton distribution across three functional types of macrophytes and pelagic habitats around Song Lake were studied to assess impacts of broad scale macrophyte removal on zooplankton communities.

HYPOTHESES

1. Diversity and richness of zooplankton communities across three macrophyte beds (submerged, emergent and floating) and pelagic habitats is not different.
2. Zooplankton taxa do not show habitat specialization

METHODS

- ❖ Three randomly distributed sites were selected for each macrophyte type.
- ❖ Two replicate samples were taken from each macrophyte bed using a Schindler trap, (Figure 1).
- ❖ For each sample, 2 subsamples were prepared for zooplankton identification and enumeration.
- ❖ Taxonomic identification was done following keys by Haney et al. 2013
- ❖ Data were analysed using One –Way ANOVA in Minitab version 18.

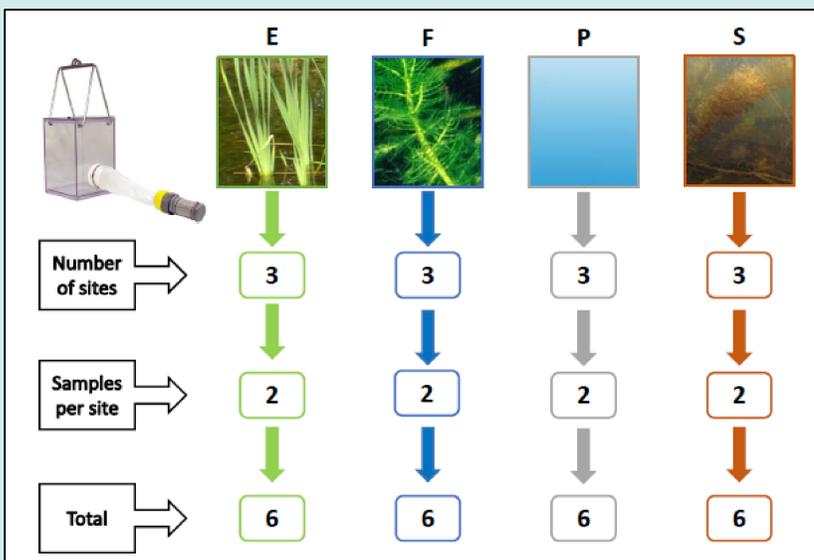


Fig 1. Schematic design of sampling procedure. E=Emergent, F=Floating, P=Pelagic, S=Submerged

RESULTS

A. Species richness

- ❖ A total of 854 zooplankton were enumerated from the four habitat types, (emergent, floating, submerged and pelagic).
- ❖ Floating macrophyte beds had the highest richness (326) while emergent macrophytes recorded the lowest richness (23), (Figure 2).

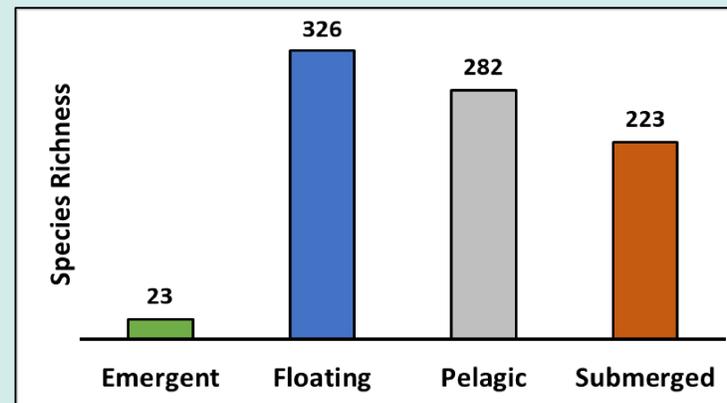


Fig 2. Species richness of zooplankton in macrophyte beds and pelagic waters

B. Species Diversity

- ❖ Submerged macrophyte beds had the highest mean number of species per site (13 species), but diversity was not significantly different from floating beds (9 species), and pelagic waters (7 species).
- ❖ Emergent macrophyte beds had the lowest mean number of species per site (3 species), significantly lower than plankton diversity in submerged macrophytes ($p < 0.05$), (Figure 3).

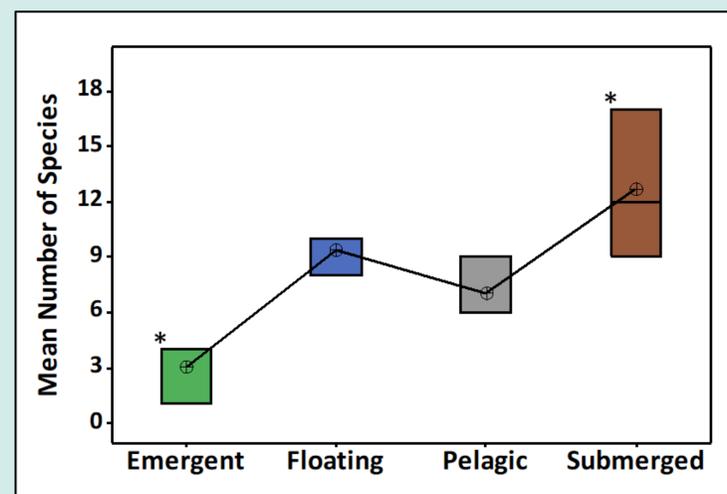


Fig 3. Mean number of species per habitat. Submerged macrophyte beds had a significantly higher mean diversity of zooplankton compared to emergent macrophyte beds

RESULTS CONT.....

C. Taxonomic composition and habitat preference

- ❖ Zooplankton from seven orders and 16 families were enumerated
- ❖ The order Ploima recorded the highest number of zooplankton (267) followed by Cladocera (201) and Cyclopoda (196).
- ❖ Cyclopoids and cladocerans were found in all four habitat types but were rare in emergent macrophyte beds.
- ❖ Calanoids and Flosculariacea showed habitat specialisation and were restricted to pelagic and submerged macrophyte beds respectively.
- ❖ Overall, six of the seven orders were found in submerged and floating macrophytes

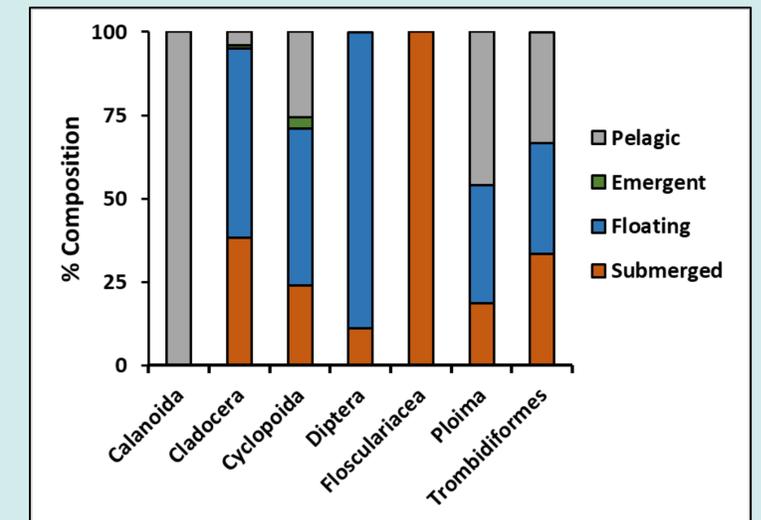


Fig 4. Relative composition of zooplankton in each macrophyte bed and pelagic waters

DISCUSSION

- ❖ Macrophyte beds in littoral zones offer structural heterogeneity to lentic habitats and harbour a more diverse assemblage of zooplankton species compared to pelagic waters²
- ❖ Pelagic habitats are more attractive to rheotolerant species such as rotifers (order Ploima) and cruise feeders (Calanoid copepods)
- ❖ High diversity of zooplankton in submerged beds could be as a result of reduced flow velocity and greater food availability from sediments
- ❖ Lake management plans can consider protecting macrophyte beds to conserve structural heterogeneity for zooplankton communities.

ACKNOWLEDGEMENTS

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REFERENCES

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