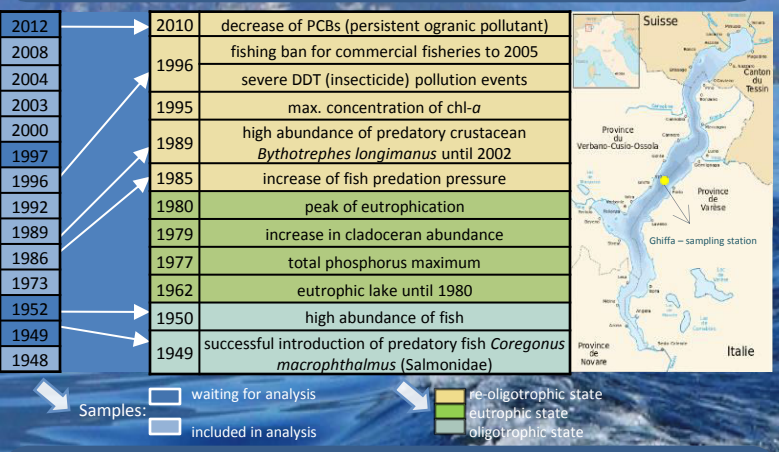
Historical changes and phenotypic variation in *Daphnia longispina* species complex in Lago Maggiore

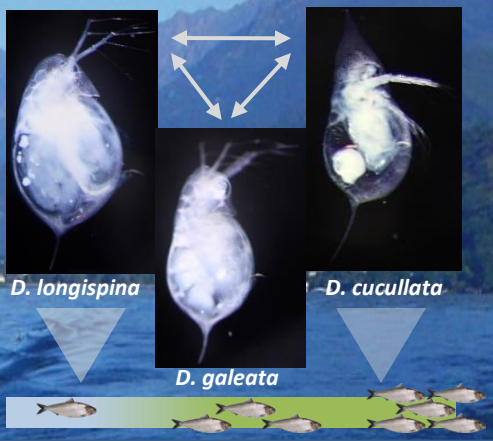
Zuzana Faktorová [1], Roberta Piscia [2], Marina Manca [2] & Adam Petrusek [1]

[1] Charles University in Prague, Faculty of Science, Department of Ecology [2] Institute of Ecosystem Study, Verbania Pallanza, Italy

Introduction

- *Daphnia longispina* complex
  - key taxa in pelagic communities in European lakes
  - concerned species: *D. galeata, D. longispina, D. cucullata*
- Lago Maggiore (LM) – one of the longest studied European lakes



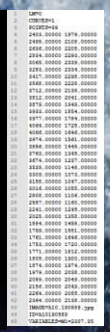


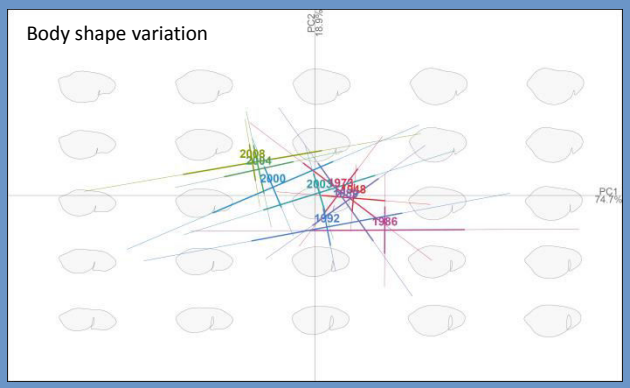
Aims

- characterize taxonomic changes in the *D.longispina* species complex in LM over the 20th century (based on phenotypes)
- evaluate the impact of environmental changes on *Daphnia* body shapes

Hypothesis

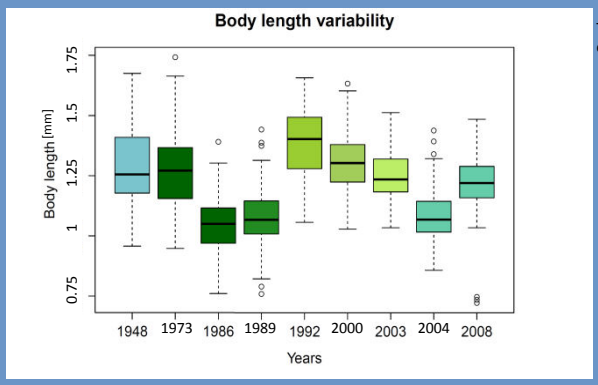
- over the period of eutrophication and re-oligotrophication, *Daphnia* in LM underwent similar changes as in Lake Constance, from *longispina*-dominated to *galeata*-dominated community with widespread hybridization





Material and methods

- *Daphnia* samples collected throughout the 20th century (usually early and late summer)
- geometric morphometrics: elliptic Fourier analysis



First results and future plans

- temporal changes in *Daphnia* body shapes (from round-headed specimens to thinner, with *D.galeata*-like heads): indication of taxonomic shift?
- effects of size-selective predation: short body lengths in the 1980s as a result of increased fish predation pressure; enlargement in the 1990s due to *Bythotrephes*?
- analyses will continue with additional years

Acknowledgement: We are grateful to the Institute of Ecosystem Study, Verbania-Pallanza for opportunity to manage short-term mobility and thanks for help with data skript to Petr Jan Juračka.