

PD Dr. Guntram Weithoff

Research Interests

I am an aquatic ecologist and I am interested in how the environment influences individuals, populations and communities and how species respond to environmental changes. To study this, I am working with freshwater phytoplankton and zooplankton.

Academic Degrees

- 1993 Diploma at the Free University Berlin in Biology on cyanobacteria-rotifer interactions
- 1998 Doctoral dissertation at the Humboldt University Berlin and Leibniz Institute of Freshwater Ecology and Inland Fisheries on driving factors for phytoplankton dynamics
- 1999 Post-doc at the University of Turku, Finland on phytoplankton in the Baltic Sea
- 2000- Academic staff at University of Potsdam
- 2007 Habilitation (Ecology) at University of Potsdam on spatio-temporal dynamics and trophic interactions in extremely acidic mining lakes
- 2020 apl. Professor at University of Potsdam for Aquatic Ecology

Research Fields

Biological Invasions in the light of intraspecific trait variation

I am interested in the underlying mechanisms for the invasion success of cyanobacteria in phytoplankton communities. Therefore, we apply laboratory microcosm experiments to investigate under different scenarios, e.g. predation or competition dominated systems, the role of the genetic identity and genetic composition on the invasion success of the invasive cyanobacterium *Raphidiopsis raciborskii*. Funded by DFG

Meta-Communities, dispersal and local adaptation

We study the distribution of zooplankton on a local scale by investigating the dispersal, local adaptation and genetic structure of populations mainly rotifers and cladocerans. To achieve our goals, we combine field work with laboratory studies and molecular genetics. Funded by DFG

Functional diversity of phytoplankton

Using trait-based approaches, I analyze phytoplankton long-term data to reveal the underlying pattern in functional dynamics and compare trait-based ecology between marine and freshwater ecosystems.

Effect of microplastics on freshwater zooplankton

We study how microplastics affects the life history of zooplankton under experimental conditions that mimic natural situations. We use rotifers and Cladocerans as relevant and cosmopolitan model organisms. Funded by BMBF

Long-term population dynamics of populations and predator-prey systems

In this project apply chemostats (flow-through systems) to study the dynamics of populations in stable and fluctuating environments. Funded by DFG

Publications (selected, last 5 years)

Blasius B, Rudolph L, **Weithoff G**, Gaedke U, Fussmann (2020). Long-term cyclic persistence in an experimental predator-prey system. *Nature* 577:226-230. doi:10.1038/s41586-019-1857-0.

Bolius S, Morling K, Wiedner C, **Weithoff G** (2020). Genetic identity and herbivory drive the invasion of a common aquatic microbial invader. *Frontiers in Microbiology* 11:1598. doi: 10.3389/fmicb.2020.01598.

Drago C, Pawlak J, **Weithoff G** (2020). Biogenic aggregation of small microplastics alters their ingestion by a common freshwater micro-invertebrate. *Frontiers in Environmental Science* 8:574274.
<https://doi.org/10.3389/fenvs.2020.574274>.

Kiemel K, **Weithoff G**, Tiedemann R (2022). DNA metabarcoding reveals impact of local recruitment, dispersal, and hydroperiod on assembly of a zooplankton metacommunity. *Molecular Ecology* 00:1-20. doi: 10.1111/mec.16627

Weithoff G, Beisner BE (2019). Measures and approaches in trait-based phytoplankton community ecology - from freshwater to marine ecosystems. *Frontiers in Marine Science* 6:40. doi: 10.3389/fmars.2019.00040.