University of Jyväskylä:
Aquatic Microbiology Research Group

Our research area of interest

**Systems:** Boreal lake ecosystem s, sediments and peat accumulations, lake and wetland mosses, and arctic soils.

**Processes:**
- Carbon cycling (including stability and fate of DOC)
- Nitrogen cycling (denitrification/DNRA, methanotrophic nitrogen fixation)
- Greenhouse gas emissions (methanotrophy, N₂O production).

**Organisms:** mainly Bacteria, increasing interest on Archaea, Fungi and Protozoa.

**Interest** on developing high throughput tools for studying microbial functions – developing radioisotope probing (RIP). We welcome new collaborations!

Members of the research group

- Marja Tiirola (Group leader, University lecturer)
- Hannu Nykänen (Group leader, Academy researcher)
- Sanna Leppänen (PhD student)
- Jatta Karhunen (PhD student)
- Anna Taskinen (PhD student)
- Ville Juusela (PhD student)
- Antti Rissanen (Post doc)
- Sukithar Rajan (researcher)
- Miikka Hasari (MSc student)
- Felipe Arrano (MSc student)

Methods

**Process measurements:**
- Isotope pairing technique (IPT) for nitrification/denitrification
- Other stable isotope tracer methods for nitrogen fixation and methane oxidation
- Gas chromatographic methods

**Experimental approaches**
- Bottle and mesocosm experiments

**Molecular techniques**
- Next-generation sequencing
- qPCR
- nanoSIMS localization together with Max Planck (Bremen)

Resources

**Field sites:**
- Small lakes in Evo region
- Wastewater discharge sites in central Finland lakes
- Kilpisjärvi tundra sites in Lapland

**Special technical facilities:**
- Sequencing: Ion Torrent PGM (2012-)
- Stable isotope facilities:
  1. Thermo Deltaplus Advantage Mass Spectrometer (2002-) + Elemental Analyzer and Gas Bench
  2. Isoprime Vmass Spectrometer + Vario Pyro and Trace gas (2013-)

Key publications


We acknowledge the funding from: