

Uppsala 19/9-2008



International Workshop: **How Dynamic are Aquatic Microbial Communities in Composition and Function?**

The current workshop will bring together scientists and graduate students interested in temporal dynamics of aquatic microbial communities for a one week workshop with the following aims:

- (1) *Establish a research network in "Aquatic Microbial Community Dynamics".*
- (2) *Review the current state of knowledge (and write a joint review paper).*
- (3) *Connect Microbial Ecologists and scientists working with high-frequency characterization of physical & chemical lake features*
- (4) *Interact and communicate science in a relaxed and informal atmosphere*

Time: 29 Sept-4 Oct 2008

Venue: Erken Laboratory and Norr Malma Field station. In addition, the first day of the workshop will take place at the Evolutionary Biology Centre in Uppsala and the second and third day will be a joint meeting with GLEON-7 and take place at Campus Roslagen (**shaded yellow in schedule below**).

Organizer: Stefan Bertilsson, Limnology/Department of Ecology & Evolution, Uppsala University, Box 573, SE-75123, Uppsala, Sweden. Tel: int+46-18-4712712 (office) or int+46-70-1679034 (cell); Fax: int+46-18-531134; E-mail: stebe@ebc.uu.se.

Funding: The workshop is funded by a grant from the "Centre for Dynamic Processes" at Uppsala University (www.cdp.uu.se).

Schedule

Sunday 28/9

Travel day.

19.00- BBQ at Erken

Monday 29/9

7.00-8.00 Breakfast

8.00-9.00 Transport to Uppsala

Public lectures 1-3 (Fries Lecture Hall, Evolutionary Biology Centre, Uppsala University)

9.30-10.15 Karel Simek: Manipulating levels of protistan grazing and viral attack rapidly affect bacterioplankton community dynamics in a freshwater reservoir

10.15-11.00 Emilio Casamayor: Ecophysiology of the dark carbon fixation process in aquatic environments

Break

11.15-12.00 Angela Kent: Biological drivers of microbial community dynamics

12.00-13.00 Lunch at EBC

Regroup to "Lärosal 4" at EBC (students attending the pre-GLEON workshop leave for Erken)

13.00-13.30 Workshop aims and outputs (Stefan)

13.30-14.30 Breakout group discussions "How dynamic are microbial communities?"

For example: How much do we know? What are the current gaps in knowledge? What roles do environmental sensors and linked cyberinfrastructure play now and tomorrow? What is the future of genosensors and other biosensors? What other resources are needed to advance our understanding of microbial community dynamics?

Break

15.00-16.00 Group reports/Discussion
16.00-17.00 Guided tour of EBC and botanical garden
17.00-18.00 Transport to Erken
18.00-20.00 Buffet dinner at Svanberga Gästgiveri (joint with GLEON)
Evening Pub, Sauna, Etc

Tuesday 30/9 (shaded = joint meeting with GLEON: see www.gleon.org)

7.00-8.00 Breakfast
8.00-8.30 Transport to Campus Roslagen for GLEON meeting
8.30-8.40 Welcome and introduction to Campus Roslagen and Erken (Kurt Pettersson)
8.40-9.00 GLEON for beginners and goals for meeting (Tim Kratz/Peter Arzberger)
9.00-9.20 History of GLEON and graduate student activities (Paul Hanson/Cayelan Carey)
9.20-9.50 Focus on Microbes (Stefan Bertilsson/Trina McMahon)
Break
10.30-11.30 Introduction of new GLEON members (TBA)
11.30-12.00 GLEON science products with Taiwan: How GLEON buoys and student exchanges helped play a role (Trina McMahon)
12.00-12.30 Reports/plans from working groups (5 mins each)
-Lake metabolism (Paul Hanson, Kathie Weathers)
-Domains of control (Eleanor Jennings, Thorsten Blenckner)
-Microbes (x-site experiment): Trina McMahon, Ashley Shade
-Microbes (function): Stefan Bertilsson, Cayelan Carey
-Information Technology: Fang-Pang Lin, Hsiu-Mei Chou
-Climate and lake physics: Evelyn Gaiser, David Hamilton
12.30-14.00 Lunch at restaurant Culinar
14.00-16.00 Working group discussions
16.00-16.30 Working groups report back
Break
17.00-19.00 Poster session/social mixer
19.00-20.30 Dinner at Restaurant Culinar
20.30-20.50 Talk by Justin Brookes (Title TBA)
20.50-21.10 Talk by David Hamilton (Title TBA)
21.30-22.00 Transport to Erken

Wednesday 1/10 (shaded = joint meeting with GLEON: see www.gleon.org)

7.00-8.00 Breakfast
8.00-8.30 Transport to Campus Roslagen for GLEON meeting
8.30-9.00 Wisenet: Wireless sensor networks and marine sensor networks (Dep. Director Roland Grönroos)
9.00-9.20 Sweden's national lake inventory programme –design, data availability and results (Gesa Weyhenmeyer)
9.20-9.40 Lakes and impoundments as regulators of carbon cycling and climate (Lars Tranvik)
9.40-10.15 GLEON IT Vision, Plans and Tools (Paul Hanson)
Break
10.45-12.30 Working group discussions
12.30-14.00 Lunch at restaurant Culinar: structured discussion on deployments and database development; GLEON and RCN steering committees joint meeting
14.00-15.00 Breakout group discussions
15.00-15.30 Report back
Break
16.00-17.00 Governance, next meeting, wrap-up, misc
19.00- Crayfish picknick at the shoreline of lake Erken and crayfishing/sauna

Thursday 2/10

7.30-8.30 Breakfast
9.00-12.30 Session 1: Perceiving and explaining drivers of community change
9.00-9.40 Trina McMahon: Seasonal and inter-annual dynamics of cosmopolitan freshwater Actinobacteria

- 9.40-10.20 Niels-Ulrik Frigaard: Microbial community characterization in lake Cadagno
Break
- 10.50-11.30 *Technology focus:* Anders Andersson: Barcoded 454 sequencing for high-throughput community analysis
- 11.30-11.50 Alexander Eiler: SAR11 population dynamics at Station Aloha assessed by Q-PCR
- 11.50-12.10 Silke Langenheder: Temporal dynamics within a bacterial metacommunity
- 12.10-12.30 Michaela Salcher: Competition as driving force for bacterioplankton in Lake Zurich
- 12.30-14.00 Lunch at Norrr Malma
- 14.00-18.00 Session 2 Population dynamics in pelagic communities**
- 14.00-15.30 *Technology focus:* Karel Simek/Jakob Perthaler/Michael Zeder: Targeting populations with FISH and automated image analysis
- Break
- 16.00-16.40 Thomas Posch: Spatio-temporal population dynamics of *Planktothrix rubescens* in the deep pre-alpine Lake Zurich – About the fate of 500 tons of cyanobacterial carbon.
- 16.40-17.00 Cayelan Carey: Emergent cyanobacterial blooms in oligotrophic lakes: impacts on lake ecosystems and nutrient cycling.
- 17.00-17.30 *Technology focus:* Matthew Smith: In situ Biological Sensor Technology: Progress, Hurdles, and Developments
- 17.30-18.30 Microbial community dynamics: Reviewing the current state of knowledge (I)
Identify 4-5 relevant topics and for each of these topics form working groups to discuss (i) what we know (ii) what we don't know (iii) how we can increase our understanding/outlook.
- 19.00-21.00 Dinner at Norrr Malma
Sauna, Pub etc
- Friday 3/10*
- 7.30-8.30 Breakfast
- 9.00-12.30 Session 3: Ecosystem processes linked directly to microbes**
- 9.00-9.20 *Technology focus:* Laura Alonso-Saez: MAR-FISH: a tool for unveiling the function of single-cells in the environment
- 9.20-9.40 Jean-Cristophe Auguet: Role of Archaea in the carbon and nitrogen biogeochemical cycles of karstic and high mountain lakes
- 9.40-10.00 Karel Hornak: Quantitative evaluation of microautoradiograms to study leucine uptake by filamentous microorganism
- 10.30-11.10 Jakob Perthaler: Life strategies of planktonic bacteria
- 11.10-11.30 Friederike Heinrich: Environmental factors shaping the alphaproteobacterial community
- 11.30-11.50 Emily Kara: Bacterial phosphorus acquisition in lakes
- 11.50-12.10 *Technology focus:* Stephan Gantner: The functional gene array and its applications in microbial ecology
- 12.30-14.00 Lunch at Norrr Malma
- 14.00-18.00 Session 4: Mathematical and statistical approaches**
- 14.00-15.30 Uno Wennergren: Populations and habitats over time and space: processes and analysis.
- 16.00-16.20 Stuart Jones: Finding the signal in the noise: interpreting microbial community time series
- 16.20-16.40 Ashley Shade: Drowning in data: tools and strategies for data analysis
- 16.40-17.40 Chaired roundtable discussion (Multivariate data analysis)
- 17.40-18.40 Microbial community dynamics: Reviewing the current state of knowledge (II)
Continue discussions in working groups (develop some questions ahead of time to get the conversation flowing, if necessary)
- 19.00-21.00 Dinner at Svanberga Gästgiveri
Sauna, Pub etc
- Saturday 4/10*
- 7.30-8.30 Breakfast
- 8.30-10.00 Microbial community dynamics: Reviewing the current state of knowledge (III)
Summarizing workgroup discussions
- Break
- 10.30-11.30 Microbial community dynamics: Reviewing the current state of knowledge (IV)
Groups report back

11.40-12.20	Session 5: Learning from phylogenies and other molecular data
11.40-12.00	Ramiro Logares: Evolutionary dynamics in the microbial world: freshwater-marine transitions.
12.00-12.20	Albert Barberan Torrents: Community phylogenetics approach to surface bacterioplankton
12.20-13.00	Workshop wrap up (charge and tasks) and workshop follow up (ASLO 2009 in Nice)
13.00-14.00	Lunch at Norr Malma
14.00-	Departures

(shuttle-bus to either Arlanda, Norrtälje or Uppsala depending on post-workshop plans)