

**Welcome to the CBMP – Freshwater session:
Monitoring the ecological response
to climate change in Arctic freshwater ecosystems**



Chairs Willem Goedkoop & Joseph Culp

Circumpolar Biodiversity Monitoring Programme (CBMP), Freshwater: monitoring the ecological response to climate change in Arctic freshwater ecosystems

- **Tom Christensen, CBMP co-chair and Aarhus University: Overview of CBMP activities**
- **Willem Goedkoop, Swedish University of Agricultural Sciences: Summary of CBMP-freshwater activities and links to other ongoing projects/initiatives**
- **Kirsten Christoffersen, University of Copenhagen and the University Centre in Svalbard: Evidence of a longer growing season in Greenland lakes and the consequences for biota**
- **Jón Olafsson, Institute of Freshwater Fisheries: Warming up: Arctic freshwater ecosystems as sentinels for climate change**
- **John Brittain, University of Oslo: The challenges of monitoring biodiversity in relation to climate change in high Arctic streams**
- **Gudni Gudbergsson, Institute of Freshwater Fisheries: Recent and general decline of Arctic char in Iceland**
- **Hanna-Kaisa Lakka, University of Helsinki: The monitoring possibilities of Arctic freshwaters using Arctic tadpole shrimp (*Lepidurus arcticus*) as an indicator species**
- **Joseph Culp, Univ. New Brunswick/Environment Canada, Summary of existing freshwater data within the circumpolar Arctic and identification of monitoring gaps**

- **Discussion**

Discussion – How we can best detect change freshwater ecosystems using the monitoring data that exist, the examples from case studies, and other approaches. Relevant questions:

- Where and in what ecosystems do we expect to see the greatest rates of ecological/biochemical change?
- What are the early warning parameters of change?
- How do we better involve local people in monitoring to detect climate change effects on Arctic lakes and streams/rivers? Are there any good examples?
- Should we integrate freshwater and terrestrial monitoring to better cover landscape change?

Relevant questions – continued:

- How can we work together with other disciplines? What outside input do we need, and how can we contribute to other disciplines?
- How do we design monitoring plans to best detect changes in ecosystem services?