

DNA barcoding and metabarcoding of Arctic biodiversity: current insights and future prospects

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Goals

- Communicate knowledge in the field of DNA barcoding and metabarcoding of Arctic biodiversity
- Relate results of session to the Arctic Biodiversity Assessment
- Provide one result to be used in CAFF's Actions for Arctic Biodiversity
- Build partnerships

Presenters

- **Gabriela Ibarguchi, Arctic Institute of North America, University of Calgary:** From genes to flyways: polar biodiversity and evolution in a changing world
- **Lucie N'Guessan, ExxonMobil Upstream Research Company:** The opportunity of DNA based technologies for biodiversity assessment and monitoring in the Arctic
- **Gary Saunders, University of New Brunswick:** DNA barcoding marine biodiversity in the Canadian Arctic: establishing a baseline for future biomonitoring
- **Anders Hobæk, Norwegian Institute of Water Research:** Barcoding, species delimitation and phylogeography: a circumpolar study of the Arctic fairy shrimp
- **Mohammed Rizman-Idid, University of Malaya:** Isolation of microfungi from Arctic and Antarctic soils and their identification using ITS, LSU and SSU sequences
- **Inger Greve Alsos, University of Tromsø:** Re-examining palaeorecords of an Arctic lake using ancient DNA: new insight gained
- # **Torbjørn Ekrem & Elisabeth Stur, NTNU University Museum:** DNA barcoding enables more accurate and efficient assessment of Arctic freshwater insects (poster)

Questions

- Do we need barcoding to advance biodiversity management in the Arctic?
- What does barcoding offer that we don't already have?
- What actions should be taken to implement molecular tools in biodiversity management in the Arctic?

Actions and recommendations

- Barcoding and metabarcoding will particularly support following suggested actions:
 - 11a. Understanding change in freshwater ecosystems
- New actions:
 - Rec #9. Introduce molecular tools in species identification of environmental samples for early detection of invasive alien / non-native species
 - Rec #10a. Improve circumpolar data gathering by using international open access databases for DNA barcodes (e.g. www.boldsystems.org)
 - Rec #13. Implement molecular tools in inventories and long-term monitoring of invertebrates, fungi, algae and microbes