

Arctic Freshwater Biodiversity Monitoring Plan USA 2014 Implementation



The [Arctic Freshwater Biodiversity Monitoring Plan](#) outlines the framework for improving circumpolar monitoring efforts in Arctic freshwaters, including ponds, lakes, rivers, and their associated tributaries and wetlands. The Freshwater Plan provides Arctic countries, monitoring professionals and volunteers with a set of guidelines for common approaches and indicators in future monitoring activities, and for collecting existing data. The Freshwater Plan will facilitate information collection and analysis, identify and fill knowledge gaps, and provide better information for use in policy and decision-making.

The Freshwater Plan is the second of four long-term, integrated biodiversity monitoring plans produced by the [Circumpolar Biodiversity Monitoring Program \(CBMP\)](#) of the [Conservation of Arctic Flora and Fauna \(CAFF\)](#), the biodiversity working group of the Arctic Council, and was approved in 2013.

Canada and Sweden co-lead the Freshwater Plan's development, which involved the work of experts from Arctic nations, Permanent Participants and other Arctic Council working groups. These experts identified focal ecosystem components, key drivers and indicators, and designed optimal sampling schemes, common parameters and standardized monitoring protocols for application across circumpolar Arctic freshwaters.



Top CBMP Freshwater Priorities in 2015

- Finalize the collection of national metadata summarizing existing paleo, historical and contemporary monitoring data (Project 1)
- Create summary maps for focal ecosystem components (Project 2)
- Produce summary reports describing existing data (Project 2)
- Aggregate existing data, national and regional dataset compilations, QA/QC, data agreements, and formatting (Project 3)
- Secure funding to support the activities of national Freshwater Expert Networks
- Promote and share the work of the CBMP Freshwater group at key international meetings and conferences, increasing partnerships and collaboration with Arctic colleagues

Links with National Priorities

Freshwater and ecosystem services provided by Arctic lakes and rivers are priorities for the United States. The Arctic Freshwater Monitoring Plan and work of the US Freshwater Expert Network aims to contribute to the following national priorities:

- **Provide a better understanding of freshwater security in the Arctic.** Water security is a focus of the United States as it assumes chairmanship of the Arctic Council. [Read the United States Chairmanship priorities.](#)
- **Support Arctic climate adaptation and resilience efforts including the creation of Early Warning Indicator Systems.** Through the Arctic Council, the United States seeks to enhance access to adaptation and resilience tools, and promote the development of climate change indicators and high-resolution mapping, will increase scientists, communities, policymakers and the public's understanding of the impacts of climate change.
- **Advance an integrated, landscape scale understanding of Arctic ecosystems and the potential for future change and increase our understanding of Arctic hydrology.** [Read the USGS Arctic Science Strategy 2015–2020.](#)
- **Implement the Terrestrial Environmental Observation Network.** Establish a network of environmental observatories in representative focal watersheds across the U.S. Arctic to collect, distribute, and synthesize long-term observational data needed to detect and forecast effects of a changing climate, hydrology, and permafrost regime on wildlife, habitat, and infrastructure in northern Alaska. More on the [Terrestrial Environmental Observation Network.](#)

Freshwater Expert Network Summary of 2014 Achievements

Christian Zimmerman: Chief of Water and Interdisciplinary Studies at the Alaska Science Center of the U.S. Geological Survey and Affiliate Assistant Professor at University of Alaska Fairbanks. He studies ecology of fishes and their habitats in Arctic and northern temperate aquatic ecosystems

Matthew Whitman: Fish Biologist with the Bureau of Land Management, Arctic Field Office. He has expertise in fish ecology, environmental monitoring, and biological assessment of Arctic aquatic ecosystems.

Chris Arp: Research Professor at the Water and Environment Research Center at the University of Alaska Fairbanks. He studies landscape level climate change response in lakes and wetlands, ice and water balance dynamics, and surface water interactions with permafrost

Trey Simmons: Aquatic Ecologist with the National Park Service, Central Alaska Network. He has expertise in designing long-term ecological monitoring protocols, and assessing structure and function of stream and lake ecosystems in Arctic and Boreal regions.

Benjamin Jones: Research Geographer at the Alaska Science Center of the U.S. Geological Survey. He studies landscape change, limnology, and applications of remote sensing.

Funding

U.S. Geological Survey supported the US Freshwater Expert Network (FEN) in 2014–2015 by funding travel and personnel costs. Acquisition of future funding is critical to continue involvement in production of the State of Freshwater Arctic Biodiversity Report and support FEN participation in the coming years.

Communication

US FEN members will participate in the CBMP Freshwater's Inter-FEN workshop in Copenhagen in October 2015, where members of all national FENs will collaborate to finalize the outline and approach for the State of the Arctic Freshwater Biodiversity Report.

Data

The US FEN finalized metadata collection to summarize the freshwater monitoring activities within the US Arctic. Data originated from various federal, state, university, and industry monitoring programs. FEN members began collection of high-quality data identified in the metadata summary reports in 2014 and will finalize data collection in 2015.

For more information

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