



## NWT CIMP Data Management Plan Template

**Project Title and Number (CIMP###):** Science and management of blue-green algal (cyanobacteria) blooms in Sambaa K'e (CIMP251)

**Project Lead (name):** Jennifer Korosi

**Lead Organization:** York University

**Project Objectives:** *(insert from your proposal)*

The project will assess risk of cyanobacteria (a.k.a. blue-green algae) blooms in Sambaa K'e through regular sampling of water quality, phytoplankton, and cyanotoxins, and through analysis of lake sediment cores to reconstruct environmental history and identify environmental triggers for the onset of blooms after 1989.

The main objectives are to:

- (1) Conduct routine summer monitoring of phytoplankton and cyanotoxin production in Sambaa K'e and conduct rapid assessments of bloom events as they occur.
- (2) Obtain a more comprehensive understanding of nutrient cycling in Sambaa K'e, including land use and climatic drivers, and its role in triggering blooms.
- (3) Assist SKFN in developing long-term monitoring and risk mitigation strategies for cyanobacteria blooms.
- (4) Test a conceptual model of cyanobacteria bloom formation that could be universally applied to lakes across the NWT in support of northern decision-making.

This Data Management Plan describes how the Project Lead will manage and share information generated by the project. Please complete all sections below.

- 1) Describe the data, samples, software, presentations or curriculum materials, etc. that will be produced during the project.

Data collected includes: (1) surface water grabs and depth-integrated water samples from tributaries and nearshore areas of Trout Lake, processed by Taiga Labs (Yellowknife); (2) Vertical profiles for temperature, light, and oxygen in 2-3 Trout Lake nearshore areas; (3) phytoplankton community data from Trout Lake and its tributaries; (4) cyanotoxins in Trout Lake and the drinking water reservoir; (5) Island River depth and discharge data; (6) Paleolimnological data reconstructing environmental change in Trout Lake over the last ~200 years.

Deliverables (over 3 years of funding): (1) Datasets uploaded to the Mackenzie DataStream [water quality, temperature/light/oxygen, phytoplankton community data]; (2) Cyanotoxin data and Island River depth/discharge data shared with SKFN and relevant NWT decision-makers. (3) Geospatial mapping of any cyanobacteria bloom events that occur in Trout Lake over the 3-year project for SKFN. (4) Plain language



materials (reports, briefing notes) for community reporting. (5) Community meetings in Smbaa K'e / Dehcho; (6) Publication in York University student theses and peer-reviewed publications.

- 2) Identify who is responsible for creating Project Metadata (mandatory) and Dataset Metadata (mandatory if data is to be shared with NWT CIMP). Describe/provide the details on methods and procedures etc. When applicable, NWT CIMP encourages the use of existing community standards for Dataset Metadata.

Jennifer Korosi will be responsible for the Project Metadata and Dataset Metadata. Water chemistry will be analyzed at Taiga labs, with sampling following Taiga's recommended field methods. Cyanotoxin samples will be analyzed by the National Research Council of Canada following their standard protocols, including collection of water samples to be kept dark and frozen until analyzed, and the use of Solid Phase Adsorption Toxin Tracking devices deployed for two weeks at a time. Paleolimnological data collection will follow standard methods outlined in the Developments in Paleoenvironmental Research book series.

- 3) Describe the plans for access and sharing knowledge, including appropriate protection of privacy, confidentiality, security, licensing, intellectual property, or other rights and requirements. Address the following:
  - a. Will a data sharing agreement be required?
  - b. Who will data be made available to and when?

All data will be made available to Smbaa K'e First Nation before it is shared elsewhere. Water quality, temperature/light/oxygen, and phytoplankton data will be uploaded to the Mackenzie DataStream (<https://mackenziedatastream.ca>) at the end of the project and available to the public under a creative commons license. Island River discharge data will be shared with CIMP, ECC, MVLWB in the final year of the project. Cyanotoxin data will be shared annually with CIMP, ECC, and HSS, and MACA where it relates to drinking source water. If a harmful algal bloom is suspected in the drinking water reservoir, the senior administrative officer for Smbaa K'e will report it. Paleolimnological data will be made publicly available with a doi through the York institutional repository (York Space) upon publication in a scientific journal and shared with CIMP.

No data sharing agreements are required.

- 4) Describe the plans for archiving physical samples. Address the following:
  - a. Where and how will physical samples be stored?
  - b. How long will they be stored and who is responsible for storage?



- c. May they be used in future research projects, and if so, what permissions must be obtained?

Water samples will be disposed of 2 months after analysis by Taiga Labs.  
Phytoplankton samples will be disposed of 6 months after analysis at York.  
Sediment samples will be freeze-dried and stored indefinitely at the Limnology and Paleoenvironmental Research Group at York University. Permission must be obtained from the project PI (Korosi) to be used in future research projects.

5) Describe the plans for archiving data. Address the following:

- a. Where and how will electronic data be stored?
- b. How will the data be stored and backed up during the research?
- c. How will the data be stored at the end of the research?
- d. Who holds the authoritative copy?
- e. May the data be used in future research projects, and if so, what permissions must be obtained?

Over the course of the project, all project data will be saved to OneDrive (Office 365 – York University's cloud computing provider) with local copies backed up (synced) on at least two separate computers belonging to the project PI (Korosi) stored in different locations.

By the end of the research project, all the water quality and phytoplankton community data for Trout Lake and its tributaries will be archived on the Mackenzie DataStream (MDS) website as the authoritative copy and may be shared with the public with no permissions required. Korosi/SKFN will hold the authoritative copy of the cyanotoxin data, which may be shared with permission. YorkSpace will hold the authoritative copy of the paleolimnological data, which will be publicly available for future use with no permissions required.