NWT CIMP Water Monitoring and Research Blueprint

NWT CIMP focuses on three valued components: caribou, water and fish. Please see the other Blueprints if your project has the potential to overlap. For more information, visit our Action Plan and Funding Guides at www.nwtcimp.ca.

Background

What is the Water Monitoring and Research Blueprint and how is it to be used?

The Water Blueprint informs NWT CIMP funding applicants of water-related cumulative impact monitoring and research priorities of key land and water decision-makers and subject-matter experts. It describes information that is necessary to better understand cumulative impacts to water, and the relationships between people and water.

For science projects to be considered for NWT CIMP funding, project submissions *must* demonstrate that they meet Blueprint priorities. The Blueprint guides the NWT CIMP Steering Committee and staff on the allocation of funds. See the NWT CIMP Science Project Funding Guide for more information on the funding process.

Who informs the Blueprint?

NWT CIMP engaged subject-matter experts with direct involvement in water monitoring, research and management to update specific and high monitoring and research priorities. These are NWT CIMP's funding priorities for the duration of the current Action Plan (2021-2025). Experts engaged included co-management boards, government scientists and regulators, and the NWT CIMP Steering Committee.

NWT CIMP's Key Principles

NWT CIMP's principles guide us in meeting our mandate and inform project funding allocation. Funding applicants should be aware of these principles, and, where possible, align their proposals with them. Important principles for applicants to consider are:

- Monitoring cumulative impacts that are **relevant to land and water use decisions** is a strong focus.
- Traditional knowledge and scientific knowledge are equally important sources of monitoring information and data.
- Community-based monitoring and capacity-building are supported in monitoring cumulative impacts.
- Effects and stressor-based approaches are encouraged.
- Use of common and standardized data collection and analysis protocols is encouraged.

The Water Monitoring and Research Blueprint

This section details the locations, methods and topics of focus that are high priorities for NWT CIMP.

Where: Geographic locations of study

NWT CIMP prioritizes monitoring and research in areas impacted by disturbances, or vulnerable to disturbances. These include:

- Areas of past, current or future development interest;
- Areas impacted by climate change related disturbances;
- Areas vulnerable to impacts by climate change.
- Areas that support resilience to climate change; and
- Temporal (e.g., seasonal and annual variability, long term trends) and spatial (range, regional) scales.

How: Approach(es)

NWT CIMP supports several monitoring and research approaches including:

- Synthesis and analysis of existing monitoring or research data;
- Collection and analysis of new data, using standardized methods where possible;
- Model development and/or implementation (e.g. empirical or physically-based models); and
- Community-led collection and synthesis of Traditional Knowledge, including people-water relationships.

What: Priorities

NWT CIMP places a high priority on the use of Traditional Knowledge in environmental monitoring and research. Traditional Knowledge is an important source of knowledge to better understand the following priorities. Identifying cultural indictors and methods, changing people-water relationships and traditional use mapping are monitoring and research approaches that could be considered. For additional information, refer to *Traditional Knowledge Monitoring Ideas.*

NWT CIMP's priorities are summarized in the **table 1** below and include disturbances from human activities and climate change. To be considered for funding, the project proposal *must* identify one or more priority areas *from each column.*

Table 1: *Water priority areas related to disturbances, water related factors of interest, and scales of study*

Many of NWT CIMP priorities can be grouped according to the statement: "**The impact(s) of** [*disturbance(s)*] **on** [*water-related factor(s)*]**, at the scale of** [*scale(s) of study*]**."**		
Disturbances *(identify one or more)*	***Related factors*** *(identify one or more)*	***Spatial scale(s) of study*** *(identify one or more)*
• **Human activities** (e.g. roads, oil and gas, forestry, mining, municipal infrastructure) • **Climate change-related and/or natural disturbances** (e.g. permafrost thaw, precipitation change, forest fires, flooding)	Of lakes, rivers/streams, or wetlands (baseline conditions, seasonal variability, and/or long-term trends): **Water balance** (surface and groundwater) • Modeling tools to help anticipate future changes • Hydrological studies to develop long-term trends **Water quality** • Understanding permafrost thaw slump contributions to sediment load and associated river chemistry • Existing and projected vulnerabilities on lakes from climate change and land use impacts • Impacts to lake ice, water temperature and nutrient dynamics **Biotic elements of aquatic ecosystem health:** *(except fish – please see Fish Blueprint)* • Key indicators of change • Impacts of DOM, nutrients and sediment load **People-water relationships:** • Identification of cultural indicators and methods that can be shared widely • Traditional use mapping • Understanding how relationships with water are	• **Regional-scale** (e.g. Dehcho, Mackenzie Delta, Ts'udé Niļiné Tuyeta, Taiga Plains) • **Catchment-scale** (e.g. Marian Watershed, Baker Creek catchment, community catchments) • **Local/point-scale** (e.g. a landslide, greater area around a mine, a specific lake) **Temporal scale:** • seasonal and annual variability • long-term trends • temporal comparisons within watersheds (e.g. Upper Peel)

	changing **Ecosystem-based:** • Identifying key aquatic ecosystem indicators of stress susceptible to change • Identifying predominant drivers of variability, and their relative importance • Understanding processes governing disturbance-impact relationships • Understanding resilience and ecological thresholds	