

Memorandum 2/11/2018

KNO11: Community-based monitoring of Arctic biodiversity

This memo provides a summary of reports submitted on the session KNO11 organized at the Arctic Biodiversity Session in Rovaniemi, Finland, October 9-12 organized by the Canadian Wildlife Service and Aleut International Association.

Attendance: 50

Arctic Biodiversity Assessment recommendation themes most prominently addressed in the session:

- Improving knowledge and public awareness
- Climate change
- Addressing stressors
- Identifying and safeguarding important areas

Key points raised in the session that were important to note:

- The Canadian Wildlife Service implements monitoring programs to track population trends of migratory birds. Logistical considerations such as size and accessibility often constrain the frequency and intensity of these surveys. Engaging in continued dialogue with Indigenous partners and supporting community-led initiatives complements existing programs, providing more robust monitoring information to inform both Indigenous and non-Indigenous resource management decisions.
- The Snowchange Cooperative acts as a platform for linking communities. The Arctic is undergoing a monumental shift and there is a need for dynamic governance. Many Arctic people live in isolated areas and they develop a specific knowledge of these areas. Community-based monitoring is a means to collect scientific and cultural knowledge. A northern Finland example within a Sami community illustrated the process of identifying key cultural indicator species, starting with several fish species and now expanding to include birds.
- The Swedish University of Agricultural Sciences is investigating the decline of lichen abundant forest, as lichen is a pivotal resource in reindeer husbandry. Limited data is available for lichen rich forests in some areas which affects the ability of models to accurately predict estimates. Working with Sami reindeer herders, standardized community-based inventories have been collected. Integrating this information with other land uses in spatial planning models has resulted in improved estimates for sustainable resource planning.
- PISUNA established a process led by a Local Resource Council (LRC) which decides on the targets of the monitoring based on the relevance for their community. This enables traditional knowledge and community-level environmental observations to be incorporated into the decision-making process for natural resources. Information is made publically available and is discussed by the LRC at regular intervals. Based on observations, management responses have been adapted in a shorter timeframe. This is important for responding to threats of climate change.
- Many northern destinations are seeing a rise in expedition cruise tourism. Tourism stakeholders have reported a change in the number and type of passengers found on these ships. Advancement in data sharing platforms have made possible the collection of global biodiversity

data into an accessible repository. Citizen science programs designed for use aboard expedition cruise ships could both increase tourists' understanding of the Arctic environment and collect in-situ biodiversity data. Some tour operators already use citizen science programs but expanding these single ship programs into a larger, international observing network could turn tourism into a positive vehicle for Arctic biodiversity conservation.

- Scientists are still uncomfortable using terms like Indigenous or traditional knowledge, instead referring to experiential or user knowledge.
- Methods of collecting and disseminating geospatial data offer scientists perhaps the closest integration of science and Indigenous knowledge, as resource mapping is mutually intelligible
- Community-based monitoring is a low-cost method of monitoring ecosystems and collecting data, and benefits Indigenous communities by ensuring their inclusion in the monitoring process
- Indigenous communities are already engaging their own people in data collection and monitoring efforts outside of government or academic influences
- Scientists should not publish data collected through Indigenous knowledge without the expressed approval of those participating
- Scientists are concerned about the ethics of using data collected through community-based monitoring in ways that ultimately hurt those communities providing it

Recommendations/actions identified for how to deal with the issues raised in the session:

- Supporting community-led research with scientific methodologies, in addition to supporting scientific research with community involvement, is an approach that improves the level of information available to both Indigenous and non-Indigenous decision-makers.
- Monitoring information must be collected with thought towards how it will be used to lead to reform and change.
- Using standardized, community-based inventories leads to improved spatial planning and scenario forecasting.
- Processes which include community-level perspectives and involvement and make information readily available can shorten time between observation and informed decision-making.
- Visitors to the Arctic can be considered a "community" and may be another resource for contributing to Arctic citizen science.
- Geospatial methods of collecting and disseminating data coming from Indigenous knowledge, such as resource mapping, provides scientists and decision makers with the closest understanding and 'integration' of Indigenous knowledge in reports and assessments because mapping is mutually intelligible

Take home message from the session:

- Community-based monitoring by Arctic residents and Arctic visitors provides standardized, wide-ranging and ongoing information which both informs and directs management and conservation actions.
- Community-based monitoring provides rich biodiversity and ecosystem data at a low cost, and with added value and benefits to Indigenous communities who are better able to engage with the scientific and decision-making processes.