

Kitikmeot caribou Inuit *qaujimajatuqangit* monitoring and wildlife research information management strategy

Project Leader

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Summary

This project was developed as a response to our preliminary Kitikmeot caribou Inuit *qaujimajatuqangit* (IQ) mapping and monitoring project to develop a data management strategy to store, access, and use IQ and traditional knowledge in KRWB's growing digital IQ archive and support training in data skills. To prepare our Hunters and Trappers Organizations (HTOs) for discussions surrounding data management and sharing, we prepared a guidance document of key terminology, principles, themes and concepts; a draft data management plan; a draft data request form; and a draft data sharing agreement. These documents will be reviewed and discussed among our HTOs. We also hosted a regional workshop in January 2019 to provide overview training for HTO managers on navigating and using our growing IQ information management system, as well as data management skills. In addition, we staffed data clerks in each community to manage new and existing data collected in their communities. Although our regional data management plan is still in its infancy, this project initiated important data sharing discussions and data management training for our communities. This capacity building is a critical first step to any data management or sharing strategy.

Project Objectives

This project initially had two main objectives: 1) developing an information sharing plan and agreement for access, use, and sharing of data collected and stored in KRWB's digital information management system (IMS); and 2) provide overview training for HTO and KRWB staff in data management, including archiving, digitization, and data query and retrieval in response to information needs (e.g., decision-making). During early meetings with our HTOs, we realized that capacity and further engagement is needed to develop any formal data sharing plan or agreement for the region, as HTOs need time to engage their board and community members. Our HTOs and community members also need to, at minimum, become familiar with data management and sharing as a

practice to be able to foresee potential risks, data sharing scenarios and applications. As a first step to building capacity for data sharing, we developed a guidance document on what data management and sharing is and why it is important, and drafted data management and sharing options. We were able to provide overview training for HTO and KRWB staff and, in addition, staff and train data clerks to support each HTO. While our regional data management strategy will continue to be developed this year, this project initiated and stimulated important discussions that have been long overdue—or at least until now, occurring only on an exclusive, *ad hoc* basis—for our region.

Materials and Methods

To meet project objectives and build capacity for community members to lead and conduct research, KRWB partnered with Trailmark Systems Inc. Trailmark consultants have provided guidance for data management protocols around principles of Ownership, Control, Access, and Possession (OCAP) for traditional knowledge-based information in Indigenous communities across Canada. More specifically, Trailmark consultants have provided research and writing on best practices in data sharing for the Government of the Northwest Territories, the Northwest Territories Cumulative Impact Monitoring Program through a community-based monitoring guide, and for Transport Canada's Proactive Vessel Management Program and Cumulative Effects Framework development. Trailmark has also led many data sharing agreements on a project-specific basis with Indigenous clients across Canada; these agreements serve to ensure information is shared with industry, governments, or other Indigenous groups in a manner that provides clarity on its use, protects Intellectual Property, ensures proper storage and protection on the information itself, and adheres to OCAP principles. Trailmark's IMS software has also undergone multiple customizations to become a tool for data storage and sharing that mirrors multi-level, multi-party data sharing agreements of tribal/treaty groups and resource management boards that represent several Indigenous communities, such as the Porcupine Management Board and Q'ul-Ihanumutsun Aquatic Resources Society. For this project, Trailmark Systems provided options for data management strategies and agreements. Trailmark Systems also provided training on data management skills using KRWB's information management platform and tool.

Data Management Framework

Although data sovereignty and management is becoming a more common subject within traditional knowledge research, in practice, we found these concepts to be fairly new among our HTOs and community members. We therefore focused our efforts on engagement and developing an IQ data management guidance document to introduce data management and sharing themes, facilitate discussions on these themes across

our region, and familiarize HTOs with common traditional knowledge data sharing protocols as prerequisites to developing any data management plan. Trailmark consultants developed draft versions of this guidance, as well as draft data management options that were guided by discussions with KRWB, HTO and community research staff, as well as ongoing issues, concerns, and sensitivities around information that have been shared through concurrent caribou projects and workshops in our region.

Data Management Training

KRWB's IMS is a digital platform that communities can use to collect, store, and manage local knowledge- and IQ-based information under OCAP principles. This platform is a secure, indexed, and searchable web-based GIS, traditional knowledge, and IQ management system with an integrated mobile data collection app. The IMS includes unique community network and data sharing features. KRWB can also release information and/or data entries for public access through its public portal. The IMS is now accessible and usable by each of our Kitikmeot HTOs to upload and store their own community-based information.

From 29–30 January 2019, we held a workshop in Yellowknife with managers representing most HTOs in our region; Ekaluktutiak (Cambridge Bay) and Burnside and Omingmaktok HTO managers were unable to attend. Representatives from Trailmark Systems collaborators, Nunavut Tunngavik Inc., Polar Knowledge Canada, and Crown-Indigenous Relations and Northern Affairs Canada also attended. During this workshop, we provided a demo of our database and overview training for HTO managers on how to use and navigate KRWB's IMS. We also presented early results from community-based caribou monitoring work in Cambridge Bay and Kugluktuk from 2018–2019 to prompt discussions on capacity and information needs in all communities. Workshop attendees shared knowledge of existing and relevant IQ data from research projects that could potentially be accessed. HTO managers—especially those from Gjoa Haven, Kugaaruk, and Taloyoak—indicated a need for and interest in caribou monitoring led by community members in their communities. HTO managers also indicated the time required to locate, access, upload, and create new research to gather new IQ data is beyond their capacity and managerial roles.

Results

Information Sharing and Management

From our discussions, we developed a 1) guidance data management document, 2) draft data management plan, 3) draft data request form, and 4) draft data sharing

agreement. Our guidance document provides an overview of terminology and principles (traditional knowledge; IQ; proponent; data sharing; OCAP; free prior and informed consent; disclosure; equity and benefit sharing; empowerment), ethical considerations (conflicts of interest, capacity issues, participation), procedures for informed consent, and key elements of a data sharing agreement (project information; data description; organization and use; storage, retention, and disposal; ownership and intellectual property). This guide is applicable to both Inuit and non-Inuit groups. Our draft data management plan provides a description of data that has been collected and/or archived in KRWB's IMS, options for who retains ownership and permission to access (e.g., whether at regional, community, and/or individual levels), potential protocols for sharing and storage, and examples of and risks to data use. Our draft data request form and draft data sharing agreement supports our data management plan and can be distributed to users who are interested in accessing IQ data in our region. Because these documents are in their draft stages, they are not publicly available. We anticipate HTO board members will be reviewing, commenting on and making suggestions for our regional developing data management and sharing protocols (as well as their own).

Because data management and sharing is new to most of our HTOs, additional discussions with them to further develop and refine any plan or agreement is critical in our region. Regional coordination is needed to continue to improve understanding of IQ data management and why it is important, risks associated with data sharing, devise and review potential management and sharing scenarios, and anticipate the risks, implications and impacts of data management approaches. We will host another workshop in summer 2020 to discuss data management options in more detail to further develop our management plan; we have already secured partial funding for this workshop.

Training in Data Management

We have now created HTO user "nodes" that are connected across a regional, KRWB "data network". Our workshop provided a unique opportunity for our HTOs to collectively formulate a research proposal that addresses their information needs. To support HTO managers and capacity in data management, we secured additional one-year project funding from Polar Knowledge Canada to staff a community researcher data clerk/archivist in each community to support this work. HTOs recruited and hired data clerks who were trained on 25 June 2019 and 7 September 2019 in Yellowknife on navigating KRWB's IMS (e.g., permission settings, creating user accounts), collecting new data (e.g., qualitative research or methods involving interviews and monitoring devices), uploading existing data, and how to share data publicly (e.g., using a public portal).

Data clerks in each of our communities are now managing existing and new data in their communities.

While we provided overview training to HTO managers and in-depth training to data clerks from each of our HTOs, workshops were very limited in time and hence depth and scope. There is a need for additional and ongoing facetime with data clerks for more training and capacity to work with data day-to-day. We will continue to seek funding for long-term, frequent technical training and support for our data clerks. As an example, we secured three year funding from the Indigenous Community-Based Climate Monitoring Program to develop caribou monitoring initiatives in each community, which is providing an opportunity for additional training and hands-on experience in coordinating, and managing interview and monitoring data.

Challenges in accessing existing data

We have accessed and added some data to our database, including those from sources such as Izok Corridor, Arctic Corridors Research, Inuit Heritage Trust's Place Names project, and Nunavut Wildlife Management Board's (NWMB) Community-Based Monitoring Network. We have identified additional IQ data sources but have found difficulty in being able to access our data. This could be in part due to data sharing agreements and protocols that are lacking for those projects. Not being able to access our data has also created difficulties for our data clerks' ability to work with existing data. Continued efforts to locate and access our past and existing projects will likely require coordination at the HTO and/or KRWB level, as data ownership for most of these projects is either retained by individuals, HTOs, or is simply unknown. Lack of capacity among our HTO staff has posed additional barriers in engaging with these projects in order to access and retrieve data. Even when data has been shared, technical support from Trailmark consultants is needed to upload and structure data into usable formats. Despite the difficulties in accessing existing data, newly collected (e.g., monitoring-based) data has been collected over the course of our project and uploaded by individual knowledge holders and managed by our data clerks.

Discussion/Management Implications

By facilitating IQ data sharing at the regional level, this project initiated efforts to improve the mobilization and inclusion of Inuit knowledge in managing and conserving their caribou and caribou habitats. This knowledge and information is inherently linked to Inuit harvesting rights and priorities, and the inclusion of Inuit knowledge undoubtedly supports conservation for the long-term benefit of Nunavut residents. In this manner, our research supports NWMB's mandate "to conserve wildlife (and wildlife habitat) for

the long-term benefit of all Nunavut residents while fully respecting Inuit harvesting rights and priorities”.

Regional Coordination of Inuit Communities in Wildlife Management

Our regional workshop introduced themes concerning data management and sharing among our HTOs. We also had remote teleconference meetings with our HTO managers on a monthly basis to continue these discussions. However, engagement has been challenging due to varying HTO availability and capacities across the region. HTOs require time amidst their research and administrative roles, in addition to their roles under the Nunavut Agreement, in order to meet with their board members and consult with their community members. Frequent and intensive face-to-face meetings are needed to more closely assess HTO data management capacities, needs, preferences, and recommendations, especially for the increasing number of community-based projects that HTOs will continue to participate in. Still, our workshop initiated discussions and facilitated regional coordination in support of KRWB’s mandate—as well as the roles and responsibilities of our HTOs—to identify needs and management responses concerning their wildlife.

Mobilizing Community-based IQ Data for Wildlife Management

Housing information across the region through our IMS has enabled coordination, IQ sharing, and capacity for inclusion of community-based information in regional wildlife management and decision-making. Our fully indexed and searchable, web-based archive and database of previously and newly documented IQ and local knowledge related to caribou and other wildlife makes the information it contains readily available data for integration with scientific data and/or consideration in wildlife management and other decision-making processes. More importantly, these data comprise important IQ on caribou ecology and relevant wildlife that can contribute to their conservation and management.

Additional discussions among our HTOs are needed to refine our data management plan. Even our staff and HTOs have encountered challenges in being able to access our own existing data previously shared and/or collected through research projects (e.g., with universities, government departments, and other Nunavut agencies) due to uncertainty around original project ownership and use. With more engagement, discussions, and coordination across our region, we can develop more effective protocols and agreements that meet our membership needs and capacities. Data access and sharing will ultimately enable Inuit to contribute information toward the management of their wildlife.

Enabling Data Mobilization and Use in Wildlife Management

To mobilize our data, we will seek additional funding for regional engagement to refine our data management and sharing strategy. The following specific options need to be determined, refined, and/or revisited in more detail:

- Levels of data ownership and who will retain access need to be clarified, for example, whether at individual, HTO-, or regional-levels.
- When data access is being requested by an organization outside of our communities, a decision-making framework for how we respond is needed. This includes, for example, who is engaged (e.g., KRWB or HTO staff) and how.
- Because of limited HTO staff capacity, efforts are needed to engage HTO staff on how to retrieve data when it is needed, and the guidance/framework for how to use that data and when. With our frequent staff turnover, contingencies for staff unavailability and time for up-to-date data management training are needed.
- Processes that can accommodate individuals and/or our Elders if they choose to withdraw their data need to be determined, if they are at all possible. If withdrawal is not possible, the risks and implications of this need to be determined and knowledge holders will need to be notified at the outset of any project.
- We need to determine how to approach and deal with sensitive information shared surrounding, for example, wildlife trends/populations or potential to impact harvests, and sensitive land use and hunting areas.
- We need to design frameworks to identify environmental, social, economic, and/or cultural impacts as well as opportunities for benefits to our community members.

We will host a workshop in summer 2020 to continue discussions on these topics within the context of data sharing and management in our region and review our draft plans. We will host a follow-up workshop in 2021 to review feedback from our community members and stay up-to-date on needs (e.g., new projects and management needs). These workshops will include skills training for community research staff to support HTOs.

Reporting to Communities/Resource Users

This project was led by regional and community wildlife organizations representing our communities and resource users. In addition to our HTO managerial workshop in January 2019, we had at least one remote teleconference meeting with our HTOs each quarter. We had additional discussions and meetings with HTOs on an individual and as-needed basis. Community researchers/data clerks were engaged on a regular basis throughout this project. Our guidance, draft data management plan, draft data request

forms, and draft data sharing agreement has been circulated among our HTOs for review by their board and/or community members. We will continue to develop and refine these documents based on their feedback.

References

Although they are not referred to in this report, the following list of references served as resources for the development of our data management strategy.

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Original project budget and contributions

Budget item	Requested
Project management	2 650
Draft data sharing agreement	3 600
Engagement over data sharing agreement	8 900
Training for data clerks and HTO staff (workshop)	4 900
Reporting	6 500
Travel time	4 800
Catering and room rental	1 100
Travel	19 310
Administration fee (15%)	9 000
Total (\$)	60 760 ^a

^a A total of \$30 000 was original requested from this fund. Additional expected contributions were \$30 000 from the Nunavut Wildlife Management Board Wildlife Studies Fund and \$760 from Polar Knowledge Canada. In-kind funding from Trailmark

at an additional \$7500 was committed.

Explanation of changes

Because our expected contributions (\$30 760) were not awarded, we revised our project scope and budget according to the total \$30 000 that was awarded from NWMB. We revised our budget to focus on engagement and creating the data sharing agreement. Our workshop and travel was funded by Crown-Indigenous Relations and Northern Affairs Canada (\$18 917.50 total) and Polar Knowledge Canada (\$2 151.72 total).

Budget item	Budgeted			Disbursed	Variance
	NWMB	CIRNAC	POLAR		
Project management	5 000.00	0	0	5 000.00	0
Draft data sharing agreement	3 600.00	0	0	3 600.00	0
Engagement over data sharing agreement	6 050.00	0	0	6 050.00	0
Training for data clerks and HTO staff (workshop)	2 400.00	2 000.00	408.70	7 208.70	-2 400.00
Reporting	6 050.00	0	0	6 043.77	6.23
Travel time	2 400.00	0	0	0	2 400.00
Catering and room rental	0	1 720.00	648.70	2 368.70	0
Travel	0	12 730.00	1 094.32	13 824.32	0
Administration fee (15%)	4 500.00	2 467.50	0	6 967.50	0
Total contributions	30 000.00	18 917.50	2 151.72	51 062.99	6.23

Total project cost	51 069.22	51 069.22
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