

# The Nunavut Wildlife Management Board's Community – based Monitoring Network

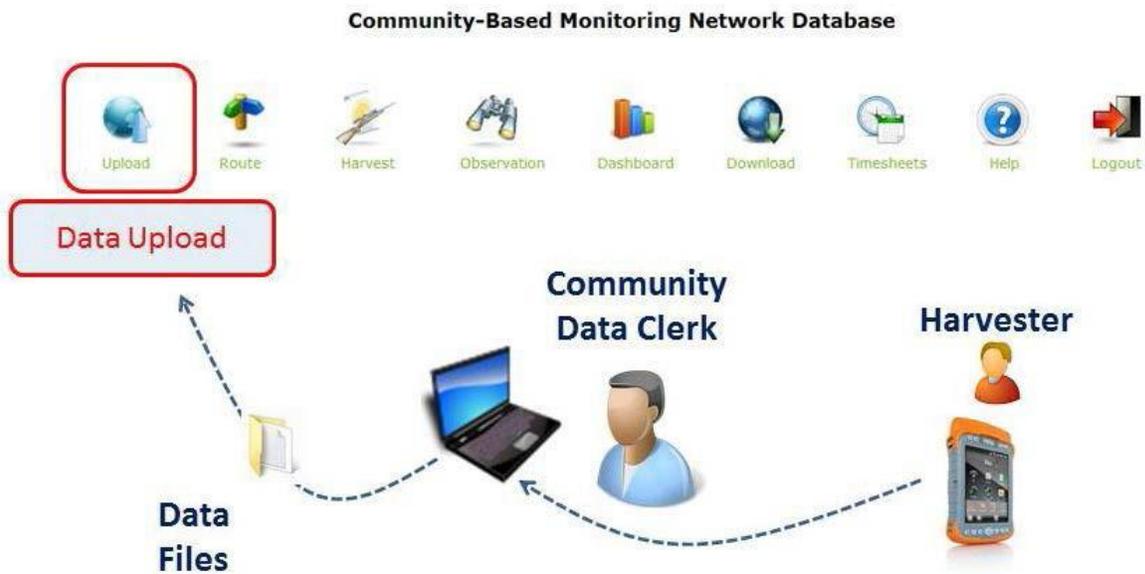


George Angohiatok from Cambridge Bay using MESA (Hand-held computer)

## What is the Community-based monitoring Network?

The Community – based Monitoring Network (CBMN) brings together respected Nunavummiut harvesters to share their knowledge and observations about wildlife and the environment. Rather than rely on interviews to collect this information, participating harvesters are trained to use specially designed hand-held computers (MESAs or Archers) to record wildlife sightings, harvests, and other environmental observations while on the land.

When harvesters return from the land, trained data clerks in each of the communities transfer the information contained in the hand-held computers into a regional database.



The CBMN relies upon harvesters, recognized by their respective communities as highly skilled and accomplished hunters, to record wildlife observations and harvests. The intent of the CBMN is to help compile information that is needed to address concerns affecting wildlife management, conservation, and Inuit harvesting rights and to obtain Inuit Qaujimatugangit (IQ) information in a format that can communicate with scientific modeling.

The data collected will be used in various wildlife applications in Nunavut, such as assisting with making decisions on species management, including the protection of habitat and the proposed listing of endangered species. Data collected will be combined to create a collective storehouse of knowledge that will be used to improve local, regional and Nunavut wildlife management practices by ensuring decision making bodies have up to date, direct information from those who spend most of their time on the land.

By bringing together their knowledge and observations over time, participating harvesters will help answer some important questions about wildlife, which might include the following:

- How are migration routes or seasonal ranges changing?
- What are the most effective harvesting techniques?
- Where is the most important habitat that should be protected from development?
- Where are sick or injured animals being observed, and how often?
- Are populations increasing? Decreasing? Remaining constant?
- What is the current level of harvest for key species?

### **How was the idea formed?**

The idea to establish a Community-based Monitoring Network grew out of discussions with local community members, Regional Wildlife Organizations (RWOs), Hunter and Trapper Organizations (HTOs), and other stakeholders, and through lessons learned during the Nunavut Wildlife Harvest Study (1996-2001).

All Hunter and Trapper's Organizations in Nunavut were sent information packages about the study. This package included a form which communities interested in participating in the study could fill out. In 2011, eight communities expressed interest in participating; three communities were selected from this list. They were Arviat, Cambridge Bay and Sanikiluaq. The project wrapped up in the spring of 2015 in those three communities. In 2014, six communities expressed interest in participating in the next phase of the Community-based Monitoring Network. The communities of Clyde river and Kugaaruk were selected.

The NWMB consulted with RWOs, Nunavut Tunngavik Incorporated (NTI), the Nunavut Inuit Wildlife Secretariat (NIWS), the Nunavut Inuit Wildlife and Environment Council (NIWEC) and other co-management partners on the criteria to select the most appropriate communities and harvesters.. These criteria included but were not limited to: different social and economic circumstances (such as population size and employment rates), reliance on country foods, communities that had identified particular concerns about wildlife and/or the environment; and harvest level of marine and terrestrial mammals.



Sarah Spencer, NWMB staff with CBMN in Sanikiluaq

### **What are the Roles in the CBMN?**

#### Data Clerks:

One Data Clerk in each community is hired through a job competition; they are responsible for:

- assisting with preparation and maintenance of equipment;
- distributing Mesas and/or Archers to harvesters when they go on hunting trips and receiving them upon their return;
- downloading data from the MESAs and/or Archers and uploading the data to a database; and
- managing all data in a secure and confidential manner.

#### Harvesters (referred to as Data Collectors throughout official CBMN documents):

The NWMB values harvesters as professionals and the CBMN is built around their participation and hard work. Therefore the NWMB compensates harvesters for collecting records of harvest data, and for making observations regarding wildlife and environmental conditions while they are on the land.

Harvesters are expected to follow a Health and Safety Plan while out on the land.

The primary responsibilities of harvesters are to collect data using handheld computers (Mesas and/or Archers ); data collected includes:

- travel routes;
- wildlife sightings;
- wildlife harvests;
- environmental / weather observations;
- photographs; and
- audio recordings.

Both Data Collectors and Data Clerks receive training in the use of the hand-held computers and the management of information and data (see picture below).



Mid-point community meetings with harvesters in Arviat

### **What type of technology is being used?**

Noreca Consulting Incorporated was hired as a sub-contractor and is responsible for the technical components of the program. Noreca developed the software for the handheld computers and their duties include but are not limited to: purchasing new equipment, equipment maintenance, maintaining the web application, server, and database, developing and installing software, including upgrades, as well as training CBMN participants.

The main tool carried by the harvesters is the MESA or Archer (hand-held computer)(See picture below).

The hand-held computer is made by Juniper Systems. This is a rugged computer and is built to withstand four foot drops, full immersion in water and extreme temperatures. Both the MESA and the Archer appear to live up to their name; however, in temperatures below minus 25 degrees Celsius the batteries deplete quite rapidly.



The many features of the hand-held computers make them very versatile in terms of data collection. The software includes a series of screens. Each screen includes a question that harvesters respond to which describes what was harvested/observed. The software includes English, Inuktitut and Inuinnaqtun translations. An internal GPS records the travel route taken by the harvester. Harvesters are required to take a geo-tagged photo of their harvest/observation before they are able to complete the entry. Harvesters also have the option of recording an audio track, which can clarify what they harvested/observed or can be used to record oral knowledge.

There are several advantages to using this type of technology, most notably, the bias of harvester recall is eliminated because they take the hand-held computers out on the land and record the information in real time.

The picture below shows an example of two screens (left) which are part of the software used by the harvesters and a list of data files that can be collected (right).



### How will data be stored and who will have access to it?

Secure storage of the information contributed by Inuit harvesters is an important component of the Community-based Monitoring Network. The NWMB has worked with participating communities to develop a data sharing agreement which sets out who owns the data, who has access to the data and how data access can be granted to co-management partners and other organizations.

Noreca has developed a database tool that allows the user to create graphs and charts which provides summaries of the data by choosing combinations of pre-determined criteria. Examples of this can be seen in the following pictures.

**Maps**

**Charts**

**Data Export/Import Tables**

**Photos**

**You are here: Data Download**

Select Community: Arviat  
 Select Data Type: Route  
 Select First Day:   
 Select Last Day:   
 File Download

**You are here: Dashboard**

Monthly Harvest | Monthly Observation | Harvest Effort | Climate and Weather

Communities-Cambridge Bay Species-Muskox

# of Harvests

Community: Arviat Cambridge Bay  
 Species: Muskox  
 Status: Healthy  
 Date: Mode of Transportation

**You are here: Travel Route**

September	ATV	2	0	23.42	
September	Boat	1	0	19.71	
September	Boat	2	1	18.8	
September	Boat	0	1	18.3	
September	Boat	0	0	15.64	
September	Boat	0	0	14.2	
September	ATV	3	0	13.74	
September	Other	0	1	13.39	
September	ATV	0	1	12.54	
September	Boat	1	0	12.49	
September	ATV	0	0	8.83	
Other	Other	0	3	8.13	
Boat	Boat	1	0	8.09	
Boat	Boat	1	0	7.31	
Other	Other	0	0	7.16	

### How much data was collected?

The first data was uploaded to the database on February 2<sup>nd</sup>, 2012. This data was from an Arviat harvester who travelled 60 kilometers and saw two caribou. The database now contains 5,512 recorded harvests and 2,294 recorded observations.



Polar bears at the dump near Arviat

## **What is the value of data?**

Preliminary analysis of the data and monitored species suggests that this data collection method will allow wildlife managers to assist with:

- identification of main harvesting areas for each community
- analysis of and seasonal changes in population health;
- identification of seasonal habitat use of selected species;
- estimation of total harvest rates per community and species; and
- identification of migration patterns.

As well, the software can be changed to collect additional data that may be needed to address specific issues in communities. Data might be collected to address public safety concerns of polar bear near communities (see picture above); or caribou migration routes and calving grounds, which can then be protected during the land use planning process. Harvesters could use the hand held computers to record changes in wildlife populations over time, for example an increase in predators like grizzly bears or wolves; changes in the health of wildlife populations, including documenting new diseases; and changes in habitat including sea ice patterns.

The CBMN wildlife and harvest data collection efforts, including the frequently used audio feature, can help document Inuit oral knowledge as well as patterns of harvesting. Such information can be of critical importance for future land claims negotiations, environmental assessments, resource exploration issues, and land-use planning and development.

The CBMN could play an important role in allowing Government agencies and co-management partners to respond to international claims and to justify current management practices and new management actions. Because the data is available immediately after it is uploaded to the database it can provide the NWMB with the most current information to help in decision making.

Most importantly, this method of data collection allows Inuit to be able to gather oral knowledge and pass on their way of life; to gather historical data for future generations that will allow the youth to protect the wildlife and to show youth in the communities that the traditional ways of life are valued and respected because hunters are collecting the data for use in wildlife management locally, regionally and territorially.

## **Was there a Communications Strategy?**

The NWMB realizes that clear, timely, and open communications between communities, harvesters, and other wildlife management agencies is critical to the success of the study. To this end a communication strategy was developed which includes:

- Maintaining open lines of communication with participating communities and co-management partners;
- Developing and sending monthly newsletters to participating communities and quarterly updates to co-management partners;
- Developing a website for the CBMN which contains information about project, including a

- series of frequently asked questions; and
- Holding in-person meetings and workshops (described below).

*In-person meetings* - A total of three in-person meetings were held in each of the participating communities (Arviat, Cambridge Bay and Sanilikiluaq) from 2012-2014 to get feedback from participants. Feedback forms were filled out; however, the project was also discussed openly among participants. Overall, the Harvesters and Data Clerks were pleased to be part of the study team, found the project interesting, and believed the work is of value to their communities.

*Wrap-up meetings* - In-person meetings were held in April and May 2015 in each of the participating communities. During these meetings preliminary results were presented, feedback was solicited, and input and suggestions were collected for use in future communities. Again feedback from the participants was positive. All harvesters and data clerks said that they would/will continue to participate if the CBMN data collection period were to be extended.

*Public meetings* – two public meetings one in 2013 and one in 2015 were held in each of the participating communities. Communities were shown a summary of the Community-based Monitoring Network, including an initial data summary and were asked to provide comments/suggestions on the Community-based Monitoring Network. These meetings were well attended and support for the program was strong.

*Co-management partner workshop* - In March 2013, the NWMB hosted a workshop in Iqaluit. Community participants from Arviat and Cambridge Bay attended, as well a representative from both the Arviat and Cambridge Bay Hunters and Trappers Organizations. In addition to community members, over twenty participants, from the Government of Nunavut, Parks Canada, Fisheries and Oceans Canada, Aboriginal Affairs and Northern Development Canada, Environment Canada, Nunavut Tunngavik Incorporated, World Wildlife Fund, IMG - Golder, and Noreca Consulting Incorporated were present.

The primary objectives of the workshop were to provide a summary of the Community-based Monitoring Network to co-management partners; to find common ground in terms of community based monitoring; and to discuss ways to pool resources in order find a way forward for the Community-based Monitoring Network that optimizes opportunities for all co-management partners.

The workshop was a great success. All co-management partners in attendance expressed support for the continuation of the program and many organizations saw ways in which the CBMN could be combined with other community based monitoring initiatives in Nunavut in order to expand the program to other communities (a full summary of the workshop is available from the NWMB).



Participants at the Co-management partner workshop in Iqaluit

*“Harvesters are the best eyes and ears on the land in terms of wildlife management. This program is valuable because it validates their knowledge and relies on them as experts” Paul Irngaut, NTI*

## What type of feedback has been received?

Throughout the first three years of the Community-based Monitoring Network feedback from harvesters and community members was positive.

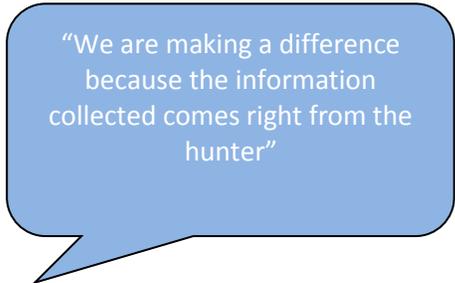
- 100% of harvesters and data clerks currently participating in the study said they would like to continue to be part of the CBMN if the data collection period is extended.
- All communities had additional harvesters who expressed an interest in becoming part of the CBMN.
- Hunters and Trappers Organizations in all three participating communities were supportive of the project.
- Participants provided helpful suggestions for improvement on everything from software and hardware to communications and project administration.
- All attendees at the co-management partner workshop expressed a strong desire to see this project continue and cited several examples of ways in which data collected from this program would benefit communities and co-management partners in wildlife management. Below are some quotes from CBMN participants.



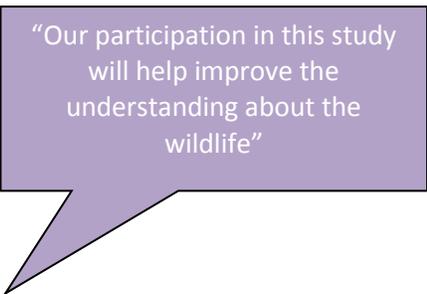
“Our feedback is important for future generations”



“It is amazing how one thing can make a difference to the community and for the future of our hunters”



“We are making a difference because the information collected comes right from the hunter”



“Our participation in this study will help improve the understanding about the wildlife”

## **Next Steps**

The data collection period for the Community-based Monitoring Network ended in the three communities of Arviat, Cambridge Bay and Sanikiluaq on March 31<sup>st</sup>, 2015

The data from the first three years of the CBMN is currently being analyzed for its quality, quantity and utility in decision making in the Nunavut Wildlife Co-management system.

Preliminary results suggest that the data being collected will be very valuable in terms of helping communities, the NWMB, and co-management partners to manage wildlife responsibly. Support from communities and co-management partners for the program is strong.