

TWO-EYED SEEING IN NUNAVUT

Institute for Integrative Science & Health: www.integrativescience.ca

- 2008-2011
 - research, outreach and application
-



Sharina Dodsworth currently lives in the small community of Coral Harbour in the Kivalliq region of Nunavut. She is affiliated with the Institute for Integrative Science & Health in that her masters research – development of new environmental education curricula for youth in Nunavut – is co-supervised by Dr. Cheryl Bartlett and also in that it embeds Elder Albert Marshall's

Guiding Principle of Two-Eyed Seeing. Sharina is doing her Master of Arts in Environmental Education and Communication through Royal Roads University. Before moving to Coral Harbour, she lived in Iqaluit for several years where she worked as the Manager of Communication and as an Environmental Education Specialist with the Department of Environment of the



Government of Nunavut.

She was responsible for bringing Cheryl and Albert to Iqaluit in April 2009 to share understandings about Integrative Science and Two-Eyed Seeing with Elders, educators, and government people within a project to plan land-based educational camps for youth; these plans were implemented as pilots in Summer 2009.



In her professional capacities, Sharina also participated in a community workshop in October 2010 in Pond Inlet in which scientists, Elders, HTO (Hunters and Trappers Organizations) representatives, and education specialists, joined students and teachers at Nasivvik High School to generate discussion, new ideas, and share knowledge about Baffin Island caribou. During the workshop, the students learned about caribou conservation, research, Inuit Qaujimagatuqangit and caribou management.

The following pages – the Fall 2009 issue of “Wildlife Tracks - News from Nunavut’s Wildlife Management Team” of the Nunavut Dept of Environment – include stories about the land-based camps and the caribou workshop.

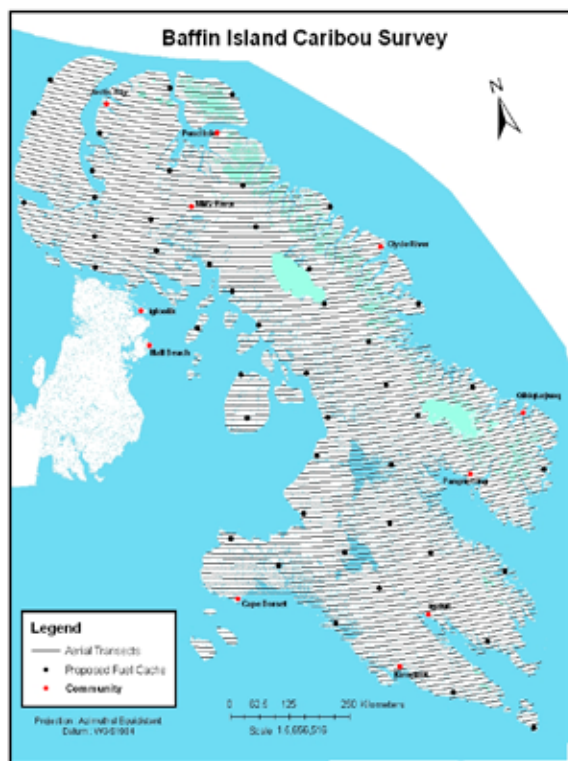
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News from the BAFFIN REGION

Wildlife Tracks

2

Fall/Ukiakaaq 2009



Potential aerial transect lines to be flown for the proposed Baffin Island caribou survey.

Baffin Island Caribou Survey: A groundbreaking proposal!

Barrenground caribou occur across Canada from the Yukon to Baffin Island. On the mainland, large herds migrate each year with the seasons from the tundra to the taiga. On Baffin Island, Barrenground caribou generally occur in small herds on the arctic tundra. Science and Inuit Qaujimajatuqangit (IQ) indicate that both migratory and non-migratory caribou likely occur on Baffin Island.

Little is known about the past and current abundance of these caribou. Early surveys (1940-1970) were unable to provide robust population estimates due to inadequate survey methods, that were compounded by small widely dispersed herds, bad weather and rugged terrain. Later surveys generally focused on discrete portions of caribou range and were almost exclusively limited to South Baffin. No reliable population estimate has been produced for all Baffin caribou. In 1986, a population study reported that >100,000 caribou inhabited Baffin Island. The status was updated in 1991, where it is speculated that populations were stable with 60-180,000 in South Baffin, >10,000 in Northeast Baffin, and between 50,000-150,000 in North Baffin.

"More than ever, community consultation and participation will be important when designing and implementing this survey." - Debbie Jenkins, Baffin Regional Biologist

At the Wildlife Symposium in Rankin Inlet this past winter, Regional Biologist Debbie Jenkins heard the concerns that HTOs expressed over low caribou numbers, the lack of research on Baffin Island caribou, and an increase in exploration and development. Because distribution is not well understood, and reliable estimates are not available for Baffin Island caribou, a full island survey is being proposed. "More than ever, community consultation and participation will be important when designing and implementing this survey" says Jenkins "It's a huge undertaking." Debbie hopes that consultation and design can be accomplished in 2010. If community support, departmental approval, and adequate funding can be secured the survey may start as soon as 2011. **Please contact Debbie Jenkins at the Baffin Regional Office for more information (867-899-8876 or pondbiologist@qiniq.com).**



Working Together for the Future of Caribou, (see story opposite page)

News from the BAFFIN REGION



Debbie Jenkins, Elijah Panipakoochoo, Paniloo Sangoya, George Koonoo, and Nasivvik students share their knowledge about caribou. (Left).

By interacting with key members of the caribou co-management community including scientists, elders, conservation officers, and local harvesters, students learned about caribou conservation, research, Inuit Qaujimajatuqangit and management.

Nasivvik High School students had the chance to look at caribou, from the inside out and learned the scientific and inuktitut names of a variety of caribou parts. (Opposite page, Left).

Annie and Jayko Peterloosie discuss traditional uses of caribou parts. (Opposite page, Right).

"It was really fun to hear the Elders stories and learn about caribou parts and their uses" - Clara Tagak, Nasivvik Student

Working Together for the Future of Caribou: A Pilot Project

During the first week of October, scientists, elders, HTO representatives, and education specialists, joined students and their teachers at Nasivvik High School in Pond Inlet to generate discussion, new ideas, and share knowledge about Baffin island caribou. During the workshop, the students learned how to collect data, develop research questions, plan caribou research programs, create scientific posters to communicate findings, and collect Inuit knowledge on caribou parts and their traditional uses. They explored many of the dilemmas and critical issues that face harvesters, scientists and wildlife managers today. Student Donna Pitseolak-Kublu commented, "It was really fun to debate what we could do for caribou in different situations".

The pilot workshop is part of the Baffin Region Caribou Health Monitoring Program, a community based research program that combines the unique resources of scientists and hunters to address information gaps on caribou. Participating HTOs wanted to build capacity in their communities and engage youth in caribou issues. Elders Paniloo Sangoya, Jayko Peterloosie, Annie Peterloosie, and HTO Board Member Elijah Panipakoochoo were a key part of the program and they shared their knowledge on how to be respectful to caribou, and the names and traditional uses of the caribou parts. Ryan Brook from the University of Calgary Faculty of Veterinary Medicine shared some of the resources he is developing for an anatomy atlas of caribou that will show the muscles, bones, and organs from both a scientific and traditional perspective, including both the scientific and inuktitut names of the caribou parts.

On Friday, October 9th Pond Inlet community members gathered at a community open house where students shared what they learned throughout the week. A recurring theme throughout the workshop was "Working together for the Future of Caribou". "We really tried to reinforce through this workshop that everyone has a role to play in caribou conservation – in ensuring that there are caribou around for future generations", said Baffin regional biologist, Debbie Jenkins.

Meet a Conservation Officer: Jimmy Kennedy, Coral Harbour

Q. Where are you from and how long have you been with the Department of Environment?

A. I started working out of Rankin Inlet in April of 2008. After three months I was able to move to Whale Cove once housing became available. I then worked out of Whale Cove until September 2009. I am currently settling into the community of Coral Harbour. Originally I am from Manitoba and worked for Manitoba Conservation for three years before moving to Nunavut.

Q. What is your favourite or the most rewarding part of being a Conservation Officer?

A. My favourite part of being a Conservation Officer is being able to go out and patrol the surrounding areas around the communities I have worked in. When I think of the most interesting patrols I have been a part of, two patrols in particular come to mind:

The first one would be the patrol that was conducted last spring where four of us went to the treeline. It took us 12 hours to get to Padlie and it was very interesting to see the abandoned buildings at the old community site and learn some of the history behind the area. Many wildlife sightings were made with the highlight being a male grizzly bear that had recently come out of its den.

The second and most recent patrol was to provide polar bear deterrence for the Rankin Inlet bowhead whale hunting party. The trip to where the hunting party was located was delayed with a outboard problem and we had to wait for another boat in Chesterfield to continue further up the coast. Weather played a big role and we were delayed 5 days in Chesterfield Inlet. The nights were spent sleeping in the Wildlife Office and playing cards at some new friends houses. Once we were able to get to the main camp many restless nights were had trying to sleep with polar bears approaching camp on some of the nights. The hunting party was successful and a whale was harvested. In total we dealt with 4 bears between the main camp and the landing location for the whale carcass. Considering the amount of bears we saw along the shores while boating, we were lucky to have only had to deal with 4 bears. This patrol was the longest in duration that I have been on to date. Once we made it back to Rankin Inlet we had been gone for three and a half weeks!

Q. What would you like Nunavummiut to know about Wildlife Conservation?

A. I would like Nunavummiut to know that everybody has a role to play in wildlife conservation. It doesn't matter how young or old a person is; everyone's observations, beliefs, and ideas are important. This could range from participating in a wildlife symposium, reporting suspicious harvesting activities, submitting samples from harvested animals, reporting diseased animals, and voicing your concerns to a Conservation officer. At the end of the day, the idea of wildlife conservation is to ensure that there are abundant populations of wildlife for future generations to enjoy.



Thomas Alogut, a hunter from Coral Harbour participates as a survey observer in the Southampton Island caribou study (Far Left).

Jonathon Pameolik, Kivalliq Research Technician observing during the aerial survey. (Left)

(Jonathon will be leaving the wildlife research division this year to become a regional manager of wildlife operations trainee. Congratulations Jonathon and all the best of luck...we'll miss you!!)

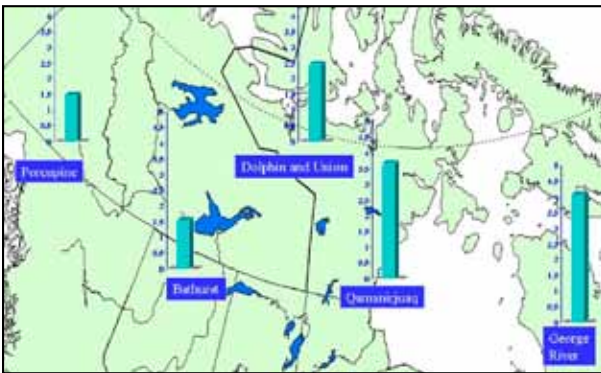
Southampton Island Aerial Survey, (see story opposite page)

Qaminirjuaq Contaminant Monitoring

Mitch Campbell, Kivalliq Regional Biologist & Frank Nutarasungnik



In partnership with the Arctic Moose and Caribou Contaminants Program, the Department of Environment is monitoring the Qaminirjuaq caribou herd for a variety of different contaminants. Since 2006 Frank Nutarasungnik has been working with Mitch Campbell, Kivalliq Regional Biologist, to collect samples of kidney, liver, muscle and teeth from 20 caribou each year. Those samples are sent to Whitehorse where they are processed, and then to Burlington where they are analyzed. The results so far show that for the most part, these caribou have very low levels of contaminants and are healthy food choices.

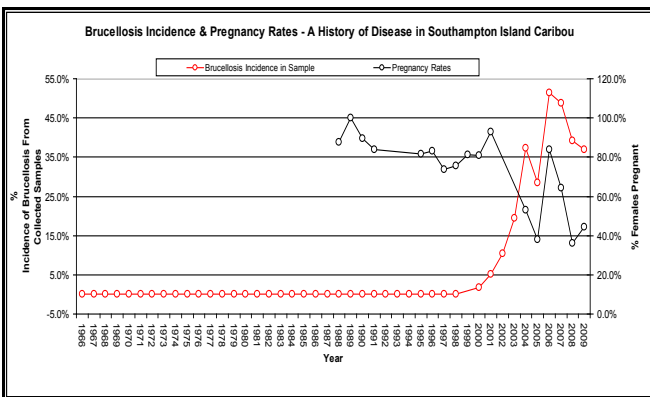


Mercury is an element of concern for many wildlife species across the Arctic and one that is also found in caribou. It is found in higher concentrations in the kidneys, liver and brain and to a much lesser degree in the muscle tissue. The research from our entire program shows that caribou from the eastern Arctic tend to have higher levels of mercury than caribou from the western Arctic, likely reflecting patterns of atmospheric mercury deposition. Monitoring of the Qaminirjuaq herd will continue on an annual basis so that we can keep track of whether the levels of any of the contaminants we are measuring are changing over time.

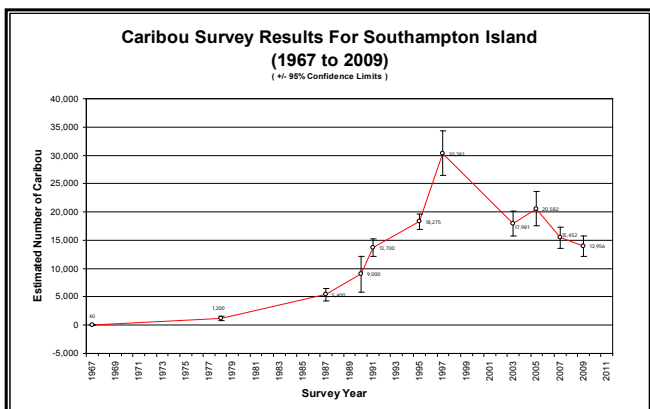
Frank and Mitch process blood samples (top).

Mercury concentrations in kidneys from fall-collected female caribou. ($\mu\text{g/g}$ dry weight; corrected for age) (Bottom)

Southampton Island Caribou Survey and Condition Study Updates



- In June, 2009 DOE estimated Southampton Island caribou population using fixed wing aircraft.
- Once again, the estimate showed a decline in numbers from the 2007 results (from 15,452 to 13,956) though the decline was not as severe as initially thought (top graph)
- A distributional change was also evident towards the southeastern portion of the Island northwest of East Bay.
- In March 2009, 140 Southampton Island caribou were sampled for disease and condition as part of an annual monitoring program which started in 1996.
- The monitoring program initially observed a dramatic drop in pregnancy rates between February 2002 and February 2003. The collection and analysis of blood samples over that period showed a high prevalence of the bacterial disease brucellosis which is well known to cause reductions in pregnancy rates (bottom graph).





Stealth Cam 08-07-2009 05:41:23

A female Grizzly bear and her cub enjoy a good scratch on the post. The remote camera indicates the date, time and temperature when the picture was taken. (Above)

Caught on Film! Grizzly and Wolverine Hair Snagging Update

Mathieu Dumond, Kitikmeot Regional Biologist

This summer, like last summer, we went hunting for Grizzly bear... hair. Five and a half foot 4x4 posts wrapped with barbed wire were distributed in a 40,000 km² area. Jonathan Niptanatiak and I got our routine back in no time, and with the good weather and the excellent skills of our Pilot Ray Gun-Munro, we managed to make good time and have a more reasonable schedule than last year. For the last check of the posts, Malik Awan, Carnivore Biologist in Igloodik, came to help with the project.

We collected Grizzly bear samples on just over 20% of the 393 posts deployed. We had remote cameras at 30 of the posts and this allowed us to see that some posts were visited by several bears within a few days. The mix of samples can be sorted out by the genetic lab to identify all the bears that left samples on the post.



Photo captions from left to right:

During the sampling, other species visited the posts but mainly Grizzly bears left hair which facilitated the sorting of the samples before sending them to the genetic laboratory.

Jonathan Niptanatiak cleaning a post from any remaining hair by burning the surface with a blow torch.

Malik Awan investigating the remains of a bull caribou killed and buried by a Grizzly bear

Parasite Research

Luigi Torretti, Kitikmeot Regional Wildlife Technician & Mathieu Dumond, Kitikmeot Regional Biologist



Dead Muskoxen found on Victoria Island, reported by hunters and investigated by conservation officers.

Parasites and diseases such as rabies and worms can have significant effects on wildlife populations and some of them can be a threat to human health. For example, rabies can be a human health concern, and as such, occurrence is monitored closely.

Kitikmeot Regional Wildlife Technician, Luigi Torretti has been working with other scientists on assessing the occurrence of *Trichinella* and *Toxoplasma* in wildlife and results show high occurrence in some species of carnivores including wolverine. Because wolverine is still consumed in some communities, a number of recommendations are being made to avoid human infection. For example, caution should be applied by thoroughly cooking meat, and meat that shows signs of anomalies should be discarded.

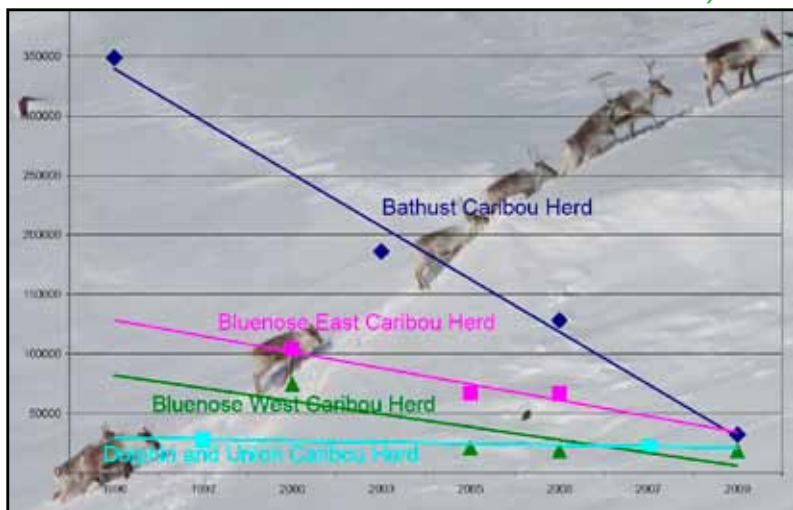
The Kitikmeot wildlife research section has also been working with other researchers to assess parasites in muskoxen and in particular the prevalence of the lungworm that seems to affect the survival of the

animals. We welcome samples from any species that hunters bring to us so that we can assess the cause of the abnormalities observed. You can contact your local Conservation Officer if you observe anomalies on an animal you harvested or if you find a dead animal. If you take samples, remember to wear gloves and to wash thoroughly your hands, knife and gloves after taking the samples.

Kitikmeot Caribou Update

Source: GNWT and GN survey data.

Mainland caribou (*Rangifer Tarandus*) herds in the Western Arctic have declined substantially over the last decade. Many factors can influence caribou herds' dynamics. The weather, the forage quality and availability, the prevalence of diseases and parasites, the level of predation, the level of disturbance by human activities, the level of harvest are all factors potentially affecting caribou at the individual or herd level. The explanation for the herds' declines probably lies in the cumulative effects of some or all these factors.



Discussion on the matter has started with HTOs in the Kitikmeot with a workshop held in February 2007 and some HTOs have contributed to some education and management initiatives. Community hunts on muskoxen have been organized in order to provide meat to the community while limiting the impact on caribou. Youth camps have been organized to share Elders' knowledge on wildlife and traditional activities and several meetings with HTOs and RWOs are planned to discuss the decline of the caribou herds. Surveys of the herds were conducted over the past few years and will continue next year.

Polar Bear Aerial Survey Update

Scientists with the Government of Nunavut and the University of Minnesota, with the assistance of local HTOs, the Makivik Corporation, and Parks Canada, successfully conducted an aerial survey of the Foxe Basin polar bear sub-population. The survey, completed in August and September, 2009, represents a significant step toward developing less invasive ways to monitor polar bear numbers. Historically, biologists have used methods that require the capture of bears to estimate population sizes. To address concerns of wildlife handling and better reflect Inuit societal values, the GN is exploring alternative estimation methods, including aerial surveys. One of the prime benefits of aerial surveys is that the technique does not require the capture and handling of bears. Additionally, because they may be completed in a single season, aerial surveys may enable more rapid monitoring of polar bear subpopulations.

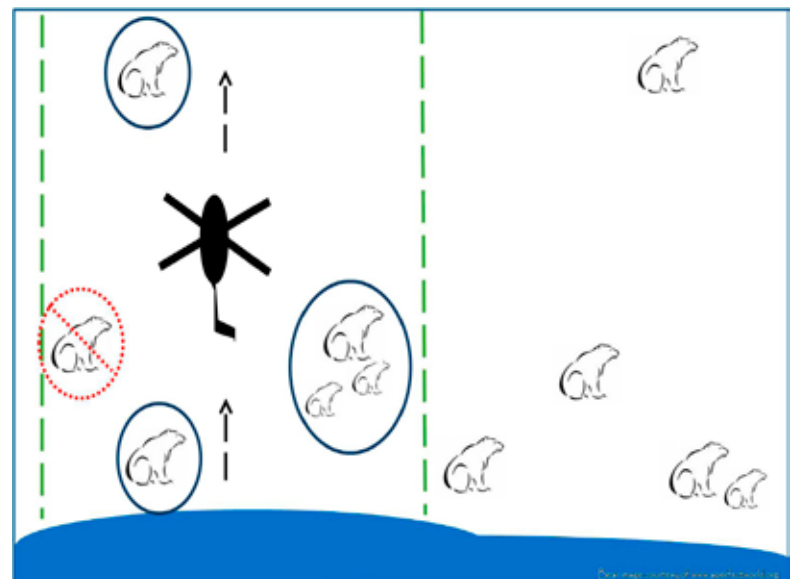
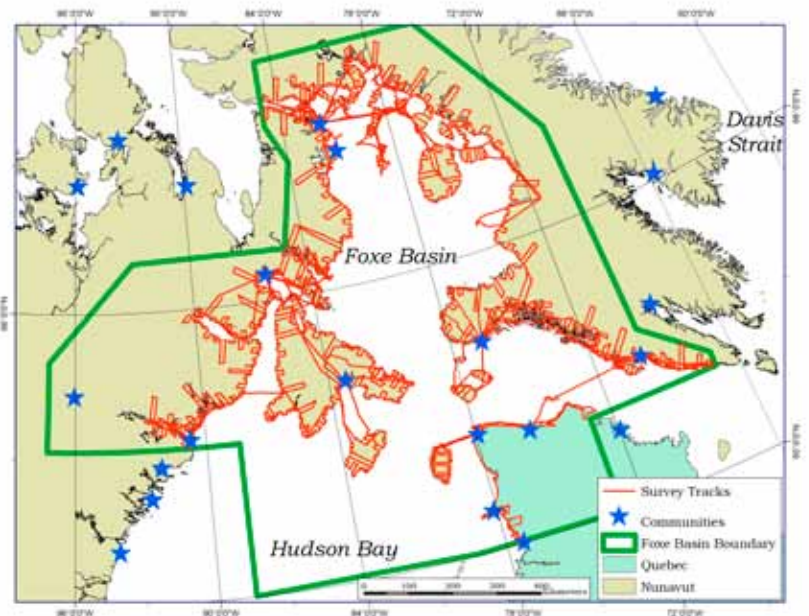
“Polar bear aerial surveys have had largely mixed results thus far but I’m encouraged by the Foxe Basin data. This research is very important for improving the aerial survey technique.” - Seth Stapleton, U. of Minnesota Researcher

For this study, researchers used a combination of coastal and inland transects to survey the region during the late summer, when virtually all the bears are confined to land. Flying more than 40,000 kilometres over the course of the seven-week, helicopter-based study, the observers sighted 816 polar bears across Foxe Basin and documented their age, sex and body condition. The final estimate of the number of bears in Foxe Basin will be based on the number seen, a calculation of the number not seen, and an extrapolation to areas that were not surveyed.

Although preliminary results are promising, it is important to note that further research will be needed to confirm the results of the technique and to assess its viability as an option for Nunavut polar bear population estimates.

While this research method provides information on polar bear numbers, DOE will still need to collect information on body condition, the birth and death rates of populations and the effects of climate change on polar bears. Thus the aerial survey method will be one method in the Polar Bear Program’s tool box, but it will not eliminate other methods involving capture and handling of polar bears.

By recording the bears seen (circled) and other information, we are able to estimate the number of bears missed (red dashed circle) within the surveyed area (the vertical hashed lines). Using this information, we can estimate the total bears in the entire area (outside the vertical hashed lines).



Camp programs help students use “Two-Eyed Seeing” on the Land

This summer, students from across Nunavut participated in pilot “integrative science” land camps run in partnership with the Department of Environment, Department of Education and several local organizations and individuals. The pilot camp curriculum development project involved a multi-stakeholder working group including individuals from Qikiqani Inuit Association, Department of Culture, Language, Elders and Youth, the Nunavut Arctic College, and elders from the Department of Education, all with the common vision of engaging Nunavut youth in outdoor, traditional and scientific learning activities. Dr. Cheryl Bartlett, Canada Research Chair in Integrative Science and elder Albert Marshall, of Eskasoni First Nation were also part of the working group. Albert Marshall uses the term “Two-Eyed Seeing” to describe the process of bringing science and Indigenous knowledge into dialogue to create greater understanding. To him, Two-Eyed Seeing is “Learning to see with one eye open to the strengths of Indigenous ways of knowing, and from the other eye with the strengths of Western ways of knowing, and using both these eyes together for the benefit of all”.

The land-based camp curriculum aims to integrate science and Inuit knowledge through hands-on exploration in the environment, involving teachers, scientists and elders equally in program development and delivery. “These camps have been a great way for Nunavut youth to learn environmental science in a context that has local and cultural significance” said Sharina Dodsworth, Department of Environment Education Specialist. “We see this as a key step in building capacity among Nunavummiut to become future leaders in environmental, stewardship, management and research in the territory.”

The Department of Environment looks forward to moving forward in partnership with the working group and the Department of Education to make these land-based learning opportunities available in many other communities in the future.



Jamal Shirley leads an aquatic invertebrate lab in the Katannilik park camp (Top).

Students at the Kitikmeot Regional Science Camp skin a caribou (Above)

Students, teachers and elders identify plants and traditional plant uses in Basil Bay, outside of Kugluktuk (Below)

Students observed fish parts under a microscope and learned how to prepare dried fish (Below right)



Inutuqait Mianaqsijiit Angngutiksaniik: Elders Advisory Committee

Peter Alareak, Elders Advisory Committee Chair

This Spring, the Department of Environment established an Elders Advisory Committee (Inutuqait Mianaqsijiit Angngutiksaniik), pursuant to section 160 of the Wildlife Act. The purpose of the committee is to provide advice and recommendations to the Minister of Environment and to facilitate the incorporation of Inuit Qaujimagatuqangit into wildlife management and decision-making. The committee is comprised of nine elders, representing communities in each region in the territory, and chosen for their knowledge and experience related to wildlife.

So far, the committee has met three times, with the next meeting scheduled for early 2010. We have advised the Minister and been involved in discussion or initiatives on the following issues and topics:

- Waste management, impacts of waste on wildlife, and land stewardship public awareness campaign
- Wildlife symposium next steps
- Harvester education and training
- Davis Strait Inuit Qaujimagatuqangit polar bear research program
- Nunavut caribou strategy
- North Baffin caribou research and co-management

In Nunavut, environment and wildlife-related issues and challenges are growing, making the application and use of Inuit Qaujimagatuqangit ever more important. We see the Elders Advisory committee as a very important component of Nunavut's wildlife and environmental management system. As a committee, we look forward to contributing our skills and experience to the sustainable management of Nunavut's natural resources by working with the Environment Minister and Department of Environment staff.

DOE Elders Advisory Committee Members

Qikiqtani Region:

Laisa Ningiuk, Grise Fiord

Paniloo Sanguya, Pond Inlet

Quvianatuliak Tapaungai, Cape Dorset

Kivalliq Region:

Peter Alareak, Arviat

John Kaunak, Repulse Bay

(New member, TBA)

Kitikmeot Region:

Guy Kakkianiun, Kugaaruk

Bob Koana, Gjoa Haven

Tommy Pigalak, Kugluktuk



Canada, Greenland and Inuit Organizations Get Together for Polar Bear Conservation

Canada's Environment Minister, Jim Prentice, Nunavut's Minister of the Environment, Daniel Shewchuk, and Greenland's Minister of Fisheries, Hunting and Agriculture, Ane Hansen, met in Kangerluusuaq, Greenland for the signing of an agreement between the governments of Canada, Nunavut, and Greenland to ensure the protection of shared polar bear populations.

The Memorandum of Understanding (MOU) proposes the creation of a Canada - Greenland joint commission that would recommend a combined total allowable harvest, and a fair division of the shared harvest. The joint commission, which includes representatives from Canadian Inuit organizations Nunavut Tunngavik Incorporated and the Qikiqtaaluk Wildlife Board, would also be used to coordinate science, traditional knowledge, management and outreach activities. Between Aboriginal peoples and all levels of government, an unprecedented level of effort has been put forth to conserve and manage polar bears in Canada. The signing of the Memorandum of Understanding today represents another important step forward in our ongoing commitment to protect the polar bear.



Minister Prentice, Minister Hansen and Minister Shewchuk at the Signing Ceremony in Kangerluusuaq, Greenland in October.

"With this MOU we open the door for further collaboration on key priorities for polar bear management," said Nunavut Environment Minister, Daniel Shewchuk. "Coordinating our efforts with respect to research methodologies and the exchange of multiple sources of knowledge will help us make the wisest possible management decisions for our polar bear populations. We look forward to exploring the many ways this joint commission can work toward our shared vision for polar bear conservation."

Of Canada's 13 polar bear subpopulations, the Kane Basin and Baffin Bay subpopulations are shared exclusively between Nunavut and Greenland.

Staying "Bear Safe" in Nunavut

Sarah Medill, Wildlife Deterrent Specialist

During Ukiaksaq, the fall season before sea ice freezes, many Nunavummiut experience an increase in polar bear sightings around their communities. In recent years, many hunters, elders, and community members have reported an increase in human-bear conflicts, such as bears getting into cabins, food caches, dump sites and wandering through communities. As bears migrate, they often encounter communities and curiosity and hunger may overpower their natural inhibitions. This can be a stressful time for people, as bears can pose a threat to property and personal safety. There are measures that Nunavummiut can take to minimize human-bear conflict. (See the tips on the next page).



For more information on the Nunavut-wide bear safety campaign, please contact Sarah Medill: smedill@gov.nu.ca.

By working with hamlets, hunters and trappers organizations, conservation officers and community members, the Department of Environment wildlife deterrent specialist applies both science and Inuit knowledge to promote safe and sustainable coexistence between polar bears and humans. The Government of Nunavut

Department of Environment wildlife deterrent program aims to:

1. Reduce the risk to human life by wildlife
2. Reduce destruction of property by wildlife
3. Reduce the number of defence kills

