



Perspective on the use of Traditional Knowledge in North Saskatchewan River Watershed Monitoring and Management

Brenda Parlee

Assoc. Professor and Canada Research Chair

University of Alberta

Background



“What is done to the land is done to the people, and what is done to the people is done to the land. The Creator gave us all that we need: the forest, the people, the animals; all that grows; and most important the language – so it is imperative that we take care of it”...

What is Traditional Knowledge?

- Traditional Knowledge has many meanings; it is generally **broader and more holistic** of other ecological and socio-cultural variables than conventional scientific definitions of “aquatic ecosystem”;
- Documented and public sources of Traditional Knowledge only recognizes a **small percentage** of existing Traditional Knowledge;
- The collection of Traditional Knowledge should **increase the capacity** of First Nations and Métis communities to participate in the planning, monitoring and management of the Athabasca Watershed;

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The Importance of Traditional Knowledge

Global - Local

- **Brundtland Commission – “Our Common Future”**
- **United Nations – “Declaration on the Rights of Indigenous Peoples” (2006);**
- **Canadian Environmental Assessment Act**
- **“Traditional Knowledge Policy” (Northwest Territories 1992);**



Range of Mechanisms for Inclusion of Traditional Knowledge in Environmental Effects Monitoring

Table 3. Summary of Institutional Arrangements

Summary of Institutional Arrangements	
1	Regional resource management legislation (e.g., Mackenzie Valley Resource Management Act)
2	Land claim agreements (e.g., Gwich'in Comprehensive Land Claim Agreement)
3	Obligations created by Supreme Court decisions on Aboriginal rights (e.g., requirements to consult)
4	Ad hoc agreements / contracts between Aboriginal groups, governments and industry (e.g., Environmental Agreement for the Diavik Diamond Mine)
5	Obligations created by policies, protocols, guidelines (e.g., Fire Suppression Policy)
6	Formal and informal international arrangements (e.g., Kyoto Protocol / Arctic Council)
7	Informal knowledge sharing arrangements (e.g., Arctic Borderlands Knowledge Co-op)

Parlee, B. (2012). Finding Voice in a Changing Ecological and Political Landscape—Traditional Knowledge and Resource Management in Settled and Unsettled Claim Areas of the Northwest Territories, Canada. *aboriginal policy studies*, 2(1).
<http://ejournals.library.ualberta.ca/index.php/aps/article/view/17704>

Traditional Knowledge

TK as Spiritual Knowledge

- Spiritual culture knowledge that cannot be easily understood or documented;
 - Spiritual Connectedness
“The land speaks to us in a language – only we understand that language”
 - Embodiment – “land is within us”;

TK as Science

- Traditional Knowledge is a body of empirical observation – accumulated over time;
- “indigenous science”
- comparable to science – better than science;

Facets of Traditional Knowledge

1.Factual information about the environment (E.g., observations of climate, wildlife)

1.Factual knowledge about past and current use of the environment (e.g., patterns of land use and occupancy, or harvest levels),

1.Culturally based value statements about how things should be, and what is fitting and proper to do, including moral or ethical statements about how to behave with respect to animals and the environment, and about human health and well-being in a holistic sense.

1.Worldview —beliefs about people, environment and communities that are the foundation how knowledge is generated (.e.g., animals and people can understand each other if they listen carefully).

Usher (2000): 186

The Mikisew Cree people believe “it is their sacred obligation to act as stewards of the environment in cooperation with the government.” For the First Nation, the survival of their ecosystem is linked to the survival of their culture and cannot be separated from their economic and physical well-being”.

Traditional Knowledge – Environmental Change

- Any changes or decline in ecosystem health in that sense are not viewed as data but as a threat to the socio-economic and cultural well-being of communities.
- Traditional Knowledge holders particularly attuned to ecosystem change. As noted by the late Lutsel K'e Dene First Nation elder Maurice Lockhart, **“Some people who don't care so much won't notice the changes” (Maurice Lockhart - 2000).**

Traditional Knowledge Environmental Effects

- One of the most comprehensive Traditional Knowledge studies in Canada related to environmental impacts on aquatic systems:

Northern River Basin Study (NRBS) - 1996.

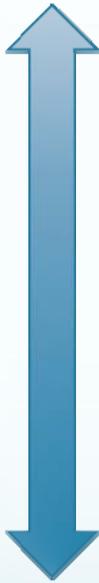
- *How has the aquatic ecosystem been affected by exposure to organo-chlorines or other toxic compounds?*
- *How can the ecosystem be protected from the effects of these compounds?*
- *What is the current state of the water quality of the Peace, Athabasca and Slave river basins, including the Peace-Athabasca Delta?*

Northern River Basin Study
<http://environment.gov.ab.ca/info/library/8701.pdf>

Diversity of Approaches to the Integration of Traditional Knowledge in Environmental Effects Monitoring



Integrated and Adaptive Monitoring (Informal)



All Traditional Knowledge



Little Traditional Knowledge

Only Community Participation



Little Participation

“Formal” Monitoring

Qualitative Approach – Observations

Increased incidence of flash flooding

- “Before the development, you would know if there was a flood [coming], you knew in advance because it was a slow process. Now today if you have a flood, it could happen within an hour...” - Cree Harvester in Geertsema (2008)

Creeks, Streams, Wetlands are drying up

- “The creeks, streams and wetlands are drying up. This problem is because it’s got a lot to do with the climate as well but definitely the open land area [clearcuts]..” - Cree Harvester in Geertsema (2008)

Parlee, B. L., K. Geertsema, and Lesser Slave Lake Indian Regional Council. 2012. Social-ecological thresholds in a changing boreal landscape: insights from Cree knowledge of the Lesser Slave Lake region of Alberta, Canada. *Ecology and Society* 17(2): 20.

<http://dx.doi.org/10.5751/ES-04410-170220>

Qualitative Approach

Environmental – Well-being Perspectives

Lesser Slave Lake Cree

- It's hard on your mind, and it's hard on your body, because every moose you shoot you hope that it is good, and you hope you don't get sick.... It has affected us mentally, and health wise there seems to be more cases of cancer, and more cases of diabetes. Something is definitely happening out there, and this was not happening to us before (Interview 22, Nov. 8, 2007).
- “We have a lot of our young people who do not even go into the Swan Hills area because of the waste treatment plant [Alberta Waste Treatment Centre] they just absolutely refuse to. So, not only health wise, but I guess it has also affected their spirit. .. there's no more socializing out on the land, and being in touch with nature; just having a good time out there, you know? (Interview #6, Sept. 22, 2006).

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Quantitative Approach

Links of Environmental Change to Well-being

Dependent Variable Well-being

- Self-reported “Well-being”;
- Perceptions of a positive future;



Independent Variables Connection to the Land

- Harvesting Activity
 - caribou harvesting
 - fishing
 - trapping
 - berry picking?
- Consumption of traditional foods;
 - caribou meat consumption;
- Spiritual site visits;
 - visit of the local spiritual site;

Quantitative Approach

Some examples of **qualitative indicators**:

- qualities and characteristics in wildlife behaviour;
- smell of water;
- texture and colour of fish flesh;
- taste of water.

Some examples of **quantitative indicators**

- catch per unit of effort (number of fish harvested);
- length – weight ratio of fish (skinny fish);
- thickness of fat around organs (ducks, fish);
- water levels.

Holistic Approaches Healthy Human Environment Relations

- Much Traditional Knowledge not only offers details about the condition of ecosystems but the relationship of people to each other and the ecosystem. Some indicators relevant to measuring such as relationship:
 - respect of land users / historical relationship of people to the land;
 - “bothering” of fish or wildlife (e.g. tagging);
 - offerings of respect to the land (e.g. prayers)



Tsekehnay Elders and Youth – Protection of the Amazay Lake at the headwaters of the Peace River, British Columbia (Photo Credit – Patricia Haley)

Traditional Knowledge Commonality in the Knowledge and Methods for Monitoring Change

Examples of Community Indicators related to Contaminants (107)

Decrease in the quantity and size of whitefish and trout eggs	Yukon First Nations
Changes in texture and consistency of fish flesh	Yukon First Nations
Altered migratory behaviour in spawning salmon (upstream travel distance reduced)	Yukon First Nations
Changes in fish flesh quality and fish numbers	Dene Nation
Fish (burbot, <i>lota, lota</i>) with spotted shriveled or discoloured livers	Dene, Mackenzie River area
Increases in deformities	Dene Nation
Thinner marine fish, reduced firmness of flesh	Tuktoyaktuk
Pacific herring with white spots in fish and altered taste	Tuktoyaktuk
Trichinosis in walrus associated with suspected negative environmental influences	Sanikiluaq, Hudson's Bay
Sores on the insides	Avativut Report, Nunavik/Labrador

Moving Forward

Opportunities

- **More Traditional Knowledge to be Documented** - The sources of documented Traditional Knowledge are limited with more knowledge being available in the lower regions North Saskatchewan River Watershed.
- **Watershed Wide Perspective** - There are many significant gaps in the availability of Traditional Knowledge in the upper and middle regions and when compared to research that has occurred in other regions.
- **Multi-Disciplinary** - There are as many different ways of documenting Traditional Knowledge as there is in documenting “science”. Historically, most research associated with Traditional Knowledge came from the cultural anthropology and ethnographic fields of study.
- **Process – Equitable Consideration of Traditional Knowledge in the Watershed.** Discussions with First Nations and Métis communities about definitions and key concepts and elements of Traditional Knowledge required for the management of the Athabasca River Watershed is fundamental to appropriate and meaningful knowledge sharing.



Dene Nation (Fred Sangris)

Moving Forward

Cautions

- We have a tendency to categorize Traditional Knowledge to fit into western defined bureaucratic categories (i.e. fisheries management):
 - What are the consequences of categorical practices that distance people from lived experience?
 - How does authorizing particular kinds of knowledge change its social function?
 - Does the local knowledge of northern people maintain its own integrity when it becomes bound into larger narratives?
 - What forms do such transformations take in differing geopolitical circumstances?