

Nę K'ə Dene Ts'ı́lį Forum Meeting Notes

Sahtú Water and Permafrost Research Cluster Meeting

Wednesday June 14, 2017, 9am - noon approximately

Notes by C Wenman

Participants

Forum Members

Leon Andrew, (Chair) ʔehdzo Got'ıne Gotsé Nákedı

Jimmy Dillon, Délıne ʔehdzo Got'ıne

Ed Reeve, Délıne ʔehdzo Got'ıne

Walter Behza, Délıne

Michael Neyelle, Délıne ʔehdzo Got'ıne

Sjoerd Wielen, Délıne Lands

Gordon Yakeleya, Tulít'a ʔehdzo Got'ıne

Frederick Andrew, Tulít'a ʔehdzo Got'ıne

Jennie Vandermeer, Environment and Natural Resources (Norman Wells)

Bruce Hannah, Environment and Natural Resources (Yellowknife)

Rhea McDonald, Norman Wells ʔehdzo Got'ıne

Forum Secretariat (Resource support)

Joe Hanlon, ʔehdzo Got'ıne Gotsé Nákedı

Deb Simmons, ʔehdzo Got'ıne Gotsé Nákedı

Christine Wenman, PlanIt North (Forum resource person)

Other Participants

Chelsea Martin, University of Alberta (calling from Délıne)

Tom Andrews, Education Culture and Employment

Isabelle de-Grandpre, Hydrogeologist, Environment and Natural Resources

Sharon Smith, Geological Survey of Canada in Ottawa

Jenn Baltzer, Wilfrid Laurier University

Mylène Ratelle – University of Waterloo

Ryan Cannon, Wilfrid Laurier University

David Rudolphe, University of Waterloo

Merritt Turetsky, University of Guelph

Alana Fletcher, Environment Canada

Stephan Gruber, Carleton University (in Yellowknife at the moment)

Geoff Kershaw, Wilfrid Laurier University

Andrew Spring, Wilfrid Laurier University

Ruth Errington, Canadian Forest Service

Brenda Parlee, University of Alberta

Agenda

- Opening: Prayer, introductions, agenda
- Sahtú Library – Alana Fletcher
- Project updates – water and permafrost
- Next meeting

Meeting Notes

Opening

- Regrets – Kirsty Gurney was strongly interested but couldn't make it along with some others
- Thanks to Bruce and Andrew for pulling together the invitation list.

Sahtú Library

- The library is up and running; right now you can be granted access by asking us.
- Collection is through end note. It's like a library but instead of a physical library you can do it online from anywhere. Anyone can use it as long as you have internet access.
- Several researchers have contributed references to the library and that is the way it has and will grow. 400 references in library to date.
- Some do not have actual document links. Such as interviews – these aren't publically accessible. Other ones we just don't have the documents yet.
- If you are interested in contributing to the library, send Deb an e-mail and copy Alana.fletcher@canada.ca to let us know. It's difficult for us to import things that aren't in an endnote library so if you can put your bibliography in endnote then we can just do that. However, if you have a bunch of documents you'd just like to send as an e-mail attachment, we can just upload those.
- Sharon Smith – Likely has documents not yet part of database. Alana will liaise with Sharon to connect her to database.
- Additions can be shared as an exported End Note file or researchers can send Alana links to other databases that she can go through.
- Some discussion of other topics that could be looked into for additional information. Walter: Strang (last name), Art Martel – did a lot of work for Imperial Oil back in the 70s to refine the regulations and try to find ways to work on permafrost lands. Walter will e-mail these things to Alana.

Researcher Updates

Tracking Change Project - Délı̄ne

- Chelsea Martin currently in Deline conducting further interviews and focus groups.
- Chelsea has heard a lot about the lake getting warmer and landslides that may be related to permafrost but people haven't spoken specifically about permafrost. I could incorporate some more questions about that in my interview guide.
- DS – the program is going to potentially include people from Tulıt'a. Leon is thinking about the idea of having an on-the-land fish camp to test out the fisheries on the Mackenzie River and see where things are at with the fish stock on the river there and potentially how changes in the water might be affecting the fish.
- CM – long list of people to interview in Délı̄ne over the next month. Focus of my project is to look at what changes are happening on GBL, where those changes are happening, and how those changes are affecting people and how are people coping and adapting.
- Andrew Spring, Chelsea Martin and Michael Neyelle will connect to discuss overlap from Andrew's research. – This is quite a lot of overlap with the Health Canada research that we did last year in Délı̄ne so we should probably follow-up about that. It wasn't all about water but that was a theme that permeated everything.
- Leon emphasized the importance of trying to detail a time frame – when changes have taken place.
- Leon explained that a fish camp on river would be an opportunity to talk about what fish are still coming or how fish populations have changed.
- Deb – RRC meeting in Tulıt'a last night included some discussion about Tracking Change activities.

Tulıt'a research interests

- Gordon –there is a change in the RRC in Tulıt'a. We just met yesterday and we have some outstanding research work that has to happen so we went ahead and approved. We want to develop a protocol that articulates how we want to participate in research with direct involvement of our members.
- Research interests: There is permafrost thaw happening in Tulıt'a, for example, by the church and around town under the roads so it's something that the Board wants to research. Permafrost also may be a risk to the houses near the side of the cliff.
- Merritt – We are interested to work with you and members of Tulıt'a to start a monitoring program.. We have some simple tools we can put in place and we could train local students or anyone interested in looking at permafrost. It's a really nice way to collect observations with your own eyes. Would be really great to start a dialogue with you about what we can do and to use some of your

observations on the land with some of the models that we are using to monitor change on the land. So hopefully this collaboration can develop over time.

- Gordon – Emphasized willingness to work with the University of Guelph and RRCs desire to be directly and meaningfully involved. We need support to put proposal together study and mitigate erosion.
- Bruce and Jennie Vandemeer discussed the community based monitoring programs facilitated by the Water Resources Group at ENR. There may be opportunities to incorporate some permafrost monitoring into those existing programs. Bill will follow up by speaking with Jennifer Fresque –Baxter and/or Meghan Beveridge.
- Michael Neyelle and Gordon Yakeleya discussed that there is a lot of groundwater in Tulit'a and this may be contributing to permafrost thaw.
- Gordon emphasized that the animal tracking project coordinate by James Hodson has been a great example of effective programming where there was intensive training and then the program was turned over to the community so the young people can do it.
- Forum members mentioned frustrations of feeling that they don't always see research proposals for review. Jennie explained that ARI keeps a contact list that may not be updated sufficiently so anyone who wishes to receive applications for review should contact ARI.
- Research licenses: Deb explained that we are hoping the Forum can play a more formal role in reviewing these things. SRRB tries to keep up job of research applications. We are trying to be better at doing that for the Forum because we are hiring somebody. So thanks for flagging this issue. Also objective of this call is to have lots of lead time to discuss work that is both underway and also planned.

Tracking Change (the broader project) Brenda Parlee

- The Tracking Change project started two years ago and is a 6 year project with different partners across Mackenzie River Basin. Leon is on the steering committee.
- Broad aim is to provide resources to communities to do their own research in terms of fish and water. Last year funded 12 projects – 25k grants to different regions. Also community projects that are part or linked into some of those community projects. For example, Chelsea's project –Chelsea was there last year at cross-cultural research project which was partially funded by Tracking Change.
- Trying to figure out together common interests so some community driven monitoring that has a basin-wide story to tell as well as the more specific community stories.

Jenn Baltzer – Northern Water Futures

Project Background

- Part of Global Water Futures (larger project, northern water futures is part of the broader project).
- Part of impetus was that for several years there has been a lot of concern on the part of GNWT and a reflection of community concerns about need to gather solid baseline studies in place. Part of that involves better understanding permafrost sensitivity, more detailed groundwater studies and groundwater surface water dynamics. The work includes interconnected projects – Sharon Smith, Dave Rudolph and Merritt Turetsky are all involved in this.

Groundwater

- Dave Rudolph = Glad someone brought up underground water as being an important part of the situation in Tulít'a – this is something that we need to spend a lot more time investigating. Last time I joined the call, I explained the proposal that we put through to ESRF fund to develop plans for baseline monitoring in the west side of the Mackenzie River between Tulít'a and Norman Wells where several of the oil company leases had been established in the vicinity of Slater and Bear Rivers – zone along west side of river. The first year has been approved. Hope is to have a five year project and to develop a strategy to have baseline monitoring.
- Dave's particular interest is looking at the intersection between surface water and ground water. We are establishing monitoring locations in oil and gas leases. Husky in particular have reached out to us and have offered access to sites in that area. Project was approved to start June 1st so it's a very new project. First we wanted to share this proposal of the baseline monitoring with colleagues and folks in the area between Norman Wells and Tulít'a with the hope to visit the site and set up sampling locations.
- Week of 24 July is proposed as a first community visit.
- Someone mentioned underground rivers and if this could interact with permafrost or cause more rapid thaw. In the discontinuous permafrost world this is a reasonable concept – as permafrost melts and water becomes more open connections may develop between surface and groundwater causing groundwater to move more actively. If groundwater can move more, this can also move heat. This is something we'd like to study.
- Rhea emphasized the importance of having data from Conoco leases.
- Bruce clarified that Conoco has been involved. Some of the initial funding has come from ESRF – industry levies - and some of that Board consists of people who used to be with Husky and Conoco.
- Gordon emphasized that the Tulít'a RRC doesn't like to be surprised by people announcing they are doing work in our back yard.
- DR – just starting so main goal of the trip in July is to have that conversation about how to work moving forward.
- GY – that will be great – let's have a public meeting on it and all people can give input on what is going to happen there and share knowledge. When all is done and there is a report, it will be important to come back with that report and share that information with the community. What we've experienced with 21

years with Duck Banding – its been hard for our people and elders to understand what has been happening with Duck Banding.

- Jenn Baltzer – Wilfrid Laurier University hired Andrew Spring as knowledge mobilization worker and part of his job will be to determine how to bring that information back to the communities. Jennie emphasized what a significant gap information sharing is.

Surface interactions (vegetation, habitat etc..)

- Merritt – we are interested in looking at how thawing permafrost and ice rich permafrost affects the surface. How does thawing permafrost and hydrology change sensitivity of land, surface, habitat use for animals like forage, vegetation growth. We are interested not only in presenting results but also working with your knowledge – photos of historic changes for instance and Traditional Knowledge about changes to understand what has changed on the land. We are even earlier in our processes than Dave – just putting our ideas together. How can we understand risks? What are the risks that are most important to you related to permafrost.
- DS – We can work with Andrew to talk about protocols that the local Boards or WLU are developing and how that meshes with what we've learned from experience. For upcoming visit, please work with SRRB staff so that we can help make sure that community has lots of awareness and lead time about the meeting and also input to the agenda and goals of the meeting.
- Sharon Smith - Going to be working on this project. Equipment like thaw tubes are easy to install in the communities and are accessible so community can have more involvement.
- Merritt – we can brainstorm opportunities for community permafrost monitoring and provide the Forum with a brief overview of what would be entailed along with photographs. This information can be ready in advance of the Tulit'a meeting.
- Michael explained that in Dene language there is a word for “When the ice gets softer” so it is a good idea to use Dene language to gain a deeper understanding of projects and to use Dene project names to communicate what the project is about.

Bioaccumulation of contaminants

- Brian Laird and Heidi Swanson are also co-leads on the northern water futures project.
- They will look at what implications of thaw and terrain sensitivity on aquatic ecosystem function.
- The focus of their work is on bioaccumulation of contaminants on aquatic organisms. There are strong linkages between the biophysical changes and the downstream aquatic ecosystems that feed into community health

Sharing information with communities

- Gordon: Please come back and explain what you find out. It's hard for us to look for that information. This is one of the protocols that we are going to be working on. Information has to be explained to us. It's not enough to send the report and say you can explain it to yourself.

- Deb- we also facilitate skype calls in situations when it is just too expensive to come back. The Forum calls are also an opportunity.

Community interest in ice safety

- Michael explained that the Sahtú need support with ice safety – the Sahtú has had trucks almost go through the lake and rivers. Can have major catastrophic impacts on the water quality.
- Jennie ENR doesn't do a lot of ice study but maybe people on call have some ideas. I can talk some more about that in ENR and see what expertise is there.
- May be valuable to speak with DOT
- Michael expressed how valuable Jennie's involvement in the Forum is.
- Gordon invited Jennie to meet with the new Board in Tulít'a
- Jennie responded that she likes to come to communities and appreciates the invitations because then she knows that people will be there and expecting her.

Stephan Gruber – predicting subsidence

- Explanation of terminology
 - 1) Heterogeneity – how variable is the landscape? In a closed forest in southern Ontario you just have forest all around you. But sometimes as you walk 100 metres there might be a lot of changes – in a tight crowd of trees, an open space etc. These small changes can also affect the permafrost temperatures so we need to understand that in detail.
 - 2) Subsidence – as you lose ice the surface can lower. Sometimes we can't see this if we don't measure it. There is a lot of energy in this. Because you have the surface lowering you don't see the full temperature increase in the place that it is happening.
- We are looking at northern heterogeneity - How does temperature change between being behind a rock, bush. We will try to measure amount of liquid water in permafrost. As permafrost nears zero, some of the energy that goes into the ground is used to melt the ice and that is no longer really well observed by measuring temperature. So can we measure how the water is changing – this is one step before you get the surface subsidence. And 2) How well can we measure surface subsidence?

Permafrost in the Sahtú Mountains

Geoff Kershaw

- I intend to follow-up more directly with the RRC folks in Norman Wells and Tulít'a. We did send applications through ARI but I'm learning sometimes its not enough information and they don't make it to the right desk.
- I am a student at Laurier – will be for 4 years. This is still my first year. I am looking at permafrost changes as the grounds warm and as it thaws at greater depths. I will be working in the mountains and the headwaters, particularly along north Canol and Dechenla and maybe Caribou pass if I can manage to get that far along.

- We also know that in these ice rich areas, the vegetation changes so we'd like to look at that as well and how that in turn affects the ground temperature – stabilization versus continued thaw.
- Stephan – Before coming to Canada I lived and worked for 12 years in Switzerland and most of my professional career was dedicated to measuring and simulating permafrost thaw and decay in mountains so I am happy to provide information about measuring tools.
- Rhea – I think what you are doing is important. I met you and your crew at Dechenla last year. If I'm not up again this year, we will have other people.
- Joe can help have Geoff skype-in to Board meetings for each RRC.
- Rhea: It's always better to talk to the researcher in-person. It's much better than trying to read on paper and visualize what that means in practice.
- There are links to work that Ruth Errington is doing as well as Jenn Baltzer
- DS – we've spent a lot of time talking about how changes in permafrost affects changes in habitat – so directly related to SRRB mandate. How does this affect caribou?
- Ruth – dense lichen cover in some of these areas but as permafrost collapses there is no lichen there at all so this is definitely affecting the caribou. We found caribou antlers in some of those peat areas so we know that they are using those lands.
- DS –it will be really interesting to have a conversation with community folks about your findings in relation to their own observations about changes on the landscape.
- Ruth – It sounds from this meeting that talking with the SRRB is not enough and maybe skype calls to each community is good.
- DS – we should keep talking about options to continue the conversation. We do have these monthly calls. Part of reason to have this themes call was a rush to catch researchers before their field season. We do try to have a Forum call every month. For people who are doing a lot of field work this summer, we should look at another cluster meeting on water and permafrost topics where people can report back to the community folks on their field season and community folks can report back on their participation in field work and community engagement work and that way community people can take about the topics they would like to have on their agenda for future RRC meetings.

Other Projects

- NASA continues to do work on these topics. Bruce will follow-up with them to good to get a map of where they are going. Andrew added that Chip Miller is lead investigation and he would be very happy to provide that kind of information.
- Michael emphasized the need to consider fire as part of all of these research projects. Fires have been in the Bathurst region where caribou migrate.