



## 22<sup>nd</sup> Northern Research Basins (NRB) Symposia & Workshop: *Partners in Learning* Agenda

### Sunday, 18 August 2019

- 18:00 – 20:00 Welcome reception and registration
- 19:00 – 19:45 **Pre-conference informal talk:** *Permafrost thaw in the Northwest Territories (NWT)*. **Speaker:** Steve Kokelj, Permafrost Scientist, Government of NWT.
- 

### Monday, 19 August 2019

- 07:30 – 08:30 Registration desk open; Breakfast, coffee / tea
- 08:30 – 09:00 Welcome remarks:
- William Quinton, Chief NRB Delegate Canada
  - Ernest Betsina, Chief, Yellowknives Dene
  - Minister of Environment & Natural Resources, Northwest Territories
- 09:00 – 09:40 **Plenary: A brief history of cryohydrology in Canada.** Ming-Ko Woo, Professor Emeritus, McMaster University.

#### Monday morning presentations – permafrost studies

##### Session Chair: J. Korhonen, Chief Delegate, Finland.

- 09:40 – 10:00 *Impact of dust on the hydrology of arctic landscapes.* K. Young, H.A. Scheffel, E.A. Perera.
- 10:00 – 10:20 *Rapid increase in recent permafrost temperatures & upland groundwater, Interior Alaska.* A.Liljedahl, D.Barnes, H.Best, U.Bhatt, R.Daanen, V.Romanovsky, R.Thoman, E. Youcha.
- 10:20 – 10:40 **coffee / tea break**
- 10:40 – 11:00 *Terrain & permafrost thaw controls on biomass trajectories across a Taiga Plains watershed; comparing lidar models with satellite optical vegetation indices.* C. Hopkinson, L. Chasmer, B. Quinton, L. Flade, G. Castilla.
- 11:00 – 11:20 *Impacts of wildfire and permafrost thaw on water quality in peatland rich catchments in western boreal Canada.* D. Olefeldt.
- 11:20 – 11:40 *Coupled land-cover & hydrological change at Scotty Creek, NWT.* W. Quinton
- 11:40 – 12:00 *How extreme can unit discharge become in steep Norwegian catchments?* O. Bruland.
- 12:00 – 13:20 **lunch**



## 22<sup>nd</sup> Northern Research Basins (NRB) Symposia & Workshop: *Partners in Learning* **Agenda**

### **Monday afternoon presentations – hydrological modelling**

**Session Chair: S. Stuefer, Chief Delegate, United States.**

13:20 – 13:40 *Challenges and opportunities of implementing the national water model in Alaska.* S. Lindsey.

13:40 – 14:00 *A regional hydrologic model of the Liard river basin.* J.Craig, G. Brown.

14:00 – 14:20 *Identification of critical locations along steep watercourses using GIS and 2D hydrodynamic modelling.* A. Moraru.

14:20 – 14:40 **coffee / tea break**

14:40 – 15:20 *Aufeis of Northeast Russia in changing climate and developments in Russian northern hydrology.* O. Makarieva.

15:20 – 15:40 *Water Survey of Canada presentation.* S. Palfreyman,

15:45 – 17:00 **Prince of Wales Northern Heritage Centre Tour:** Meet in hotel lobby.

The Prince of Wales Northern Heritage Centre houses, manages the museum collections of the Government of the Northwest Territories.

17:00 – 18:00 free time

18:00 – 19:30 **dinner**



## 22<sup>nd</sup> Northern Research Basins (NRB) Symposia & Workshop: *Partners in Learning* **Agenda**

### **Tuesday, 20 August 2019**

08:00 – 08:30 Registration desk open; Breakfast, coffee / tea

08:45 – 09:00 Opening remarks

09:00 – 09:40 **Plenary: *Water quality in three rivers around Yellowknife, NWT.***  
Pieter Aukes, Wilfrid Laurier University. *S.L. Schiff, M.C. English, R. Staples, M. Palmer.*

### **Tuesday morning presentations – biogeochemical studies**

#### **Session Chair: O. Bruland, Chief Delegate, Norway.**

09:40 – 10:00 *Carbon cycling in the central subarctic boreal shield, Canada.* S. Schiff,  
P. Aukes, M. English, R. Elgood, P. Dainard, J. Venkiteswaran.

10:00 – 10:20 *Gordon Foundation MacKenzie data stream project.* L. Day, C. DuBois.

10:20 – 10:40 **coffee / tea break**

10:40 – 11:00 *Hydrological changes and carbon transport in the four largest Siberian Arctic river basins.* K. Suzuki, T. Hiyama, K. Ichii, Y. Iijima, K. Matsuo, D. Yamazaki.

11:00 – 11:20 *Climate change impacts on mercury accumulation in northern lake sediments.* J. Korosi.

11:20 – 11:40 *Mercury inputs to the Mackenzie River and the Beaufort Sea: Future impacts of permafrost thaw.* C. Zdanowicz.

11:40 – 12:00 *Understanding lake response to thawing permafrost in the Subarctic.* C. Coleman, J. Thienpont, J. Korosi.

12:00 – 13:20 **lunch**



## 22<sup>nd</sup> Northern Research Basins (NRB) Symposia & Workshop: *Partners in Learning* **Agenda**

### **Tuesday afternoon presentations – snow and ice**

#### **Session Chair: O. Makarieva, Chief Delegate, Russia.**

13:20 – 13:40 *A new, integrated Arctic snow observing system for improved understanding and prediction of hydrology, permafrost and ecology.* P. Marsh, C. Derksen, G. Hould Gosselin, A. Jitnikovitch, J. King, B. Majumder, A. Pietroniro, P. Secombe-Hett, O. Sonnentag, J. Theriault, A. Toure, M. Tsui, B. Walker, E. Wilcox.

13:40 – 14:00 *Operational snow measurements with ground penetrating radar: A case study from Överuman, Sweden.* W. Marchand, B. Norell.

14:00 – 14:20 *Spatial and temporal trends in end-of-winter snow cover properties north and south of treeline in a large sub-Arctic river basin.* M. Richardson, D. Tokarski, S. Kokelj.

14:20 – 14:40 **coffee / tea break**

14:40 – 15:00 *Decreasing precipitation phase uncertainty in cold region conceptual snow models applying daily & hourly timescales.* J. Feiccabrino, D. Gustafsson.

15:00 – 15:20 *Performance of a blowing snow model for characterizing the spring snow distribution in a small tundra watershed near Iqaluit.* K. Smith, M. Richardson.

15:20 – 15:40 *Assessing snowpack water equivalent in the Snare River watershed.* J. Hickman, M. English, N. Wilson, S. Kokelj.

15:40 – 16:00 *Long-term evidence for hydrological system regime change from the Fish Creek (Iqalliqpik) watershed observatory in northern Alaska, United States of America.* C. Arp, M. Whitman, R. Kemnitz.

16:00 – 16:20 *Predicting changes in discontinuous permafrost using an interface model of soil freezing and thawing.* E. Devoie, J. Craig, W. Quinton.

16:20 – 16:40 *Aboriginal Aquatic Resource And Oceans Management (AAROM) Program Update* M. Low

17:00 – 21:00 **Off-site event and dinner:** Meet in lobby at 17:00 to board bus.

***The Dene and our Land: 3 communities, 1 Dene culture: Yellowknife, Ndilo and Dettah.*** Learn about the significance of the land to the Dene. Be introduced to the Dene people and the significance of their land and cultural traditions. Visit B. Dene Adventures' camp to share Dene culture, art and foods. Listen to the beat of the traditional drums and join the excitement of traditional Dene Hand Games and dinner.



## 22<sup>nd</sup> Northern Research Basins (NRB) Symposia & Workshop: *Partners in Learning* **Agenda**

### Wednesday, 21 August 2019

08:00 – 08:30 Registration desk open; Breakfast, coffee / tea

09:00 – 09:15 Opening remarks

09:15 – 10:00 **Pre-Tour Talk: Fifteen Years of Research on Perennial Ice Patches in the Mackenzie Mountains.**

This talk will provide an overview of the archaeological and paleo-environmental significance of alpine ice patches in the Selwyn and Mackenzie Mountains of the Northwest Territories, and discuss the potential impacts of the anticipated loss of ice patches from the alpine landscape due to climate change. **Speaker:** Glen MacKay, Territorial archaeologist, Prince of Wales Northern Heritage Centre, Government of Northwest Territories.

10:00 – 14:00 **Off-site event – Great Slave Lake Cruise & Fish Fry:** Meet in hotel lobby at 10:00 to depart.

Experience a Great Slave Lake harbour tour, sightseeing, houseboats, and a Northern Gourmet shore lunch of fresh fish. (Led by: Yellowknife Outdoor Adventures).

**Note:** *Please dress for the weather – it will be windy and much cooler on the water than on land. Please wear appropriate footwear for boating/hiking.*

14:00 – 18:00 **Off-site event – A Big City in the Boreal Forest Tour:** Meet at docks, directly after fish fry.

Join us for a journey of stories and music that will take you into the heart of where our beloved town began. The tour begins at the Legislative Assembly where we will break the norms of polite conversation to talk politics, NWT style! As unique as our form of governance, the architecture and the artwork that is housed within its walls also speak volumes about the people of the NWT. The next stop is the Mining Heritage Site at Giant Mine to dig into our golden past and watch the ravens play in the summer sunlight. Then it is off to Yellowknife's heart, Old Town, to step back in time and visit the area where this town began. We will see buildings that have had many lives nestled next to modern homes, hear the stories and maybe, meet some of the characters.

The returning aurora spotlights such Old Town locales, like Pilot's Monument, McMeekin Causeway, Hudson Bay Warehouse, The Wild Cat Café, and Weaver & Devore. Plus, a stroll around the Mining Heritage Site at old Giant Mine and the Legislative Assembly Building. (Led by: Strong Interpretation).

**Note:** We will be exploring by foot on paved and uneven surfaces, including steep stairs to the top of the "Rock".

18:00 – 19:30 **dinner**

19:00 – 20:00 Chief delegates meeting



## 22<sup>nd</sup> Northern Research Basins (NRB) Symposia & Workshop: *Partners in Learning* **Agenda**

### Thursday, 22 August 2019

08:00 – 08:30 Registration desk open; Breakfast, coffee / tea

08:45 – 09:00 Opening remarks

09:00 – 09:40 **Plenary delivered by Cindy Gilday**, Déline Dene Band.

#### **Thursday morning presentations – northern rivers and streams**

**Session Chair: K. Suzuki, Observer, Japan.**

09:40 – 10:00 *Recent changes of the winter and spring season hydrological regime in Finland.* J. Korhonen.

10:00 – 10:20 *A snow quality assessment tool based on new techniques and Sámi knowledge for Northern Sweden.* D. Gustafsson.

10:20 – 10:40 **coffee / tea break**

#### **Thursday morning presentations – changing landcovers**

**Session Chair: K. Suzuki, Observer, Japan.**

10:40 – 11:00 *Determining the trajectory of permafrost environments in northwestern Canada's discontinuous permafrost zone.* O. Carpino, R. Connon, J. Craig, E. Devoie, K. Haynes, W. Quinton.

11:00 – 11:20 *Hydrological implications of permafrost thaw-induced landscape transition in the discontinuous permafrost zone at Scotty Creek, NWT.* K. Haynes, R. Connon, W. Quinton.

11:20 – 11:40 *Spatial drivers of permafrost thaw using lidar remote sensing, machine learning and in situ methods.* L. Chasmer, C. Mahoney, A. Paluck, R. Connon, W. Quinton, C. Hopkinson.

11:40 – 12:00 *Quantifying spatially distributed shrub biomass in the boreal forest of Northwestern Canada using destructive field sampling, allometry and multi-spectral lidar derivatives.* L. Flade, C. Hopkinson, L. Chasmer.

12:00 – 13:20 **lunch**

13:20 – 16:00 **Partners in Learning panel discussion part 1:** Moderated by D. Livingstone; Panelists: M. Miltenberger, G. Norwegian, J. Zoe, W. Hagen.

15:00 – 15:20 **coffee / tea break** (during discussion).

16:00 – 18:00 free time

18:00 – 23:00 **Banquet, featuring musician Lee Mandeville.**

Lee Mandeville has been fiddling since the age of nine and has been crowned the Canadian Métis Fiddle Champion. Lee will be accompanied by his father George on guitar and Ted Mildenberger on bass.



## 22<sup>nd</sup> Northern Research Basins (NRB) Symposia & Workshop: *Partners in Learning* **Agenda**

### Friday, 23 August 2019

- 08:00 – 08:30 Registration desk open; Breakfast, coffee / tea
- 08:45 – 09:00 Opening remarks
- 09:00 – 12:00 **Partners in Learning panel discussion part 2:** Moderated by David Livingstone; Panelists: J. Dragon, D. Smith, J. Antoine, D. Jackson.
- 10:40 – 11:00 **coffee / tea break** (during discussion)
- 12:00 – 13:20 **lunch**
- 13:20 – 14:00 **Plenary delivered by Amy Amos**, Executive Director, Gwich'in Renewable Resources Board.

### Friday afternoon presentations – northern rivers and streams

#### Session Chair: **D. Gustafsson, Chief Delegate, Sweden.**

- 14:00 – 14:20 Changing streamflow patterns in Canada's NWT. R. Connon, A. Coles, T. Ensom, Sh. Kokelj, S. Kokelj.
- 14:20 – 14:40 *Recent summer low flows in two subarctic regions in Canada.* R. Thorne, M-K. Woo, L. Brown.
- 14:40 – 15:00 **coffee / tea break**
- 15:00 – 15:20 *Freshwater flux to the Beaufort Sea from Northern Alaska.* S. Stuefer.
- 15:20 – 15:40 *Controls on thermokarst lake hydrology between Inuvik & Tuktoyaktuk, NWT.* E. Wilcox, B. Walker, O. Sonnentag, B. Wolfe.
- 15:40 – 16:20 **Closing remarks by Manny Kudlak**, Vice Chair, Inuvialuit Game Council.
- 16:20 – 16:30 Closing prayer
- 16:30 Participants depart