



---

**ECHO NETWORK  
PULSE REPORT  
2021**

**“HONOURING COMPLEXITY:  
MAKING SPACE TO ADDRESS  
CUMULATIVE IMPACTS,  
CLIMATE CHANGE  
AND CO-BENEFITS”**

---

NOVEMBER, 2021



Environment  
Community  
Health  
Observatory  
Network

Réseau  
observatoire sur  
l'environnement  
les communautés  
et la santé



CIHR  
IRSC

Canadian Institutes of  
Health Research  
Instituts de recherche  
en santé du Canada

**The ECHO Network (Environment, Community, Health Observatory):  
Strengthening intersectoral capacity to understand and respond to health  
impacts of resource development.**

The ECHO Network is a 5-year research program, funded by a Canadian Institutes of Health Research Team Grant, focused on working together across sectors to better understand and respond to the health, environment and community impacts of resource development.

Environment Community Health Observatory (ECHO) Network  
University of Northern British Columbia  
3333 University Way, Prince George, British Columbia, Canada V2N 4Z9  
Tel.: +1 (250) 960-6342  
E-mail: [echonetwork@unbc.ca](mailto:echonetwork@unbc.ca)  
Website: [www.echonetwork-reseauecho.ca/](http://www.echonetwork-reseauecho.ca/)  
© 2020 ECHO Network and Northern Health

Suggested citation: Skrlac, M.M, Bates, M., Kennedy, A., Thorne, S., Onabola, C., Doyon, J., McKinnon, T., Cranmer, J., Parkes, M.W. (2022). 2021 ECHO Network Knowledge Exchange Sessions Report. ECHO Network and Northern Health, Prince George, BC.

The ECHO Network involves collaboration and organizational support from the following organizations:





## 04 EXECUTIVE SUMMARY & RESUME

### 05 SESSION 1 (NOV 19, 2021)

**Healing Indicators:** ECHO Network Round Table Panel & Discussion

### 09 SESSION 2 (NOV 22, 2021)

**Creation of a Digital Story:** ECHO Reflections in Art

### 11 SESSION 3 (NOV 23, 2021)

**Health in Watersheds:** Exploring Connections and Data Complexity

### 15 SESSION 4 (NOV 25, 2021)

**ECHO & You(th):** Youth-entered Conversation

### 17 SESSION 5 (NOV 26, 2021)

**EnviroScreen:** Tips, tricks and tools for tackling complexity in social-ecological systems: Attending to cumulative impacts and persistent challenges that cross-cut environmental, community and health systems.

## 23 APPENDIX A

List of Participants

## 24 APPENDIX B

Meeting Resource Pages

## 27 APPENDIX C

Example session Info Sheet

# EXECUTIVE SUMMARY

---

In the spirit of **'honouring complexity, making space to address cumulative impacts, climate change and co-benefits,'** university researchers, research partners, community members, and youth from across Canada and abroad connected virtually for a 5 part series of ECHO Network knowledge exchange sessions from November 19-26, 2021. Collectively referred to as the ECHO Pulse, the sessions focused on:

- **Healing indicators** - shifting the common deficit focus of current indicators towards land as a source of health and healing, while centering on Indigenous people's collective strengths.
- **ECHO reflections in Art** - using arts-based and narrative methods to prompt different conversations, emotional connection, team strengthening and creativity. Effective in tackling complexity, these methods offer novel ways to look at and approach complicated issues.
- **Health in Watersheds** - exploring the simultaneous needs to demonstrate the impacts of resource extraction and issues at watershed and national levels, in order to compare and contrast across regions, and to develop intensely local indicators and data.
- **ECHO and Youth** - youth engagement in ECHO has explored social media, digital storytelling and youth channels such as TikTok to share work around intergenerational climate justice, young people and mental health.
- **ECHO EnviroScreens**- tackling complexity in socioecological systems with the aim to integrate Environment-Community-Health using high quality data; an asset based approach, co-created with users, including policy and decision-makers, and most importantly, serving Indigenous, rural and remote communities where representative data is scarce.

**"The ECHO network is seen as a valuable space to explore complexity that is rare and not available in other contexts."**

Our grateful thanks to all the presenters, participants and organizers of the ECHO Pulse sessions and we look forward to continuing to learn together.

---



# Healing Indicators

ECHO Network Round Table Panel & Discussion



The confluence of the Nechako and Fraser Rivers is the traditional and unceded territory of the Lheidli T'enneh, and where the ECHO Pulse opening session began. Elder Darlene McIntosh brought the 61 attendees into the physical space where many internal and external presenters were located. This session explored the space between resource development, Impact Assessments, nation-based sovereignty and self-determination over health. This space is inextricably interconnected with the environment and the ongoing needs for 'healing indicators' that reflect these relationships. The panel led a discussion and reflections from members of the ECHO Network to explore these themes in different contexts, ranging from Indigenous-led experiences in northern British Columbia and Aotearoa/New Zealand, through to health authorities experiences in northern BC.

The following section touches on each of the speakers, the round table and discussion in chronological order.

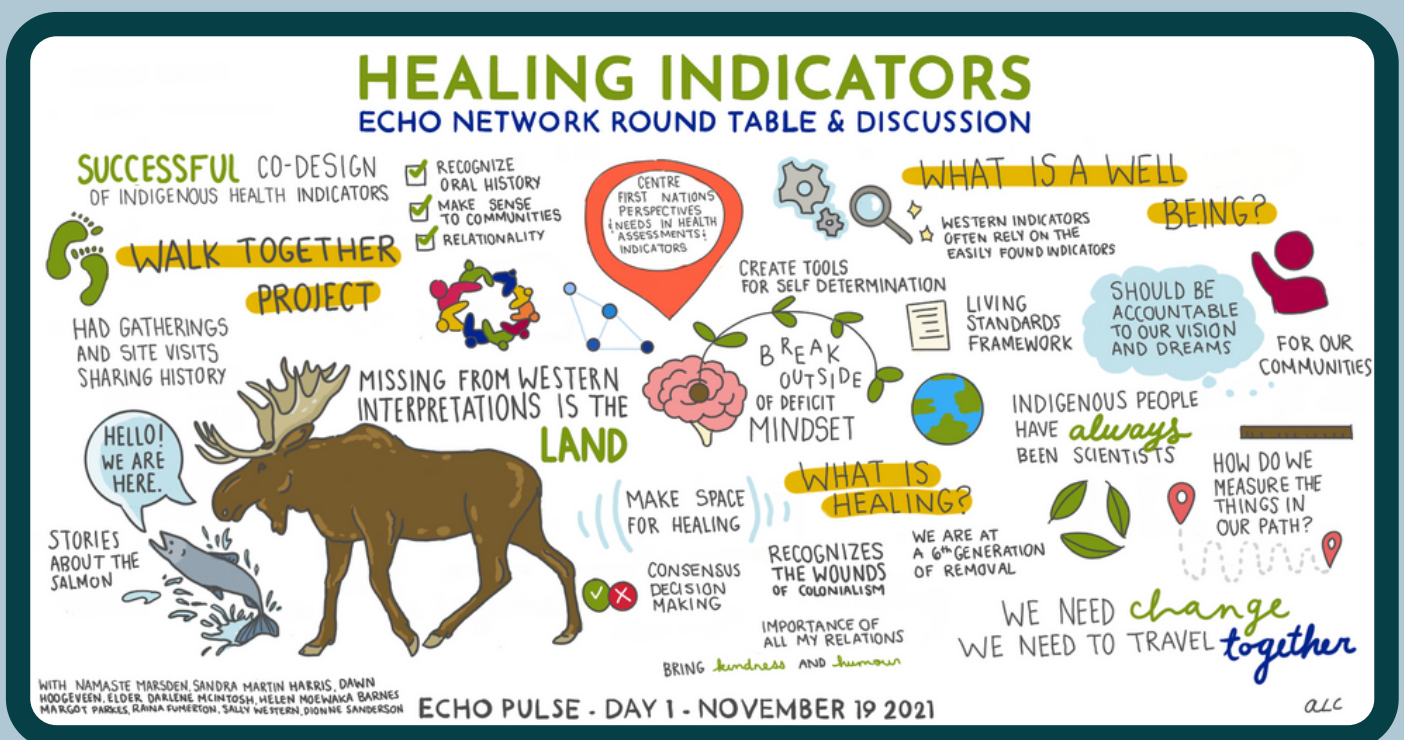


Figure 1. Graphic Recording of Healing Indicators session by Annika Chiasson.



---

## MARGOT PARKES & RAINA FUMERTON

---

The co-leads for the ECHO Network opened the week-long Pulse session by introducing the 5 year project, and giving participants an overview of the Network's history, interconnections and goals.

---

## NAMASTE MARSDEN

---

As the Director of Health, Economics, Analytics at First Nations Health Authority (FNHA), Namaste discussed a variety of projects involving FNHA and how they relate to different aspects of healing indicators. She referred to the Indigenous Healing Indicators report and highlighted 10 principals from this holistic framework that are based on reciprocity, respect and different ways of knowing; encouraging more culturally responsibility and amplifying the strengths in communities rather than the deficits.

Namaste reminded participants to be mindful of how data is collected and how that impacts the type of data collected. The session ended with the offering of a teaching from Namaste's clan about hunters tormenting mountain goats although they didn't need the meat, which translated into laws around only taking what is needed, and not needlessly hunting or the community would invite the risk of environmental disaster. Coinciding with the session, areas of British Columbia were greatly impacted by the flooding and landslides that can be directly tied to the climate crisis

---

## DAWN HOOGEVEEN

---

Working collaboratively with Simon Fraser University (SFU) and FNHA, Dawn introduced her work connecting Indigenous land-based based perspectives on health, wellness and culture into population health reporting and health impact assessment work. Her approach is guided by Ermine's Ethical Space as centering Indigenous ways of knowing is challenging when immersed in colonial and Western frameworks. Her background work draws on three areas of thinking: Land Based Healing Indicators, Decolonial Planetary Health, and Indigenous Led Health Impact Assessment. A scoping review on this work is in progress. Dawn discussed the Declaration of Rights of Indigenous Peoples Act and the increased amount of space this gives for impact assessment to be rooted within Indigenous self-determination, which Health Authorities can leverage to better help communities.





## SANDRA HARRIS

---

Sandra brings a wealth of experience as a member of the Wet'suwet'en Nation of the Laksilyu, Little Frog Clan, and a career focused on Indigenous health and community development. She leads us through her very gentle approach to healing because "the loss our people feel around culture is profound." Sandra shared how the RCMP are removing people from their land, an event occurring simultaneously with the Pulse, demonstrating the ongoing impacts of colonization, racism, and genocide. The transformation and change required to alleviate these systemic issues connects Sandra to the Trickster. She suggested that access to medicines found through food, culture and connection is all tied to the land and environment. Sandra provides hope through laughter and kindness, focusing on the strengths that result from good relations.

*"Our teaching winter fog or dede is a sign of sickness. so, as I see the RCMP hauling our people away [in the fog] that tells us there is a sickness. [...] There's a soul wound, we need to recognize that it's there. That's the first thing and so often the starting place is hearing the truth around the wounds that can be very difficult, so we need to create that space with love and kindness and gentleness so that we can sit together and understand the truth around the wounds and how they show up."*

*"Uncovering and exposing the ongoing aggressions - the wounding that is colonization. The assumptions, the values and supposed solutions that are associated with that system and the measure and solutions that then become naturalized by that system."*

*So our well-being I think is also about measuring **that** and exposing **that**. Not just accepting those things and adding our measures onto them."*

## HELEN MOEWAKA BARNES

---

A Maori scholar from Auckland, New Zealand, Helen highlights the need to focus on how tools of measurement are created, and why they are measuring which factors or indicators. She touches on the economy and on factors that are rooted in colonial understandings of well-being that don't take into account what "well-being" and "health" mean to an Indigenous way of knowing. She calls to refrain from building on systems that have continually missed the mark and fail to accurately represent Indigenous communities, but instead is "dreaming and having visions of our wellness of being and we should be accountable for those visions, not theirs [colonial systems]." Helen encourages looking at shared possibilities, locally, nationally, and globally, and to travel together on this journey.

## DIONNE SANDERSON

---

Speaking from her experience as a First Nations Health Authority (FNHA) Environmental Contaminants Program Coordinator, Dionne brings up poignant stories that bear witness to systems not listening. Listening is conditional. She recalls a specific instance of being in the room when communities continue to speak to ears that don't listen; reflecting the themes discussed by other panelists. Dionne considers how proponents within this system treat 'engagements' as tick boxes, never truly seeking feedback. As someone in the field she asked the panel what her role *could* or *should* be and how to balance knowing when to add her voice or to give space.

## SALLY WESTERN

---

As the Northern Health (NH) Technical Advisor for the Office of Health and Resource Development (HRD), Sally works in impact assessment with different major resource extraction projects. She reports that "~80% of indicators are gathered from publicly available data" because in-depth community consultation and building good relations takes time. Her work involves finding that indicators need to be community-specific to be relevant, and the importance of moving away from publicly available census data to focus on the lived experience of community members.

## PLENARY

---

This session ended with a question and answer period discussing the nexus between environment, community and health. Topics flow from courageous conversations to cultural understandings of law and legality and different ways that UNDRIP can impact these communities. Threads woven throughout this conversation can be reviewed by clicking the link below.

**LINK TO THIS SESSION'S RECORDING:**

**<https://vimeo.com/668811348>**

If you'd like to explore the resources mentioned in this session, please refer to APPENDIX B.





# Creation of a Digital Story



## ECHO Reflections in Art

The first official premiere of the "ECH Expressions in Art" Digital Story!

ECHO trainees Makayla Skrlac, Katya Korol, and Saadia Hara reflected and discussed their experiences creating a digital story to tell the story of Environment, Community, Health (ECH) integration. Submissions to an Expressions in Art activity organized before the 2020 ECHO Network AGM inspired the content. As one example of the ECHO Network's goals to build and strengthen trainee capacity, the three trainees detailed their varied experience with arts based and narrative approaches. Watch the "[ECH Expressions in Art](#)" Digital Story (publicly available on ECHO Network's YouTube page).



Figure 2. Graphic Recording of Creation of a Digital Story session by Annika Chiasson.

## MAKAYLA SKRLAC

As a research assistant with ECHO for almost four years, Makayla was introduced to arts based and narrative approaches through the [Comic Jam Activity](#) led by May Farrales in 2018. Both she and Katya had limited previous knowledge about creating digital stories, and were fortunate to collaborate with Saadia and other past and present ECHO members with experience on this type of project. Major challenges were generating the a storyline script and identifying a contiguous thread to create a narrative from the thematic analysis of really diverse 'Reflections in Art' submissions. Makayla handed off to Saadia to explain the thematic analysis.

## SAADIA HARA

Saadia is the Environmental Health Programs Coordinator for the New Brunswick Regional Case and she leveraged her experience with narrative and visual tools to encourage a strong focus on the themes - explaining that themes are essential! Saadia explains that after many rounds of revision they landed on the following: Challenges to ECH Integration, ECH Harms and Benefits and Knowledge to Collective Action. The conversation then flowed over to Katya to expand on the group's approach to address the challenges.

**SESSION 2 (NOV 22, 2021)****KATYA KOROL**

---

Katya referenced literature including Gislason and colleagues' 2018 paper titled "Voices from the landscape: Storytelling as emergent counter-narratives and collective action from northern BC watersheds" and de Leeuw and colleagues' 2017 article called "Going unscripted: A call to critically engage storytelling methods and methodologies in geography and the medical-health sciences." Engaging with relevant literature helped to inform the digital story creation process and encouraged the trainees to strive for a participatory approach. For instance, Katya explained that asking for lots of feedback and involvement from the folks who created these submissions and allowing for the story to emerge organically from the text that accompanied the submissions, rather than superimposing a contrived script onto this story, was part of the trainees' aspiration to engage in a collaborative storytelling process.

**SARAH DE LEEUW**

---

Following the premiere, Dr. Sarah de Leeuw, Research Director of the Health Arts Research Center (HARC) at UNBC, broadened the Reflections in Art session with her presentation "Beyond Known Worlds: Critical Poetic Reflections on creativity, environment, health, and communities (and a Digital Story!)."

Simultaneously speaker and poet throughout the session, Sarah circled back and through pieces of poetry to critically reflect on the cycles of art production within the ECHO Network, like this ECH digital story. When not presenting, she was writing prose for a spontaneous poem that she recited to close this session and spoke the age-old adage 'I can't wrap my mind around...' while listing numerous examples demonstrating that the current "times have never been making so devastatingly sharp and urgent that primal and inextricable linkage between environment, community (including non-human and more-than-human entities), and health."

**LINK TO THIS SESSION'S RECORDING:**  
**[HTTPS://VIMEO.COM/668808877](https://vimeo.com/668808877)**

**If you'd like to explore the resources mentioned in this session, please refer to APPENDIX B.**





# Health in Watersheds

## Exploring Connections and Data Complexities



The Watersheds session explored the strengths and weaknesses of working at the watershed scale with human and ecosystem data, and imagined various pathways for working on complex environment, community, and health issues, on a watershed scale. The panel and discussion, led by Margot Parkes, drew examples of ‘health in watersheds’ work underway across the Network. The emphasis was on environment, community and health connections, as well as the important data and integration challenges that arise when working at the watershed scale. Participants in the session were informed by watersheds and river systems from across Canada, and abroad, and this interactive and wide-ranging discussion explored new opportunities to amplify integrative approaches to ‘health in watersheds.’

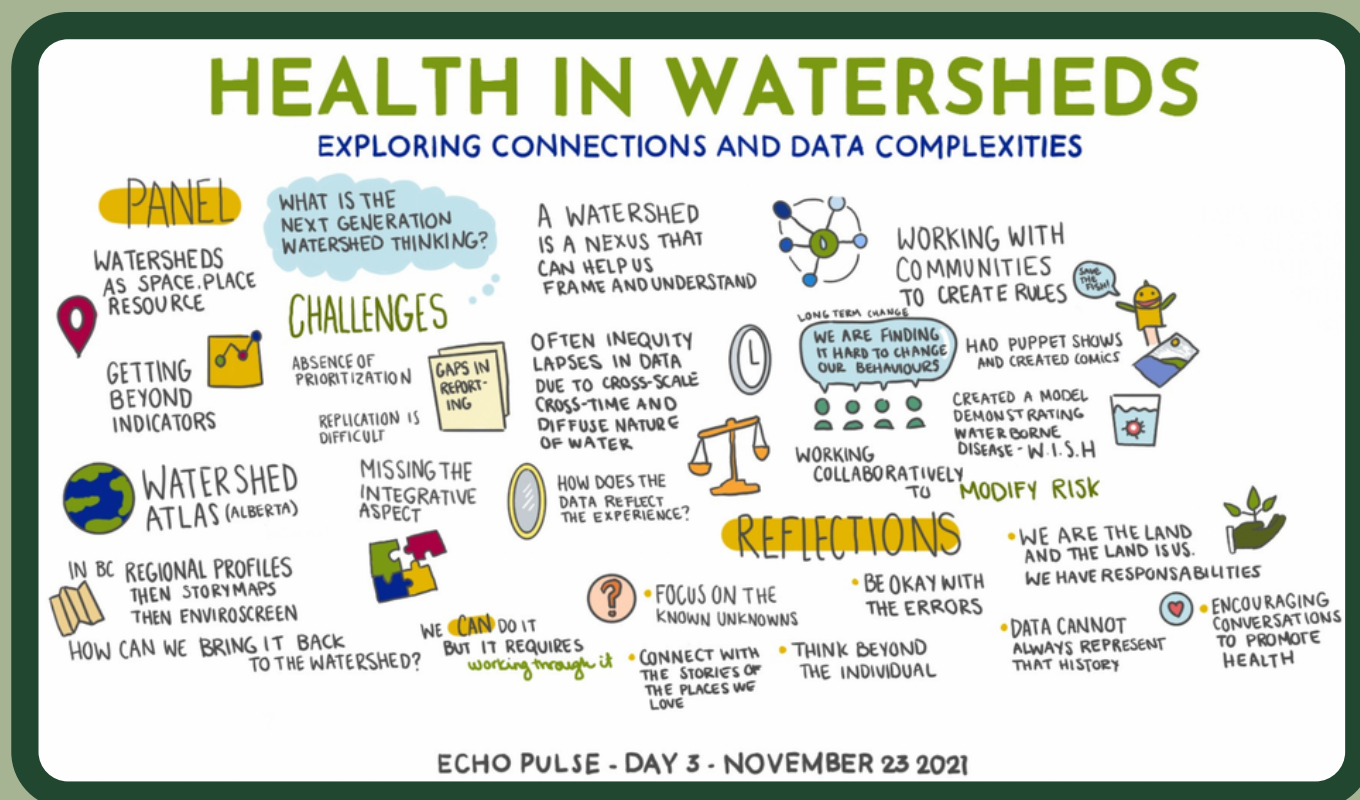


Figure 3. Graphic Recording of Health in Watersheds session by Annika Chiasson.

## LARS HALLSTROM

Working in partnership with the Battle River Watershed Alliance (BRWA) in Alberta, Lars brought our focus to the question of using watersheds to think about water within the contexts of sustainability, data collection and measurement, understanding anthropogenic impacts, and promoting public health. He identified the importance of thinking about frameworks and moving beyond existing lists of indicators, to promote integrative, holistic work which seeks to understand interaction effects across sectors and across policy domains.

Lars described the numerous challenges associated with visually representing health in watersheds, how to conceptualize data on a watershed-level scale, and how to address the gaps and challenges that arose when developing the Health and Watershed Atlas. This Atlas is designed to compile and assess the state of knowledge about key indicators identified within the Battle River watershed and populates indicators, maps, and socio-political, cultural, health and other data into one comprehensive document. Lars concluded with the following question:

"How do we actually think about these really complex interaction dynamics and what do they mean over time"?

### AITA BEZZOLA

Aita Bezzola leads the GECHO (the geospatial ECHO team). Aita walked through the development/stages of how the GECHO team has been looking at Environment, Community, Health (ECH) data in British Columbia's Nechako watershed over the past few years, and outlined some challenges bringing landscape and human data together. As human data privacy standards require the spatial unit to be at the level of health areas, watershed boundaries don't match health boundaries well. This work started with Regional Profiles and Story Maps, which focused on regional districts and brought together various types of data onto the same page, but not in a comparable or integrative way. Next came the EnviroScreen, which brought all the variables to the same geographic extent, but again to an administrative boundary rather than a natural one. Aita discussed the ways different types of data are collected, giving examples of continuous data across a whole area; discrete points/areas; or counts aggregated to an administrative boundary. This affects how you can quantify them to other spatial units like watersheds, but to this point the lowest common denominator of health data has been the limiting factor. Aita concluded with a hopeful statement that we can do better and move beyond the exploratory efforts described above.



## **CHRISTIANA ONABOLA**

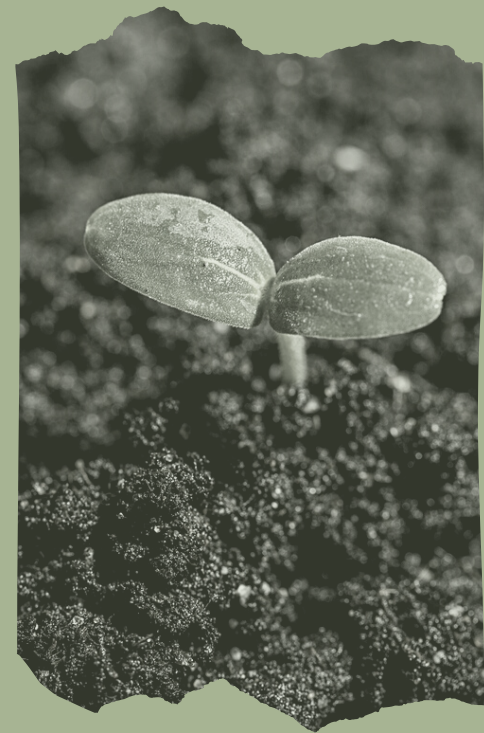
Christiana Onabola is a Health Sciences PhD candidate at UNBC. Her presentation focused on data-related challenges at a watershed scale, in relation to leveraging health equity into the water-energy-land nexus through the integrative framework of the SDGs. Christiana explained that the principle of indivisibility and the interlinked nature of the SDGs presents a potential integrative platform for exploring cross-sectoral possibilities for the land, water, energy nexus, and particularly for advancing health and health-related outcomes like equity which are central to the SDGs. However, there are data complexities at a watershed scale in connection with availability of SDG data, used in tracking environmental health challenges from land, water and energy systems. Other data challenges include availability of appropriate data to reflect health and equity outcomes at a watershed scale.

## **AARON JENKINS & STACY JUPITER**

Aaron Jenkins and Stacey Jupiter work across Oceania and among the islands of Fiji, bringing an understanding of watersheds, wildlife conservation, and coastal marine systems from an environmental and biodiversity standpoint. They have developed a conceptual model showing how the combined effects of catchment modification, cyclones, and heavy rains are creating a perfect storm of conditions that lead to outbreaks of waterborne bacterial disease and negatively affect human health and well-being. This provided an evidence base for what they are now calling the Watershed Interventions for Systems Health Project in Fiji. Their main goals are to reduce the incidence of water related disease in people, particularly downstream in five watersheds in Fiji; to empower communities to access and maintain their right to water states in the connections to place; to enhance both environmental stewardship and cultural practice; and to develop a coordinated mechanism for systems health governance and facilitate approaches to sustainably finance and scale these interventions.

## JORDAN BRUBACHER

Jordan's presentation explored whether watersheds are an appropriate unit of analysis in environment, community and health-type research or activities. Although watersheds are tangible and real boundaries that people understand, health researchers can have a hard time moving away from using health boundaries despite health boundaries holding little significance for animals or plants. Researchers have not yet explored what it would mean to use a grid approach, whereby the whole region is divided into a grid with all health and environmental data summarized for each grid or cell. These cells could then be re-aggregated to any level (health unit or watershed unit) and compared. Many processes in ecology are scale-dependent, and so being able to move easily through scales of analysis can allow us to observe patterns that are only evident at certain scales.



## NEXT STEPS

- Working on a watershed-level scale is important but difficult, as it moves against some of the dominant human-focused practices currently in place.
- Data collection, organization, and conversion is difficult but is key to unpacking some of the health issues with environmental determinants.
- Organizing data to a watershed unit has several ecological benefits.
- History connects us back to place in watersheds, and so we are required by our systems to take care of it, not just for today, but for generations to come. Our decision making is not just for today it's for many generations following us and data analysis often doesn't allow for that.
- The root is wanting to encourage a more holistic view of what it means for our watershed people, communities, and ecosystems, to be healthy.
- Members of the ECHO Network have been grappling with these challenges and have developed tools and practices to enhance equity at the environment-community-health nexus.
- Behind all of the integrative work there are really important collaboration and relationships that emerge from health and watersheds work.

**Now, how do we move action after we take notice?**

**LINK TO THIS SESSION'S RECORDING:**

**[HTTPS://VIMEO.COM/668816228](https://vimeo.com/668816228)**

**If you'd like to explore the resources mentioned in this session, please refer to APPENDIX B.**

# ECHO & You(th)

Youth-centered conversation

Youth from across ECHO's regional cases shared experiences and perspectives from participating in outdoor learning activities on the land whether through school-based programming or at home in a youth-centered conversation.

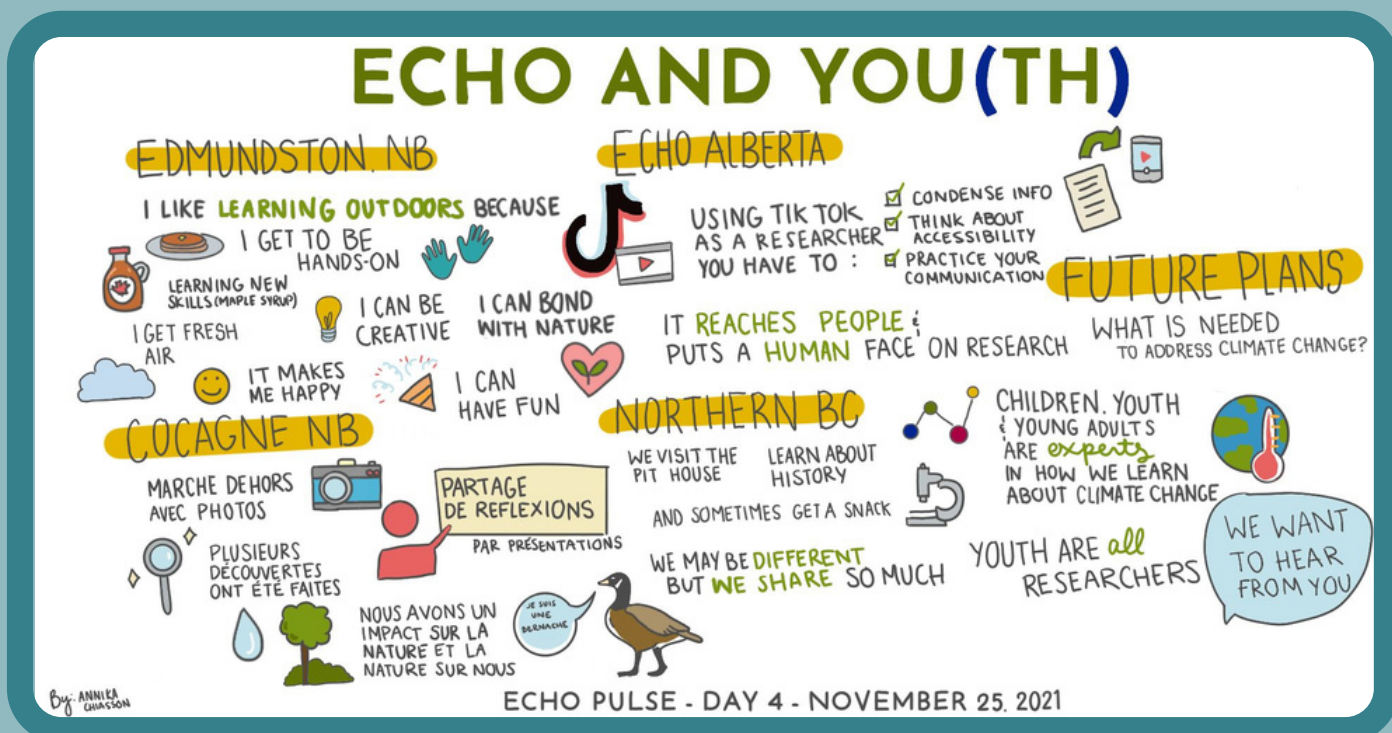


Figure 4. Graphic Recording of ECHO & YOU(th) session by Annika Chiasson.

## Cocagne Watershed, New Brunswick

Grade 5 students from Mrs. Despres' class shared how they learn outside every day by participating in their Natural Maker program. As part of this program, students conduct research and collaborative activities outside every day for an hour, and are looking to expand to two hours daily. Students spend their time walking in the woods and doing activities such as making mushroom paper or maple syrup, and end up doing things like math without even knowing! Students contributed to a video about outdoor learning to share how it helps combat human impact on the planet.

Grade 8 students from Mme. Breau's PE class shared details from a watershed walk they took three years ago and how they replicated it in 2021. This watershed walk activity enables learning about their local environmental issues and, with the use of SMASH (Smart Mobile App for Surveyors), they documented their work in the field by recording geolocated data in the form of written notes, observations, and images.



## Battle River Watershed, Alberta

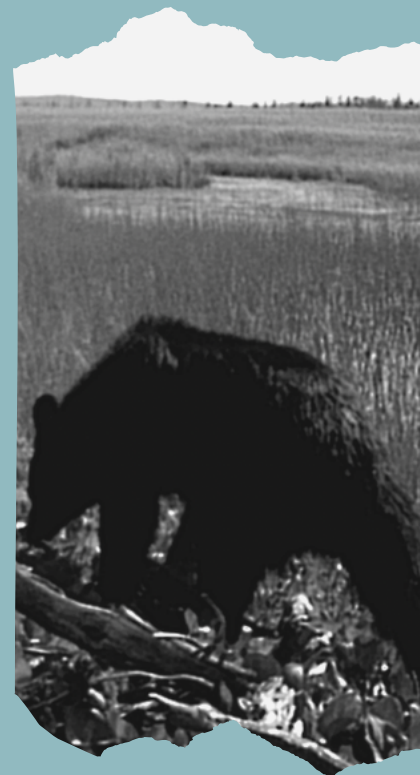
Looking west from New Brunswick to Alberta, Research Associates Nick Yarmey and Lanie Parr shared how their TikTok videos meet youth where they are at in order to distribute regional case knowledge with youth. Converting snippets of research data into one-minute TikToks to help humanize scientists and their research, the team shared how using hashtags helps their content reach a wider audience. During the question period, youth shared that they often see educational videos on TikTok and use them as accessible information sources.

## Nechako Watershed, British Columbia

Travelling north-west to the Nechako watershed, Grade 6 students in Mr. Mulroy's class presented on their experiences of weekly outdoor learning trips to a nearby pithouse. Students described the creation and use of pithouses by Carrier Nation members in their local area and shared photos of their excursions as well as a 3D model of a pithouse created by a local Elder.

ECHO trainees Jordan Cramer and Alexis Seely described the trajectories of their involvement with the ECHO Network, including a trip several years ago to attend ECHO's AGM in the Cocagne watershed. They shared experiences of participating in the ECHO Network as high school students and the ways in which this experiential learning continues to fuel their interests as university students.

In a follow-up event to this ECHO & YOU(th) session, two Grade 12 students from the Nechako watershed shared stories of connection to the land, waterways, and wildlife in their watershed, including time spent mentoring younger students in local water monitoring activities.



## Fraser Watershed, British Columbia

Finally, we followed the Fraser River down to Burnaby, British Columbia, where PhD Candidate Angel Kennedy reflected on the importance of youth voices and discussed future opportunities for youth on the call to stay engaged in the space of climate change.

**THIS SESSION WAS NOT RECORDED**

**If you'd like to explore the resources mentioned in this session,  
please refer to APPENDIX B.**



# EnviroScreen

Tips, tricks and tools for tackling complexity in social-ecological systems: Attending to cumulative impacts and persistent challenges that cross-cut environmental, community and health systems.

## MARGOT PARKES & RAINA FUMERTON

The final Pulse session centered around the EnviroScreen, a tool to strengthen intersectoral capacity to comprehensively understand and analyze health and wellness. Margot Parkes' opening remarks encouraged our thinking about the ways in which environment, community and health converge to influence us all. UNBC's guiding principle gifted from Dakelh Elders, 'En Cha Huná,' helped ground the session in the spirit that all people have a voice and perspective to share, and we must treat everyone with respect and humility. In addition, Margot bridges the international connections fostered between the ECHO Network and colleagues from Oceania.

Raina Fumerton describes the importance of addressing the cumulative impacts of resource development on northern, rural, remote, and Indigenous communities and helps us grasp the complex nature of public health by describing the current realities that we're facing, such as the opioid crisis, climate change, and the COVID-19 pandemic. Implicit to the conceptualization of cumulative impacts is the understanding that health, social and cultural well-being are all intertwined with the natural world and all profoundly influence one another.



Figure 5. Graphic Recording of 'EnviroScreen' session by Annika Chiasson.

## CHRIS BUSE

---

Lead moderator for the session, Dr. Chris Buse, introduces the flow for the three main sections:

1. Background and context for the cumulative impacts screening tool - The BCEnviroScreen.
2. A panel presentation on the pilot projects of the tool in the Alberta, New Brunswick, and Ontario regional cases.
3. Breakout group discussions.



## SECTION 1

---

Humanity has entered a new geological epoch, the Anthropocene, suggesting that humankind has become a profound global geological force in its own right. The health implications of natural resource extraction and climate change on Indigenous, northern, rural, and remote populations are significant; yet, seldom considered within indicator frameworks and data. Western views currently associated with indicators primarily arise from colonial epistemologies that ultimately embellish the 'indicator' phenomenon with falsifiable certainties, thereby neglecting the messy complexities intertwined within social and ecological systems. Properties that often exist as intangible, such as subjective opinions or spirituality, are frequently disregarded. The 'Healing Indicators' session described the necessity for Indigenous-led indicators and data and this Pulse session aimed to build upon the themes emerging from the 'Healing Indicators' presentation. Given the unique circumstances experienced within communities – physical landscapes, environmental harms, and social characteristics – there is a strong collective recognition that health must be conceptualized, measured and recorded in a fashion coinciding with the values, concerns, and realities of the given community.



The vast majority of what gets counted and measured in terms of cumulative impacts adheres to an 'environmental' perspective that oversimplifies health parameters and fails to bridge the gap between interrelated cultural, socioeconomic, and ecological components. To paint a more comprehensive picture of community health, Chris and team have developed EnviroScreens for BC, AB, ON, and NB, founded on the CalEnviroScreen (California) model.


The BC pilot includes 30 indicators divided into subgroups: socioeconomic factors, sensitive population, environmental effects, and environmental exposure. Furthermore, all of the data is reported at the level of local health authorities. Therefore, the integrated cumulative impact assessments method of the BCEnviroScreen - involving the domains of environment, community, and health - is an evidence-based means of promoting intersectoral action to address local social and ecological determinants of health.

## **SECTION 2**

---

The purpose of this panel presentation was to share some unique applications of the CalEnviroScreen across the Alberta, New Brunswick, and Ontario regional cases.

### **NICHOLAS YARMEY**



Nicholas, a Research Associate for the Alberta regional case, built an app that allows users to explore the results of the CalEnviroScreen application in Alberta with a displayed set of data points and scales. The geographic unit used for this EnviroScreen is called a local geographic area (LGA), and it is based on census units created by Alberta Health. It's generally the smallest geographic area to get health data, and a bottleneck in choosing a scale. Interestingly, health indicators can be compared within the province, a particular health zone, or contrasted between urban and rural regions.

Nicholas mentions the importance of encompassing asset-based thinking because quantitative indicators carry the capacity to perpetuate harmful stereotypes and deficit-based representations of communities if they 'score poorly', depending on the category or domain of indicator being analyzed. This underscores the complexity of measuring community circumstances and reminds us that a community's health is much more than a mere statistical 'score'.

---

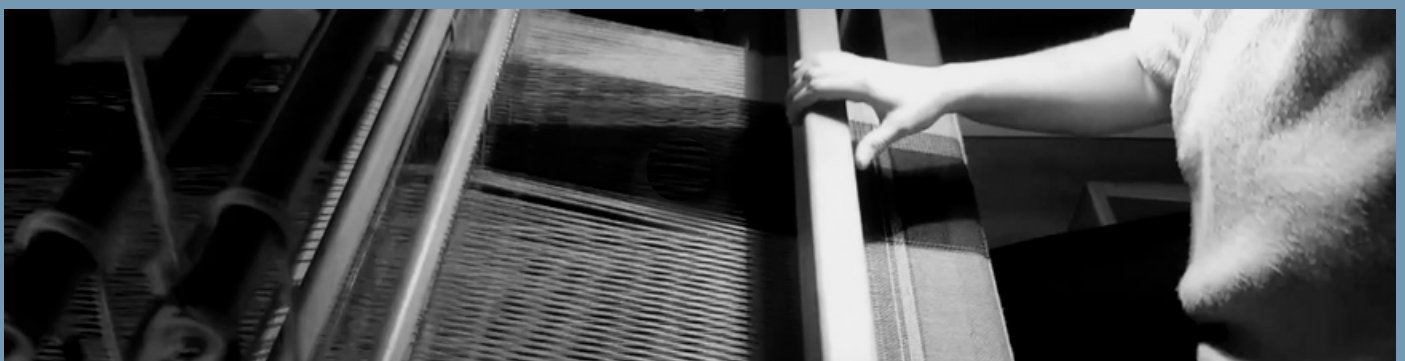
## SAADIA HARA

Saadia Hara, the New Brunswick Regional Case Coordinator, is completing her master's degree at the Université de Moncton. Saadia's work has demonstrated that communities appearing most vulnerable on the EnviroScreen map experience a significant amount of industrial and resource extractive projects in the realm of pulp and paper mills, thermal power plants, smelters, mines and sawmills. The EnviroScreen tool has allowed Saadia and her team to link vulnerability to the history of natural resources development which ultimately helps with the design of intersectoral policies and the integration of knowledge to better yield comprehensive indicators. Given the current realities we face regarding the anthropogenic forces and the warming of our climate, the tool could help mitigate the adverse consequences experienced by communities. Next steps are to organize workshops to spread to word of this tool to government and communities, both vertically and horizontally.



## BRIGITTE CHAMPAIGNE

Brigitte is a Master of Health Sciences student at Lakehead University, and her work integrates the knowledge of the EnviroScreen with the creative approach of weaving. Brigitte shared that weaving is a process for integration, reflection, and representation on the Ontario EnviroScreen. In other words, weaving allows us to make space for change, and represents the different contexts and settings in which cumulative impacts can manifest and we can capture knowledge that isn't necessarily displayed on the EnviroScreen. Brigitte weaves a minimum of once per week while working on the EnviroScreen, and she never engages in this creative activity with a concrete plan. Instead, the work she creates stems from the creativity within the present moment, and consequently, she may illuminate components that are missing from the EnviroScreen. Weaving is "a way to dabble in this great uncertainty characterized by the Anthropocene, and it's a practice of getting more comfortable with deep unknowing".



## SECTION 3

The objective of the breakout rooms was to allow participants to reflect upon and share the strengths, and weaknesses, of the tool, in addition to potential future applications and intersectional processes for learning and praxis. The following questions helped to facilitate the breakout room conversations:

1. What does the tool tell us about complex systems and how we can intervene?
2. What are the tool's strengths and weaknesses from an end-user's perspective?
3. EnviroScreens are meant to be screening tools – a starting point for understanding cumulative impacts. What other processes need to be paired with the tool to create change and bolster sustainability?

Throughout the mini discussions, the groups were encouraged to come up with one verb (an action word) that connects to relevant next steps for integrative tools and processes. Below, the breakout rooms are identified with the associated action words and the key takeaways are articulated.

### 'COMMUNICATION'

The EnviroScreens could help selectively analyze the relationships between indicators and identify relevant ones that serve to fuel conversations, or engagement with government authorities. However, there is concern about bringing this tool to provincial health ministries and health sectors in their decision-making processes. Certain members participating in the conversation were part of provincial health ministries, and they displayed a keen interest in continuing the discussion.

### 'REGENERATING'

The visual simplicity and organization of the EnviroScreen tool is appreciated, but an emphasis on the many variables that remain unnoticed when developing these indicators is highlighted. It is essential to find a way of quantifying these local nuances and cultural determinants. Discussion involved incorporating qualitative input and local voices to add a more comprehensive lens to this tool. The mapping component could enhance figuring out where we need to collectively focus our efforts most to help communities experience greater health.

## 'SUMMON'

Potential ways people could perceive the usage of these tools was discussed. In other words, what would their initial impressions be? For instance, these conversations can be threatening and more polarizing, so it would be integral to communicate with people in a 'co-benefits' manner that accentuates how all parties can benefit from these tools. For many, resource development projects are their livelihood and source of income.

## 'CONTEXTUALIZE'

Each community has different priorities when it comes to indicators and data, and this exemplifies the complexities of trying to create frameworks that accurately portray local needs. The history of the community, such as comparing past data to present data, is an important aspect that should be linked to the EnviroScreen. Questions arose about creating data in a timeline to understand the relationships and possible correlations between industries and health outcomes. Potential to combine the EnviroScreen with other tools to form a more comprehensive analysis of community health was also discussed.

## CLOSING

In closing the ECHO Network Pulse Series, Margot Parkes described how incredible it was to see a group of individuals come together and percolate on action-oriented words that invoke how we can "be better together."

Finally, with a deep sense of gratitude for sharing her grounding words of wisdom, Elder Darlene McIntosh was invited to wrap up the collective efforts of this ECHO Pulse Series and collectively "close the circle," reminding us all that there are two lenses by which we see the world; colonial and Indigenous, and the 'coming together' of these lenses is imperative as we strive to create a healthier and greener world through values of unity and love.

Special thanks to Annika Chiasson and her artistic and creative ability to eloquently portray some of the emerging themes and key takeaways in the form of skillful graphic recordings for each of the sessions.

**[LINK TO THIS SESSION'S RECORDING:](https://vimeo.com/668816228)**

**[HTTPS://VIMEO.COM/668816228](https://vimeo.com/668816228)**

**If you'd like to explore the resources mentioned in this session, please refer to APPENDIX B.**



## APPENDIX A

# LIST OF PARTICIPANTS OF THE 2021 ECHO NETWORK PULSE

Adams, Lisa - Australia	Gibb, John - BC	Kuzmich, Karen - ON	Sanchez, Carlos - ON
Barnett, Barbara - ON	Gislason, Maya - BC	Kwon, Katerina, BC	Sanderson, Dionne - BC
Barron, Tania -Seattle	Grass, William - BC	Lachmuth, Cara - BC	Schau, Torben - BC
Bates, Melissa - nBC	Green, Jenny - BC	LaRochelle, Serge - NB	Scott, Emma - BC
Beck, Lindsay - BC	Hallstrom, Lars - AB	Lehenbauer, Katrina- BC	Seely, Alexis - nBC
Belcourt, Earl - BC	Hara, Saadia - NB	Lively, Sharlene - nBC	Sheppard, Flo - nBC
Bezzola, Aita - nBC	Harris, Sandra - nBC	MacLean, Kim - nBC	Sheppard, Hillary - nBC
Booth, Barry – nBC	Hart, Jess - BC	Marks, Raissa - QB	Skinner, Sarah - AB
Bravo, Marcelo - nBC	Hasan, Leena - BC	Marsden, Namaste - BC	Skrlac, Makayla - nBC
Breau, Sylvie - NB	Haugen, Stacey - AB	Mazey, Peter - BC	Stewart, Robert - ON
Brisbois, Ben - nBC	Henry, Amanda - BC	McIntosh, Darlene - nBC	Surette, Céline - NB
Brubacher, Jordan - BC	Herr, Ildiko - BC	McKinnon, Tavia - nBC	Tait, Paula - nBC
Bunce, Anna - BC	Hixson, Anna - Seattle	Michell, Bianca - nBC	Takaro, Tim - BC
Burton, Laurel - nBC	Hoogeveen, Dawn - BC	Misovic, Megan - BC	Thibault, Michelle - NB
Buse, Chris - BC	Hopkins, Debra - AB	Moewaka Barnes, Helen - New Zealand	Thomas, Cody - BC
Chamberlin, Kelsey-nBC	Humchitt, Jessica - BC	Mulroy, Andrew - nBC	Thomas, Kimberley - BC
Champaigne-Klassen, Brigitte - ON	Jawanda, Simran - BC	Murphy, Tim - NB	Thorne, Natasha - nBC
Chapman, Latricia - AB	Jeddore, Danielle - ON	Nabuco, Priscila - BC	Thorne, Shona - nBC
Cheng, Joey - nBC	Jenkins, Aaron - Australia	Nesjan, Bernita - nBC	Tong, Esther - BC
Chevrette, Lee-Ann - ON	Johnson, Lindsay - BC	Neufeld, Vic - BC	Trotman, Rachael – New Zealand
Chiasson, Annika - nBC	Joly, Tara - nBC	Nkusi, Debra - ON	Turtiak, Merry - AB
Chow, Laura - BC	Jull, Janet - ON	Nowell, Jodie - BC	Vanjecek, Arthur - BC
Clermont, Holly - BC	Jupiter, Stacy - Fiji	Oke, Barb - nBC	Wadden, Shane - nBC
Cole, Donald - ON	Kaplan-Hallam, Maery - BC	Onabola, Christiana-nBC	Warkentin, Lisa - nBC
de Koninck, Vanessa - AB	Kennedy, Angel - BC	Parker, Ella - nBC	Western, Sally - nBC
de Leeuw, Sarah - nBC	Klassen, Aynsley - ON	Parkes, Margot - nBC	White Masry, Karen - NB
Despres, Vanessa - NB	Klepetar, Amy - nBC	Parr, Lanie - AB	Whitham, Donna - BC
Dhaliwal, Nancy - nBC	Kormos, Jeff - nBC	Pestaluky, Lana - nBC	Woollard, Robert - BC
Dodaro, Amanda - ON	Korol, Katya - nBC	Peterson, Emily - BC	Yarmey, Nicholas - AB
Doyon, Jonathan - nBC	Kot, Megan - BC	Quinn, Emma - BC	Yeh, Helen – NS
Edwards, Joanne - BC	Kovacevich, Kelsey - nBC	Rakotorahalahy, Onitriinaia - NB	Yehia, Jade – BC
Fox, Gloria - nBC	Kozak, Marley - AB	Reeder, Bruce - Sask	Ziolo, Mira – BC
Fumerton, Raina - nBC	Krysowaty, Bonnie - ON	Richard, Myrienne - BC	Zirul, Chelan – nBC
Galway, Lindsay - ON	Kutzner, Diana - nBC	Ronald, Lisa - BC	



## APPENDIX B

# MEETING RESOURCE PAGES

## Healing Indicators

Adams, E., Henry, B., & McDons, S. (2021). First Nations PHWA. *First Nations Health Authority and the Office of the Provincial Health Officer*, 275. <https://www.fnha.ca/Documents/FNHA-PHO-First-Nations-Population-Health-and-Wellness-Agenda.pdf>

BC Government. (2020). *Parliamentary secretary's statement on Transgender Day of Remembrance*. News.Gov.BC. <https://news.gov.bc.ca/releases/2020FIN0061-001948>

Ermine, W. (2007). The Ethical Space of Engagement. *Indigenous LJ*, 6(1), 193. <https://jps.library.utoronto.ca/index.php/ilj/article/view/27669/20400>

Fox, P., & Crowshoe, E. (2018). Indigenous Health Indicators: A participatory approach to co-designing indicators to monitor and measure First Nations health (pp. 1–36). The Alberta First Nations Information Governance Center. <https://www.afnigc.ca/main/includes/media/pdf/digital%20reports/Indigenous%20Health%20Indicators.pdf>

Gitanyow Hereditary Chiefs. (2021). *HA NII TOKXW: OUR FOOD TABLE* [Video]. Vimeo. <https://vimeo.com/591536533>

Iinnie Initaitve Buffalo Treaty. (2014). <https://www.buffalotreaty.com/treaty>.

IPCA. (2020). Ethical Space in the Kootenay-Columbia Region. <https://130ncw3ap53r1mtmx23gorrc-wpengine.netdna-ssl.com/wp-content/uploads/sites/69/2020/08/y2y.2020.background-ethical-space.pdf>

[Mikisew Cree First Nation v. Canada](#)

RAVEN. (2021). *Bustin BC'S Dependency on Fossil fuel* [Video]. Vimeo. <https://raventrust.com/video-busting-bcs-dependency-on-fossil-fuel/>

Stelkia, K., et. al., (2021). Letsemot, "Togetherness": Exploring How Connection to Land, Water, and Territory Influences Health and Wellness with First Nations Knowledge Keepers and Youth in the Fraser Salish Region of British Columbia. *International Journal of Indigenous Health*, 16(2), Article 2, <https://doi.org/10.52799/ijih.v16i2.35206>

Te Aka. (2021). Māori Dictionary Project. <https://maoridictionary.co.nz/>

The Treasury. (2021). The Living Standards Framework Dashboard: Our country, Our future and Our people. Living Standards framework. <https://www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/our-living-standards-framework>

Unist'ot'en. (2021). UNIST'OT'EN: Health the People, Heal the Land. Unistoten. <https://unistoten.camp/>



---

## Digital Story

---

**How-To Video link:** <https://youtu.be/iRxSfaPzCZo>

**Link to Digital Story:** <https://youtu.be/z8WT-jVGMR8>

**ECHO Comic Jam Activity explanation:**

<http://healtharts.ca/comic-jams-intersectoral-research-and-responses-to-the-impacts-of-resource-extraction/>; <https://www.graphicmedicine.org/conference-jam-comic-2/>

Gislason, M. K., Morgan, V. S., Mitchell-Foster, K., & Parkes, M. W. (2018). [Voices from the landscape: Storytelling as emergent counter-narratives and collective action from northern BC watersheds](https://doi.org/10.1016/j.healthplace.2018.08.024). *Health & Place*, 54, 191–199. <https://doi.org/10.1016/j.healthplace.2018.08.024>

Leeuw, S. de, Parkes, M. W., Morgan, V. S., Christensen, J., Lindsay, N., Mitchell-Foster, K., & Jozkow, J. R. (2017). [Going unscripted: A call to critically engage storytelling methods and methodologies in geography and the medical-health sciences](https://doi.org/10.1111/cag.12337). *The Canadian Geographer / Le Géographe Canadien*, 61(2), 152–164. <https://doi.org/10.1111/cag.12337>

---

## SESSION 3 (NOV 23, 2021)

### Watersheds

---

**CalEnviroScreen tool:** <https://oehha.ca.gov/calenviroscreen>

**Converter tool:** <https://github.com/mountainMath/tongfen>

**Ehrenfeld, D.** (1978). *The arrogance of humanism*. New York: Oxford University Press. <https://doi.org/10.1080/00139157.1979.9931204>

**Harris, S. M.** (2011). "Yinka Dinii Ha Ba Ten, the Ways of the People of the Earth: A Social-Ecological Framework for Sustainability". Masters Thesis. UNBC. <https://doi.org/10.24124/2011/bpgub1512>

**Integrated Regional Profile work:** <https://www2.unbc.ca/cumulative-impacts/tools>

**The ecological fallacy dilemma:** <https://www.britannica.com/science/ecological-fallacy>

**The Fiji case studies:** <https://www.planetaryhealthalliance.org/case-studies>

**WISH:** <https://fiji.wcs.org/Initiatives/Land-Sea-Management/Watershed-Interventions-for-Systems-Health-in-Fiji.aspx>

---

---

## ECHO & YOU(th)

---

Nick Yarmey's Favourite Educational TikToks:

<https://nicholasyarmey.weebly.com/portfolio/the-best-educational-tiktoks>

ECHO TikTok Handle: @echo\_ruralab

Nechako White Sturgeon Conservation Center:

<https://www.nechakowhitesturgeon.org/> ; <https://www.facebook.com/NWSRI/>

[Koh-Learning in our Watersheds:](https://www2.unbc.ca/integrated-watershed-research-group/koh-learning-our-watersheds)

<https://www2.unbc.ca/integrated-watershed-research-group/koh-learning-our-watersheds>

[SMASH Reference Manual:](https://www.geopaparazzi.org/smash/) <https://www.geopaparazzi.org/smash/>

[Brilliant Labs:](https://www.brilliantlabs.ca/naturalmakerspace/) <https://www.brilliantlabs.ca/naturalmakerspace/>

---

## SESSION 5 (NOV 26, 2021)

## EnviroScreen/Closing Session

---

CalEnviroScreen tool:

<https://oehha.ca.gov/calenviroscreen>

---

# SESSION INFO SHEET

BELOW IS AN EXAMPLE OF THE "INFO SHEETS" THAT SUMMARIZE ALL FIVE SESSIONS IN THIS REPORT. THE FIVE INFO SHEETS WILL BE AVAILABLE IN BOTH FRENCH AND ENGLISH. THESE ARE FORTHCOMING AND WILL BE SHARED ON THE ECHO NETWORK WEBSITE SOON.

## ECHO & You(th) Info Sheet

Youth-centered conversation

A youth-centered conversation where youth from across ECHO's regional cases shared their experiences and perspectives from participating in outdoor learning activities. Youth described their experiences taking part in activities out on the land, as well as their interests, aspirations, and motivations for engaging in activities at the interface of community, health, and land. Students and researchers presented from across Canada, including New Brunswick, Alberta, and British Columbia Regional Cases.

Speakers		
Youth from the Nechako and Cocagne Watersheds	Nick Yarmy Lanie Parr Angel Kennedy	Maya Gislason Jordan Cranmer Alexis Seely

Figure 1. Graphic Recording of 'ECHO & YOU(th)' session by Annika Chiasson.

Key Takeaways

- Students feel a personal connection to the land
- Students want to spend more time learning outside
- Learning outdoors shapes youth interests and perspectives
- Youth are both an audience for and contributors to research
- Youth are using research tools and technology to record and share their outdoor learning
- Youth are able to connect across diverse geographies about localized experiences of outdoor learning

“On behalf of parents, I am very grateful for all of you teachers and researchers”

- Parent of a youth speaker

Resources

- [SMASH Reference Manual](#)
- [Brilliant Labs](https://www.brilliantlabs.ca/naturalmakerspace/): <https://www.brilliantlabs.ca/naturalmakerspace/>
- [Nick Yarmey's Favourite Educational TikToks](#)
- [ECHO TikTok Handle](#): @echo\_ruralab
- [Koh Learning in Our Watersheds website](#)

\*This session was not recorded