

# CUMULATIVE IMPACTS RESEARCH CONSORTIUM

2019 (January – December)

# ANNUAL REPORT

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[www.unbc.ca/cumulative-impacts](http://www.unbc.ca/cumulative-impacts)



## WELCOME MESSAGE

This report provides an overview of the research and community engagement activities delivered by UNBC's Cumulative Impacts Research Consortium (CIRC) in 2019.

This past year has been another one of change for the CIRC. In September, Project Lead Marieka Sax transitioned to an SSHRC supported Postdoc position at UNBC. Operational management of the CIRC has since fallen to the Steering Committee, which in turn has been supported by the UNBC Health Research Institute team of Rachael Wells and Bree Loeffler. Former Research Lead Chris Buse continues to be involved as he also pursues new research and teaching opportunities, now at UBC-Okanagan.

It has been an eventful year. Some projects came to a close and new initiatives got underway. We are grateful for everyone who contributed to the CIRC over the past year, and we look forward to continuing to build a solutions-oriented research and community dialogue for the benefit of Northern British Columbia and beyond. Updates on CIRC activities, including a comprehensive archive can be viewed on its webpage here: <https://www.unbc.ca/cumulative-impacts>.

The CIRC Steering Committee oversees and monitors the activities and projects of the CIRC. As we move into a period of reduced financial and human resources, the CIRC is able to leverage connections and supports from the three UNBC Research Institutes to continue its momentum for research and training opportunities that address the cumulative impacts of resource development in Northern BC.



Photo: UNBC Communications ([www.unbc.ca/image-galleries/950/northern-bc-scenery](http://www.unbc.ca/image-galleries/950/northern-bc-scenery))

## ABOUT CIRC

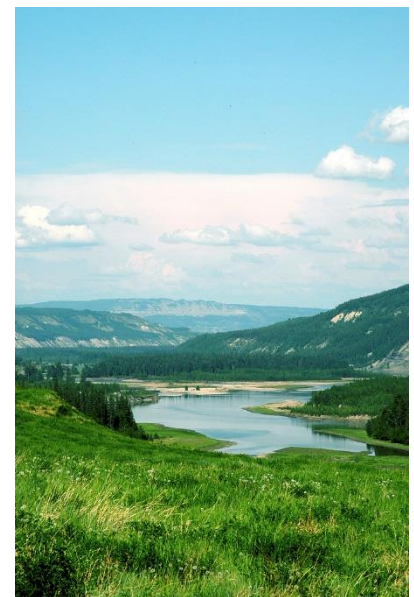
The CIRC is a research and outreach initiative at the University of Northern British Columbia dedicated to enhancing our understanding of the positive and negative impacts of resource development across northern BC. The CIRC is collaboratively led by UNBC's Health Research Institute (HRI), the Community Development Institute (CDI), and the Natural Resources and Environmental Studies Institute (NRESi).

The framing of “cumulative impacts” is necessarily interdisciplinary and integrative, drawing on unique contributions from the natural, social and health sciences, as well as the humanities. UNBC is a place for dialogue and research on issues that matter not only to the communities and landscapes of northern BC, but also to places throughout the province, Canada and the rest of the world. As a place for research and learning, it has a mandate to respond to local issues of global importance, while driving innovation throughout the region. The cumulative impacts of resource development cross-cuts UNBC's established strengths and strategic research priorities. This specialized topic offers significant potential to enhance research and community engagement efforts already underway across the university, and to continue to generate integrative capacity across UNBC's colleges and diverse academic programs. The notion of “cumulative impacts” provides a mechanism to bridge UNBC's four identified strategic research priorities. It is explicitly concerned with resource development operations and associated environmental impacts; it addresses how natural resources are a principal driver of the social and economic development of communities around the world; it speaks to the direct and indirect health outcomes for workers and populations living in rural and remote communities; and it supports attention to First Nations and Aboriginal land governance in a time of truth and reconciliation.

Throughout 2015-2019, CIRC built on initial successes to expand our understanding of the cumulative impacts of resource development across northern British Columbia, respond to knowledge and capacity gaps with original research, and grow our capacity to act as a regional hub of cumulative impacts information and resources. Indeed, the cumulative impacts of resource development is an internationally-relevant research area necessitating inter-sectoral collaboration and partnership development. CIRC's work in this space is oriented towards developing innovative community surveillance methods and indicators capable of measuring the impacts of resource development on human populations. It seeks to inform innovative, policy-relevant solutions that address the complex relationships between social and economic development, environmental management, and population health-level outcomes in resource-dependent regions by improving environmental impact assessment and community engagement techniques.

CIRC worked on a suite of research projects that emerged in response to concerns and issues voiced by communities in northern BC. These projects led to the production of several new tools and processes for engaging communities and supporting novel, integrated monitoring processes to better understand the cumulative environmental, community, and health impacts of resource development. For more information on CIRC's research projects, visit [www.unbc.ca/cumulative-impacts/research](http://www.unbc.ca/cumulative-impacts/research).

The CIRC network is currently comprised of more than 400 individuals and organizations across northern BC, including numerous watershed stewardship organizations interested in this work. This network includes a variety of experts



in watershed governance, including the Fraser Basin Council, POLIS (a BC-focused watershed research group out of the University of Victoria), the Battle River Watershed Alliance (one of the regional cases for the Environment, Community, Health Observatory [ECHO] Network), and government staff from the Ministry of Environment.

CIRC sought feedback and leadership from the communities we work with to better understand the ways in which our research and outreach activities can best support local capacity to address the issue of cumulative impacts. We developed working relationships and collaborations with the following partners:

- Adaptation to Climate Change, Simon Fraser University
- BC Ministry of Environment
- BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development
- Boreal Centre for Sustainability
- Bulkley Valley Research Centre
- Canadian Parks and Wilderness Society
- Climate Change Adaptation Planning, City of Prince George
- Environment, Community, Health Observatory (ECHO) Network
- The Firelight Group
- Fraser Basin Council
- Integrated Watershed Research Group, UNBC
- Nechako Environment and Water Stewardship Society
- Nechako Watershed Roundtable
- Northern Health
- POLIS Project on Ecological Governance
- Provincial Health Services Authority
- School District 91 (Nechako Lakes)
- SHIFT Collaborative
- West Coast Environmental Law
- World Wildlife Fund

Our research aims to integrate environmental, community, and health values and perspectives, and account for diverse forms of knowledge and information. Informed by our community outreach and engagement, the CIRC seeks to strengthen on-the-ground capacity to respond to issues related to the cumulative impacts of resource development.

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## CIRC STEERING COMMITTEE

**Natural Resources and Development Research Institute (NRESi):** Art Fredeen, Al Wiensczyk

**Community Development Institute:** Greg Halseth, Marleen Morris

**Health Research Institute:** Margot Parkes, Rachael Wells

**CIRC Team:** Chris Buse



# COLLABORATIONS



## NECHAKO WATERSHED ROUNDTABLE SECRETARIAT

The CIRC collaborated with the Fraser Basin Council (FBC) to support the role of Secretariat for the Nechako Watershed Roundtable (NWR). The Roundtable was formed in 2015 to protect and improve the health of the Nechako watershed for future generations. It includes representation from BC First Nations, the Province of BC, local governments, and other agencies and organizations having responsibilities and interests in the Nechako watershed.

CIRC support included:

### Logistics and organization

- Core Committee meetings (with planning, logistics, implementation, minutes, and follow-up)
- Annual Meeting planning (with logistics, implementation, report, and follow-up)
- Technical Advisory Working Group meetings (with planning, logistics, implementation, minutes, and follow-up)
- Lakes Monitoring Working Group launch (with logistical and communications support)
- Planning for future meetings

### Communications

- Core Committee communications
- Preparation and distribution of newsletters

- Development of 2-page summary introduction to the Nechako Watershed and the NWR
- Development of a 1-page introduction to the NWR Core Committee
- Organization of a Film Night for Water Week with the Recycling and Environmental Action Society (REAPS) and the City of Prince George
- Development of a Communications Strategy with preparation and implementation of promotional materials (postcards, banner), Facebook account, updated communication lists, and scoping of film opportunity
- General email and communications

### Fund development

- Meeting with provincial Ministries, and communications with the Premiers Office and local governments, as well as funding agencies and philanthropic organizations
- Alliances with, and leveraging, of existing projects: Koh-Learning in Our Watershed project launch participation (a collaborative project between UNBC and School District 91), Fraser Watershed Initiative mapping workshop participation, Yinka Dene water policy, Rio Tinto Watershed Engagement Initiative, and others.

### Governance

- Weekly Secretariat meetings
- Tri-weekly Co-Chair meetings
- Individual Core Committee member check-ins

The FBC-CIRC contract ended on September 30, 2019. The FBC contract was renewed through the UNBC Health Research Institute beginning October 1, 2019 and is ongoing.

## UNBC CLIMATE CHANGE RESEARCH CLUSTER

Throughout 2018 and 2019, the CIRC convened UNBC faculty, students, staff, and researchers to foster a discussion on collaborative climate change research, communication, and networking within the university and beyond. The CIRC hosted university-wide meetings, conducted an online

survey, established a UNBC Climate Change listserv, and worked with the Pacific Institute for Climate Solutions (PICS) and the UNBC Office of Research to compile a publically available list of climate change researchers.

To view the list of UNBC climate change researchers, visit [www.unbc.ca/research/research-clusters#Climate%20Change](http://www.unbc.ca/research/research-clusters#Climate%20Change)

To sign up for the UNBC Climate Change Cluster listserv, visit [lists.unbc.ca/mailman/listinfo/climate-change](https://lists.unbc.ca/mailman/listinfo/climate-change)

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## RESEARCH

## DEVELOPING NEW TOOLS TO ASSIST COMMUNITIES IN ASSESSING, MONITORING AND PLANNING FOR CUMULATIVE IMPACTS OF RESOURCE DEVELOPMENT

## Objective

Funded by the Real Estate Foundation of British Columbia (REFBC), this project builds upon broad and inclusive public engagement to conceptualize the next generation of cumulative impact assessment tools capable of integrating environmental, community, and health values to support local and regional monitoring activities and associated decision-making processes, and help address on the ground capacity issues.

## Status

The final round of community workshops were run in 2019. This wraps up the research component of the project. Community members received the preliminary community project report in June 2019, and the community event report in August 2019. The Final Community Project Report and the project Final Report are due to REFBC in 2020.

## Tools

- Story map” for each regional district in Northern BC
- Facilitator’s guides for data-driven storytelling and values mapping activities
- Invitation to UNBC Mapping portal
- Pilot of integrative cumulative impact analysis digital application
- Northern BC communities repeatedly asked the CIRC to provide a better tool to assess cumulative effects or impacts at the regional scale. CIRC researchers sought to create a tool which was both specific to BC and one that impacted the health and well-being of northern communities. The framework we have adopted is based on a leading environmental health screen tool from the state of California called CalEnviroScreen (v3.0). We are collating and adapting spatially explicit environmental, community and health data to the BC context, which will provide a new way to assess the cumulative impacts of resource development and changing environment on the health of ecosystems and people in the province.

## Visualizing cumulative environmental, community, and health impacts of resource development, Bulkley-Nechako Regional District, 2017



## THE ECHO NETWORK: NORTHERN BC REGIONAL CASE

### Objective

Members of the CIRC have continued to bring northern BC perspectives to the ECHO (Environment, Community, Health Observatory) Network, which is a pan-Canadian and international network of collaborators working together across sectors to take notice of — and respond to — the influence of resource development on health and well-being, with specific emphasis on rural, remote, and Indigenous communities and environments.

### Status

The Northern BC 'regional case' of the ECHO Network continues to learn about tools and processes that enables successful intersectoral action to promote health and well-being in resource-dependent communities, sharing insights about what is relevant to the BC context, and considering wider application across Canada. Notable examples include research progressing integrative approaches to impact assessment (e.g. environmental, social and health) across large spatial scales. This includes:



Photo: UNBC Communications ([www.unbc.ca/image-galleries/950/northern-bc-scenery](http://www.unbc.ca/image-galleries/950/northern-bc-scenery))

- The ECHOScreen: a relativist, equity-informed, quantitative assessment tool modeled after CalEnviroScreen that generates cumulative impact scores on discrete geographic areas based on environmental pressures, community contexts and population health; and
- A recent SSHRC-funded project examining best practices in integrated assessment approaches to support regional and strategic environmental assessments under Canada's new Impact Assessment Act.

More information on the ECHO Network is available at [www.echonetwork-reseaecho.ca/](http://www.echonetwork-reseaecho.ca/)

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## BUZZ, BOOM, AND BUST: A COMPARATIVE CASE STUDY OF THE GENDERED IMPACTS OF THE SPECULATIVE PHASE OF RESOURCE DEVELOPMENT IN NEW BRUNSWICK AND BRITISH COLUMBIA

### Objective

Funded by the Social Sciences and Humanities Research Council (SSHRC), this project investigates the social and community impacts of natural resource development in the pre-operational and speculative “buzz” phase of resource extraction and development, through two parallel studies in central New Brunswick and northern British Columbia.

### Status

The BC case study focuses on how women, men, and diverse people experience the benefits and burdens of liquefied natural gas (LNG) development in Kitimat differently. The scoping literature review continued in collaboration with the University of New Brunswick research lead, and a project website was released at <http://www.resource-buzz.ca/>. The first community workshop and online survey for Kitimat is planned for early 2020.

## CLIMATE CHANGE COMMUNICATION AND ENGAGEMENT IN CANADA’S PROVINCIAL NORTHS

### Objective

To examine climate change communication strategies in the Canadian Provincial North — a region of Canada characterized by rurality, remoteness, and a high degree of reliance on natural resource industries.

### Status

Interviews completed for Northern BC and ON cases, and a publication on best practices in communication sharing lessons from interviewed climate champions in submission to Environmental Communication. Mail out surveys have been completed and interim survey results will be posted to the CIRC website and can also be found: [https://climatechangetbay.com/wp-content/uploads/2020/05/Perspective-on-Climate-Change-in-Thunder-Bay\\_2020.pdf](https://climatechangetbay.com/wp-content/uploads/2020/05/Perspective-on-Climate-Change-in-Thunder-Bay_2020.pdf)

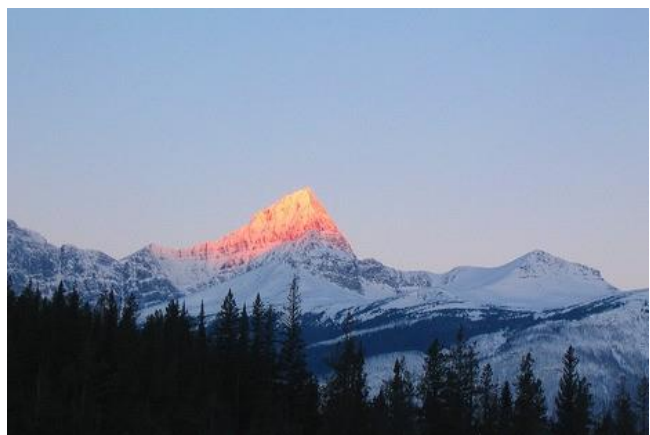


Photo: UNBC Communications ([www.unbc.ca/image-galleries/950/northern-bc-scenery](http://www.unbc.ca/image-galleries/950/northern-bc-scenery))

## SAMPLE PUBLICATIONS

Buse CG, Patrick R. (in press). Public health adaptation to climate change glossary: From vulnerability to climate justice. *Journal of Epidemiology and Community Health*, forthcoming, <http://dx.doi.org/10.1136/jech-2020-213889>

Buse CG, Friberg R\*, Arnold L\*, Hanna K. (2020). *Best practices in regional and strategic environmental assessment from a realist review of the scholarly literature*. Commissioned report for the Impact Assessment Agency of Canada and the Social Sciences and Humanities Research Council of Canada. Kelowna, BC: Centre for Environmental Assessment Research.

Galway LP, Buse CG, Gislason M, Parkes MW. (2020) *Perspectives on Climate Change in Prince George: Findings from a Community Survey*. Lakehead University, Ontario, Canada.

Galway LP, Buse CG, Gislason M, Parkes M. (2020). *Perspectives on climate change in Thunder Bay: Findings from a community survey*. Thunder Bay, ON: Lakehead University.

Brisbois BW, Reschny J, Fyfe T, Harder H, Parkes MW, Allison S, Buse CG, Fumerton R, Oke B. (2019). *Mapping research on resource extraction and health: A scoping review*. *Extractive Industries and Society*, 6(1): 250-259, <https://10.1016/j.exis.2018.10.017>.

Buse CG, Sax M, Nowak N, Jackson J, Fresco T, Halseth G, Fyfe T. (2019). *Locating community impacts of unconventional natural gas across the supply chain: A scoping review*. *The Extractive Industries and Society*, 6 (2): 620-629. <https://doi.org/10.1016/j.exis.2019.03.002>.

Buse CG, Cornisk K\*, Parkes MW, Harder H, Fumerton R, Rasali D, Li C, Oke B, Loewen D, Aalhus M. (2019). *Towards more robust and locally meaningful indicators for monitoring the social determinants of health related to resource development across Northern BC*. Prince George, BC: University of Northern British Columbia, Northern Health Authority, Provincial Health Services Authority. Available: [https://www.northernhealth.ca/sites/northern\\_health/files/services/office-health-resource-development/documents/nh-unbc-indicators-report.pdf](https://www.northernhealth.ca/sites/northern_health/files/services/office-health-resource-development/documents/nh-unbc-indicators-report.pdf)

Buse CG, Lai V\*, Cornish K\*, Parkes MW. (2019). *Towards environmental health equity in health impact assessment: Innovations and opportunities*. *International Journal of Public Health*, 64(1): 15-26, <https://doi.org/10.1007/s00038-018-1135-1>.

Buse CG, Wilson M, O'Toole R, Sharma B, Baddeley J. (under review). *Integrated values mapping: A novel, arts-based mapping method for eliciting youth values and a sense of place*. *Qualitative Research*, submitted August 2018.

Picketts, I. M., Dery, S. J., Parkes, M. W., Sharma, A. R., & Matthews, C. A. (2020). *Scenarios of climate change and natural resource development: complexity and uncertainty in the Nechako Watershed*. *The Canadian Geographer*. 64. <https://doi.org/10.1111/cag.12609>

Parkes, M., Allison, S., Harder, H., Hoogeveen, D., Kutzner, D., Aalhus, M., Adams, E., Beck, L., Brisbois, B., Buse, C., Chiasson, A., Cole, D., Dolan, S., Fauré, A., Fumerton, R., Gislason, M., Hadley, L., Hallström, L., Horwitz, P., ... Vaillancourt, C. (2019). *Addressing the Environmental, Community, and Health Impacts of Resource Development: Challenges across Scales, Sectors, and Sites*. *Challenges*, 10(1), 22.  
<https://doi.org/10.3390/challe10010022>

## CIRC KNOWLEDGE MOBILIZATION AND TRANSFER CIRC

CIRC's work over this period has resulted in 11 scholarly publications, 3 reports, over 50 presentations and guest lectures, and 17 public workshops and events attended by 600 people. On 2019, CIRC was very active in knowledge mobilization and transfer activities. Below is a list of CIRC publications, reports and presentations in 2019.

### CIRC PUBLICATIONS

Buse CG, Sax M, Nowak N, Jackson J, Fresco T, Fyfe T, Halseth G. (2019). *Community impacts of unconventional natural gas across the supply chain: A scoping review*. *Extractive Industries and Society*, 6(2): 620-629,  
<https://doi.org/10.1016/j.exis.2019.03.002>.

Parkes MW, Allison S, Harder H, Hoogeveen D, Kutzner D, Aalhus A, Adams E, Beck L, Brisbois B, Buse CG, et al. (2019). *Addressing the environmental, community and health impacts of resource development: Challenges across scales, sectors and sites*. *Challenges*, 10(22): 1-27, <https://doi.org/10.3390/challe10010022>.

Buse CG, Lai V, Cornish K, Parkes MW. (2019). *Towards environmental health equity in health impact assessment: Innovations and opportunities*. *International Journal of Public Health*, 64(1): 15-26,  
<https://doi.org/10.1007/s00038-018-1135-1>.

Brisbois BW, Reschny J, Fyfe T, Harder H, Parkes MW, Allison S, Buse CG, Fumerton R, Oke B. (2019). *Mapping research on resource extraction and health: A scoping review*. *Extractive Industries and Society*, 6(1): 250-259,  
<https://www.sciencedirect.com/science/article/pii/S2214790X18302004>

### CIRC REPORTS

Buse CG, Cornish K, Parkes MW, Harder H, Fumerton R, Rasali D, Li C, Oke B, Loewen D, Aalhus M. (2019). *Towards more robust and locally meaningful indicators for monitoring the social determinants of health related to resource development across Northern BC*. Prince George, BC: University of Northern British Columbia, Northern Health Authority, Provincial Health Services Authority. Available: [https://www.northernhealth.ca/sites/northern\\_health/files/services/office-health-resource-development/documents/nh-unbc-indicators-report.pdf](https://www.northernhealth.ca/sites/northern_health/files/services/office-health-resource-development/documents/nh-unbc-indicators-report.pdf)

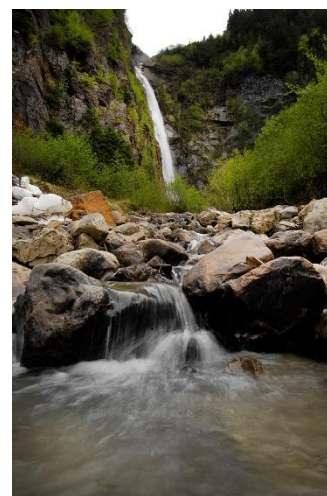


Photo: UNBC Communications  
 (www.unbc.ca/image-galleries/950/northern-bc-scenery)

## CIRC CONFERENCES, INVITED PRESENTATIONS AND GUEST LECTURES

Buse CG. (2019, May 27). *Cumulative health impacts of resource development: Integrated impact assessment methodologies to promote intersectoral action*. Intersectoral Action on Public Health Event (led by New Brunswick Environmental Network), Moncton NB.

Buse CG. (2019, April 30). *Assessing the cumulative impacts of resource development: Integrated health impact assessment through data-driven story-telling*. GeoHealth Annual Meeting, Toronto, ON.

Gyapay J, Parkes MW, Buse CG. (2019, April 2019) *Climate change and health in resource-dependent communities: Exploring frameworks and perspectives from Northern British Columbia*. Health Research Institute Seminar Series, Prince George BC.

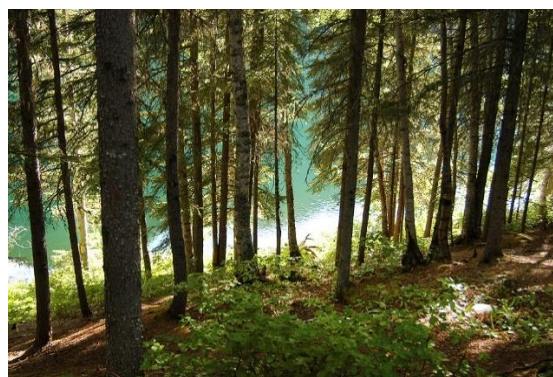
Buse CG. (2019, February 3). *Cumulative health impacts: Beyond toxicological risk*. Children's Environmental Health Collaborative Annual Meeting, Fredericton, NB.

Sax M. (March 22, 2019). *Understanding the cumulative community, health, and environmental impacts of resource development in northern BC*. Guest lecture in ENVS/INTS 225, Global Environmental Change: Science and Policy + Global Environmental Challenge: Sustainability, UNBC, Prince George, BC.

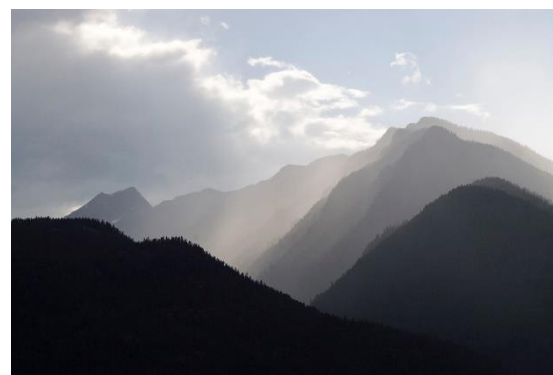
Sax M. (2019). Introduction to the Cumulative Impacts and the Cumulative Impacts Research Consortium (CIRC). *Roundtable: Cumulative Impacts of Resource Extraction Beyond Borders*. UNBC Research Week.

## CONFERENCE WORKSHOPS

Fredeen A, Sax M. (2019). *Building a sustainable world: A role-playing workshop for engineering students*. Conference on Sustainability in Engineering, UNBC.



Photos: UNBC Communications ([www.unbc.ca/image-galleries/950/northern-bc-scenery](http://www.unbc.ca/image-galleries/950/northern-bc-scenery))





## FUNDING

Since its founding in 2013, CIRC has more than tripled its initial funding contributions through a combination of external sources and in-kind contributions. The CIRC has received funding from many groups and organizations, including:

- Canadian Institutes for Health Research
- University of Northern BC/Northern Health/Provincial Health Services Authority Seed Grant
- Michael Smith Foundation for Health Research
- Natural Sciences and Engineering Research Council of Canada
- Pacific Institute for Climate Solutions
- Real Estate Foundation of British Columbia
- Social Sciences and Humanities Research Council of Canada

In 2019, funding for projects came from:

- Real Estate Foundation of British Columbia
- Social Sciences and Humanities Research Council of Canada

### Summary of Funding 2013-2019:

Granting Agency	Subject	Comp./ Non-Comp.	\$ Per Year	Project Years	Principal Investigator	Co-Investigator(s)
SSHRC – Knowledge Synthesis Grant	A scoping review on the community impacts of unconventional natural gas development in northern British Columbia	C	\$25,000	2016	Chris Buse	CIRC: Greg Halseth Margot Parkes Art Fredeen
Fraser Basin Council	Cumulative Impacts Research Consortium	NC	\$20,000	2018-2019	Marieka Sax	CIRC: Greg Halseth Margot Parkes Henry Harder Art Fredeen Rachael Wells Marleen Morris
BC Real Estate Foundation	Cumulative Impacts Research Consortium	NC	\$82,242	2017-2019	Marieka Sax and Chris Buse	CIRC: Greg Halseth Margot Parkes Henry Harder Art Fredeen Rachael Wells Marleen Morris
The Real Estate Foundation of BC	Developing new tools for assessing the cumulative impacts of resource development across northern British Columbia	C	\$149,532	2016	Chris Buse	CIRC: Greg Halseth Margot Parkes Henry Harder Art Fredeen Rachael Wells Michelle Connelly Marleen Morris

UNBC Office of Research	Cumulative and Community Impacts Research Consortium	NC	\$30,000	2015	Greg Halseth Margot Parkes Art Fredeen	CIRC
Pacific Institute for Climate Studies (PICS)	Cumulative and Community Impacts Research Consortium	NC	\$75,000	2015-2017	Greg Halseth Margot Parkes Art Fredeen	CIRC
BC Oil and Gas Commission – through UNBC Office of Research	Cumulative Impacts Forum	NC	\$25,000	2013	Greg Halseth Mike Gillingham Margot Parkes	CIRC

## CIRC TRAINEES

CIRC supported 5 graduate and 6 undergraduate students through Research Assistantships (RAs). The students were co-supervised by CIRC Steering Committee Member Dr. Greg Halseth and either CIRC Project Lead Dr. Chris Buse or CIRC Research Lead Dr. Marieka Sax. Students received training in different areas depending on the project they were working on, including:

- literature reviews (e.g. search protocols, abstract and full text reviews, charting, coding, narrative summary)
- transcription and coding of data (e.g. transcription of audio files, content analysis, development and application of coding scheme, narrative summary)
- scholarly presentations (e.g. class presentations, conference papers and posters)
- journal article preparation (e.g. co-authoring articles to report research findings)
- other knowledge synthesis activities (e.g. using publicly available quantitative data to develop a “snapshot” of change in community, health, and environment values by regional district)
- event facilitation (e.g. assisting in community workshop planning, logistics, and implementation)

The student program of training, participation in qualitative and quantitative research activities, and involvement in knowledge mobilization contributed towards the development of a solid theoretical knowledge base, a diverse set of methodological skills, and knowledge mobilization expertise, laying the groundwork for future scholarly training.

## CIRC Graduate Students

**Aita Bezzola** (CIRC RA 2018 – present). MSc student in Natural Resources and Environmental Studies. Expected graduation May 2020. Currently focusing on thesis, and working as a UNBC sessional instructor and GIS consultant.

**Shayna Dolan** (CIRC RA 2017 – May 2019), Shayna continues to develop Community Health Plan Implementation Lead with the Northern Rockies Regional Municipality; as the EQUI Project Site Coordinator for Critical Research in Health and Health Inequities (UNBC School of Nursing); and as the Northern BC Case Research Assistant for the Environment, Community, and Health Observatory Network (UNBC).

**Joseph Gothreau** (CIRC RA 2017). MSc student in Natural Resources and Environmental Studies. Expected graduation May 2020. Currently working for the Southeast Regional Service Commission (New Brunswick) as a GIS Specialist.

**Katie Cornish** (CIRC RA 2016-2017). MSc student in Health Sciences. Expected graduation May 2020. Currently focusing on thesis. Following CIRC, worked as a Research Assistant for Northern Health and the UNBC School of Health Sciences.

*"Working with the CIRC in the past really helped me to hone in on my own thesis ideas, develop skills and confidence as a researcher, and fostered connections with professionals beyond the university. I've been sought out for work on projects recently thanks to the training and opportunities I received when working with the CIRC."*

**Nadia Nowak** (CIRC RA 2016). MA student in Natural Resources and Environmental Studies. Expected graduation May 2020.

*"CIRC provided me with a research opportunity that led to my first scholarly publication - thank you!"*

## CIRC Undergraduate Students

**Hewitt Kingston** (CIRC RA 2018). BA student in Anthropology. Expected graduation May 2020. Currently working at the First Nations Health Authority with the Health Benefits and Community Relations team.

*"I had a really good time with CIRC, and I learned quite a bit. The information from the focus group sessions gave me a better sense of the challenges faced by northern communities, and I keep that in mind when I'm doing my job in order to better understand the questions and stories that I get from community members."*

**Jennifer Baddeley** (CIRC RA 2017). BA in Environmental Studies and Political Science. Graduated May 2019. Currently a Northern Development Initiative Trust local government intern at the Peace River Regional District in Dawson Creek.

*"After working for CIRC as a summer intern I've been applying those skills I picked up and the knowledge I've learnt to my day-to-day life, either in the rest of my degree or in my position with the PRRD now. Being able to wrap my brain around something that is so large scale, such as cumulative effects, has prepared me to wrap my brain around a regional district that takes up most of northern BC."*

**Scott Brown** (CIRC RA 2017). Bachelor of Planning (BPI) student in Northern and Rural Community Planning. Expected graduation May 2020. Currently working as a Cross Cultural Indigenous Exchange intern at Te Whare Wananga O Awanuiangi (New Zealand), with funding awarded by the Queen Elizabeth Diamond Jubilee Scholarship.

*"I am grateful to the work experience CIRC offered, I gained a wealth of research experience, guidance and mentorship that has encouraged me to further my academic pursuits. The knowledge and confidence learned has led to further research positions as well as my current internship."*

**Valerie Lai** (CIRC RA 2017)

**Ryan O'Toole** (CIRC RA 2016-2018). Bachelor of Planning (BPI) student in First Nations Planning. Expected graduation May 2021. Currently working as the Comprehensive Community Plan Coordinator for Gitxaala First Nation in Kitkatla.

**Jordan Jackson** (CIRC RA 2015)

**Rebecca DeLorey** (CIRC RA 2015-2016). BA in Environmental Planning with a Certificate in Aboriginal Community Resource Development. Graduated May 2017. MA student in Natural Resources and Environmental Studies. Expected graduation May 2020. Currently working in the Lands Department of the Nadleh Whut'en First Nation in the area of Aboriginal consultation.

*"Working with CIRC was a great opportunity and a lot of fun, I use skills developed during my work with CIRC all the time."*

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## VISIONING FORWARD

On October 1, 2019, the CIRC Steering Committee and a range of invited guests took part in a CIRC Visioning Retreat. The open and wide-ranging discussion identified many emergent opportunities for the CIRC and highlighted the valuable role that it plays within UNBC, with the communities of northern BC, and a part of a wider dialogue around the cumulative impacts of development in our communities and natural environment.



## ACKNOWLEDGEMENTS

The CIRC was established in 2015 with initial funding from the Pacific Institute for Climate Solutions and the UNBC Office of Research. Our first acknowledgement must go to former UNBC Vice-President Research Ranjana Bird, who challenged the three UNBC research institutes to come together and provided her support for the development of the CIRC initiative. We also acknowledge the support of Thomas Pedersen, former Executive Director of the Pacific Institute for Climate Solutions, who saw both the importance of cumulative impacts and the need for a platform for dialogue around these issues.

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