Tools for integration in watershed management and governance
Margot Parkes, Scott Emmons and team*

Areas of inquiry:
1) How can we benefit from new technologies and tools to support integrated learning, understanding and decision-making in the watershed.
2) How can we best design a tool (e.g., watershed portal) to bring together and share existing knowledge and exchange new watershed research in the Nechako?
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2) How can we best design a tool (e.g., watershed portal) to bring together and share existing knowledge and exchange new watershed research in the Nechako?
A web-based portal refined in the Nechako

- **Web-based** platform
- **Geospatial** means by which to store, search and access information
  - “A geospatial library”?
- **Open-source**, designed in northern BC, adapted to Nechako context /users
- **Expansion of options** for users and data-entry
- **User-group** oriented
  - “like Google earth, but different”
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Established **Portal User Groups** *(Phase I)*

- **IWRG:** from mapping and describing to bulk-loading existing knowledge...
- **CCN/Cheslatta Carrier Nation:** Archive & share
- **NEWSS:** *(Nechako Environment Water Stewardship Society)*
  Sharing and profiling stewardship initiatives
- **SD91:** School-kids engagement in monitoring (Pacific Streamkeepers)

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   - Links with other types of knowledge

2. School District 91, IWRG, CIRC, ECHO...
   - Youth-perspectives: Environment, Community, Health values
   - Community/school-based monitoring
Student example: “Climate change implications for ecosystems and well-being: developing effective geospatial knowledge exchange tools in the Nechako Watershed”
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From ‘lists’ of publications, to ‘placing’ knowledge in context
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Figure 1 – 1934-1989

Figure 2 – 1990-2005

Figure 3 – 2006-2016

Frequency of published literature
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Workshop Follow-up Report:

‘A Clean Environment Makes a Healthy Community’
Identifying youth place-based values in School District 91
July 2017

What is the CIRC?
The Cumulative Impacts Research Consortium (CIRC) is a research and community outreach initiative located at the University of Northern British Columbia focused on better understanding the cumulative environmental, community and health impacts of resource development in northern B.C. For more information on our ongoing research and related initiatives, please visit www.unbc.ca/cumulative-impacts.

About the Workshop
In order to better understand youth perspectives on regional environmental, community and health values, CIRC held a workshop with grade 8 students from School District 91 (SD91) on May 25, 2017. The overall goal of this workshop was to learn about the kinds of values that are important to youth living in SD91 in relation to resource development—a school district with 30 educational sites, 5,500 students,
Identifying Youth Place-Based Values in School District 91
Identifying Youth Place-Based Values in School District 91
Identifying Youth Place-Based Values in School District 91

Date: Thursday, May 25, 2017 (All day)
Campus: Off Campus
Identifying Youth Place-Based Values in School District 91
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Community/School-based Monitoring with SD91
Community/School-based Monitoring with SD91
Community/School-based Monitoring with SD91

Two photographs of Streamkeepers training occurring with School District 91 teachers and Barry Boolh.

Use this section to provide citation information

Title:

Authors(s):

Year:

List any relevant websites or physical locations of submitted content. This can also include linking to partners, funders, and others:

- http://www.pskf.ca/
- http://www.sd91.bc.ca/
- https://www.unbc.ca/integrated-watershed-research-group

Keyword(s):

Additional Information:
Community/School-based Monitoring with SD91
A web-based portal refined in the Nechako

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Potential Portal User Groups (Phase II)

- **CIRC:** “Living Library” of resources... links with SD91
- **ECHO:** interest across the Environment, Community, Health Observatory Network
- **FLNROD:** remote monitoring data?
- **NWR (Nechako Watershed Roundtable):** Bulk-loading and sharing of existing resources among groups

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ECHO Network

Consolidate (test, adapt, refine, connect) a suite of integrative tools and processes applied in different jurisdictions and regions (e.g. Integrative impact assessment tools; Indicator frameworks; Geospatial tools; Arts-based and narrative tools.)

Work together with a suite of integrative tools and processes to encourage learning and reflection on decisions, actions and responses in different jurisdictions and regions (e.g. Evaluative research, developmental evaluation, iKT, collective learning, reflective practices, governance)

Environment-Community-Health Observatory

INTERSECTORAL ACTIONS & RESPONSES to the Cumulative Impacts of Resource Development (decisions, policies, practices in specific regions, contexts, jurisdictions)

KNOWLEDGE & EXPERIENCE of the Cumulative Impacts of Resource Development (Local Knowledge; Secondary Data (Monitoring/ Surveillance); Primary Research)
Environment-Community-Health Observatory

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(Local Knowledge; Secondary Data (Monitoring/Surveillance); Primary Research)

Regional Contexts/Cases (Knowledge users and Collaborators)

- First Nations Health Authority (BC)
- Northern Health (Northern BC)
- Battle River Watershed Alliance (AB)
- NB Environmental Network (NB)
- Future Regional Cases (in Canada; other countries)

INTERSECTORAL ACTIONS & RESPONSES to the Cumulative Impacts of Resource Development (decisions, policies, practices in specific regions, contexts, jurisdictions)
Integrative approaches to Environment, Community & Health

**Theme 1:** CC as an overlay/driver of change?

**Theme 2:** Sediment sources & processes?

**Theme 3:** tools & processes to understand & respond

Diverse drivers of change in regions or landscapes of concern (e.g. the NRB);

A ‘cascade of effects and impacts’

- Direct effects
- Direct impacts (as a consequence of effects)
- Indirect Impacts
- Long-term indirect (downstream) impacts

Integrative approaches to Environment, Community & Health

**Theme 1:** CC as an overlay/driver of change?

**Theme 2:** Sediment sources & processes?

**Theme 3:** tools & processes to understand & respond
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  – Canadian Institutes for Health Research
  – Science Horizons
  – UNBC

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  – Nechako Environment & Water Stewardship Initiative
  – Nechako White Sturgeon Recovery Initiative
  – Northern Health
  – School District 91
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