

NEWS WATER KNOWLEDGE FORUM

Tuesday, March 13th, 8:30 a.m. – 4:00 p.m. and Wednesday, March 14th, 9:00 a.m. – 4:00 p.m.

Pomeroy Hotel, 11308 Alaska Rd., Fort St John, B.C.

SUMMARY WORKSHOP REPORT (Draft 1), May 4, 2018

BACKGROUND: The Northeast Water Strategy (NEWS), released on March 20, 2015, is a proactive, long-term approach for the management and sustainable use of water resources in Northeast B.C. The Strategy recognizes that water is our most valuable resource, and that all water-related decisions in the region must be built on the values of sustainability, collaboration and transparency. The strategy process brought together over 50 partners, including Federal, Provincial, Local and First Nations Governments; industry; academia; NGOs and community organizations, to share information, generate new research and monitoring, and promote a water stewardship ethic.

Year one of NEWS implementation in 2015-16 involved setting up an inter-agency Steering Committee and bringing partners together to begin sharing resources and knowledge. In 2016-2017, activities focused on collaborative projects to enhance water knowledge in several focus areas, including surface and groundwater quality and quantity, and aquatic ecosystems. The Water Knowledge Forum, held on March 13 and 14th, 2018 (See Appendix A. Agenda) and attended by 40 participants (see Appendix A. Participants), was a next step in advancing multi-partner collaboration on water monitoring and research in BC's Northeast Region.

FORUM GOALS

1. Develop a common understanding of NEWS partners' current and completed monitoring and research projects.
2. Discuss and, if there is interest, initiate development of a collaborative water monitoring and research framework in Northeast B.C.

FORUM OBJECTIVES

1. Review examples of water monitoring and research being conducted by NEWS partners.
2. Review examples of collaborative water monitoring and research in other parts of B.C.
3. Discuss possible elements of a collaborative monitoring and research framework, including shared values, goals, objectives and a structure to support the framework, e.g., an advisory Water Monitoring Roundtable or Working Group.
4. Identify priority information needs related to groundwater and surface water quality, quantity and location; and possible monitoring and research options to address them.
5. Identify next steps.

EXPECTED RESULTS

- Participants develop a common understanding of the state of water monitoring and research in NE B.C., including current activities, information needs, and options to address these.
- Participants reach agreement on proposed elements of a draft framework for collaborative monitoring and research, and next steps.

Facilitator: Susan Abs, [Eclipse Consulting Ltd.](#)

Note-taker: Cali Seater, Licensed Authorizations Officer, FLNRO

This report presents suggestions from small group and plenary discussions on a proposed NEWS collaborative framework and roundtable to advise on water monitoring research. It also summarizes key issues raised during the discussions after each research presentation. Appendix A provides the Agenda. Appendix B is a Participant List. Appendix C lists examples of Community-based Monitoring from other regions that could provide lessons learned for a NEWS collaborative framework.

A. SMALL GROUP SUGGESTIONS RE: COLLABORATIVE FRAMEWORK AND ROUNDTABLE

1. Types of Monitoring and Research that Could Benefit from Increased Partner Collaboration

All topics could benefit from collaboration, but the priority is projects that:

- are new, planned but not started, and just finished;
- involve multiple disciplines, e.g., surface water, biology and traditional knowledge (TK);
- are regional in scope (more than local), and thus could have broader reach and impact; and
- build on what we (NEWS) have already done.

Key topics include (1) water quantity, (2) water quality and (3) climate data – to take advantage of the opportunity to analyse the geographic distribution of information:

- e.g., monitoring surface water as an indicator of what's happening in the ground
- e.g., climate data: snow pack, soil moisture and hydrometric data

2. Possible Benefits from Increased Partner Collaboration

- Reconnection/communication among academic, First Nations and government partners.
- More holistic and comprehensive approach to research.
- Broader network and channels to share information and disseminate results.
- Less duplication geographically and across projects.
- Greater ability to replicate success stories.
- Participants' differing backgrounds and inputs make monitoring more effective.
- Better research input to decision-making.
- Increase the visible, tangible contribution of NEWS to common regional goals.
- Earlier and better project design and development.
- Streamlined development project reviews.

3. Partner Support for a Collaborative Framework and Roundtable

Most participants support proceeding with a framework, guided by an advisory roundtable (20 yes/1 no).

- Support was nearly unanimous: "We all want change; we've come together to do this." "It's doable."
- The roundtable would be an advisory group, like the Columbian Basin Trust. See Appendix C, page 10, for examples of similar initiatives to consider.
- Sample concerns: "May be too early; may need to wait for deeper engagement and trust-building with First Nations before we go too deeply into goals and scope." "There is no money to support it." "Some groups are missing today." Wariness/mistrust due to negative experiences and/or lack of follow-up to past research initiatives and planning initiatives in which they participated.

4. Core Values for a Collaborative Framework and Roundtable

Values are seen from several perspectives:

- 1) Values for a committee – "play nice in a sand box". We expect the atmosphere to be respectful, balanced and transparent, give equal voice, and committed to collaborating to develop a common view. Results should be understandable. Members should commit to always show up.
- 2) Values around water – protect it for future generations; protect healthy ecosystems, including fish and wildlife; and protect spiritual, aesthetic, recreational and economic values.
- 3) Values around rights – need to acknowledge rights, including First Nations and treaty rights, stakeholder rights, company rights, private landowner rights, as well as traditional knowledge.

5. Structure, Process and Scope for a Collaborative Roundtable

Structure:

- Steering committee (SC) with 8-10 people representing all key parties (First Nations, government agencies, academia, industry and other sectors/stakeholders, such as agriculture).
- Meet 1-2 times a year.
- SC tasks would be to set goals, develop a work plan and identify funding sources, e.g., BC Hydro, industry, government. (Needs government and industry funding). Technical working groups (involving key parties) would report to SC and support the science link back to policy-makers. Working groups number and topics depend on funding and SC priorities; possibly groundwater, water quality, water quantity, benthic, TK and fisheries.
 - Ensure communication channels/linkages to share information and avoid duplication.
- Shouldn't be too technical at higher/ steering committee level (decision-makers).
- SC should have clear mandate and formal linkage to decision-makers (e.g., Executive/Deputy Ministers, District Managers, FN leaders).
- Ensure a long-term commitment by members to ensure continuity.
- Use a facilitator who understands local dynamics to keep it positive and on track and ensure inclusion and synergy.

Process:

- Provide clear terms of reference as the foundation; identify how decisions will be made and how actions will be implemented.
- Ensure a balanced, transparent and inclusive process.
- Ensure that roundtable is group-led, consensus-based, with all partners having an equal say.
- Decisions should be consensus-based (not necessarily 100%).
- Clearly define goals, outcomes, products and timelines, and measure progress on these.
- Formalize goals for water quality and quantity, with targets.
- Define the funding structure; continuous long-term funding is essential to success.
- Engage high level champions, e.g., executive support at deputy minister or minister level and/or regional directors); the technical working group level needs to have their support.
- Build in communications to SC on how their research and monitoring advice is used.
- Have project funding criteria require collaboration to provide an incentive for it.

Goals:

- Develop a holistic approach to supporting research and monitoring that will help to achieve shared water protection and stewardship goals.
- Protect water through knowledge-sharing.
- Develop research initiatives to “assess the overall state of water in NE B.C.”
- Strengthen information-gathering and information-sharing; communicate results in an accessible and understandable way.
- Develop collaborative research projects that involve multiple partners.
- Increase efficiencies through shared resources, especially funding, staff and data.
- Leverage partnerships to bring in more funding and distribute funds among partners.
- Increase NEWS partners' ability to compare and link research and monitoring projects.
- Allow partners to share info on initiatives and identify additional work needed (gaps, needs).

Objectives:

- Facilitate information flow through open data systems.
- Support outreach and extension to help users understand technical information; produce plain language information for various audiences.
- Develop a framework and protocols to ensure consistent data collection standards, methods and presentation formats (e.g., CABIN).
- Define how data will be collected, used and communicated, including TK, which can support science and provide early indicators of problems.
- Improve or initiate new monitoring programs, including community-based monitoring (CBM) (e.g., water level and temperature) to build trust among partners.
- Build local monitoring and analytical capacity, including training and support for CBM.
- Help establish local labs to ensure community engagement and address challenges related to remoteness and the time needed for samples to reach distant labs.

Possible Activities:

- Develop an information hub/website to house all projects, listed by sector (government, academic, industry, First Nations), with contact information.
- Help ensure that projects provide metadata (source info and standards), and use similar research and monitoring methods, whenever possible, to help “get the real picture”.
- Describe the state of watersheds to develop a baseline.
- Over the long term – develop consistent training and standards for data-gathering and analysis:
 - combine above with First Nations knowledge, and
 - devise impacts and indicators for fish and wildlife.

B. PLENARY DISCUSSIONS on a COLLABORATIVE FRAMEWORK AND ROUNDTABLE

The following themes emerged from plenary discussions regarding the proposed NEWS collaborative framework and roundtable for water monitoring and research. Key concerns and/or questions are listed under each theme, along with Steering Committee (SC) responses and/or discussion points. These represent issues that will need to be addressed in advancing the collaboration process.

1. NEWS Collaboration to Date

Composition of NEWS Steering Committee

Question: Why aren't First Nations and community stakeholders on the NEWS Steering Committee (SC)?

SC Response: The SC is an internal BC Government body that has focused so far on improved coordination among agencies. This Forum is the next step in the NEWS partnership – devising a multi-partner advisory body, including First Nations and a range of stakeholders, as envisioned in the strategy. The Regional Strategic Advisory Assessment process is the main forum for G2G discussions in the NE.

Relationship of NEWS to other Northeast B.C. Initiatives

Concern: It would be useful clarify the relationship between NEWS (and the proposed roundtable) and other natural resource related initiatives in the NE, e.g., RSEA, LNG, Cumulative Effects Assessment. Some First Nations (FN) and local communities have been overwhelmed by number of processes and time and resources needed to participate.

Possible action: The SC could create a simple fact sheet, outline and/or graphic to summarize the mandate, goals and expected results of key NE initiatives and show how they are linked.

How and by Whom NEWS Results are Used

Concerns:

- Some partners are unclear as to who is using the results of NEWS projects, and how the research is used in development reviews and permitting, especially under the Oil and Gas Commission (OGC).
- FN and other NE communities need more, user-friendly scientific information on the impacts of fracking from credible sources, as there are mixed views and some mistrust of industry claims.
- For many communities, resource development seems to be proceeding without an adequate understanding of impacts on water. “If communities learn about the information, they may develop more confidence in the process.”

SC Responses:

- Research results provide scientific and technical data to inform government decisions, including water allocation. Agencies sometimes lacked this information in the past.
- Some of the NEWS projects, including the UBC work discussed at the Forum, should help address some of these concerns.
- The collaborative framework and roundtable should focus on better information-sharing and help identify research and monitoring initiatives to help address priority topics and concerns.

Partner Engagement and Trust

Concerns:

- Partners often don't see the results of NEWS projects and/or have not seen clear benefits for their communities (e.g. Geoscience field work conducted last year).
- There is a legacy of mistrust among some partners who've participated in other NE collaborative initiatives without seeing follow-through and/or tangible results for their communities.

Discussion points:

- Increased transparency and communication would build partners' confidence in the process.
- The website and portal are useful, but active outreach, (like this Forum), is helpful.
- Sharing information is critical to getting communities engaged, as is having a system that is open source and can serve different partners and needs.
- Note: The Peace geotechnical studies of groundwater and aquifers, done by Geoscience BC, were focused on regional underground flow to inform water management (first time this has been done). Reports will be shared with partners (summary in April) as a basis to pursue next steps.

2. Collaborative Framework and Roundtable

Clearly define the mandate and accountabilities:

- The collaborative framework and roundtable should have clear goals and expected outcomes, including why data is being collected, who the users are, and who the beneficiaries are.
- The role and accountabilities of the roundtable should be clarified, e.g., To whom will it report? Who will respond to its recommendations? What will be the structure and lines of communication?
- Partners will need to see demonstrable results and community benefits to build trust in the process.

Specify the scope of the framework and roundtable scope, including:

- water quantity or quality or both?
- watershed-based, specific aquifers and/or the entire NE region?
- topics for which NEWS already has data or new topics?
- geographic scope, e.g., start with a focus on smaller areas and then build, or start with regional issues?
- will upstream watersheds be considered?
- possibly start by collaborating on a few critical topics and build from there (as Dawson Creek has

done with NEWS)?

- possibly start with a research advisory group, then move to a broader monitoring and research advisory committee, as funding is available and Province- First Nations agreements are defined?

Identify funding and human resources:

Concerns:

- Dedicated long-term funding and staffing will be needed to sustain the framework and roundtable. It is unclear where this will come from, given the limited funding and government staff workloads.
- Partners need to see evidence of senior level support for the initiative. A senior executive champion could help to ensure success.
- Partners are more likely to commit to collaboration if they can envision continuity and longevity for the initiative, leading to tangible results. NEWS can learn from similar collaborations (see Appendix C.): key factors include consistent funding, senior management support, and long-term champions.

SC Responses:

- The BC Government is providing some funding. It is hoped that a multi-partner roundtable will attract funding from various levels of government, industry, communities and academic institutions.
- NEWS was always meant to be an umbrella strategy, to provide a “one-stop shop” for information-sharing and collaboration among partners. To that end, annual reports have expanded from covering government projects only to include partner initiatives. A roundtable would enhance this.
- B.C.’s transboundary water agreements could help ensure longevity and provide an anchor.

Build on Past NEWS Work (BC Government, First Nations, communities, academia, others):

Concerns:

- Along with other local groups, the PRRD have asked the Provincial Government for well monitoring, without response. They created a monitoring baseline in 2016 and forwarded conclusions and recommendations to the Province, again without response. This work should be followed up to avoid “re-inventing the wheel”.

SC Response: Chad and Celine will follow up with the PRRD.

Other discussion points:

- Build on the work done by NEWS surface water quality, quantity and groundwater working groups set up in 2015-16 (involving government and academia), especially on identification of data gaps.
- The emphasis should be on expanding FN and community perspectives and on their own research.
- Build on existing information and past projects. NEWS has collected project “snapshots” for the Water Portal but needs to take stock of current monitoring and research; “we have good high level themes but need to know more, and what to approach next.”
- Build new initiatives on goals values we’ve already identified [drawing from NEWS strategy doc].
- The PRRD study, NEWS projects to date, and the RSEA are providing the water data needed for now, and the RSEA table chose water as a “value” for further study, with funding to support research.
- Document and learn from success stories elsewhere, e.g., Water Guardians in NWBC and examples in Appendix C.

C. PLENARY DISCUSSIONS on RESEARCH PRESENTATIONS

This section presents highlights of the plenary discussions held after each research presentation (contact Chad.Lishman@gov.bc.ca for copies), along with responses, where provided, and key discussion points.

UBC Groundwater Monitoring Program: Energy and Environmental Research Initiative (EERI) Fugitive Gas Research

Partners are keen to see the results of this work and had numerous questions, such as:

- Could water come up through drilling stems and natural routes? Response (R.): An abandoned well would be a preferential pathway and could pose a risk, but this is unlikely at these depths. Looking at natural formations, it's almost impossible for water to flow up from that depth under natural pressure. If there are records, hopefully these could be plugged and sealed.
- What are the factors affecting the 144 wells being studied: age, conventional and unconventional, fracked vs. not fracked? R. The data is being rigorously analysed to address this.
- Are Alberta wells being studied? R. No, but the UBC research on experimental controlled release wells will help determine basic physics and laws and data will be transferable to other wells. AB will use the data to better understand how far and fast gas migrates.
- Could the results help manage B.C.'s 240,000+ wells? R. UBC is working with the OGC to analyze test results and OGC data (includes company data) "to see if there's enough statistical data to show the whole story", and will publish in a year. "There seems to be a strong geographic or geologic influence, e.g., clustering around Fort Nelson is associated with shallow geology."
- UBC will focus its limited resources on monitoring cations, anions and isotopes, but welcomes other researchers to install additional sensors at their sites to assess other topics, e.g., methane transfer between groundwater and surface water, and possible impacts on human health.

COLLABORATIVE RESEARCH TOWARD INFORMING THE REGULATION OF OIL AND GAS ACTIVES IN B.C. – Laurie Welch, BC OGC

Concerns: There are concerns about how well the permit and referral system works for FN. FN participants noted that:

- they often feel the issues they raise aren't taken into consideration in the decision. They are often told that their proposed permit conditions "aren't in the legislation";
- they would like better access to research and monitoring information as it isn't shared;
- there is a sense among some that science may be used to reinforce permit approvals;
- OGC's FN liaison staff don't seem to have access to OGS science staff and technical information;
- it might be useful to have OGC technical staff attend FN meetings and be available for questions.

Possible action: Laura will follow up as these issues are of interest to the Commission.

PRIVATE WELL SAMPLING – CHELTON VAN GELOVEN, FLNRO

Issue: Partners are keen to know more about this research, even if only at the watershed scale, as it's been collected since 2011 and they haven't seen any results.

SC responses:

- FLNRO would like to make general results available, but face privacy issues (re: well locations and test results). Their data-sharing agreements allow them to share information with collaborators but not the public. They can discuss data but not locations, and might be able to share maps without raw data. More and revised agreements could help.
- They hope to get approval to re-test some wells that had methane and sulphates for accuracy.
- The work is being done with UBC and Geoscience BC research; UBC researchers need to do more analysis before publishing and sharing their data and results.

Issue: One participant has seen gas bubbling up and bringing up groundwater around the casings from oil and gas wells drilled in the 70's.

SC and OGC responses: Laurie of OGC would like to know locations, and Aaron (UBC) and Chelton (FLRNO) would like to check them; will look at maps and cross-reference with OGC.

MURRAY RIVER CUMULATIVE EFFECTS – CHAD LISHMAN

Discussion points:

- Data from this work is being considered during permitting decisions on Murray coal permits. The next step will be to develop water quality objectives. There are increased selenium (Se) concentrations downstream due to mining. FLNRO will model future Se levels to understand why levels are elevated, and identify possible implications for permit conditions.

NEXT STEPS: This draft Summary Report will be sent to participants, who will have a two-week window for comments before the report is finalized. The Steering Committee will take the lead on identifying next steps and timing. This will likely involve meeting in the coming months to discuss when and how to establish a collaborative framework, the nature and composition of the roundtable, initial funding, etc.

APPENDIX A.

NORTHEAST WATER STRATEGY (NEWS) WATER KNOWLEDGE FORUM – AGENDA

DAY 1

- 8:30 – 9:15 POSTER SESSION #1. Coffee and snacks available.
- 9:15 – 9:40 WELCOME AND INTRODUCTIONS
- 9:40 – 12:00 WATER MONITORING AND RESEARCH: CURRENT INITIATIVES and PERSPECTIVES
- Northeast Water Strategy – Overview and Update
 - Other Relevant Initiatives in the Region, e.g., Regional Strategic Environmental Assessment
 - First Nations perspectives on collaborative monitoring and research in the Northeast
 - Water Stewardship Information Database – Dave Wilford
 - UBC Groundwater Monitoring Program – Aaron Cahill
- 12:00 – 1:00 Lunch & Poster Session #2**
- 1:00 – 2:00 Activity: GROUP BRAINSTORM & PLENARY DISCUSSION:
– Proposed NEWS Collaborative Framework and Roundtable
- 2:00 – 3:50 WATER MONITORING AND RESEARCH: continued from a.m.
- Canadian Aquatic Biomonitoring Network (CABIN) - Jolene Raggett
 - Private Well sampling – Chelton Van Geloven, Geoscience B.C.
- 3:50 Review today & preview tomorrow
- 4:00 Closing

DAY 2

- 9:00 OVERVIEW OF THE DAY
- 9:10 EXAMPLES OF COLLABORATIVE MONITORING FRAMEWORKS
- Columbia Basin Community-Based Monitoring Program
- Plenary discussion:* other examples and models of collaborative monitoring?
- 9:40 SMALL GROUP WORK: POSSIBLE ELEMENTS OF A COLLABORATIVE WATER MONITORING AND RESEARCH FRAMEWORK
- Topics:*
- shared values, goals and expected outcomes for the framework
 - possible structure(s) to support the framework, including a multi-partner roundtable or working group to advise on NEWS implementation
- 12:00 – 1:00 LUNCH**
- 1:00 – 3:00 ELEMENTS OF A COLLABORATIVE WATER MONITORING AND RESEARCH FRAMEWORK:
Small Group Reports and Plenary Discussion on each topic
- 3:00 PRIORITY SURFACE AND GROUNDWATER INFORMATION NEEDS
- 3:45 CONCLUSIONS AND WRAP-UP
- 4:00 CLOSING

APPENDIX B. FORUM PARTICIPANTS

Organization	Contacts	13-Mar	14-Mar
PRRD	Brad Sperling	x	x
Dawson Creek	Chelsea McClellan		x
Dawson Creek	Michelle Greenwood	x	x
Hudson's Hope	Gwen Johansson	x	x
UBC	Roger Beckie	x	
UBC	Aaron Cahill	x	x
UBC	Jessie Chao	x	
UBC	Emily Prystupa	x	
Capp	Don McCrimmon	x	x
EnCana	Jeff Beale	x	x
Shell	Deanna Cottrell	x	x
Shell	Jim Chramosta	x	
Doig River	Cec Heron	x	x
Doig River	Kelvin Davis	x	
Doig River	Gerry Attachie	x	x
Doig River	Trevor Makadahay	X	X
Doig River	Gary Oker	X	X
Halfway River	Catherine Piedt	x	x
Halfway River	Bernice Lily	x	
Halfway River	Sandra Field	x	x
Blueberry River	Jane Calvert	x	x
Geoscience BC	Richard Truman	x	
Geoscience BC	Carlos Salas		x
GW Solutions	Dr. Gilles Wendling	x	x
FLNRO	Chad Lishman	x	x
FLNRO	Chelton Van Geloven	x	x
FLNRO	Jun Yin	x	x
FLNRO	Dave Wilford	x	x
ENV	Amy Sloma	x	x
ENV	Andarge Baye	x	x
FLNRO	Cali Seater	x	x
ENV	Kevin Rieberger	x	x
ENV	Celine Davis	x	x
ENV	Tarik Dessouki	x	x
ENV	Jolene Raggett	x	x
MEMPR	Elizabeth Johnson	x	x
BCOGC	Laurie Welch	x	x
BCOGC	Suzan Lapp	x	x
BCOGC	Maria Reschke	x	x
Eclipse Consulting	Susan Abs	x	x

APPENDIX C. EXAMPLES OF COMMUNITY-BASED MONITORING

Canadian Aquatic Biomonitoring Network (Cabin) – Jolene Raggett (see presentation): Some community groups took training and are now entering data.

Columbia Basin Community-Based Monitoring Program: Celine Davis, FLNFO (See presentation)

Northwest Territories Water Strategy collaborative partnership: This project identified clear water quality and quantity goals; had high level champions; was group-led, consensus-based, had equal membership; and supported consistent approaches for data collection and community-led monitoring, e.g., university students taught data collection methods at community fish collection events. It identified outcomes and communicated results in a way that everyone could see how they were contributing.

City of Dawson Creek: They work with the community, Water Survey of Canada and other government agencies to gather water information for City Council decisions.

Prince George: The Upper Fraser Fisheries Conservation Alliance work on behalf of FN in the area and are monitoring water at 22 points. Their information will go into the provincial data base (Omenica water tool). It will be available after they work out data agreements. The Nechako has a roundtable where people talk about water concerns and ways to gather and use information.

Tributary Study of the Blueberry River: They are training people on water sampling and bringing in stakeholders from agriculture, forest and oil and gas. We've collected water quality data, shared and discussed results, and will do follow-up work. We think all stakeholders should be part of the solution. We've also looked at traditional knowledge and science.

Mackenzie Valley Land and Water Board: It reports out on the aquatic ecosystem health, using an approach that presents scientific and indigenous knowledge together.

BC Coast: The Marine Planning Partnership (MaPP) www.mappocean.ca was developed and is co-managed by the Coastal First Nations and the BC Government, and covers all BC marine areas except the South Coast. Teams integrated scientific and traditional knowledge into 100s of layers of data in a public web portal, but based on data-sharing protocols.

The Gwaii Haanas Land, Sea, People Plan is another example of integrating scientific and traditional knowledge. It's being co-designed by a technical team under the Archipelago Management Board, which consists of 1/2 Council of Haida Nation and 1/2 Government of Canada representatives.