



NWT Water Stewardship Strategy Implementation Workshop

November 3-4, 2015

Dettah, NT

Summary Report



Introduction

The Government of the Northwest Territories, Department of Environment and Natural Resources (GNWT-ENR) invited water partners to discuss the implementation of *Northern Voices, Northern Waters: NWT Water Stewardship Strategy* (the Water Strategy) and the development of *NWT Water Stewardship Strategy: Action Plan 2016-2020* (the new Action Plan) at the 6th Annual Water Strategy Implementation Workshop in Dettah (Chief Drygeese Territory) on November 3-4, 2015.

The workshop provided an opportunity for water partners to discuss implementation activities and progress to date (Key to Success 1.1 F in the 2011-2015 Action Plan). To view previous workshop reports on the development and implementation of the Water Strategy, visit: www.nwtwaterstewardship.ca/?q=publications

Workshop Objectives

The objectives of the workshop were to:

- Review implementation of the Water Strategy, including updates on:
 - community-based monitoring initiatives
 - water-related research
 - implementation of transboundary water management agreements
 - regulatory activities;
- Present findings from the independent evaluation of Water Strategy implementation; and
- Discuss the content and structure for a new Action Plan for 2016-2020.

Participants

Water partners attending the implementation workshop represented a number of organizations involved in water management in the Northwest Territories (NWT), including Aboriginal governments and organizations, territorial and federal departments, non-governmental organizations, academic institutions, environmental science consulting firms, and regulatory and renewable resource boards. The Aboriginal Steering Committee also attended the workshop, representing their respective Aboriginal Governments.

To see the full list of participants and agenda, see Appendix A.

In addition to these participants, a number of community monitors across the NWT participated the first morning of the workshop. The monitors were in Yellowknife to take part in monitoring training funded by the federal Strategic Partnerships Initiative. The workshop provided opportunities for monitors to meet and make connections with other water partners.

Workshop Summary

The workshop report is divided into four main sections that reflect the structure of the implementation workshop:

- *monitoring at the community level;*
- *updates on water-related research in the NWT;*
- *transboundary water management agreement updates; and*
- *review of draft Action Plan 2016-2020.*

Presentations from the workshop can be accessed online at:

<http://www.nwtwaterstewardship.ca/presentations-water-strategy-implementation-workshop-november-2015>, or copies can be requested through GNWT-ENR.

The workshop was facilitated by Michele Culhane from GNWT-ENR.

The day started with an opening prayer song by the Yellowknives Dene Drummers. Welcoming remarks were provided by Ernie Campbell, Deputy Minister of GNWT-ENR.

I. Monitoring at the Community Level

NWT-wide Community-based Water Quality Monitoring Program

Jennie Vandermeer from GNWT-ENR Water Resources Division provided an update on the implementation of the NWT-wide Community-based Water Quality Monitoring (CBM) Program. An important part of implementing the Water Strategy is to build community capacity to be fully involved in water-related research and monitoring. It is essential that community members have the ability and opportunity to participate in stewardship initiatives that can address community concerns and questions about their watershed.

The monitoring program was developed to build this capacity in participating communities and to help answer community water-related questions. The program was launched in 2012 and involves monitoring water quality at more than 40 different sites in 21 communities. The program is implemented through a partnership between ENR, NWT communities and various water partners, whereby ENR provides coordination and technical support for community water monitors in each community who take the samples.

Several parameters are tested to assess the water quality:

- physical parameters (pH, turbidity, dissolved solids)
- major ions (calcium and magnesium)
- nutrients (phosphorus and nitrogen)
- metals (arsenic, copper, lead and zinc)
- organics (hydrocarbons); and

- bacteriological parameters (coliforms).

The results from the monitoring program have been provided to communities through various formats over the course of the program, including through a calendar, booklet, poster, conference calls, presentations and webinars, and access to downloadable full datasets. Results publications can be found on the NWT Water Stewardship Website (<http://www.nwtwaterstewardship.ca/publications>), and the full dataset can be accessed from the Mackenzie DataStream website (<http://www.mackenziedatastream.org/>).

Leanna Mcneely, a community monitor from Fort Good Hope spoke to the importance of being involved in CBM in order to answer community questions about the impacts of development located upstream.

Shawn McKay, the environmental coordinator for the Fort Resolution Métis Council, spoke to his participation in the NWT-wide Community-based Water Quality Monitoring Program and other water and fish monitoring initiatives (Delta Dialogue Network, and Slave Watershed Environmental Effects Program). He described his experiences and involvement as gratifying as he has learned new things, met new people and helped to answer community questions about environmental change. He also stressed the importance of continuing to work with youth to ensure they understand the importance of the environment and the environmental changes that are happening.

Pilot Project: Increasing Employment Opportunities in Environmental Monitoring

Andrea Saldanha from Environment Canada provided an overview and update on a one year pilot project, funded by the federal Strategic Partnership Initiative, aimed at increasing the access for Aboriginal communities (NWT and Alberta) to environmental monitoring jobs. The project is a collaborative initiative involving Environment and Climate Change Canada, GNWT, Athabasca Chipewyan First Nation and Mikisew Cree First Nation Community Monitoring Programs, in addition to other First Nation, Inuit, and Métis communities, other levels of government, environmental monitoring educators and the private sector.

The project recognizes that environmental monitors are needed, and is focused on providing support so that monitor positions can be filled by Aboriginal community members. The project is made up of two key components: 1) connecting workers and employers; and, 2) environmental monitoring training. Key focus areas are to determine what jobs currently exist and what can be done to better link people to those jobs.

To date, the project team has participated in muskrat sampling and training in Fort Chipewyan (October 2015) with 21 community members from Athabasca Chipewyan and Cree First Nation and Local 125 in Alberta. Participants shared information about their experiences and provided advice about training material and delivery. The project team summarized what they heard:

- environmental monitoring is important;
- Traditional Knowledge needs to be considered alongside western science;

- training should be practical and hands-on; and
- training should be connected to multiple projects and different types of employment activities.

The immediate next steps are to participate in the NWT-wide Community-based Water Quality Monitoring Program training happening in Yellowknife over the next few days (November 2015). The longer term next steps are to use what was learned during the pilot project to apply for funding to continue the project beyond a pilot phase.

Question from Water Partners:

How does this tie into existing college programs? Once people are trained it is really important to help them find connections. How are you doing this?

Education providers are a big component of this. The goal is to help make those linkages, not to duplicate the work, but to look for those positions that exist.

Municipal Water Licence Compliance

Heather Scott from the Mackenzie Valley Land and Water Board provided an overview of municipal water licencing and compliance in the NWT. There are four Land and Water Boards in the Mackenzie Valley – Gwich'in, Sahtu, Wek'èezhii and the Mackenzie Valley Land and Water Boards. The boards are responsible for regulating the use of land and water and deposit of waste through land use permits and water licences.

Municipal water licenses are required for municipal water use, landfills and sewage disposal. The licenses provide conditions under which the community needs to operate under (i.e., water intakes are protected by a screen, sewage lagoons have a one metre freeboard, monitoring is done to ensure the surrounding environment is not being impacted, etc.).

There are several components that are required as part of a municipal water licence application, including the application form, operations and maintenance plans, spill contingency plans and confirmation of community involvement. As part of the operation and maintenance plan requirements, applicants must include a Surveillance Network Program (SNP) that lays out the water quality monitoring plan that will be followed. Various fillable templates are available to help guide applicants through the application process.

Benefits of water licences include:

- ensuring water quality samples are taken regularly;
- ensuring the water is safe;
- ensuring treatment facilities are working;
- community confidence in their water supply; and
- capacity building in communities.

Once granted a licence, licence holders are required to meet the conditions of their licence, continue sampling, submit plans and/or updates to plans, complete annual reporting and participate in inspections.

Currently 20 communities have a municipal water licence, five communities have applications in progress and three communities have no licence application. The land and water boards are continuing to synergize their efforts and improve their relationships with communities.

Questions from Water Partners:

For the water systems in communities, who actually takes the samples in the communities?

It often doesn't happen due to capacity and logistics challenges. Water treatment operators often take the samples, but other people in communities are engaged in the SNP program.

What is the board doing to ensure compliance with the Transboundary Water Management Agreements?

The Transboundary Water Management Agreements do not direct the boards.

Training the Next Generation of Water Leaders

Erin Freeland Ballantyne from the Dechinta Centre for Research and Learning (Dechinta) provided an overview of the type of educational programming Dechinta provides and why it is critical to fostering water leaders in the north.

The number of NWT Aboriginal residents that have a high school diploma and/or university degree is much lower than that of non-Aboriginal NWT residents. Primary reasons for this include a lack of support, lack of childcare, removal from cultural community and context, high education costs, no options to study what matters to them, and lack of confidence. In response to these concerns, Dechinta designed an education program that is on the land, inclusive of families, focused on critical northern issues, and co-taught by Elders, professors, leaders, and experts.

Dechinta is a robust land-based university that offers three broad program areas:

- full minor Indigenous and Northern Governance or original university programming, expanding to a full degree (accredited by the University of Alberta, McGill University and the University of British Columbia);
- master's and professional development; and
- inclusive programming for students and their families through outdoor Dene Kede K-12.

Examples of programming include the Summer Deh Cho Sacred Water semester which focuses on water law, policy, monitoring, protection and leadership, and the Indigenous Boreal Guardian Program, which is part of the Environmental Science and Land Protection Train-the-Trainer degree stream. All of Dechinta's programming is rooted in investing in people and the capacity they have to build a knowledge economy in the NWT. Dechinta defines itself as an evidence-based best practice approach for successful, community-based training and education.

Mackenzie DataStream

Carolyn DuBois from the Walter and Duncan Gordon Foundation presented on the Mackenzie DataStream online data platform. The foundation has invested substantially in water and the north, including through its Mackenzie River Basin Initiative. The intent of the initiative is to raise the profile of the Basin, connect decision-makers with quality data, and support basin-wide collaboration. Previous projects under this initiative include the documentary *Cold Amazon* and the *Rosenberg International Forum on the Mackenzie River Basin*. (For more information about the *Cold Amazon* initiative, go to: <http://gordonfoundation.ca/water/mackenzie-river-basin-initiative/cold-amazon>).

Mackenzie DataStream (mackenziedatastream.ca) provides open access to information about freshwater quality in the Mackenzie Basin in order to support evidence-based decision-making at multiple levels (i.e., local, regional, territorial and transboundary). The pilot Mackenzie DataStream platform was launched for the first time during the workshop. The system is open source and designed to be low cost to expand, modify and maintain. Mackenzie DataStream currently hosts the data generated by the NWT-wide Community-based Water Quality Monitoring Program. The intent is to scale the system up to include additional datasets over time. Community interest and feedback will shape the continued development of the platform and provide direction for moving forward.

Users can search the datasets based on data themes (e.g., grab water theme, sonde data theme or specific locations). There is also an option to visually compare datasets throughout the NWT, which can be downloaded and printed in graph form.

The project is being undertaken in collaboration with the GNWT and developed by software developer, Tesera Systems. Moving forward, the Gordon Foundation is actively seeking opportunities to collaborate with other groups involved in collecting data in the Mackenzie Basin.

II. Updates on Water Related Research in the NWT

Forest Fires and the Impacts on Water

Suzanne Tank from the University of Alberta provided an overview of a research project she is leading to better understand forest fire impacts on water quality in the NWT. The project emerged out of discussions during the January 2015 forest fire workshop held in Yellowknife. Project partners include Wilfrid Laurier University, Environment and Climate Change Canada, and GNWT-ENR. The project is funded by Polar Knowledge Canada.

A land-to-water approach is being used to guide the project. A key part of understanding how fire affects aquatic ecosystems is to understand the processes that are happening on the land. Overarching questions informing the research include:

- How do fire-induced changes impact the flow of water from terrestrial to aquatic ecosystems?
- How does fire impact in-stream concentrations of carbon, nutrients, and toxins, and how do these changes impact aquatic health?
- How do the effects that are seen in small areas scale up to larger, fire patchy areas?

A comparison between burned-unburned areas (catchments) is used to answer these questions. These different areas are located in the Taiga Shield (Baker Creek and Boundary Creek) and Taiga Plains (Scotty Creek and Spence Creek) regions. In both cases the unburned control locations (Baker Creek and Scotty Creek) have a long history of previous investigation.

Project activities in year one primarily consisted of completing snow surveys in the burned and unburned catchments, installing a meteorological station at the Boundary creek burn scar, installing wells in runoff producing and receiving areas, collecting water chemistry samples from the catchment mouths, and installing passive samplers (PMDs) in Boundary and Baker Creek for hydrocarbon measurements.

Preliminary results from the Scotty Creek snow survey suggest that the burn area is generating water much more quickly than the unburned area. The freshet pulse also appears to happen much more rapidly in burned areas, and the frost table is much deeper than in unburned areas.

Turbidity levels appear to be elevated within the burned catchments. Nutrient levels indicate that both the burned and unburned areas experience a similar pulse of nutrients in the spring that relaxes by the end of summer. Dissolved oxygen content was found to be lower in the burned areas.

Next steps for years two and three include taking meteorological station measurements, continued collection of water chemistry samples, sub-catchment sampling in burned and unburned catchments, sampling of algal biomass and invertebrate toxin loads, sampling of well-water chemistry, and additional survey work to help with extrapolating the findings to the broader landscape.

NWT CIMP Action Plan 2016-2020

Julian Kanigan from the NWT Cumulative Impact Monitoring Program (CIMP) – part of a division in GNWT-ENR– provided an overview of the program and an update on the future of CIMP as laid out in the CIMP 2016-2020 Action Plan.

CIMP is an environmental monitoring program that began in 1999 to support better land and water resource decision-making. Since 2012, the program has focused on caribou, water and fish.

Partnerships are key to the success of CIMP. In 2014/2015, CIMP had 29 formal agreements and distributed \$1.8M in project funds. It is important to note that CIMP is part of every land claim agreement in the NWT, and is also part of *Mackenzie Valley Resource Management Act* (MVRMA) obligations to conduct cumulative impact monitoring, track environmental trends and perform environmental audits.

The program is led by a steering committee with eight representatives from territorial, federal and regional Aboriginal Governments. Both science and traditional knowledge are critical to CIMP programming which supports community-based capacity building.

The CIMP program is part of GNWT-ENR and supports the Water Stewardship Strategy through sharing information, collaborating as water partners, and monitoring and analyzing cumulative effects on NWT watersheds. In 2014 CIMP funded 21 water and fish-related projects for \$1.2M, leveraging \$4.6M from partners. Getting information back to environmental regulators is a challenging but important task for CIMP. In 2014 CIMP contributed water-related data to four regulatory processes. Examples of such projects include:

- cumulative effects of oil and gas development on Tathlina Lake – a project led by Ka'a'Gee Tu First Nation that contributed to Mackenzie Valley Land and Water Board water license renewal;
- water quality trends in North Slave rivers – a project led by the University of Waterloo that contributed to the 2015 GNWT State of the Knowledge Report; and
- cumulative impacts of diamond mines on water quality in Lac de Gras – a project led by NWT CIMP that is intended to contribute to Aquatic Effects Monitoring Programs (AEMPs) and future assessments.

CIMP strives to ensure projects have a community focus. In 2014, CIMP supported 24 projects led by or partnered with Aboriginal communities, which is a key part of building community capacity. Over the last three years CIMP has supported the Tłı̄ch̄ Government-led Marian Lake watershed community-based monitoring, which provided training for six community members. CIMP also supported aquatic health monitoring in the Central Mackenzie Valley of the Sahtu Region which involved training for three community members as field and lab assistants.

The future activities of CIMP will be guided by the newly released 2016-2020 CIMP Action Plan which is divided in four key areas.

- **identify priorities:** continue meaningful work with partners to identify cumulative impact monitoring priorities for caribou, water, and fish and provide increased support for Traditional Knowledge;
- **monitoring:** conduct, coordinate and fund cumulative impact monitoring, research and analysis;
- **communicate information:** communicate results to decision-makers and the public through the Discovery Portal and CIMP website; and
- **environmental auditing:** conducted every five years in accordance with the MVRMA to assess what has been done and identify future priorities.

Questions from Water Partners:

A lot of the proposals that get accepted relate to what communities want. Is there an action item for a plain language report?

Any researcher needs to come back and present results, which is partly funded through CIMP. The CIMP workshop is another means to deliver results. The workshop moves to different regions in each year. The current reporting template requires plain language summaries.

Information Management Systems was part of the Strategic Plan for CIMP. How do Information Management Systems fit in with the Action Plan?

CIMP had initially taken the lead on bringing the information and data together. However, since Devolution, it has become a GNWT-ENR initiative rather than just CIMP.

Bottled Water Use on the Land

Diane Dupont from Brock University provided an overview and update of a research project she is leading in partnership with GNWT-ENR, the University of Alberta, Ecology North, and NWT communities. The research is funded by the Water Economic, Policy and Governance Network (WEPGN) through the Social Sciences and Humanities Research Council (SSHRC). The purpose is to better understand the factors impacting people's choices to drink bottled water while on the land. The researcher has been talking to both Aboriginal and non-Aboriginal people in the NWT and is finding this is a topic that requires further attention.

The broad plan is to work with three to four communities to train community members in surveying techniques, who can then conduct a survey amongst other community members. The survey will capture risk perceptions relating to water and water consumption choices in the NWT, which will help to better communicate local water issues. Expected outcomes of the project include:

- baseline data on drinking water choices and risk perception;
- comparison of community water monitoring data with views of residents;
- training opportunities for survey administration;
- improved understandings of how to communicate risks for public education outreach; and
- ability to develop programs that are more responsive to community needs.

Questions from Water Partners:

Who funded this?

The project is funded through the Social Sciences and Humanities Research Council (SSHRC). It is important to understand what people's perceptions are about drinking water and the choices they are making in order to inform decision-making, particularly because government provides drinking water.

Comment: We have a situation in the NWT where we have many sources of drinking water, but they are perceived as having different levels of safety. The survey needs to be broad and nuanced enough to incorporate the many sources.

Comment: Your research could be on a much larger scale to help with things like protection zones within land use plans that aren't necessarily substantiated by the science.

Disturbance Impacts on Aquatic Systems in the Sahtu, NWT

On behalf of Krista Chin, Julian Kanigan from the NWT Cumulative Impact Monitoring Program (CIMP) presented the findings from an aquatic health monitoring project in the Sahtu Region of the NWT. The project started in response to an increase in oil and gas interest in the region. A study in 2014 found that there is potential for 200 billion barrels of oil in the Sahtu.

The project focused on better understanding the impacts that landform disturbances, including both human (i.e., well pads, winter roads, seismic lines, roads, quarries) and natural disturbances (i.e., forest fires, slumping), have on aquatic systems in the region. Water and bug samples were collected from various disturbed and undisturbed sites in order to learn about the changes caused by disturbances and potential drivers of change. Different types of bugs are found in disturbed and undisturbed areas, and thus sampling the bugs can help to understand the impacts of disturbance. In addition to science-based research, the project also involved working with the Sahtu Renewable Resources Board who set up a cross-cultural camp where Elders, youth and researchers shared their knowledge.

Preliminary results for 2013-2015 are still being worked on. Final results are expected in 2017. In total, 44 sites with varying levels of disturbance were sampled. A team at the University of Ottawa is looking at the levels of polycyclic aromatic hydrocarbons (PAHs) in the sampled bugs and is developing a mapping tool to compare PAH levels with disturbances.

Questions from Water Partners:

Are you taking water samples when take your invertebrates?

Collecting water samples and other information is integrated as much as possible. However, we need a lot of bugs to get enough biomass to test them.

Is anyone collecting information on groundwater/surface water interactions?

Conoco Phillips has drilled some monitoring wells. We do have that data through the Geological Survey. ConocoPhillips will be doing one more round of monitoring and is then shutting the wells. Because it costs so much, we can't do it ourselves.

From Intercultural Engagement to Informed Consent

Alex Latta, a researcher from Wilfrid Laurier University, provided an overview of a research project he is leading in partnership with GNWT-ENR and the Water Strategy Aboriginal Steering Committee. The project emerged out of the Pan-American Indigenous Rights and Governance Network, and is part of a broader research initiative funded by the Social Sciences and Humanities Research Council. The initiative is broadly aimed at understanding different intercultural frameworks for negotiating free prior and informed consent and is comprised of four case studies. Dr. Latta's project is a case study looking at Aboriginal involvement in the development of the Water Strategy and the NWT-Alberta Bilateral Water Management Agreement.

The focus of the project is to better understand engagement between Aboriginal and non-Aboriginal governments on issues of water governance in the NWT. Broad questions guiding the research include:

- What were the conditions for engagement?
- How did the broader engagement process inform the consultation process?
- What are the outcomes of engagement in the negotiations?
- What challenges lie ahead as the governments implement the NWT-Alberta Bilateral Water Management Agreement?
- Can we characterize this as co-governance?
- How do intercultural relationships shape the process of engagement?
- How do western science and Traditional Knowledge fit in this process and shape the way governments come together?
- Do communities have different histories that shape the evolution of relationships of consultation? How?
- What can be learned from this case study and how can it be used in other places?

To start addressing these questions, the researcher will be conducting a review of relevant documents, conducting focus group discussions (likely with the Aboriginal Steering Committee), and doing interviews with government officials, members of the negotiating team and other stakeholders in Aboriginal communities.

The first stage of the research will be undertaken in 2016 with the Aboriginal Steering Committee, and will also contribute to the design of further research to be completed in 2017-2018, with final results available by the end of 2019. Progress reports will be provided to GNWT-ENR and participating Aboriginal Governments throughout the project. In addition to academic outputs such as conference presentations and articles, there are also plans for policy briefs for decision-makers and a book comparing the findings across the case studies in the research initiative. Results of the research will also be featured online by the Indigenous Knowledge Centre at Six Nations Polytechnic.

Water and River Ice Monitoring Results from Space

Joseph Chamberland from C-Core and Katarina Carthew from GNWT-ENR provided a summary and update of a research project they are leading in collaboration with the University of Saskatchewan and the Canadian Space Agency. The overall intent of the project is to use data available through the Canadian Space Agency's Earth Observation Missions to address community concerns and questions about water and river ice in the NWT. The specific goals are to conduct a water monitoring case study, and advance river ice monitoring and flood extent techniques.

Based on the data available through the Canadian Space Agency, the researchers put together a list of water indicators that communities can make use of. The indicators include both dynamic indicators, such as water extent and river ice formation and thaw, as well as historical indicators that go back approximately 25 years, such as water temperature changes and water sediment changes.

Preliminary work has shown that water extent can be extracted using Optical Satellite Data. This allows for season-to-season and year-to-year comparisons to see if there have been any changes. Early results also indicate that the data can be used to monitor the development of ice covers and ice-related flooding on northern rivers. The next steps are to use the data to look at air pockets in the ice to determine where it is strongest to cross.

The ultimate goal is to be able to deliver these services and products in an accessible way to communities and researchers through web-based tools.

In terms of historical indicators, the research team validated a technique to retrieve temperature data along the entire Slave River and Delta using sonde data from the NWT-wide Community-based Water Quality Monitoring (CBM) Program. The next step is to generate the last 10 years of temperature data for comparison. As for sediments, the team is still working on validating the sediment concentrations. The plan is to continue collecting samples in the spring of 2016.

Engaging communities to determine how this data can be used locally was an important part of this project. Community members were provided with a project update in January 2015 and there are plans to release a plain language document soon.

III. Transboundary Water Initiatives

Transboundary Water Agreements Progress Update

Andrea Czarnecki from GNWT-ENR provided a progress update on the NWT's transboundary water management agreements. In 1997 the *Mackenzie River Basin Transboundary Waters Master Agreement* was signed by Canada, NWT, British Columbia, Yukon, Alberta and Saskatchewan. This agreement established common principles for managing water cooperatively and outlined commitments to establish bilateral water management agreements.

The current status of NWT transboundary water management agreements are as follows:

- Alberta-NWT: signed March 2015;
- British Columbia-NWT-: signed October 2015;
- Saskatchewan-NWT: NWT hopes to resume discussions soon;
- Yukon-NWT: NWT anticipates updating the existing agreement, signed in 2002; and
- NWT-Nunavut: NWT anticipates discussions about an agreement when Nunavut is ready.

Since the Alberta-NWT agreement was signed in March 2015, efforts have focused on implementation. The first step is to establish a Bilateral Management Committee (BMC) with senior water managers from each jurisdiction. The NWT is appointing an Aboriginal member to the BMC. Implementation will require sharing of information, including response to environmental emergencies and notification of developments and activities that may affect transboundary waters. Ongoing transboundary water quality and quantity monitoring also is a key part of implementing the agreement.

Specific bilateral technical tasks for year one of implementation include:

- learning from the draft water body classification system for NWT waters which helps to classify freshwater water bodies according to their cultural value and relative sensitivities to changes in water quality and environmental character. This classification will be useful during the environmental assessment process when evaluating how a potential development may affect a water body;
- developing a state of aquatic knowledge report for the Hay River Basin. The last report was done in 1985 and new and additional information is needed;
- increasing capacity to better understand the impacts of climate change on flow regulation on the Slave River and Great Slave Lake water levels. This will require updating the Mackenzie River Basin hydraulic model. The intent is that this project will help to address the common question about why water levels are so low; and
- producing a bilateral annual report summarizing the implementation work that has been completed in the first year and that which is planned. This will report on progress made towards meeting the commitments in the agreement.

Implementation of the Alberta-NWT bilateral management agreement also includes tasks that require collaboration with other jurisdictions of the Mackenzie River Basin, including:

- discussing research needs related to climate change in the Mackenzie River Basin;
- selecting appropriate biological indicators for transboundary waters; and
- collaborating on the development of site-specific water quality objectives for transboundary waters.

The next steps are to facilitate the first NWT-Alberta BMC meeting (early 2016) with the intent of developing a five-year work plan for implementation. GNWT is also looking to begin discussions with British Columbia (BC) to implement the recently signed BC-NWT agreement.

Questions from Water Partners:

Now that the NWT-Alberta Bilateral Agreement has been signed, what kind of information are you getting about OBED?

Since the signing of the Alberta-NWT agreement, information sharing and notifications between the GNWT and Province of Alberta has improved. We learned about OBED within a timely manner. This allowed the GNWT to establish a monitoring program on the Slave River before the plume was expected to arrive at the border. The information related to OBED (past monitoring and ongoing) is available online (<http://obed.ca/updates/>).

Will there be discussions with Alberta and British Columbia with respect the Site C Dam? What is being done to intervene on Site C?

The Transboundary Water Management Agreement is specific from this point moving forward and therefore does not address past effects. However, the agreement does specify how much water is required to cross the border. That is, thresholds have been established to ensure that the agreed-to volumes of water pass from Alberta into the NWT. With respect to Site C, the GNWT provided information to the environmental assessment process for Site C. That process has concluded.

Delta Ways Remembered

The second day of the workshop started with Tim Heron of the NWT Métis Nation and Jennifer Fresque-Baxter of GNWT-ENR and presenting the animated video, *Delta Ways Remembered*, that talks about the changes observed in the Slave River and Delta over the past 100 years. The video is one of the outputs of the Slave Watershed Environmental Effects Program (SWEEP), which is an initiative of the Slave River and Delta Partnership (SRDP) in collaboration with the University of Saskatchewan, who produced the video. The goal of SWEEP was to develop a community-based cumulative effects monitoring framework.

SWEEP is based on multiple knowledges and incorporates both western science and Traditional Knowledge in monitoring environmental changes. Elders in the SRDP wanted to tell the story and share information in a way that would reach many audiences. The video is now available online (<https://www.youtube.com/watch?v=XHjmcNwVpE>). Other outputs from the SWEEP project will be put online as they emerge. The final results meeting for SWEEP is planned for January, where the project partners will assess and evaluate the process.

Tracking Change

Jennifer Fresque-Baxter from GNWT-ENR provided a brief overview of the Tracking Change project. Tracking Change is a six year project being done in partnership with the University of Alberta (lead), Mackenzie River Basin Board, GNWT, Sahtu Renewable Resource Board, and many other Aboriginal government and university partners. The purpose is to investigate the role

of and demonstrate the importance of Traditional and Local Knowledge in watershed governance.

The project initially emerged out of discussions with Elders and knowledge holders through the Mackenzie River Basin Board Traditional Knowledge and Strengthening Partnerships Steering Committee, who identified the need to gather more information to support ongoing reporting and decision-making and reporting in the Basin. This project also supports key actions under the Water Strategy, including the role of Traditional Knowledge in informing decision-making about water. Monitoring change in the Mackenzie Basin is also part of implementing the bilateral water agreement between NWT and Alberta.

Over the next few weeks the project team will be coming together to refine the project objectives, develop the governance structure and define the work plan. The intent is to be able to fund local and regional projects across the basin which will in turn provide opportunities for shared learning.

Update from the Aboriginal Steering Committee

Three Aboriginal Steering Committee (ASC) members - Tim Heron of the NWT Métis Nation, Peter Redvers of the K'atl'odeeche First Nation and Leon Andrew, representing The Sahtu Secretariat Incorporated – provided an update on their activities with the committee.

Tim was on the Water Stewardship Strategy development committee that worked hard to have the Water Strategy developed in a little more than a year. The Water Strategy set a precedent in Canada. He is continuing to work with communities and GNWT-ENR to help build community capacity for water stewardship activities. A key part of this is that Traditional Knowledge has to be balanced with western science. We are making progress with monitoring, and other activities, and we are starting to be true partners.

Peter is the Director of Lands, Resources and Negotiations with the K'atl'odeeche First Nation (KFN) and was appointed to the ASC in 2014. The ASC plays an important role in informing the Water Strategy. The Water Strategy has created a policy framework that provides a sense of empowerment and control for communities and has facilitated a way to involve communities in hands on work that supports the policy. The community-based monitoring program has been very successful in building community capacity for these types of projects. However, there are capacity challenges with the ASC as there is a constant flow of information that can be challenging to keep up with. Overall, there has been significant improvement from pre-Water Strategy.

Leon Andrew lives in Norman Wells, but is originally from Tulita where he was brought up on the land. Changes on the land and in the water are evident and it is a serious challenge. For example, banks are starting to erode and there are more sand bars appearing. There are also concerns about what is in the water that is flowing into the community.

Questions from Water Partners:

What is the mandate of the committee and how many members sit on it?

The regional First Nations and Métis groups appoint someone to the committee. The mandate is to provide an overview perspective on water strategy implementation. The ASC provides direction and guidance to GNWT-ENR about implementation, including ensuring that Traditional Knowledge is included in implementation activities. The ASC also acts as a liaison between communities and GNWT-ENR.

IV. Review of Draft Action Plan 2016-2020

Findings from the Independent Evaluation

Katarina Carthew from GNWT-ENR summarized the outcomes of the Independent Evaluation of the Water Strategy. The need to formally evaluate progress towards implementing the Strategy is identified in both the Water Strategy (4.1.1) and the 2011-2015 Action Plan (under Key to Success 4.2 Check Our Progress – Formal Audits). The evaluation is also important for accountability to ensure the resources we have expended have resulted in outcomes.

The independent evaluation is divided into three main phases. In the first phase the Evaluation Plan and Success Criteria were developed by evaluators and evaluation committee. In the second phase the information gathering took place (interviews, observations and document review) and in the third phase the evaluation report was prepared.

The evaluation committee, which consisted of various non-government organizations, water boards, and Aboriginal groups, was important for maintaining an independent approach to the evaluation. The structure of the evaluation largely revolved around the committee, including the evaluation itself, and input from water partners and the Aboriginal Steering Committee.

The results of the evaluation regarding Water Partners, Traditional Knowledge, Aquatic Monitoring and Municipal Water Licenses were provided.

Water Partners:

- Many water partners have been participating since the development of the water strategy, others have joined more recently;
- there is a good understanding of peoples' interests, roles and responsibilities among water partners;
- some water partners have chosen to focus on specific areas of interest within the Water Strategy;
- the process to become a water partner has been very open and inclusive; and
- the evaluation suggested that water partners' commitments could be more specific and less vague.

Traditional Knowledge:

- Different paths of knowing should be treated equally and ways to include Traditional Knowledge need to be further explored; and
- the evaluation suggested that better sharing agreements between communities and other stakeholders need to be developed in order to ensure that stakeholders have access to the information to make informed decisions.

Aquatic Monitoring:

- Monitoring program could be improved through the addition of biological monitoring components; and
- the short sampling period and limited hours make it difficult for community monitors to engage.

Municipal Water Licenses:

- Human resource capacity was identified as a challenge for compliance with water licenses;
- templates have been provided to communities to help with compliance; and
- evaluation recommendations suggest continuing to promote sampling for water licences and identifying opportunities for water stewardship activities to support them.

There are two key steps for moving forward: 1) providing the results of the evaluation to the public; and 2) responding to the recommendations from the evaluation, preferably as a joint response with water partners.

Questions from Water Partners:

Who is the joint response going to be to?

The joint response would be targeted at the public and would identify how we address the recommendations.

With respect to methodology, who was asked to provide input and what decisions were made with deciding what goes in the report?

Key informants were mostly identified by water partners at the February (2015) workshop. If there were priority areas that didn't have anyone identified for, GNWT-ENR suggested key informants. The evaluators triangulated information collection as much as possible through different data sources. Input was also provided by the ASC and Evaluation Committee.

Is there any way to enforce the Water Strategy?

The Water Strategy is a policy document thus cannot be enforced. The new Action Plan will identify lead and supporting partners that will be the lead in defining the Keys to Success.

Overview of the Action Plan 2016-2020

Lisa Kenney from TAIT communications provided an overview of the Water Stewardship Action Plan 2016-2020 Discussion Paper. The new Action Plan for 2016-2020 builds on the successes of the previous 2011-2015 Action Plan, both of which put into motion the vision and goals of the Water Strategy. The vision of the Water Strategy states that *“the waters of the NWT will remain clean, abundant and productive for all time”*.

The new 2016-2020 Action Plan was developed using a multi-step, collaborative process, including an online survey, focus groups and an independent evaluation. In July 2015 water partners were asked to participate in an online survey to provide feedback about Action Plan objectives, indicators to measure success, and potential actions to meet Water Strategy goals. The survey results highlight an improvement in information sharing among water partners, improved access to data by water partners and the public, and standardization of monitoring methods, protocols and data management systems.

The results were then reviewed and discussed further during a series of thematic focus groups with water partners in September 2015. The focus group topics included aquatic monitoring, aquatic research, regulatory and drinking water, Traditional and local knowledge, transboundary water management agreements and water education. The focus group results highlight the need for: increased public knowledge and capacity to monitor and interpret sampling results; improved community involvement and ownership within aquatic research activities; a stronger link between monitoring data and Traditional Knowledge in decision-making; increased confidence among residents in drinking water safety; improved public understanding of regulatory processes; implementation of transboundary water management agreements; improved assessment of cumulative impacts; and increased use of biological components in aquatic monitoring.

The independent evaluation of the 2011-2015 Water Strategy implementation phase was also an important source of information for the 2016-2020 Action Plan. The evaluation underscored several important initiatives and suggested improvements for water partners to work together more effectively to meet the goals of the Water Strategy.

Feedback from the survey, focus groups and independent evaluation form the basis of the Action Plan discussion paper. Action items are divided into the four components of water stewardship in the NWT – Work Together, Know and Plan, Use Responsibly and Check Our Progress. Similar to the previous Action Plan, the 2016-2020 Action Plan includes categories of Keys to Success and related actions informed by water partner feedback. Performance indicators and measures are associated with each Key in order to track progress towards achieving each Key to Success.

Following the presentation by Lisa Kenney, a break-out session took place to review the Keys to Success and associated performance indicators, measures, actions, timelines and lead and supporting partners.

The results from the break-out groups are organized below based on the four different Keys to Success. The results will be incorporated into a draft Action Plan that water partners will be asked to review.

Work Together

Partnerships: Need to focus not only on maintaining collaborative partnerships, but also evolving partnerships; need to have a mechanism in place for partners to check in with each other.

Information Management: Desire to have a one-stop shop for information that is accessible in one place, including the information collected by Land and Water Boards; there is a fair amount of information available, but the data and reporting methods need to be standardized.

Capacity Building and Leadership Training: Education is a key theme that should be used as a springboard for capacity building; youth and young adults are at the core of capacity building for water stewardship and the action plan should reflect this as it is a five-year plan; there is a need for more resources for training and full time-employment rather than part-time seasonal employment; full-time employment would empower people to have capacity to take part in decision-making.

Traditional Knowledge: Traditional Knowledge needs to be meaningfully included in decision-making processes beyond just regulatory decisions (i.e., program decisions); need to look at different spaces for sharing knowledge; ongoing fear that Traditional Knowledge will be misunderstood and misrepresented; to ensure effective use of Traditional Knowledge, communities and regional bodies should be provided funding to be responsible for storing and managing Tradition Knowledge documentation.

Use Responsibly

Policy, Procedures and Protocols: Need to identify priorities for academic partners to support and help with research questions; improving wastewater systems is costly and required logistical changes and thus there is ground work that needs to be done before starting to change systems.

Compliance: Maintenance and cleaning of water tanks is linked to perception of drinking water safety and thus should not be part of compliance; consider putting the roles and responsibilities of drinking water on its own rather than under compliance; water initiatives and programs should support decision-making and be captured more broadly than under municipal compliance.

Know and Plan

Aquatic Ecosystems: Groundwater is a part of understanding the aquatic ecosystem and thus there should be staff dedicated to study groundwater; cumulative effects monitoring needs to be better defined to reflect specific Key to Success and should be on the regional level; wetlands should be incorporated into aquatic ecosystems; needs to be a stronger link between Science Agenda and the Water Strategy.

Collaborative Approach to Community-Based Monitoring: Ensure that CBM programs collect data relevant to local decision-making; there needs to be a commitment to recognize social science research as a valid way of gathering information and include it in aquatic research and monitoring; recognition of need for social science in aquatic research is broader than community-based monitoring and thus should be in a different section.

Check Our Progress

Routine Checks: The indicators are good but need to be tracked, perhaps through an annual survey of how we are meeting performance indicators, while also identifying challenges and successes;

Independent Evaluation: The first independent evaluation was useful and should be retained; should be clear where the new action plan addresses the recommendations from the evaluation; the results from the evaluation should be used to set new priorities.

A brief concluding discussion was held after the breakout group results were reported. Some water partners indicated the workshop was a one-way flow of information and could have benefited from more time for information sharing and exchange. The need for more community involvement in the workshop was also raised. The diversity of challenges and concerns associated with water in the southern and northern NWT was also noted. Overall, water partners expressed appreciation for the collaborative nature of water stewardship in the NWT and for having a diversity of groups and people represented at the workshop.

Robert Jenkins, Director of the Water Resources Division at GNWT-ENR, thanked everyone for their input and provided closing remarks for the workshop.

Appendix A: Workshop Participants and Agenda

Aboriginal Governments	
Leon Andrew	Sahtu Secretariat Inc.
Richard Binder	Inuvialuit Joint Secretariat
Priscilla Canadien	Dehcho First Nation
Tim Heron	Northwest Territory Métis Nation
Dean Holman	Dehcho First Nation
David Krutko	Gwich'in Tribal Council
Alex Power	Yellowknives Dene First Nation
Peter Redvers	K'atl'odeeche First Nation
Terri Simba	Dehcho First Nations
Sjoerd van der Wielen	Tłı̨chǫ Government
Joseph Carpenter	Inuvialuit Game Council
Johanne Black	Yellowknives Dene First Nation
Regulatory and Renewable Resources Boards	
Bijaya Adikari	Inuvialuit Water Board
Sarah Elsasser	Wek'èezhii Land and Water Board
Ryan Fequet	Wek'èezhii Land and Water Board
Bakhtiyor Mukhammadiev	Sahtu Land and Water Board
Zabey Nevitt	Mackenzie Valley Land and Water Board
Heather Scott	Mackenzie Valley Land and Water Board
Meghan Schnurr	Wek'èezhii Land and Water Board
Boyan Tracz	Wek'èezhii Renewable Resource Board
Industry, Environmental Non-Government Organizations and Others	
Pieter Aukes	University of Waterloo
Blair Carter	Ecology North
Joseph Chamberland	C-Core
Carolyn Dubois	Walter and Duncan Gordon Foundation
Diane Dupont	Brock University
Jolie Gareis	Aurora Research Institute
Alex Latta	Wilfrid Laurier University
Lisa Kenney	TAIT Consulting
George Low	AAROM Dehcho
Christina Soto	Ducks Unlimited
Jase Zwarich	Summit Environmental Consultants
Government of the Northwest Territories	
Jeanne Arsenault	Water Resources Division - ENR
Meghan Beveridge	Water Resources Division - ENR
Lorraine Brekke	Conservation, Assessment and Monitoring - ENR
Ernie Campbell, Deputy Minister	Directorate- ENR
Katarina Carthew	Water Resources Division - ENR
Michele Culhane	Water Resources Division - ENR
Andrea Czarnecki	Water Resources Division - ENR

Jennifer Fresque-Baxter	Water Resources Division - ENR
Evelyn Gah	Conservation, Assessment and Monitoring-ENR
Stefan Goodman	Water Resources Division - ENR
Erin Goose	Water Resources Division - ENR
Bruce Hannah	Field Support Unit - ENR
Justin Hazenburg	Municipal and Community Affairs
Charlotte Henry	Lands
Mike Fournier	Policy and Strategic Planning - ENR
Robert Jenkins	Water Resources Division -ENR
Julian Kanigan	Conservation, Assessment and Monitoring - ENR
Laura Krutko	Water Resources Division - ENR
Brian Sieben	Climate Change Programs - ENR
Gila Somers	Water Resources Division - ENR
Tasha Stephenson	Field Support Unit -ENR
Bruce Stuart	Water Resources Division -ENR
Katherine Trembath	Water Resources Division - ENR
Jennie Vandermeer	Water Resources Division - ENR
Peter Workman	Health and Social Services

NWT Water Stewardship Strategy Implementation Workshop November 3-4, 2015 Chief Drygeese Centre, Dettah

NWT water partners ¹ are invited to a two-day NWT Water Stewardship Strategy (Water Strategy) Implementation Workshop, November 3-4, 2015, at the Chief Drygeese Centre, in Dettah, NT. This annual workshop allows water partners to discuss how we can collaborate, prioritize and work together to protect the water in the NWT.

Workshop Objectives

- **Review implementation of the Water Strategy:**

Provide brief updates on community capacity building initiatives, water-related research, and water strategy initiatives.

- **Discuss the content and structure for a new Action Plan, 2016-2020:**

NWT Water Stewardship: A Plan for Action 2011-2015 was released in 2011, providing a detailed plan for implementation of the Water Strategy. A new Action Plan is being developed based on the results of the independent evaluation of Water Strategy implementation, water partner survey results, and focus group discussions. Water partners input into the new Action Plan is crucial for the continued success implementing the NWT Water Stewardship Strategy.

Please confirm your attendance by October 28th by phone 867 765 6692 or by email Katarina_Carthew@gov.nt.ca

¹ Water partners include representatives from federal, territorial, Aboriginal and municipal governments, the Water Strategy Aboriginal Steering Committee, northern regulatory boards and agencies, non-governmental organizations, industry, academia, and NWT communities. The Water Strategy broadly defines a water partner as anyone who has a role in water stewardship.



Tuesday November 3rd

8:30 am **Bus leaves from Days Inn (Yellowknife)**

9:00 am **Arrival and Opening Prayer**

9:20 am **Welcoming Remarks (Ernie Campbell, Deputy Minister, ENR)
and Agenda Overview (Michele Culhane, ENR)**

9:30 am **Short film- Cold Amazon**

10:00 am **Monitoring at the Community Level**

-
- ***Towards Municipal Water Licence Compliance
(Heather Scott, Mackenzie Land and Water Board).***

 - ***NWT-wide Community-based Water Quality Monitoring Program
(Jennie Vandermeer, Environment and Natural Resources (ENR))***

 - ***Pilot Project: Increasing Employment Opportunities in Environmental Monitoring
(Andrea Saldanha, Environment Canada, Strategic Partnership Initiative)***

 - ***Training the Next Generation of Water Leaders
(Erin Freeland Ballantyn, Dechinta Centre for Research and Learning)***

 - ***Mackenzie DataStream
(Carolyn Dubois, Walter and Duncan Gordon Foundation)***
-

12:00 pm **Lunch (provided)**

1:00 pm **Water Research Updates**

- ***Forest Fires and the Impacts on Water***
(Suzanne Tank, University of Alberta)

 - ***NWT CIMP Action Plan 2016-2020***
(Julian Kanigan, NWT Cumulative Impact Monitoring Program, ENR)

 - ***Bottled Water Use On the Land***
(Diane Dupont, Brock University)

 - ***Assessing the Health of Streams in the Central Mackenzie Valley***
(Julian Kanigan, NWT Cumulative Impact Monitoring Program, ENR)

 - ***From Intercultural Engagement to Informed Consent: Exploring Experiences of the NWT Water Stewardship Strategy.***
(Alex Latta, Wilfrid Laurier University)

 - ***Water and River Ice Monitoring: Results from Space***
(Joseph Chamberland, C-CORE and Katarina Carthew, ENR)
-

3:30pm ***Implementation of the NWT-Alberta
Bilateral Water Management Agreement***
(Andrea Czarnecki and Meghan Beveridge, ENR)

4:15 pm ***Bus leaves at the Chief Drygeese Centre***



Wednesday November 4th

8:30 am Bus leaves from Days Inn (Yellowknife)

9:00 am The Delta Ways Remembered (animated video)

9:15 am Update from the Aboriginal Steering Committee

9:30 am Findings from the Independent Evaluation
(Katarina Carthew, ENR)

10:00 am Review of DRAFT Action Plan 2016-2020

-
- *Overview of the DRAFT Action Plan 2016-2020*
(Lisa Kenney, TAIT Communications)
 - *Break-out Sessions: Work Together and Use Responsibly*

12:00 pm Lunch (provided)

1:00 pm Continue Review of DRAFT Action Plan 2016-2020

-
- *Break-out Sessions: Know and Plan and Check Our Progress.*

3:30 pm Summary and Closing Prayer

4:15 pm Bus leaves at the Chief Drygeese Centre