Government of
Northwest Territories

2021 NWT Water Stewardship Strategy Progress Review Comprehensive Raw Data Spreadsheet

The Department of Environment and Climate Change released the 2021-2025 NWT Water Stewardship Strategy Action Plan (Action Plan) in 2021. The first progress review of the Action Plan for the 2021 implementation period was undertaken in 2022 and assessed 41 action items. This spreadsheet contains data for each Performance Indicator and Action Item that were assessed in the 2021 review.

Data are organized into four sections that represent the four components of water stewardship in the NWT:

- Work Together;
- Know and Plan;
- Use Responsibly; and
- Check Our Progress

Sections of the 2021-2025 Action Plan are listed in the first column under each component. The second column lists the Keys to Success identified in the 2021-2025 Action Plan. The remaining columns provide Performance Indicator and Action Item data from the progress review for each Key to Success.

The performance Indicator information is limited to a short summary of the Performance Indicator result determined from the progress review. The Action Item information includes the Action Item as identified in the 2021-2025 Action Plan, the lead water partners responsible for the Action Item, the completion status of the Action Item, and a brief description of the work done towards completing the Action Item. The Action Item status and description are based on information provided by the lead water partners during the progress review.

List of Acronyms

Aurora College/ARI	Aurora Research Institute
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
Dehcho AAROM	Dehcho Aboriginal Aquatic Resource and Ocean Management Program
DFO	Department of Fisheries and Oceans
DUC	Ducks Unlimited Canada
ECCC	Environment and Climate Change Canada
ECC	Department of Environment and Climate Change, GNWT
HSS	Department of Health and Social Services, GNWT
IEMA	Independent Environmental Monitoring Agency
IGIOs	Indigenous governments and Indigenous organizations
ISC	Indigenous Steering Committee
LWBs/IWB	Land and Water Boards (Gwich'in Land and Water Board, Mackenzie Valley Land and Water Board, Sahtú Land and Water Board, and Wek'èezhìı Land and Water Board) and Inuvialuit Water Board
MACA	Department of Municipal and Community Affairs, GNWT
MVEIRB	Mackenzie Valley Environmental Impact Review Board
NTGS	Northwest Territories Geological Survey, GNWT
NWT CIMP	Northwest Territories Cumulative Impact Monitoring Program
NWTCG	Northwest Territories Centre for Geomatics
SNP	Surveillance Network Program
WSS Working Group	Water Stewardship Strategy Working Group

Work Together

	Key to Success	2021 and Ongoing Performance Indicator Result	Action Item	Action Item Lead	2021 and Ongoing Action Item Status	2021 and Ongoing Action Item Status Description
1.1 - Partnerships	1.1.A. Indigenous knowledge, perspectives, and values guide Water Strategy activities through strategic oversight provided by an engaged Indigenous Steering Committee	6 projects received guidance from the Indigenous Steering Commitee (ISC) between April 2021 and March 2022. 3 ISC meetings were held virtually in April 2021-March 2022. For example, between April 2021 and March 2022, Acho Dene Koe First Nation (ADFKN) provided 3 leadership briefings based on ISC meetings/activities, met with at least 6 water partners, and provided 2 reports on regional initiatives at ISC meetings.	1.1.A.1. ISC members actively liaise between their respective Indigenous governments or organizations and the Water Strategy	ISC	Complete for reporting period, and ongoing	ISC members actively liaise between their respective Indigenous governments and Indigenous organizations and water partners by bringing issues forward for discussion at ISC meetings and ensuring that relevant decisions and information from these discussions are conveyed to their respective Indigenous leadership. Regional updates are shared in every ISC meeting to facilitate the sharing of relevant information among ISC members. For example, ADKFN provided a briefing to Council and advisory team on the implementation of the new 2021-25 Action Plan for the Water Strategy and provided a summary of the annual implementation workshop to leadership following each event. Additionally, representatives from ADKFN attended semi-annual ISC meetings and on average 7 ISC members participated in the virtual meetings that took place in between April 2021-March 2022.
			1.1.A.2. ISC members provide advice to water partners on how to effectively engage Indigenous governments or organizations, Indigenous knowledge holders and Indigenous communities in implementing activities and sharing information	ISC	Complete for reporting period, and ongoing	**3 Projects received guidance from the ISC in 2021/March 2022:** 1. NWT Youth Water Stewardship and Mentorship Grant Program 2021/2022 2. Water Stewardship Strategy Action Plan 2021-2025 development, and two related documents; What We Heard: Summary of Engagement NWT Water Stewardship Strategy Action Plan 2021-2025, and the NWT Water Stewardship Action Plan 2021-2025 Plain Language Summary 3. Terms of Reference for the Alberta-NWT Traditional Knowledge Working Group (TKWG) For example, ADKFN representatives worked with several industrial and non-governmental organization partners on how to work effectively with ADKFN to leverage the knowledge held by their members. Efforts were made to highlight the value of Dene knowledge related to water in the territory and to ensure that research, stewardship and industrial activities in the territory are consistent with the vision of water stewardship and where appropriate, incorporate the knowledge of their members. At each annual Water Stewardship Strategy implementation workshop, ISC members are invited to participate in a panel and provide their wisdom, knowledge, and experiences to water partners. By the end of 2021, 12 such workshops had been held since the release of the Water Strategy.
			1.1.A.3. ISC members report on relevant regional initiatives at ISC meetings	ISC	Complete for reporting period, and ongoing	ISC meetings include a standard agenda item for members to provide regional updates. In 2021, ISC members shared various updates on programs and projects undertaken by their respective regions, including assessment of slumps, community-based monitoring programs, Traditional Knowledge studies, microplastics research in Great Slave Lake, and an inconnu detection project with DFO, among others. For example, representatives on behalf of ADKFN highlighted efforts to a fish monitoring program within their territory, focusing on the Liard River, and provided updates on the Yukon-British Columbia-Northwest Territories transboundary water issues discussed at the respective Yukon-BC and BC-NWT Bilateral Management Committee meetings.

1.1 - Partnerships	1.1.C. Indigenous knowledge and ways of knowing and being and local knowledge are valued and respected in water stewardship initiatives	63 communication products were released for NWT CIMP-funded projects. NWT CIMP-funded projects' leads gave 17 community presentations. ECC-CBM program produced a professional video on how to sample for the CBM program. 17 (out of 18 respondents) indicated that their organization was leading one or more water stewardship projects. 73.3% of respondents use Indigenous knowledge to inform decision making. 16 out of 18 respondents indicated that their organization used plain language materials to support understanding of their programs or initiatives. 50% of respondents indicated that their organization used Indigenous language audio or video formats to facilitate understanding of their programs or initiatives within Indigenous communities. And they also mentioned that their organization used or promoted the use of Indigenous place names associated with water features in maps, publications, and websites.	1.1.C.1. Support community and Indigenous governments and organizations' involvement in co-designing research and monitoring initiatives whose research questions respond to community prioritized questions	ECC All water partners	Complete for reporting period, and ongoing	Five (5) NWT CIMP-funded projects were led by a community or IGIO. And 21 of the 28 projects NWT CIMP-funded in 2021-22 were identified as being developed directly in response to community concerns.
			1.1.C.2. Continue to support community-based monitoring programs to enhance shared learning, knowledge, skills, and consistent data collection, analysis, and results communication to communities and decision-makers	ECC Academic partners Aurora College/ARI	Complete for reporting period, and ongoing	The ECC-coordinated NWT-Wide Community-Based Water Quality Monitoring Program introduced an upgraded version of the Citizen Science Kits and provided training in the field to community members collecting the samples. All the data that were collected were shared publicly on Mackenzie DataStream. NWT CIMP has supported community capacity building and provided local learning opportunities by hiring and training local community members to develop their community-based monitoring skills in the field. It continues to be a requirement that funding recipients make their results publicly available. How each project releases its results is an important part of the proposal evaluation. NWT CIMP project leads present their results to the community(ies) in a plain language format, as well as to the relevant decision-maker in a usable format. In 2021-22, 63 communication products were released for NWT CIMP-funded projects: 16 peer-reviewed publications, 13 plain language summaries, and 34 reports. In addition, NWT CIMP funded project leads gave 17 community presentations in various formats to share and discuss projects results.

1.1 - Partnerships			1.1.C.3. Promote information sharing including local and Indigenous stories to better understand and document the significance of the land and water and its history. Use visual aids (e.g., field tablets, videos, etc.) where possible to document and promote knowledge transfer among Elders and youth	ECC All water partners	Complete for reporting period, and ongoing	The ECC-coordinated NWT-Wide Community-Based Water Quality Monitoring (CBM) Program has produced a professional video in 2020, in which ECC Water Management and Monitoring staff and community members are seen collecting water samples for the community-based monitoring program. The video explains why, when, and how they sample for the CBM program. **10 water partners described how their organization shared, or supported the sharing of, local and Indigenous stories:** 1. Workshops and public hearings provide an opportunity for this sharing to take place **(WLWB)** 2. Evidence related to LWB proceedings and most notably public hearings are some of the ways in which this is achieved. **(MVLWB)** 3. IWB encourages Inuvialuit reviewing organizations, Hunters and Trappers Committees (HTCs) and the Community Corporations (CCs) to provide comments on the impacts to local, traditional and cultural areas for any water licence project within their respective areas **(IWB)**. 4. The Review Board actively seeks out opportunities to visit communities and hear directly from people in environmental assessments. The Review Board conducts in-person scoping meetings and hearings, as well as community workshops. The Review Board has also actively supported recent updates to the online review system, which is shared with the land and water boards, to include the ability of people to submit oral questions or statements **(MVEIRB)**. 5. Indigenous stories are best shared on-the-land. Wood Buffalo National Park (WBNP) also supports Indigenous partner organizations by funding them to hire a local person in the role of "IK coordinators". This is to help Indigenous governments and Indigenous organizations engage local people who hold knowledge relevant to different projects **(Other Federal Department/ Agency; e.g. CEAA, NEB, Parks Canada, Transport Canada)**. 6. Blogs and videos that showcase local, community-led (or supported) monitoring initiatives are opportunities to share or support the sharing of local and Indigenous stories. **(Gordon Foundation)**. 7. The Youth Water Stewardship Gathering, co-hosted with Ka'a'gee Tu First Nation, dedicated space and time in the agenda to ensure the sharing of local Indigenous stories communicating the significance of the land, water and their initiatives **(Ecology North)**.
			1.1.C.5. Promote the use of plain language and Indigenous language audio video formats to help facilitate understanding within Indigenous communities	All water partners	In progress	**17 Water Partners Indicated that their organization has used Indigenous knowledge to inform decision-making in 2021:** 1. Through LWB policies, guidelines, and standard conditions of water licences, there are requirements to include TK in submissions, plans, evidence, etc. **(MVLWB)**. 2. The Review Board is required under ss 115.1 of the MVRMA to consider TK in its decision-making processes. The Review Board released TK guidelines in 2005 to guide how developers should consider TK in project design and assessment, and how the Board will consider TK in its processes. In 2021, the Review Board released a Terms of Reference for the Pine Point Mine that required the use and incorporation of TK in the developer's assessment report (described in section 3.4 of the ToR). Some of the specific requirements were that the developer conducts TK and Land Use studies with IGIOs, incorporate the results of these studies into its assessment and include a standalone section in its developer's assessment report on TK **(MVEIRB)**. 3. Although they do not have TK holders at the Independent Environmental Monitoring Agency (IEMA), they have consistently emphasized the importance of its use during regulatory proceedings and incorporation into project and monitoring design. In addition, when they do hear Elders' and community knowledge input on a subject, they often reflect what they have heard in their comments and recommendations **(Independent Environmental Monitoring Agency (IEMA))**. 4. Gathering information from on-the-land users to document any changes or concerns members may have in regard to water **(Normal Wells Resources Council)**. 5. Wood Buffalo National Park (WBNP) is working with 11 Indigenous partners to implement the WBNP World Heritage Site Action Plan. Many of these actions are related to management and restoration of water in the Peace-Athabasca Delta System: assessing the feasibility of water control structures, creating an environmental flows framework (led by ECCC) and investigating options with BC Hydro for a strategic flow release from the Bennett Dam on the Peace River. All of these initiatives were requested by Indigenous communities, and the teams that drive them are collaborative and inclusive of First Nations and Metis representation. WBNP has contribution agreements with all 11 Indigenous stakeholders' IGIOs, in order to support partnership. WBNP, in collaboration with partners, have created IK Use and Sharing Agreement to facilitate respectful knowledge sharing **(Other Federal Department/Agency; e.g. CEAA, NEB, Parks Canada, Transport Canada)**. 6. Community engagements, leadership engagements, harvester engagements **(Ducks Unlimited Canada (DUC))**.

1.2 Communication and Engagement	1.2. Water partners and the public are aware of water stewardship issues and activities		1.2.2. Provide clear, concise and current Water Strategy information and data to the public in easy-to-access formats, at the community, regional and watershed level	ECC	Complete for reporting period, and ongoing	ECC Water Monitoring and Stewardship Division released a new Water Stewardship Strategy Action Plan 2021-2025 in November 2021. Water and sediment quality data are posted on the Mackenzie DataStream.
			1.2.3. Develop and coordinate activities that raise awareness of water stewardship, such as the #loveNWTwater campaign and celebration of Canada Water Week	Ecology North	In progress	In 2021, outreach activities conducted by Ecology North were hindered by Covid-19, with limited options to attend or coordinate public outreach events. The #LoveNWT campaign activities focused on post-pledge programming. There was no celebration of Water Week 2021 because of Covid-19.
1.3 Capacity Building, Leadership Training and Education	1.3.A. Community knowledge and capacity in water management, aquatic research and monitoring increase over time	56.3% of the survey respondents reported that their organizations/communities participate in or support a network of community monitors with similar needs or interests. 47.1% of respondents reported that in the past 12 months, their organization has provided on-the-land capacity building opportunities. And 70% have provided two or more opportunities in the past 12 months.	1.3.A.1. Explore strategic opportunities to coordinate training across the NWT for community-based monitors, including Guardians	Dehcho AAROM ECC	In progress	Learning and training gatherings were limited for the ECC-coordinated NWT-Wide Community-Based Water Quality Monitoring Program due to the pandemic, so holding a workshop in 2021-22 was not feasible at that time. Instead, hands-on training was provided in the field when travel to communities was possible.
			1.3.A.2. Support and promote local and distance learning opportunities for community-based water monitors, Guardians, and future water leaders	ECC Makeway Aurora College/ARI DataStream	Complete for reporting period, and ongoing	ECC, NWT-Wide Community-Based Water Quality Monitoring Program learning gatherings were limited due to the pandemic, but it was possible to provide hands-on training in the field when it was possible to travel to communities. Makeway hosted webinars with Guardians programs across the Yukon and Nunavut to share knowledge on pandemic response, cold weather tools, monitoring protocols and gathering planning. An Indigenous Stewardship Network was scoped, planned and launched to provide networking services and shared resources to Guardians programs across the territories. DataStream presented at the virtual NWT-Wide Community-Based Water Quality Monitoring Program gathering and the Water Stewardship Strategy Implementation Workshop held virtually in April 2021. Their online and print versions of the Water Quality Monitors' Guide can be found at https://datastream.org/guide. **List of networks of community monitors identified by water partners in the survey, in which their organizations participated in or supported:** 1. LWB staff work with community staff to complete SNP sampling (not a network) **(MVLWB)** 2. Slave River and Delta Partnership (SRDP) **(ISC member)** 3. Regulatory system: WLWB, MVEIRB specific to Ekati **(IEMA)** 4. Slave River and Delta Partnership, Non-PAD WBNP Community-Based Monitoring - Fort Resolution, Fort Smith, Hay River (in progress) **(Regional Indigenous Governments and Indigenous Organizations)** 5. Caribou Guardians Coalition Ekwo Naxoedee K'e **(WRRB)** 6. WBNP works with 11 First Nation and Metis stakeholders. They also work hand-in-hand with ECCC and provincial and territorial governments **(Other Federal Department/Agency; e.g. CEAA, NEB, Parks Canada, Transport Canada)**.

			1.3.A.3. Promote and facilitate intergenerational on-the-land education/ leadership camps	Makeway ECC	In progress	ECC; On-The-Land Unit had 2 programs that were on the land that included discussions related to water issues. The first program focused on Traditional Knowledge-On-The-Land Program Learning, and on Traditional Travel Routes including waterways. The second program focused on Land Skills of Harvesting, Processing and Preserving Country Foods, the primary country food that was included was fish. Funding from the ON THE LAND COLLABORATIVE and TAKE A FAMILY ON THE LAND, support people getting out on the Land/water the goal for these programs on harvesting, staying healthy and active, sharing knowledge, outdoor safety. These programs connect community members to their land, culture, language, and traditions; with an emphasis on building or strengthen partnerships and enhancing community capacity.
			1.3.A.4. Identify opportunities for water partners to support each other's educational initiatives, including sharing of electronic and physical resources	ECC	In progress	Learning/training gatherings for ECC, NWT-Wide Community-Based Water Quality Monitoring Program were limited due to the pandemic and the program was unable to hold a workshop in 2021. Updates on the NWT-Wide Community-Based Water Quality Monitoring Program sampling information have been added to the Mackenzie DataStream website and the ECC/ GNWT Facebook page.
1.4 - Transboundary Discussions, Agreements and Obligations	1.4.A. Bilateral transboundary water management agreements are in place with neighbouring jurisdictions to protect NWT waters	Indigenous governments and Indigenous organizations were consulted, and the public was engaged on negotiations processes for 2 Bilateral Water Management Agreements (BWMAs) with the Yukon.	1.4.A.2. Continue to consult and engage Indigenous governments and organizations and engage the public during negotiations processes	ECC	Complete for reporting period, and ongoing	ECC consulted and engaged Indigenous governments and Indigenous organizations and engaged the public during the negotiations processes for the two Bilateral Water Management Agreements (BWMAs) with the Yukon. ECC shared regular updates on negotiations with the Yukon and with Saskatchewan at Indigenous Steering Committee meetings.
	1.4.B. Bilateral transboundary water management agreements are successfully implemented through Bilateral Management Committees and NWT residents are kept informed of transboundary water management agreements activities	An Indigenous community-based monitoring project was initiated in 2020-2021. Work has also been initiated to develop a Traditional Knowledge Framework.	1.4.B.2. Monitor and learn through Indigenous and western science about aquatic ecosystems, including surface and groundwater quality and quantity, and biology in the transboundary watersheds with consideration of climate change impacts	ECC	Complete for reporting period, and ongoing	Water quality, water quantity, and biological monitoring continued in transboundary waters. Data assessment and implementation activities under the transboundary agreements are reported in annual reports. A report was released in September 2020. As part of the implementation of the Alberta-Northwest Territories Agreement, an Indigenous community-based monitoring project was initiated in 2021. Work was initiated to develop a Traditional Knowledge Framework to inform implementation of the Agreement.

Know and Plan

	Key to Success	2021 and Ongoing Performance Indicator Result	Action Item	Action Item Lead	2021 and Ongoing Action Item Status	2021 and Ongoing Action Item Status Description
2.1 - Building Knowledge	2.1.A. Understanding is improved of NWT'S aquatic ecosystems, including water quality, water quantity, wetlands and biological components and the human dimensions of water management	64.7% of the survey respondents have collected or used data about NWT's aquatic ecosystems. As well, the data collected are easily accessible to the public.	2.1.A.2. Increase biological monitoring across the NWT (e.g. benthic invertebrates, fish) and use biological indicators, where possible, as part of ongoing aquatic monitoring to provide early warnings of change in the aquatic ecosystems	ECCC ECC	Complete for reporting period, and ongoing	ECC, in collaboration with community partners and the Government of Alberta, conducted transboundary-related fish sampling on the Slave River in 2021. Data analysis and reporting are underway, and community reporting will be conducted in 2022. In 2021-22 for NWT CIMP, 17 of the 28 NWT CIMP-funded projects focused on aquatic monitoring and research. ECCC is training CABIN monitors as part of the CBM Inuvik-to-Tuk project. ECCC continues to make connections and communicates with communities and organizations interested in biological monitoring. ECCC will offer CABIN training as resources allow. **Aquatic ecosystem data collected by water partners:** 1. Surveillance Network Program (SNP) data collection is required for water licences. Other submissions (Aquatic Effects Monitoring Programs (AEMPs)), background studies, etc. also collect this type of data **(MVLWB)**. 2. Water from the Slave River, NWT **(ISC member)** 3. The IWB collects data through the Surveillance Network Program (SNP), where water samples from fresh water and waste effluence are collected to be in compliance with water licences **(IWB)**. 4. Environmental assessments routinely require data related to groundwater systems, surface water systems, water quality, water quantity, aquatic biology and other aspects of cultural and social water use **(MVEIRB)**. 5. As the watchdog for the Ekati mine, Independent Environmental Monitoring Agency (IEMA) reviews all the mine's water quality and seepage data, including from the Aquatic Effects Monitoring Plan. IEMA then compares results to ecological benchmarks to identify issues or trends **(IEMA)**. 6. Benthic invertebrate data in Slave and Hay Rivers, in collaboration with community partners and the Government of Alberta **(ECC)** 7. Fish health and tissue data from the Slave River, in collaboration with community partners and the Government of Alberta **(ECC)** 8. Wetlands - Bog, fen, swamp, marsh, open water and also fish habitat (Ducks Unlimited Canada **(DUC)**). **Types of data not currently collected that water partners identified as important to collect:** 1. Some communities lack resources to collect all of the required SNP **(MVLWB)**. 2. Data from the Talson River, Rocher River, Salt River, Buffalo River, and Little Buffalo River **(ISC member)**. 3. Caribou/moose vegetation, peatlands **(DUC)**.
			2.1.A.3. Complete fish studies to assess fish health and change, distribution, contaminants, and populations	ECC ECCC DFO	Complete for reporting period, and ongoing	In 2021-22, for NWT CIMP, five of the 28 CIMP-funded projects focused on fish monitoring and research. DFO's NWT CIMP funded project continued their fisheries ecosystems surveys in Great Slave Lake between April 2021-March 2022 and concluded stable fish populations and healthy environment. Dr. Xinhua Zhu's study mainly focused on distribution, abundance, and biomass as well as environment dependence. ECC, in collaboration with community partners and the Government of Alberta, conducted transboundary-related fish sampling on the Slave River in 2021. Data analysis and reporting are underway, and community reporting will be conducted in 2022.

2.1 - Building Knowledge			2.1.A.5. Collect Snow Water Equivalent (SWE) information to assess spring water outlook and provide baseline SWE information Data are archived and disseminated, including historic data to support assessment of change	ECC	Complete for reporting period, and ongoing	ECC Water Monitoring and Stewardship Division completes snow surveys and shares the data in Spring Outlook reports.
			2.1.A.6. Assess impacts of increasing air temperature on different components of the hydrological cycle	ECC	In progress	Assessing impacts of increasing air temperature on different components of the hydrological cycle is an ongoing process.
	2.1.B. Groundwater is better understood as part of the structure and function of aquatic ecosystems in the NWT	ECC made progress to develop a partnership between ECC and the Alberta Geological Survey NTGS released a report in 2018 that was a first large-scale assessment of aufeis distribution in Yukon and adjacent Northwest Territories.	2.1.B.4. Undertake an information assessment for each priority aquifer in the NWT	ECC NTGS Academic partners	In progress	ECC made progress to develop a partnership between ECC and the Alberta Geological Survey to conduct a geological and hydrological evaluation of the Hay River and Kakisa/ Cameron Hills regions. This work will involve developing maps of the bedrock topography and the potential non-saline aquifer. NTGS released a report in 2018 that was a first large-scale assessment of aufeis distribution (location and surface area of aufeis) in Yukon and adjacent Northwest Territories (eastern Yukon and western NWT). The objective was to assess potential areas of perennial groundwater discharge. Aufeis (sheet-like masses of stratified ice that form by the freezing of successive flows of water that seep from the ground, flow from a spring, or emerge from fractures in a river or lake ice) were mapped using all available Landsat images. The perimeter of each aufeis was digitized and their surface calculated in ArcGIS. In addition, bedrock geology, geological faults, and evaluation associated with the aufeis were extracted and included in the report. More information on the report can be found: https://app.nwtgeoscience.ca/Searching/ReferenceSearch.aspx , https://app.nwtgeoscience.ca/Journal.aspx?refnum=2016-010.
	2.1.C. Remote sensing imagery and geomatics tools assist in understanding water quality and quantity in the NWT	ECC is the recipient of remote sensing products and shares the compiled information through publicly available reports. NWT Centre for Geomatics (NWTCG) has completed a long-term change analysis of Landsat imagery (between 1985-2019) and the analysis was shared through ESRI story map.	2.1.C.1. Share information about existing water-related geomatics and/ or remote sensing uses to interested water partners	ECC NWT Centre for Geomatics (NWTCG)	In progress	ECC: N/A NWTCG is actively working to make recently acquired imagery and LiDAR products available to the public. In addition, NWTCG has been able to extend GNWT'S access to almost daily satellite imagery through the Planet Labs Subscription Service until the end of March 2023. This service is valuable for situational awareness, including flood events as they are happening.
			2.1.C.2. Monitoring programs include geomatics and remote sensing tools, where appropriate	ECC	Complete for reporting period and ongoing	ECC Water Monitoring and Stewardship Division is the recipient of remote sensing products generated by the federal government. These products are used for spring situational awareness. This information is compiled with other information available in government and public reports regarding public safety. NWTCG completed the long-term change analysis of Landsat imagery between 1985 and 2019. This analysis has been communicated through an ESRI story map (https://experience.arcgis.com/experience/2effc9c8150a4abebdc9ef587865ab8e) and is consumable as a REST service. The data demonstrate Landscape Change for a variety of factors, including "wetness". NWTCG can see through these results trends in changes to water levels, including lake drying, thawing permafrost, and coastal erosion, to name a few. NWTCG is actively working with subject matter experts to evaluate this analysis against field observation to validate the types of changes on the landscape, including those related to water.

	2.1.D. Impacts and cumulative impacts of human activities and climate change on NWT waters are mitigated	In 2021-22, NWT CIMP completed the second year of a three-year pilot project, monitoring cumulative impacts to water quality of lakes in the Yamba Basin in the Upper Coppermine and results were shared with the NWT CIMP Steering Committee. Year 2 analyses are currently underway.	2.1.D.2. Continue to fund water partners to undertake cumulative impact monitoring and research projects, with a requirement to report on results	ECC	Complete for reporting period and ongoing	In 2021-22, the NWT CIMP successfully completed the second year of a three-year pilot project to monitor cumulative impacts to water quality of lakes in the Yamba Basin in the Upper Coppermine. Analyses of first year results took place in May 2021. These results were shared with the NWT CIMP Steering Committee in Q3 of 2021-22. Year 2 analyses are currently underway.
2.2- Applying Knowledge for the Long Term	2.2.B. Water monitoring networks are proactively and collaboratively managed through partnerships and agreements to maintain and improve long-term water quality and quantity knowledge, address gaps, and meet changing needs	58.8% of the survey respondents did not know if the NWT monitoring networks were sufficient or effective but provided some ideas on how the networks can be improved.	2.2.B.1. Identify knowledge gaps across monitoring programs and networks (including transboundary water systems and NWT-wide water systems), prioritize long-term data collection, establish research priorities to address the priority gaps, and identify monitoring sites to fill gaps in accordance with available resources	ECC ECCC Academic partners IGIOs	In progress	ECC conducted water quality monitoring across the NWT by various groups and through multiple partnerships. State of the Environment reporting has been conducted for NWT water quality monitoring sites. Data analysis, program evaluation and reporting are ongoing. The ECCC continues to maintain its long-term water quality and quantity monitoring network across the NWT.
			2.2.B.2. Water partners meet to discuss approaches and emerging science/tools, including Indigenous and local knowledge	All water partners	In progress	73.3% of the online survey respondents reported using Indigenous knowledge to inform water stewardship decision making.
			2.2.B.3. Existing water quality and quantity monitoring programs are maintained and optimized, where possible, through collaboration with water partners	All water partners	In progress	**Ways to make monitoring networks more sufficient:** 1. Improved understanding of groundwater. Improved understanding of Great Slave Lake. I believe initiatives are underway for both of these **(MVLWB)**. 2. Cumulative effects monitoring is piecemeal and ineffective. Developers and researchers should be required to collect information in similar and usable ways to facilitate cumulative effects monitoring by the GNWT. Communities, IGIOs should be empowered to conduct monitoring that both feeds into these broader cumulative effects monitoring systems as well as answers important local questions. This monitoring should be supported by open and accessible use programs so that information, resources and expertise can be shared between community monitoring groups **(MVEIRB)**. 3. More community-based monitoring for cumulative impacts **(ECC)**. **How water partners organizations share water-related monitoring results and how often they are shared:** 1. On public registry for information gathered for water licences/applications **(MVLWB)**. 2. ECC website, and DataStream **(ECC)**. 3. Presentations at multi-stakeholder meetings. No structured timelines, about quarterly (each project reported on annually). Written reports are also available but not well distributed **(Other Federal Department/Agency; e.g. CEAA, NEB, Parks Canada, Transport Canada)**. 4. Currently updating the way in which drinking water results from community sampling (done by the community) are received and shared back with others. Outdated system is no longer in use. Currently communities can request data (Health and Social Services **(HSS)**.

2.2- Applying Knowledge for the Long Term	2.2.C. Results of monitoring and research activities by researchers and water partners are provided to water partners in an understandable way	80% of the survey respondents reported that their organization shared water-related monitoring results through public presentations and or plain language summaries. 35.7% of the respondents were somewhat satisfied with their organization's level of involvement in setting water-related research priorities in their region.	2.2.C.1. Researchers working in the NWT ensure that they understand and have adopted community research protocols	ECC Aurora College/ARI	Complete for reporting period and ongoing	The NWT CIMP requires project funding recipients to engage and have the support of communities, through the proposal process. In 2021-22, 12 projects proposed for 2022-23 were received, with 19 letters of support from communities or IGIOs received in total. ECC Water Monitoring and Stewardship Division hosted a virtual meeting of the Slave River and Delta Partnership in May 2021 to report on the progress of the Slave River Transboundary Fish Monitoring Program. ECC, NWT-Wide Community-Based Water Quality Monitoring Program, grab samples and continual sonde data were collected in 20 communities in 2021 for the NWT-Wide Community-Based Water Quality Monitoring Program initiative. The data collected are available to the public on Mackenzie DataStream.
			2.2.C.2. Water partners work collaboratively with community representatives to establish research study goals that build on past and ongoing work in communities and community capacity	All water partners	In progress	**Improvements that could increase water partners' satisfaction with their organization's level of involvement in setting water-related research priorities in their region:** 1. IEMA is bound by their specific mandate to focus on Ekati, so their comments are often limited in scope. That being said, they do review any relevant guidelines and policies that are distributed. So, they do not really have position on the state of water-related research on a territorial scale **(IEMA)**. 2. More regional/community capacity funds **(Regional Indigenous Government and Indigenous Organization)**. 3. Wetland Policy for the NWT **(DUC)**. 4. More capacity funds, regional Indigenous government and Indigenous organization funds for a Water Coordinator-Community Monitors **(Regional Indigenous Government and Indigenous Organization)**.
			2.2.C.3. Ensure community-based monitoring data are relevant to local decision-making and help to address community concerns	ECC Academic partners Research funding agents	Complete for reporting period and ongoing	ECC, NWT-Wide Community-Based Water Quality Monitoring Program updates field sheets to highlight the parameters that reflect community water quality management and community led scope.
			2.2.C.4. Technical experts and researchers communicate with communities during projects and present monitoring and research findings tailored to communities (in the appropriate context and plain language) upon completion of a project	Aurora College/ARI ECC Academic partners Research funding agents DataStream	Complete for reporting period and ongoing	DataStream water and sediment quality data from throughout NWT is openly available on Mackenzie DataStream (https://mackenziedatastream.ca), including the NWT-Wide Community-Based Water Quality Monitoring Program, NWT transboundary monitoring, ECCC national long-term water quality datasets, CIMP-funded projects, and other community-led monitoring data. Aurora College/ARI made presentations to Yellowknife Farmers Market, Yellowknives Dene First Nation, and Yellowknife Legacy Arsenic Committee (GNWT) regarding the Yellowknife Garden Metals Study. 1. Results from year 1 of the Yellowknife Garden Metals Study were shared with participants, including through a plain language summary. 2. Presentation to Yellowknives Dene First Nation re: Arsenic in Yellowknife area soils 3. Presentation to Giant Mine Remediation Team re: Recent arsenic research in the Yellowknife area 4. Western Arctic Research Centre (WARC) staff presented to students at Mangilaluk High School in Tuktoyaktuk, regarding Climate Change impacts on inland and coastal waters. The presentation took place on the land, as a part of the Dechinta Centre for Research and Learning's Beaufort Delta Program. 5. WARC hosted regular online presentations, as a part of our Virtual Speaker Series. Two presentations related to freshwater: * The effects of permafrost thaw on carbon movement in freshwater streams of the Western Arctic (Suzanne Tank et al.) * Kugmallit Bay: A Landscape in Flux (Erika Hille et al.) 6. The Aurora Research Institute issued 50 scientific research licenses related to freshwater resources in the NWT. Plain Language summaries for each of these projects have been published on the NWT Research Database.

Use Responsibly

	Key to Success	2021 and Ongoing Performance Indicator Result	Action Item	Action Item Lead	2021 and Ongoing Action Item Status	2021 and Ongoing Action Item Status Description
3.1 - Municipal Water Use	3.1 B. Municipal public works operators (water, wastewater, solid waste, and fuel storage facilities), senior municipal staff, and community leadership are increasingly skilled, knowledgeable and confident about how to manage community infrastructure for the protection of the aquatic environment and drinking water quality	In 2021-2022, MACA staff provided Circuit Rider support in 12 communities.	3.1.B.1. Identify and tailor learning options (e.g., peer-to-peer learning, job aids, coaching, field visits, courses, microlearning) that encourage the use of best practices in municipal works operations	MACA	In progress	MACA provides hands-on training and operational support, known as the "Circuit Rider program," to community water treatment plant operators as required. The number of communities receiving hands-on training varies each year based on community needs. In 2021-2022, MACA staff provided Circuit Rider support in 12 communities. In addition to Circuit Rider support, communities that recently received new water treatment plants (WTPs) also received hands-on training from suppliers on the operations of their WTP. The School of Community Government with MACA also offers training in the area of drinking water operations and certification, wastewater operations and certification, and solid waste management.
			3.1.B.2. Develop Operational and governance guidance materials, including standard operating procedures (SOPs), templates, and checklists to strengthen community wastewater and solid waste management practices	MACA	In progress	MACA is working in partnership with communities on a cleanup, clean start program that begins with the removal of hazardous waste and management of scrap metal stockpiles (see Action 3.1D for more information on this project). As stockpiles are removed and communities seek to make improvements in operations, SOPs, checklists, and other templates will be developed to support them with a clean start. This is an ongoing effort.
	3.1.C. Drinking water in communities is protected through a multi-barrier approach to source water protection	47.1% of the survey respondents reported that their organizations use source water protection planning tools.	3.1.C.1. Support communities to develop source water protection plans where necessary and if required	ECC	In progress	ECC Water Monitoring and Stewardship Division continues to be available to support communities to develop source water protection plans if requested. **Source water protection planning tools mentioned by water partners in the survey:** 1. Ensure best management practices for community waste systems through the approval of operations and management plans for sewage disposal systems and solid waste disposal systems. Collection of water quality data through Surveillance Network Programs (SNPs). Adherence to guidelines/policies related to water quality and waste management **(MVLWB)**. 2. Water licencing issuance and source water quality sampling **(IWB)**. 3. Issues water licence **(IWB)**. 4. Water licensing, effective legislation **(IEMA)**. 5. Public Education **(Ecology North)**.
			3.1.C.4. Seek to better understand the prevalence and effects of non-household wastes on municipal wastewater systems, such as landfill leachate, compost facility runoff, and water purification plan by-product	ECC LWBs/IWB	In progress	Recently renewed municipal water use licences require that the quantity and quality of waste streams (i.e. backwash and/or sludge) discharged from water treatment plants be monitored so that regulators can better understand any potential impacts on the receiving environment. Dalhousie University, in conjunction with ECC, MACA, and LWBs, completed an initial set of "Recommendations for Municipal Water Treatment Plant Waste Residuals in the Northwest Territories" in March 2021.

3.1 - Municipal Water Use	3.1.D. Consistency, standardization, and guidance for managing community public works facilities are improved	3-5 waste reduction diversion programs are to be implemented/or expanded as one of the priority actions in the NWT Waste Resource Management Strategy and Implementation Plan by 2031.	3.1.D.2. Identify, prioritize, and implement waste diversion programs	ECC	Complete for reporting period and ongoing	ECC Environmental Protection and Waste Management Division: One of the priority actions in the NWT Waste Resource Management Strategy and Implementation Plan (Strategy) is to implement or expand 3-5 waste reduction/diversion programs by 2031. In 2021/22, input from the Waste Reduction and Recovery Advisory Committee was used to prioritize the following three materials: used oil, waste tires, and an expanded suite of electronic and electrical products. In October 2021, the Electronic and Electrical Products Recycling Pilot Project (the E-Pilot) was launched, allowing 10 NWT communities to be able to recycle an expanded list of electronics and electrical products. Over the next two years, the GNWT will use the E-Pilot to work out logistics and assess the quantity of materials likely to be recycled annually and the associated costs of handling, transporting, and recycling them. This information will be important to help design a self-sustaining program to best manage this expanded suite of products. A priority action from the Strategy is to support compost programs in 3 to 5 communities. As a first step to supporting compost programs across the NWT, ECC began developing Compost Facility Standards. These standards will ensure future compost facilities to not have adverse environmental and/or health and safety impacts. A supporting step-by-step manual is also under development, as a guide to establish a facility that complies with these standards. These documents are currently being reviewed internally within GNWT and will be ready for external review in the fall of 2022.
			3.1.D.3. Continue to seek and dedicate financial resources to eliminate hazardous waste stockpiles and transition to temporary collection and storage of hazardous waste	MACA ECC	In progress	From 2017 to 2021, approximately 244,294 liters (L) of liquid hazardous waste and 64,169 kilograms (kg) of solid hazardous waste were consolidated and shipped for disposal or recycling to a registered hazardous waste receiving facility in Alberta. These wastes originated from the communities of Paulatuk, Fort Providence, Tulita, Fort Good Hope, Fort Simpson and Norman Wells. Currently, communities and MACA have received federal funding to address infrastructure needs at solid waste sites that also address historic stockpiles in the 5 regions in the NWT. Communities have allocated approximately $1.9 million and have successfully applied for an additional $5.7 million in federal Investing in Canada Infrastructure Program (ICIP) funding. Planning has been underway since 2020 and groundwork is expected to begin in 2022.
3.2 -Industrial Water Use	3.2.A. Strengthen opportunities and clarify expectations for community involvement in environmental assessment, regulatory and post-regulatory processes, to improve understanding of the relationship of indigenous people to the land and water and the importance of this relationship to community wellbeing	42.9% of survey respondents were very satisfied with the level of involvement of their organization in the water license application and review processes. 60% of respondents somewhat agreed that their organization's/community's awareness of Indigenous peoples' relationship to land and water has increased through their participation in environmental assessment, regulatory and post-regulatory processes.	3.2.A.1. Provide information to Indigenous governments and organizations and communities on how to participate in regulatory and environmental impact assessment processes	CIRNAC LWB/IWB MVEIRB ECC	Complete for reporting period and ongoing	The Land and Water Boards of the Mackenzie Valley, the Mackenzie Valley Environmental Impact Review Board, the Government of the Northwest Territories, and the Government of Canada hosted the annual Mackenzie Valley Resource Management Act (MVRMA) Resource Co-management workshop, and the report is available at this link: https://wlwb.ca/outreach/mvrma-workshop.
			3.2.A.2. Produce decisions statements, policies, and guidelines using plain language to communicate how Indigenous knowledge has been or will be considered in water licenses and environmental assessments	MVEIRB LWB/IWB	Complete for reporting period and ongoing	The LWBs issue Reasons for Decisions (RFD) with all major decisions, water licence renewals, and water licence issuances. The RFDs explain how Traditional Knowledge has been or will be considered in water licences. Licence conditions may directly address Traditional Knowledge collection and consideration. These conditions require the proponent to consider and incorporate Traditional Knowledge into required submissions; identify Traditional Knowledge-related recommendations and describe how they were incorporated; and operate in accordance with a Traditional Knowledge management framework. Traditional Knowledge may also be addressed through the review process, providing direction to proponents to design criteria and parameters for closure and monitoring that involve local and Traditional Knowledge **What would increase water partners' level of satisfaction with the degree to which their organizations participate in the water licence application and review processes:** 1. More capacity funds and staff **(ISC member)**. 2. More interim resource pressures funding, capacity funding- C/A's **(Regional Indigenous Government)**. 3. More training and understanding processes that make decisions about application and review standards **(Normal Wells Renewable Resources Council)**. 4. The Review Board does not routinely participate in water licence proceedings, but it does observe and keep track of the outcomes of these proceedings. More coordination between the boards could facilitate their ability to observe proceedings **(MVEIRB)**.

Check Our Progress

	Key to Success	2021 and Ongoing Performance Indicator Result	Action Item	Action Item Lead	2021 and Ongoing Action Item Status	2021 and Ongoing Action Item Status Description
4.1: Check Our Progress- Routine Checks	4.1.A. Water Partners maintain steady progress on Action Plan Implementation	Progress was assessed for all of the 41 "2021 and ongoing" action items and there is a total number of 86 action items in the 2021-2025 Action Plan to be completed by the end of 2025. The 2021 Water Strategy Action Plan Progress Report will be released in early 2023.	4.1.A.1. Hold an annual Implementation Workshop to report on successes, improvements, and remaining challenges	ECC ISC WSS Working Group	Complete for reporting period and ongoing	The 11th and 12th Water Stewardship Strategy Implementation Workshops were held virtually due to Covid-19 on April 13-15 and November 16-18, 2021 respectively. The 11th Annual Implementation Workshop brought together all water partners under the theme "Where We Are Now, Strengthening Where We are Going" to recognize the important work that has been done and to reflect on how to continue to work collaboratively to achieve the vision of the water strategy through developing a new five-year Action Plan. The 12th Annual Water Stewardship Implementation Workshop brought together water and climate change partners for the first time under the theme "Collaborating for Water" and focused on knowledge sharing to facilitate collaboration. The workshop recognized the significant work of water and climate change partners and emphasized the importance of continued collaboration to achieve the goals of the Water Stewardship Strategy 2021-25 Action Plan and the 2030 NWT Climate Change Strategic Framework and its Action Plan.
			4.1.A.2. Survey appropriate water partners to assess progress on Keys to Success using performance indicators, and to identify challenges and solutions	ECC ISC WSS Working Group	Complete for reporting period and ongoing	ECC launched an online survey that was distributed to water partners in September 2022. ECC also directly reached out to different lead partners to gather input and progress on the 2021-2025 Water Stewardship Strategy Action Plan. A total of 41 action items were evaluated, identified as: 2 for the year 2021 and ongoing, 36 ongoing and 3 annually, action items in the 2021-2025 Action Plan. Information collected through water partners informs on Action Plan's Keys to Success and related Performance Indicators and Action Items to assess the progress done and highlight actions that require attention in order to ensure that progress on the Action Plan is occurring as intended. **Challenges described by water partners who took the online survey:** 1. The Water Stewardship Strategy should strive to align or include SNP monitoring with community-led monitoring programs. It is Board staff's understanding that community-led monitoring programs are often created out of concern for regional water quality; municipal waste sites are a potential risk to regional water quality and should be a component of these programs. It is important to note SNP requirements are legal requirements for the purpose of ensuring safe drinking water and best waste management practices. The NWT-Wide Community-Based Water Quality Monitoring Program should be aligned with the SNP, so it helps Municipal Licences complete their SNP sampling and then measures additional locations and parameters that the community is interested in. (Wek'èezhìı Land and Water Board **(WLWB)**) 2. Lack of guidelines for all municipal waste-related activities, i.e. standards for solid waste management facilities, sewage disposal systems, sewage effluent criteria, groundwater monitoring requirements, parameters for acceptance of "natural attenuation" landfills, disposal of waste treatment plant residuals, etc. Lack of baseline water quality guidelines. (Mackenzie Valley Land and Water Board **(MVLWB)**) 3. Weather, participants and timing of the season. (Indigenous Steering Committee member **(ISC member)**) 4. Funding, increasing capacity, community engagement and buy-in. **(Local Indigenous Government)** 5. We experienced challenges in 2021 implementing water stewardship education activities due to COVID-19 limiting classrooms visits, however we were able to overcome these challenges. **(Ecology North)**

4.1: Check Our Progress- Routine Checks						**Three success stories will be shared in the 2021 Annual Progress Report.** **Other success stories shared by water partners in the online survey include:** 1. The IWB provides information to the ISR communities regarding the water licencing process and documents required through workshops and community tours. (Inuvialuit Water Board **(IWB)** 2. Tlicho Wetland Inventory Project Fieldwork was completed. (Ducks Unlimited Canada **(DUC)**) 3. Water quality and sediment quality data throughout the NWT and larger transboundary Mackenzie River Basin is openly available on Mackenzie DataStream (www.MackenzieDataStream.ca), including NWT-wide CBM program, NWT transboundary monitoring, ECCC national long-term water quality datasets, CIMP-funded projects, and other community-led monitoring data. By the close of 2021, over 50 different monitoring groups were using Mackenzie DataStream to share results across 1500+ monitoring sites. We also released a new "Custom Download" tool in 2021, allowing for advanced search and download of data from across multiple datasets so that people can easily access specific subsets of data (e.g., all arsenic data in a given region) that meet their search criteria; and we added a new feature on DataStream's map-based search that allows viewers to jump to their location on the map. We hosted a webinar series on data management bets practices, including a panel on community-based water monitoring, and launched a How-to video series to provide improved guidance on using DataStream to share and access water monitoring results. **(Gordon Foundation)** 4. In 2021 Ecology North successfully hosted a number of public education initiatives including: a Youth-led Water Stewardship group (mostly online), an on-the-land Water Stewardship Gathering (in-person), #LoveNWT campaign, Rivers to Oceans Day (safely outdoors while adhering to COVID-19 protocols). **(Ecology North)**.
			4.1.A.3. Routinely update water partners in implementation activities by providing information using plain language and using appropriate tactics	ECC ISC WSS Working Group	In progress	The 2021 Water Strategy Action Plan Progress Report will be released in early 2023.