Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

2019/2020 NWT Water Stewardship Strategy Progress Review Comprehensive Raw Data Spreadsheet

Environment and Natural Resources (ENR) released the *NWT Water Stewardship Strategy Action Plan 2016-2020* (2016-2020 Action Plan) in 2016. The fourth progress review of the 2016-2020 Action Plan for the 2019/2020 implementation period was undertaken in 2020, assessing 54 Performance Indicators and 147 Action Items. This spreadsheet contains data for each Performance Indicator and Action Item that were assessed during the 2019/2020 review.

Data are organized into four sections which represent the four components of water stewardship in the NWT: Work Together; Know and Plan; Use Responsibly; and Check Our Progress. Sections of the 2016-2020 Action Plan (e.g. 1.1 - Partnerships) are listed in the first column under each component. The second column lists the Keys to Success identified in the 2016-2020 Action Plan (e.g. 1.1 B - Ensure water partners understand their roles and responsibilities for implementing the Water Strategy). 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 results determined from the progress review survey (e.g. 26 out of 43 water partner respondents indicated they are aware of their role implementing the Water Strategy). The Action Item information includes the Action Item as identified in the 2016-2020 Action Plan, the deliverable date for the Action Item, the lead water partners responsible for the Action Item, the completion status of the Action Item (i.e. not started, in progress, complete, or complete for reporting period and ongoing), 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.

The 2019/2020 NWT Water Stewardship Strategy Progress Review Summary is available on the ENR website: www.enr.gov.nt.ca.

List of Acronyms

AEMP	Aquatic Effects Monitoring Program
ARI	Aurora Research Institute
ASC	Aboriginal Steering Committee
BMC	Bilateral Management Committee
BWMA	Bilateral Water Management Agreement
CABIN	Canadian Aquatic Biomonitoring Network
CBM	NWT-wide Community-based Water Quality Monitoring Program
Dechinta	Dechinta Centre for Research and Learning
Dehcho AAROM	Dehcho Aboriginal Aquatic Resource and Oceans Management Program
ECCC	Environment and Climate Change Canada
ENR	Department of Environment and Natural Resources, GNWT
FOD	Field Operations Directive
GNWT	Government of the Northwest Territories
HSS	Department of Health and Social Services, GNWT
Lands	Department of Lands, GNWT
LWB/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
MRBB	Mackenzie River Basin Board
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	Mackenzie Valley Resource Management Act
NWT	Northwest Territories
NWT CIMP	NWT Cumulative Impact Monitoring Program
QA/QC	Quality Assurance/Quality Control
SNP	Surveillance Network Program
SRDP	Slave River and Delta Partnership
SRRB	ʔehdzo Got'ı̨nę Gots'ę́ Nákedı (Sahtú Renewable Resource Board)
WLWB	Wek'èezhìı Land and Water Board
WLU	Wilfrid Laurier University
WRO	Water Resource Officer

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
1.1 - Partnerships	1.1 A - Ensure the Water Strategy is integrated with watershed and natural resource planning and management frameworks in the NWT (e.g. land-use planning framework, recreational land management framework, energy priorities framework, conservation planning and climate change strategy).	Seven NWT watershed and natural resource planning and management frameworks reference the Water Strategy.	1.1.A.1. Establish partnerships with organizations to ensure the Water Strategy vision and goals are considered in watershed and natural resource planning and management frameworks.	2018 and ongoing	ENR (Environment and Natural Resources)	Complete for reporting period, and ongoing	The partnership-based approach laid out in the Water Strategy facilitates the strengthening of existing partnerships and forging of new partnerships. The Water Strategy vision and goals are considered in seven watershed and natural resource planning and management frameworks, including: Northern Lands, Northern Leadership: The GNWT Land Use Sustainability Framework; Sahtù Land Use Plan Background Report; NWT Power Corporation Strategic Plan; the 2030 NWT Climate Change Strategic Framework; the 2019-2023 Climate Change Strategic Framework Action Plan; the Waste Resource Management Strategy Discussion Paper; and the Waste Resource Management Strategy and Implementation Plan. Several water partner organizations refer to and acknowledge the Water Strategy vision and goals in their work, including: Ecology North; Ducks Unlimited Canada (DUC); Wilfrid Laurier University's (WLU) Cold Regions Research Centre and Institute for Water Science; and Land and Water Boards and the Inuvialuit Water Board.
	1.1 B - Ensure water partners understand their roles and responsibilities for implementing the Water Strategy.	35 (out of 50) water partner respondents indicated they are aware of their role in implementing the Water Strategy.* 30 (out of 47) water partner respondents indicated they are somewhat engaged or very engaged in specific Keys to Success.* **2 measures informing 1 Performance Indicator*	1.1.B.1. Create and routinely update a plain language document outlining water partners' roles and responsibilities for the Water Strategy and Action Plan.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	A stand-alone plain language document summarizing lead and supporting water partners' roles and responsibilities specific to the 2016-2020 Action Plan was created and released in September 2018. An audio version of a plain language Action Plan summary is available in NWT's 11 languages. The *Northern Voices, Northern Waters: NWT Water Stewardship Strategy* was updated in 2018 to reflect significant policy changes stemming from the NWT Lands and Resources Devolution Agreement that came into effect on April 1, 2014.
			1.1.B.2. Identify challenges for lead and supporting water partners for each Key to Success through routine dialogue and formal or informal reviews.	2017 and ongoing	ENR	In progress	The 10th Annual Water Strategy Implementation Workshop in October 2019 brought both lead and supporting water partners together to share information and knowledge and discuss opportunities to collaborate, particularly around the theme of northern waters in a changing climate.
			1.1 B.3. Identify opportunities for water partners to support Water Strategy initiatives by developing and implementing initiatives through collaborative partnerships and available funding opportunities.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	The Water Strategy and Action Plans were developed by water partners to create a collaborative, partnership-based approach to enhance and promote water stewardship in the NWT at all levels. Active water stewardship partnerships in 2019/20 included partnerships within ENR and among Government of the Northwest Territories (GNWT) departments; the NWT-wide Community-based Water Quality Monitoring (CBM) Program; Mackenzie Datastream; the Mackenzie River Basin Board (MRBB); the Slave River and Delta Partnership (SRDP); the Tracking Change research project; the GNWT-Wilfrid Laurier University (WLU) Partnership; the Interdepartmental Drinking Water and Waste Management Committee; and various academic partnerships such Northern Water Futures.

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1.2 - Information Management	1.2 A - Improve data collection and data and information management for water and water-related monitoring programs.	Lodestar is currently managing 11 projects for water, sediment, ground temperature and fish. 22 (out of 43 respondents) indicated that some or all of the water quality monitoring activities coordinated, supported or required by their organization have standardized protocols.	1.2.A 1. Establish standardized water quality sampling protocols (e.g. sample and data collection protocols) to ensure data are comparable across programs (e.g. Surveillance Network Program (SNP) and CBM Program, and Aquatic Effects Monitoring Programs [AEMPs]).	2018 and ongoing	ENR, LWB/IWB	In progress	Standardized sampling protocols have been developed and published under the NWT-wide Community-based Water Quality Monitoring Programs. A training video for these protocols will be released in the summer of 2020. The NWT Cumulative Impact Monitoring Program (NWT CIMP) promotes the use of standardized data collection protocols, enabling data comparisons between areas. Recipients of NWT CIMP funding are asked to use standardized protocols where possible. In 2019/20, 8 NWT CIMP projects reported using standardized protocols in the collection of water quality data. ECCC uses the Canadian Aquatic Biomonitoring Network (CABIN) protocol to ensure that benthic invertebrate samples are standardized. This includes a rigorous training certification program to ensure sample collection comparability and standardization. ECCC also follows internal protocols for data management and quality assurance/quality control (QA/QC) procedures. ECCC's CABIN sampling protocols are referenced as recommended protocols for collecting benthic macroinvertebrate samples under the NWT Cumulative Impact Monitoring Program (NWT CIMP) Scientific Proposal guide. ECCC's water quality samples are collected following bottle handling protocols provided by analytical laboratories including the Government of the Northwest Territories Taiga Environmental Laboratory and ECCC National Laboratory of Environmental Testing (NLET) in Burlington, ON. ECCC Water Quality samples collected under the Oil Sands Monitoring Program follow sampling protocols as detailed in Standard Operating Procedures available at: http://environmentalmonitoring.alberta.ca/resources/standards-and-protocols/ In accordance with the legislative framework, the Inuvialuit Water Board (IWB) issues water licences within the Inuvialuit Settlement Region (ISR) of the NWT and sets the conditions including the Surveillance Network Program (SNP) locations and parameters based on the water licence application, supporting documents, and relevant existing water quality guidelines. In order to maintain the quality of SNP monitoring data; the submission of approved quality assurance/quality control (QA/QC) plans are required. These plans are to be approved by the Analyst (i.e. ENR Taiga Lab). LWB staff continue to work with communities and MACA to establish protocols (via manuals and templates) for SNP monitoring and reporting
			1.2.A. 2. Standardize quality assurance and quality control protocols across programs (e.g. SNP and NWT-wide Community-based Water Quality Monitoring Programs).	**2020**	**ENR, LWB/IWB**	In progress	Standardized sampling protocols have been developed and published under the NWT-wide Community-based Water Quality Monitoring Programs. A training video for these protocols will be released in the summer of 2020. Water Partners reported using standardized quality assurance and quality control protocols within programs; however, standardized protocols across programs were not reported.
			1.2.A.3. Develop and implement guidelines on metadata to determine if water quality data sets are comparable and regional assessments can take place.	2017 and ongoing	ENR, LWB/IWB	Complete for reporting period, and ongoing	NWT CIMP is working with the Land and Water Boards on the implementation of water quality reporting guidelines (currently being finalized). The objective of the guidelines is to address the inconsistencies in water quality information posted to the Public Registry and provide clear expectations to project proponents.
			1.2.A.4. Develop guidelines to establish water quality baseline to help ensure that similar data are collected, and collected in ways that are comparable across programs.	2018	ENR, LWB/IWB	In progress	ENR and LWBs continued work on a Water Quality Baseline Guideline in 2019/2020. The process is being directed by a Steering Committee with representatives from Mackenzie Valley Environmental Impact Review Board (MVEIRB), LWBs and ENR. The guidelines are intended to fill a gap in the system and support the review and update of the AEMP guidelines which were finalized early 2019. The Water Quality Baseline Guidelines are pending final approvals.
			1.2.A. 5. Establish protocol to store, manage and report data from SNP sites.	2019	LWB/IWB	Complete	The Land and Water Boards of the Mackenzie Valley adopted the Guidelines for Reporting Water Quality in the NWT. Approvals for the Guideline are now with the GNWT. In the ISR, pursuant to water licence terms and conditions (TC's), SNP laboratory results are required to be submitted to the IWB by the licensee within the annual report. SNP data results presented within annual reports are available on the IWB public register.

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1.2 - Information Management (continued)	1.2 A - Improve data collection and data and information management for water and water-related monitoring programs. (continued)		1.2.A.6. Coordinate snow surveys, including collection, data management, archiving and dissemination.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	ENR maintains a small network of snow survey stations. The data are disseminated to water partners and others via Spring Outlook Reports and are available on the ENR website. The 2020 Spring Outlook Report and snow survey data were distributed broadly and provided data for sites sampled in 2020.
			1.2.A. 7. Coordinate weather monitoring needs within the GNWT (supplementary to those filled by Environment Canada), along with the development of a robust system to guide the collection, reporting, management, archiving and dissemination of GNWT data.	**2020**	**ENR**	In progress	Departments with a strong interest in weather and climate data started discussions on developing GNWT standards in data collection. This preliminary list needs to be formally drafted and approved. Data reporting, management, archiving and dissemination are still topics that need further discussion.
			1.2.A. 8. Establish and maintain a licenced water use inventory (i.e. use and location).	**2020**	**ENR, LWB/IWB**	In progress	The Mackenzie Valley Land and Water Board and the Inuvialuit Water Board maintain public registries for water licences issued in their regions.
	1.2 B - Improve the sharing of monitoring and research data and findings among water partners and with the public.	The ENR website houses data for 63 snow data sites surveyed in 2020. The NWT Discovery Portal had 1,360 total users in 2019/20, averaging 113 users per month. Mackenzie Datastream had 1,944 total users in 2019/20, averaging 178 users per month. 29 (out of 45) water partner respondents indicated that they have access to up-to-date water-related research at their work.	1.2.B.1. Water partners continue to use and populate the NWT Discovery Portal with monitoring and research findings.	2017 and ongoing	ENR	Complete for reporting period, and ongoing (CIMP)	The NWT Discovery Portal averaged 113 users per month in 2019/20, approximately 62% of which were NWT users. The Portal averaged 750 page views per month in 2019/20, which represents the total number of pages viewed, including repeated views of single pages.
			1.2.B.2. Data collected through the NWT-wide Community-based Water Quality Monitoring program are shared publicly (e.g. through Mackenzie DataStream).	2017 and ongoing	ENR	Complete for reporting period, and ongoing	Data from the NWT-wide Community-based Water Quality Monitoring Program are shared through Mackenzie DataStream. In addition to the five-year (2012-16) technical report and plain language summary published in 2018, there will be a status and trends report and plain language summary for the continuous Sonde data complete by December 2020. The plain language summaries will be sent out to community partners and collaborators. The 2018 technical report and plain language are still available on both the ENR website and Mackenzie DataStream.
			1.2.B.3. Long-term monitoring results that are compiled in existing databases are made available to water partners on request.	Ongoing	ENR	Complete for reporting period, and ongoing	Long-term water quality monitoring data in existing databases are available to water partners on request. Data from Lodestar are most frequently requested by other government agencies, academic researchers and industry. Requests for water quality data are being tracked and linkages to Mackenzie DataStream are being enhanced to have more data available online. Functionality of both data systems are being improved annually. Summary snow data are available through ENR's website. Methods for appropriate management and dissemination of ENR snow and climate station data are being developed.
			1.2.B.4. Update the NWT water monitoring inventory on a regular basis and include a research section in the inventory.	2017 and ongoing	ENR	In progress	The NWT Water Monitoring Inventory underwent updates in 2019. It is scheduled for final approval and dissemination on the NWT Water Stewardship website in 2020.
	1.2 C - Ensure the effective use of traditional, local and western scientific knowledge in water stewardship initiatives, decision-making processes and implementation of water-related programs.	26 (out of 42) water partner respondents indicated that their organization often uses western scientific knowledge to inform decision-making within their organization.* 20 (out of 42) water partner respondents indicated that their organization often uses traditional and local knowledge to inform decision-making within their organization.* *2 measures informing 1 Performance Indicator. 3 out of 4 components of the Action Plan have an underlying approach to using traditional, local and western scientific knowledge.	1.2.C.1. With collaborative input from traditional, local and western scientific knowledge holders, continue working together to develop effective approaches towards implementing the different components of the Action Plan to inform water stewardship decisions.	2018 and ongoing	ENR	Complete for reporting period, and ongoing	25 (out of 44) water partner respondents indicated they agree or strongly agree that collaborative input from traditional, local and western science knowledge holders is informing effective approaches to implement different components of the Action Plan. Implementation activities under Work Together, Know and Plan, and Use Responsibly all have various approaches for how to include traditional, local and western science knowledge in Water Strategy implementation.
			1.2.C.2. Integrate technology (e.g. tablets) for information collection and sharing on the land with elders, youth and other land users.	2017 and ongoing	ENR	In progress	A program to use tablets for information collection and sharing on the land with elders, youth and other land users is under development and testing is targetted for the summer of 2020.

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1.2 - Information Management (continued)	1.2 C - Ensure the effective use of traditional, local and western scientific knowledge in water stewardship initiatives, decision-making processes and implementation of water-related programs. (continued)		1.2.C.3. Promote the use of plain language formats to help facilitate understanding and translation of materials into Indigenous languages.	2017 and ongoing	ENR	In progress	The NWT-wide Community-based Monitoring program will be releasing a sampling protocols video in the summer of 2020, which will initially be available in English and French, and eventually be available in Indigenous languages.
			1.2.C.4. Communicate with and support technical experts/researchers to present information tailored to NWT communities (e.g. by using the existing template, *Communicating Results with Communities*).	2017 and ongoing	Aurora Research Institute (ARI), ENR	Complete for reporting period, and ongoing	NWT CIMP hosts an annual regional results-based workshop. In 2019, the workshop was held in Tulita and co-hosted with the Sahtu Renewable Resource Board. The workshop featured three NWT CIMP funded research and monitoring projects conducted in the Sahtu. ARI continues to support and encourage technical experts and researchers to share information aimed at NWT communities through various means. This 2020 summer research season may be done primarily via virtual methods. ARI maintains a Compendium of Research that provides a plain language summary of current and past research projects in the NWT. ARI staff (manager of scientific services) also liaise with researchers and communities to help facilitate communications. Communicating Results with Communities templates are also available online on the ARI website (nwtresearch.com) and NWT Water Stewardship website (nwtwaterstewardship.ca). This will help facilitate collections and dissemination of information virtually under COVID-19.
			1.2.C.5. Continue to explore the development of a water classification system that supports the inclusion of traditional and local knowledge and spiritual and cultural aspects of water in decision-making (also see Key to Success 3.2 C).	2018	ENR	In progress	Work on the Water Classification System is on hold. Work is ongoing to assess the concept and determine if and how such a system could support assessments of water resources and regulatory decision making. Further, proposed amendments to the *Waters Act* are currently the focus of ENR's regulatory improvement initiatives.
	1.2 D - Promote the use of traditional and local knowledge in ways that help ensure water stewardship activities respect community values.	20 (out of 44) water partner respondents indicated that they were satisfied or very satisfied with how traditional and local knowledge is being included in water-related research within the NWT. 11 (out of 43) water partners respondents feel that community concerns have been incorporated in the AEMPs to a moderate or high degree.	1.2.D.1. Support the implementation of traditional knowledge protocols.	2017 and ongoing	ASC (Aboriginal Steering Committee)	In progress	ASC members support the use of traditional knowledge protocols to ensure research and monitoring projects respect community values, traditional knowledge is gathered in a meaningful way and traditional knowledge informs decision-making. ASC members provide guidance on relevant traditional knowledge projects through interactions with researchers at ASC meetings and by promoting and circulating respective traditional knowledge protocols at related meetings and gatherings, online and as requested. ASC members also support the implementation of respective traditional knowledge protocols through implementation of their own work and projects.
			1.2.D.2. Establish traditional knowledge research guidelines for the Sahtú region	2017	ʔehdzo Got̨ı̨nę Gots̨ę́ Nákedı (Sahtú Renewable Resource Board - SRRB)	In progress	SRRB has initiated work on traditional knowledge guidelines for the Sahtú Region. However, due to the SRRB's capacity constraints, work on the guidelines remains on hold.
			1.2.D.3. For research supporting Water Strategy implementation, researchers, regional organizations and community members discuss and communicate about how data will be stored, used and shared.	2017 and ongoing	ENR	In progress	A promotional video for the NWT-wide Community-based Water Quality Monitoring program was created and will be launched in summer 2020. The video covers the importance of using local and traditional knowledge in sampling programs. The video will be translated into Indigenous languages and French for broader accessibility.

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1.2 - Information Management (continued)	1.2 D - Promote the use of traditional and local knowledge in ways that help ensure water stewardship activities respect community values. (continued)		1.2.D.4. Work to ensure that traditional knowledge and community concerns are included in projects or monitoring programs such as AEMPs.	2018 and ongoing	LWB/IWB, ENR	Complete for reporting period, and ongoing	The Nę K'ə Dene Tsʔılı Forum, which was created by Sahtú organizations in partnership with ENR, provides research and monitoring proponents and Sahtú organizations a space to come together to discuss research priorities, plans and proposals, provide feedback and guidance, and coordinate objectives and activities. The Forum addresses the following objectives in supporting environmental research and monitoring in the Sahtú Region: Identify regional priorities and research gaps; build cross-cultural understanding; support and protect traditional knowledge processes; support regional and regulatory decision-making; identify opportunities for: collaborative research involving communities, communication, information-sharing, and cross-cultural interpretation of research results. LWBs use an online public review system and hold community meetings to encourage the inclusion of traditional knowledge and community concerns into the water licencing review process. Some water licence conditions include the requirement to include traditional knowledge in the development of certain management plans. The IWB distributes water licence application packages to stakeholders (e.g. community, co-management and government organizations) via email for their review and comment. The IWB does not hold community meetings as this is a requirement of the applicant. The applicant provides a community consultation record with the application package. Public hearings may be held if there is a recognized need. MVEIRB prepares Terms of Reference documents that describe the information a project developer must provide during an environmental assessment, including evidence of making all reasonable efforts to work with potentially affected Indigenous communities and incorporating traditional knowledge.
1.3 - Communication and Engagement	1.3 A - Effectively maintain communications among water partners and the public on Water Strategy implementation progress.	22 (out of 44) water partner respondents indicated they are satisfied or very satisfied with the Water Strategy implementation progress. 5 updates were made to the water stewardship website in 2019/20.	1.3.A.1. Water partners provide updates on their implementation activities, including reports, videos, workshops and webinars, and these are posted on the water stewardship website.	2017 and ongoing	ENR	Complete for reporting period and ongoing	Water partners provided updates on their implementation activities at the NWT Water Strategy Implementation Workshop in October 2019, in addition to various other means. Additional water partner implementation updates posted to the website include the release of the 2018/19 NWT Water Stewardship Strategy Progress Review, and the release of the Water Stewardship Strategy Partnerships Calendar 2019-2020. Water partners also provided specific implementation updates through community meetings, committee meetings, annual general meetings, workshops, regional Guardians' gatherings, conferences, meetings with Chiefs and councils, Aboriginal Steering Committee meetings, reports, videos, website and Mackenzie Datastream updates, and other forums such as the Wetlands Mapping Inventory.
			1.3.A.2. Use plain language tools and products to make progress reporting available to water partners.	2018 and ongoing	ENR	Complete for reporting period, and ongoing	The status of all 2018/2019 Action Items was reported in the 2018/2019 NWT Water Stewardship Strategy Progress Review Summary and 2018/2019 NWT Water Stewardship Strategy Progress Review Comprehensive Raw Data Spreadsheet. These reports were communicated to water partners and the public in plain language text online and in print. 31 (out of 45) water partner respondents indicated that they feel informed about the Water Strategy implementation progress.
	1.3 B - Maintain the roles and responsibilities of the ASC.	5 ASC meetings were held in 2019/20. 8 Water Strategy projects received guidance from the ASC in 2019/20.	1.3.B.1. Serve as the liaison between their respective Indigenous governments or organizations and the Water Strategy.	2017 and ongoing	ASC	Complete for reporting period, and ongoing	ASC members serve as the liaison between their respective Indigenous governments or organizations and the Water Strategy on an ongoing basis by bringing issues to discussion at ASC meetings and ensuring that any decisions and relevant information that come out of the discussions flow back to respective Indigenous leadership. Regional updates are included on every ASC meeting agenda to facilitate sharing of relevant regional information among ASC members.
			1.3.B.2. Report regularly on the Water Strategy to their communities and leadership on ASC activities and Water Strategy implementation initiatives.	2017 and ongoing	ASC	Complete for reporting period and ongoing	ASC members communicate on a frequent basis with their respective Indigenous governments, providing updates after each ASC meeting. These updates are typically provided through letters, presentations, reports, email communication, verbal updates and regular meetings with Chief and Council, elders and harvesters.

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1.3 - Communication and Engagement (continued)	1.3 B - Maintain the roles and responsibilities of the ASC. (continued)		1.3.B.3. Provide advice to water partners on how to effectively engage Indigenous governments or organizations and NWT communities with respect to implementation activities and information sharing.	2017 and ongoing	ASC	Complete for reporting period and ongoing	Eight projects received guidance from the ASC in 2019/20: 1. Alberta-NWT Bilateral Water Management Agreeement implementation 2. BC-NWT Bilateral Water Management Agreement implementation 3. 2019 Annual Water Stewardship Strategy Implementation Workshop 4. Youth Water Stewardship and Mentorship Grant program 5. Independent Evaluation of the Water Stewardship Strategy 6. Tracking Change: Local and Traditional Knowledge in watershed governance (University of Alberta, MRBB and ENR) 7. Canadian Aquatic Biomonitoring Network (CABIN) northern biomonitoring plan 8. Northern Water Futures
			1.3.B.4. Provide advice to water partners, where appropriate, on work and activities related to traditional knowledge.	2017 and ongoing	ASC	Complete for reporting period, and ongoing	Four projects received guidance from the ASC in 2019/20 regarding traditional knowledge: 1. Alberta-NWT Bilateral Water Management Agreeement implementation 2. BC-NWT Bilateral Water Management Agreement implementation 3. 2019 Annual Water Stewardship Strategy Implementation Workshop 4. Tracking Change: Local and Traditional Knowledge in watershed governance (University of Alberta, MRBB and ENR)
			1.3.B.5. Report on relevant regional initiatives at ASC meetings.	2017 and ongoing	ASC	Complete for reporting period and ongoing	ASC meetings have a standard agenda item for members to provide regional updates. In 2019/20, ASC members shared various updates on programs and projects being undertaken by their respective regions, including community-based water quality monitoring activities, fisheries studies with the Department of Fisheries and Oceans (DFO), the Marian Water Stewardship Program, environmental DNA monitoring, the Tracking Change research project, and Indigenous Guardians programs, amongst others.
1.4 - Capacity Building, Leadership Training and Education	1.4 A - Increase community capacity in water management, and aquatic research and monitoring.	28 (out of 33) communities are involved in aquatic community-based monitoring. 14 (out of 43) water partner respondents indicated that their organization provided on-the-land capacity-building opportunities. The number of attendees that took part in these on-the-land capacity building opportunities is unclear due to limited responses to the Water Partner survey question.	1.4.A.1. Provide monitoring results to communities in the appropriate context and in plain language formats.	2017 and ongoing	ENR	Complete for reporting period and ongoing	In 2019, NWT CIMP developed, published and distributed one brief plain language summary of an environmental research project in the NWT. This summary is part of a series called the Northern Environmental Research Bulletin (NERB). All 28 NWT CIMP-funded research projects are required to present results at a relevant northern meeting. In 2019, the NWT CIMP results workshop featured three research and monitoring projects conducted in the Sahtu.
			1.4.A.2. Develop or promote existing culturally appropriate tools and processes when involving communities in research and monitoring activities.	2018 and ongoing	ENR	In progress	A training video was created for collecting grab water samples. The video will be translated into Indigenous languages and French for broader accessibility.
			1.4.A.3. Establish measurable indicators for capacity-building within community-based monitoring programs. Monitor and report on indicators over time.	2018 and ongoing	ENR	In progress	In 2017, ENR launched a five-year program review of the CBM Program. The review included an evaluation of how community capacity has changed as a result of the program. Findings indicate that the capacity among partners to become more independent varies across all communities. The review recommends identifying capacity-building targets and indicators at regional and community scales, in addition to encouraging monitors to undertake self-assessments so that capacity-building and the impacts of the training can be better monitored and understood.

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1.4 - Capacity Building, Leadership Training and Education (continued)	1.4 A - Increase community capacity in water management, and aquatic research and monitoring. (continued)		1.4 A. 4. Support ways to tie traditional and local water-related knowledge into the existing school curriculums and science fairs.	2019	ENR	Complete for reporting period, and ongoing	Tracking Change: Local and Traditional Knowledge in Watershed Governance research initiative hosts Youth Knowlege Fairs every two years (2016, 2018 and 2020). Planning for the 2020 YKF took place early in 2020. Unfortunately, due to COVID-19, the 2020 YKF had to be postponed. In lieu of the physical knowledge fair, grad students are working with Tracking Change to develop online modules that may be useful for high schools. This work is being done in collaboration with the Arctic Inspiration Prize winning team River Journeys led by the Gwich'in Tribal Council and Dehcho Historical Society. In March of 2020, a children's book was released through the Tracking Change website. Several of the students who were selected to attend the COP24 Session on Climate Change in November of 2018 worked with a University of Alberta MSc student to write a children's book about their trip to Poland. Copies of the book have been sent to all of the schools that have participated in past Youth Knowledge Fairs. Ecology North, with support from ENR, carried out water education and outreach at schools and afterschool programs in Yellowknife in 2019/20. Activities included learning about watersheds and water stewardship, different types of pollution, the concept of transboundary water agreements, and the importance of water for all life on the planet. Younger ages learned about local water bodies and their importance, and also about the Mackenzie River Basin and how it connects Yellowknife with other place names they recognized (e.g. Inuvik, High Level). Older students learned about the Mackenzie River Basin in terms of transboundary watershed agreements. Both groups learned about the movement of pollutants through a watershed; how to avoid causing these pollutants; and how they could be cleaned up.
			1.4.A.5. Promote local and distance learning opportunities for community-based water monitors and future water leaders (also see Keys 2.2 A and 2.2 B).	2017 and ongoing	Aurora College, ENR, Dehcho Aboriginal Aquatic Resource and Oceans Management Program (AAROM), Dechinta Centre for Research and Learning (Dechinta)	Complete for reporting period, and ongoing	NWT CIMP supports community capacity-building and provides local learning opportunities through hiring and training local community members to develop their community-based monitoring skills in the field. Dehcho AAROM is continuously promoting water management and research as well as building capacity to do so. In 2019/20 the Dehcho AAROM program continued to coordinate the NWT-wide Community-based Water Quality Monitoring (CBM) program in the Dehcho region and as part of this an AAROM technician, Field Worker and two AAROM Guardians attended the ENR Water Stewardship Workshop and CBM training. The training provided by ENR has given Dehcho AAROM and the Deh Cho First Nations the capacity to carry out monitoring for other groups including DFO, the University of Waterloo, University of Alberta, the Edehzhie Protected Area and Enbridge. In 2020/21 Dehcho AAROM is planning a Guardians training course which will include water sampling and other research techniques useful for projects occurring in the area. A fish inventory course will also be carried out in the spring. ARI Western Arctic Research Centre (WARC) will look to developing workshop training initiatives and outreach via virtual methods, to continue to develop community environmental monitor expertise.
			1.4.A.6. Promote intergenerational on-the-land water education/leadership camps as a way of involving communities in monitoring and research, and to interact with scientists.	2017 and ongoing	MakeWay, ENR	Complete for reporting period, and ongoing	Water partners hosted and supported various on-the-land programs that have community-based monitoring elements in 2019. Some examples include Tundra Science and Culture Camp, Dehcho Youth Ecology Camp, Dechinta Water Programming, the Tłı̨chǫ Imbe Program, and Indigenous Guardians Programming . SRRB, in partnership with Wilfrid Laurier University and the University of Waterloo, successfully applied for funding from Global Water Futures to do three years of cross-cultural on-the-land water knowledge camps. The first year of camps took place in 2019 in partnership with the community of Tulıt'a. Due to COVID-19, the summer 2020 camp will have to be postponed but the intention is for the camp to resume again in the summer of 2021. MakeWay (formerly Tides Canada) continues to support on-the-land and community-led research and monitoring programming in the NWT. Through the NWT On The Land Collaborative funding issued in 2019/2020, support was provided to community land-based programming in all the regions intended to promote cultural and land-based knowledge and skill building with youth. MakeWay continues to host pan-northern Indigenous Guardian convenings (currently, via Zoom), bringing together guardians from all three territories and the Inuit regions. Discussions focus on sharing knowledge around skills, trainings, deployment, and monitoring. MakeWay also continues to directly fund guardian programs in the Akaitcho, Sahtú, Tłı̨chǫ, and Dehcho regions. MakeWay invested in some work done by Aurora College to build out a new diploma focused on training Indigenous Stewards.

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1.4 - Capacity Building, Leadership Training and Education (continued)	1.4 A - Increase community capacity in water management, and aquatic research and monitoring. (continued)		1.4.A.7. Post relevant information on the water stewardship website.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	The water stewardship website was completely redesigned and extensive new content was created in 2019. The new water stewardship website was soft-launched in the fall of 2019 with more in-depth and current information, better resource and publication access, improved search functions and enhanced linkages to other websites and resources. The new website is still undergoing the final French translation and some new features, such as video resources, are still being piloted, tweaked and adjusted as necessary.
	1.4 B - Promote the importance of water and water stewardship through educational and public outreach activities and communication products.	10 water stewardship outreach activities were undertaken by Ecology North in 2019/20.	1.4.B.1. Deliver water educational programs and participate at science fairs to discuss protection of aquatic ecosystems.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	Water partners led, supported and participated in various water education programs in 2019/20. Examples of activities relevant to the protection of aquatic ecosystems include the Youth Water Stewardship Workshop, school visits, and #lovenwtwater campaign led by Ecology North. Unfortunately events planned for Canada Water Week were cancelled due to the COVID-19 pandemic.
			1.4.B. 2. Identify opportunities for water partners to support each other's educational initiatives (including sharing of electronic and physical resources).	2017	ENR	Complete for reporting period, and ongoing	ENR piloted the NWT Youth Water Stewardship and Mentorship Grant Program in the 2018 fiscal year with two successful applicants receiving contribution agreements and completing projects in two separate communities. The program continued in 2019 with several applications received but no successful projects being delivered. In 2019 ENR also reviewed the program criteria, application process and guidelines and with feedback from engaged youth participating in Water Stewardship Strategy workshops, ENR has made several changes to the program, which will be delivered again in 2020. These changes will make the program application process more accessible and will also fund more projects.
			1.4.B. 3. Coordinate and develop activities to celebrate Canada Water Week.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	In March 2020, Ecology North hosted a three-day Youth Water Stewardship Workshop in Yellowknife. The workshop brought together seven youth from across the NWT to learn about and share ideas, knowledge and concerns related to NWT water stewardship. The workshop also included a one-day interactive training session on Project WET (Water Education for Teachers) to promote water leadership skills, tools and knowledge. Ecology North had planned another event for the public during Canada Water Week at the Snowking's Winter Festival, however, it was cancelled due to the COVID-19 pandemic.
			1.4.B.4. Provide educational programs and workshops about water treatment in the NWT.	2017 and ongoing	Ecology North	Complete for reporting period, and ongoing	Ecology North held numerous classroom sessions about water and water treatment in the NWT, hosted drinking water education activities, and coordinated the Youth Water Stewardship Gathering in Yellowknife, which included a visit to the Yellowknife Water Treatment Facility. In total, 10 events or sessions were hosted, reaching an estimate of over 500 individuals.
			1.4.B.5. Conduct research and educate residents on the costs (environmental and economic) of imported bottled water versus tap water.	2017 and ongoing	Ecology North, ENR	Complete for reporting period, and ongoing	Ecology North continued to promote local water over bottled water through the #loveNWTwater campaign. In 2019/20, Ecology North focused on sport organizations and Yellowknife institutions and businesses, encouraging 8 new organizations to sign the pledge to use and serve only local water. Ecology North also started a new hospitality pledge to communicate the quality of NWT water to tourists and visitors, with posters and tent cards featuring text in 4 different languages.

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
1.5 - Transboundary Discussions, Agreements and Obligations	1.5 A - Successfully negotiate bilateral transboundary water management agreements with neighbouring jurisdictions.	0 bilateral transboundary water management agreements were completed or updated in 2019. 4 (of 5) ASC meetings held in 2019/2020 provided an update on transboundary water management activities. 0 opportunities for public input were provided for bilateral transboundary water management agreement negotiations in 2019.	1.5.A.1. Continue to develop NWT interests, mandates and options to inform transboundary negotiations in partnership with Indigenous governments.	2017 and ongoing	ENR	In progress	Once Intentions Documents for Bilateral Water Management Agreements with Saskatchewan, Yukon and Nunavut are ready, Aboriginal consultation and public engagement will continue. This consultation and engagement will build on the Aboriginal consultation and public engagement that was done to develop NWT interests, negotiation positions, and Intentions Documents for agreements with Alberta and British Columbia.
			1.5.A.2. Advance negotiations and sign bilateral transboundary water management agreements with the remaining respective jurisdictions.	2017 and ongoing	ENR	In progress	There are three remaining transboundary water management agreements to establish or update: 1) Yukon-NWT Agreement (update to existing agreement); 2) Saskatchewan-NWT Agreement; and 3) Nunavut-NWT Agreement. One negotiation meeting took place in 2019 to update and align the 2002 Yukon-NWT Transboundary Water Management Agreement with more recently signed Mackenzie River Basin Agreements. Progress was made to develop two intentions documents: one for the Peel River Basin and one for the Liard River Basin. Discussions with Saskatchewan to resume negotiation for a Saskatchewan-NWT Agreement took place in 2019. Further discussion to advance on the completion of an Intentions Document is expected in 2020. NWT is ready to continue discussions toward a Nunavut-NWT Agreement. Nunavut is expected to be ready to engage with the NWT once a Nunavut Water Strategy is complete and discussions on devolution are clearer.
			1.5.A.3. Continue public engagement and consultation with Indigenous governments during negotiation processes.	2017 and ongoing	ENR	In progress	See Status Description for 1.5.A.1.
			1.5.A.4. Communicate with water partners, Indigenous governments and the public about the progress of negotiations, through plain language materials and the water stewardship website.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	Information about progress on negotiations has been communicated during ASC meetings, the 2018/19 Water Strategy Progress Review Summary and the water stewardship website (www.nwtwaterstewardship.ca).
	1.5 B - Successfully implement bilateral transboundary water management agreements.	5 opportunities for public input were provided for bilateral transboundary water management agreement implementation in 2019/20. 13 implementation activities are in progress and 18 were completed under the Alberta-NWT Agreement in 2019.* 3 implementation activities were completed under the British Columbia-NWT Agreement in 2019.* *2 measures informing 1 Performance Indicator. 0 annual reports were completed in 2019 for the Alberta-NWT Agreement and the British Columbia-NWT Agreement.	1.5.B.1. Establish a Bilateral Management Committee for each completed agreement.	2017 and ongoing	ENR	In progress	A Bilateral Management Committee was established under the Alberta-NWT Agreement in 2016. The Bilateral Management Committee meets at least annually to approve work plans and annual reports to the responsible Ministers. A Bilateral Management Committee under the British Columbia-NWT Agreement was established in 2019 and met in April 2019.
			1.5.B.2. Create and implement a multi-year work plan for each completed agreement.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	A multi-year work plan for the Alberta-NWT Agreement is updated annually to guide implementation activities. The BC-NWT Bilateral Management Committee is discussing implementation priorities and developing a multi-year work plan.
			1.5.B.3. Monitor and learn about aquatic ecosystems, including surface and groundwater quality and quantity, biology and traditional use, in the transboundary watersheds.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	GNWT and ECCC are continuing routine monitoring of surface water quality and quantity. A pilot fish monitoring program for on the Slave River was established and sampling occurred in September 2019. Benthic macroinvertebrate monitoring continued in 2019.
			1.5.B.4. Establish information sharing and prior notification mechanisms with neighbouring jurisdictions.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	NWT regularly tracks upstream development and activities that might affect the ecological integrity of the aquatic ecosystem of shared Alberta-NWT waters and has created a tracking mechanism to do so. NWT also tracks upstream development and activities that might affect the ecological integrity of the aquatic ecosystem of shared British Columbia-NWT waters.

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
1.5 - Transboundary Discussions, Agreements and Obligations (continued)	1.5 B - Successfully implement bilateral transboundary water management agreements. (continued)		1.5.B.5. Communicate with water partners, Indigenous governments and the public about the progress of implementation, through plain language materials, the water stewardship website and other formats as appropriate.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	Public release of the 2017/18 Alberta-NWT Agreement annual report is anticipated for summer 2020. Information about implementation progress for the Alberta-NWT Agreement was also communicated during ASC meetings, presentations, the Water Strategy Implementation Workshop, the 2018/19 Water Strategy Progress Review Summary and the water stewardship website (nwtwaterstewardship.ca).

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components	2.1 A - Continuously review and prioritize implementation of water monitoring networks (long-term water quality and quantity programs) and develop plans to address monitoring gaps.	Full-scale reviews of NWT water quality and quantity networks are not conducted regularly; however, Environment and Climate Change Canada's (ECCC) Water Quality network has considered using a risk-based approach when evaluating its Long Term Water Quality Network. Financial and resource constraints are a barrier to expanding the network to fill gaps in Northern Canada. A risk-based approach is in process for ECCC's Water Quality network. Evaluations of sites have been completed, and are awaiting further review.	2.1.A.1. Long-term data sets are prioritized when reviewing current water monitoring networks to allow for trend and climate change analyses.	2017 and ongoing	ENR	In Progress	Work to prioritize data sets is primarily aimed at working with water partners to leverage existing monitoring networks to collaborate and enhance the overall network. The ENR Water Management and Monitoring Division worked with the Climate Change section to incorporate Action Items into the Climate Change Strategic Framework Action Plan that assess and prioritize existing long-term water monitoring networks suitable to analyze climate change trends and/or impacts.
			2.1. A. 2. Identify and prioritize monitoring gaps and identify options to address gaps in a holistic manner.	**2019**	ENR, ECCC	In Progress	ECCC's Water Quality network has considered using a risk-based approach when evaluating its Long Term Water Quality Network. Financial and resource constraints are a barrier to expanding the network to fill gaps in Northern Canada.
			2.1. A. 3. Make information on reviews and revisions to monitoring programs available to water partners.	**2019**	ENR, ECCC	Complete for reporting period, and ongoing	There were no NWT hydrometric network program reviews or revisions made in 2019-20. All data and a map of sites are available to the public (https://wateroffice.ec.gc.ca/index_e.html). Data from ECCC's Long term Water Quality Monitoring Network is available on the Government of Canada Open Data Portal (2000-present) and Mackenzie DataStream (2000-present). Water Quality data prior to the year 2000 can be requested through a formal data request submitted to ECCC.
	2.1 B - Increase understanding of aquatic ecosystems and establish common approaches to monitor key aspects of aquatic ecosystem health in the NWT.	Information supporting this Performance Indicator is drawn from Performance Indicators under Keys to Success 1.2A and 2.2A 22 (out of 43) water partner respondents indicated that some or all of the water quality monitoring activies coordinated, supported or required by their organization have standardized protocols (1.2A). 19 community-based monitoring programs have defined goals and have standardized monitoring processes (2.2A).	2.1.B.1. Develop consistent approaches to monitor aquatic ecosystem health required under transboundary water management agreements.	2017 and ongoing	ENR	In progress	In the summer of 2019, benthic macroinvertebrates were collected in the Slave and Hay rivers near the Alberta-Northwest Territories border to determine current conditions and establish a baseline that can be used to track the status of those organisms over time. The 2019 benthic macroinvertebrate sampling program was the third year of a four-year project. The NWT and Alberta have been working with community members in Fort Smith and Fort Resolution and researchers from Wilfrid Laurier University and the University of Saskatchewan to develop a pilot fish monitoring program for the Slave River. The goal of the pilot program is to track fish health and tissue contaminant levels over time. In September 2019, large and small bodied fish were caught in the Slave River near Fort Smith and Fort Resolution. Fish were sampled for health indicators such as length, weight, and organ sizes and for tissue contaminant.
			2.1.B.2. Work with organizations that conduct monitoring to communicate their protocols and identify common approaches to gather information about aquatic ecosystem health.	2018 and ongoing	ENR	In progress	Water partners reported using various standardized water quality sampling protocols to ensure data are comparable within programs; however, few standardized protocols are used across programs. This is primarily due to different programs having specific monitoring objectives, and in turn being limited to specific protocols that are not always comparable. Recipients of NWT CIMP funding are asked to use standardized protocols where possible. ECCC's Water Quality samples are collected following bottle handling protocols provided by analytical laboratories including the Government of the Northwest Territories Taiga Environmental Laboratory and ECCC National Laboratory of Environmental Testing (NLET) in Burlington, ON. ECCC Water Quality samples collected under the Oil Sands Monitoring Program follow sampling protocols as detailed in Standard Operating Procedures available at: http://environmentalmonitoring.alberta.ca/resources/standards-and-protocols/ ECCC uses CABIN protocol to ensure that benthic invertebrate samples are standardized. This includes a rigorous training certification program to ensure sample collection comparability and standardization. ECCC also follows internal protocols for data management and quality assurance/quality control (QA/QC) procedures. ECCC's CABIN sampling protocols are referenced as recommended protocols for collecting benthic macroinvertebrate samples under the NWT Cumulative Impact Monitoring Program (NWT CIMP) Scientific Proposal guide.
			2.1.B.3. Advance the establishment of a wetland inventory approach using remote sensing imagery.	2018	DUC, NWT Centre for Geomatics	Complete for reporting period, and ongoing	Wetland inventories for the Akaitcho and Dehcho traditional territories are now complete. Using satellite imagery, wetlands were mapped to the major classes of the Canadian Wetland Classification System (open water, marsh, fen, bog and swamp). The Wood Buffalo National Park wetland inventory is also complete and was mapped to a higher detail. Wetlands were mapped according to DUC's Enhanced Wetland Classification system, which includes up to 21 different wetland types. In total, 145 million acres of land were mapped amongst the 3 projects (which includes the Alberta portion of Wood Buffalo National Park).

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 B - Increase understanding of aquatic ecosystems and establish common approaches to monitor key aspects of aquatic ecosystem health in the NWT. (continued)		**2.1.B. 4. Test wetland inventory approach at pilot sites.**	**2020**	**DUC**	Complete for reporting period, and ongoing	Through a partnership with the GNWT, DUC has been leading additional NWT wetland mapping classifications of three key areas: Dınàgà Wek'èhodi, Ts'udé Niljné Tuyeta, and Thaidene Nene. Advanced wetland mapping methods were developed for Dınàgà Wek'èhodi, and are now being applied across the other regions. An Enhanced Wetland Classification of Dınàgà Wek'èhodi is now complete. Tuyeta and Thaidene Nene are still in progress and will be completed by March 2021.
			2.1.B.5. Follow guidance documents, like *Working Together Towards Relevant Monitoring and Research in the NWT* , to ensure community engagement and existing information is identified and considered when developing a research project.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	NWT CIMP's Monitoring Blueprints identify the program's priorities for funding new projects. These Blueprints are revised annually with input from key stakeholders, including key regulators for water and fish. Through this mechanism, NWT CIMP ensures that funded projects are meeting key stakeholders' information needs. NWT CIMP's Monitoring Blueprints can be found at www.nwtcimp.ca. NWT CIMP encourages all funded projects to follow the Pathway Approach. This is a model developed by NWT CIMP that can be used by researchers to ensure that NWT communities are fully involved in environmental monitoring. The Pathway Approach is a series of nine steps that define the research and monitoring process. Two guidance documents based on the Pathway Approach are available at www.nwtcimp.ca.
			2.1.B.6. Communicate aquatic ecosystem monitoring and research findings to water partners.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	Aquatic ecosystem monitoring and research findings were communicated to water partners through posters and presentations at the Water Strategy Implementation Workshop in October 2019. Additional research and monitoring findings are available online on the NWT Water Stewardship website (nwtwaterstewardship.ca) resources page, ENR Water Management website (enr.gov.nt.ca), Mackenzie DataStream (mackenziedatastream.ca) and the NWT Discovery Portal (nwtdiscoveryportal.enr.gov.nt.ca).
			2.1.B.7. Publish monitoring trends analysis reports and plain language documents for the long-term river monitoring programs.	Ongoing	ENR	In progress	A status and trends report for Great Slave Lake tributaries was completed in 2017 and included monitoring data dating back to the 1980s. Status and trends reports for Hay River, Slave River, Coppermine River and Peel River were completed prior to 2016. Data on these four rivers is currently being compiled for upcoming status and trend reporting. A technical support report focusing on metals in the Slave, Hay, Liard and Peel Rivers was completed in March 2020. A general hydrologic overview of NWT rivers and lakes is currently being developed and is anticipated to be completed in 2020.

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 B - Increase understanding of aquatic ecosystems and establish common approaches to monitor key aspects of aquatic ecosystem health in the NWT. (continued)		**2.1.B. 8. Carry out the research project Tracking Changes to determine social and ecological changes based on local and traditional knowledge in watersheds in the Mackenzie River Basin.**	**2020**	**University of Alberta, MRBB, ENR**	Complete for reporting period, and ongoing	2019/2020 was an important year for Tracking Change as it saw the completion of the final community-led research projects and the start of the synthesis and analysis phase of the project. This process was initiated in May 2019 with the second Global Knowledge Symposium, held in New York City, NY, in concert with the United Nations Permanent Forum on Indigenous Peoples. 51 people attended the symposium including 37 representatives of Indigenous groups from across the Mackenzie Basin. The symposium not only provided project participants the chance to share their own knowledge with each other, but also provided a unique and exciting opportunity to talk about the changes and challenges being seen in the Mackenzie Basin on a global platform. Tracking Change hosted an on-site session as part of the UNPFOII agenda and hosted two public events which were attended by allies from across the globe. Key outcomes of the Symposium were a document outlining the major themes of research findings from the community projects so far, and a publication plan for the mobilization of important information about the research process, observations and learnings. Throughout the fall of 2019, a project was undertaken by two undergraduate students to begin synthesizing the results of all 31 community projects completed to date. The initial results of this work were shared at an Open House in December 2019 and serve as the foundation for continuing synthesis and analysis work. Additional funding from the U of A allowed two youth from Tulıt'a and Déļınę to be hired to synthesize and compile data from the project to create a Sahtú specific webpage for the Tracking Change website. The SRRB is the lead for the Sahtú Tracking Change webpage. 2020/2021 is the final year of the Tracking Change project and the major focus will be on supporting community partners to understand and apply the results of their research and mobilizing the knowledge gathered throughout the project.
	2.1 C - Maintain and enhance, where feasible, the existing water quality and quantity monitoring networks in the NWT.	The current water quality and quantity network is made up of 197 stations/sites (103 hydrometric stations and 94 water quality sites). Note: excludes SNP and AEMP sites.	2.1.C.1. Establish and maintain monitoring agreements and partnerships with interested third parties (academic institutions, industry or different levels of governments) to maintain and/or enhance existing water quality monitoring networks.	Ongoing	ENR, ECCC	Complete for reporting period, and ongoing	The ENR Water Management and Monitoring Division monitors 34 long-term water quality sites and collaborates with 21 communities to monitor approximately 40 water quality sites under the NWT-wide Community-based Water Quality Monitoring Program (CBM program). ECCC manages data for 22 water quality sites geographically located within the NWT. Of the 22 water quality sites within the NWT, 18 sites are managed through sampling and data sharing agreements with partners including Water Survey of Canada and Nahanni National Park. Through a data sharing agreement 3 of the 22 water quality sites are managed with the Western Arctic Field Unit of Parks Canada. Finally, 1 of the 22 water quality sites within the NWT is managed under the Oil Sands Monitoring Program. In total ECCC's Yellowknife-based Water Quality team manages 38 Northern Long term Water Quality Sites across the three Territories and a transboundary site located within Alberta. Data from ENR monitoring programs are freely shared and enhance numerous research, government, and community partnerships. Data for long-term monitoring sites managed by ECCC are available on the Government of Canada Open Data Portal (2000-present) and Mackenzie DataStream (2000-present). Data prior to the year 2000 can be requested through a formal data request to ECCC.
			2.1.C.2. Establish and maintain monitoring agreements and partnerships with interested third parties (academic institutions, industry or different levels of governments) to maintain and/or enhance existing water quantity monitoring networks.	Ongoing	ENR, ECCC	Complete for reporting period, and ongoing	For 2019-20, there were 103 stations in the NWT Hydrometric Network, including 42 stations funded by ECCC, 20 by GNWT, 23 jointly funded by ECCC and GNWT, and 18 stations funded by third parties.
			2.1.C.3. Implement monitoring agreements and partnerships as necessary.	Ongoing	ENR, ECCC	Complete for reporting period, and ongoing	See Status Description for 2. 1. C. 1. and 2. 1. C. 2.

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 D - Implement a groundwater monitoring network in the NWT.	3 basins have been identified as priorities for groundwater monitoring for the NWT and transboundary areas. 1 groundwater monitoring network is being established in the Liard River.	2.1.D.1 Establish a hydrogeologist position at ENR.	2016	ENR	Complete	The hydrogeologist position was filled in May 2016.
			2.1.D.2. Determine the existing state of the knowledge of NWT groundwater resources.	2017	ENR	In progress	A *Best Practices in Groundwater Monitoring for Northern Canada* report was developed by Université de Montréal and McGill University. The report highlights tools available in the NWT and other jurisdictions for better groundwater monitoring practices and regulation of groundwater resources. The report identifies questions related to groundwater in the NWT and provided recommendations to address these questions to ensure appropriate and sustainable groundwater management. These questions include: how is rapid warming and permafrost thaw impacting hydrological regimes and groundwater supply, vulnerability and recharge; and how should groundwater be protected in the face of contamination, over-extraction and climate change? Report recommendations include collaborating with communities and stakeholders to identify key values to inform groundwater monitoring and protection strategies; creating a groundwater and permafrost database to house all data related to hydrogeological conditions across the territory; and establishing a preliminary groundwater observation network. The final report is currently under review prior to publication.
			2.1. D. 3. Explore how traditional knowledge can inform the state of the knowledge of NWT groundwater resources and monitoring priorities.	2019	ENR	In progress	ENR and Acho Dene Koe First Nation initiated discussions to begin gathering traditional knowledge on groundwater in the Liard Basin, however the project was put on hold due to the COVID-19 pandemic.
			2.1. D. 4. Identify priorities for future groundwater monitoring for the NWT and transboundary areas.	2019	ENR	In progress	The Liard River Basin and the Hay River Basin have been identified as priorities for groundwater monitoring due to potential exploration and exploitation activities. ENR is a partner with the G360 Institute of Groundwater Research at the University of Guelph on a project to implement a groundwater monitoring network in the Liard River Basin. This baseline groundwater investigation aims to determine the quantity and quality of groundwater within the Liard Basin, characterize the groundwater flow system and interaction with surface water bodies, and evaluate the vulnerability of local and regional aquifers. The important freshwater aquifer being targeted with this monitoring study is the Dunvegan Formation. Two groundwater monitoring wells were drilled in the Liard Basin in 2019. Another field campaign was planned to prepare these wells for monitoring and to drill up to three more wells in March 2020, but the campaign was postponed due to the COVID-19 pandemic.
	2.1 E - Improve the assessment of cumulative effects on water from climate change and industrial development.		2.1.E.1. Analyze existing information to identify cumulative effects on water and aquatic ecosystems in prioritized or specific areas.	2017 and ongoing	ENR, MVEIRB	In Progress	The Mackenzie Valley Resource Management Act (MVRMA) requires the MVEIRB to consider cumulative effects in every environmental assessment; however, project-specific environmental assessments may not be the ideal tool for a comprehensive assessment of cumulative impacts that relate to many projects across time and space. Regional studies or strategic environmental assessments may be well-suited for cumulative effects assessments across larger assessment areas and timeframes. MVRMA provisions related to regional studies recently came into force with Bill C-88. Through the Pan-Territorial Environmental Assessment and Regulatory Board Forum and other bilateral meetings, MVEIRB has had preliminary discussions with other territorial and federal assessment bodies to help understand how regional studies could contribute to integrated resource management in the NWT. MVEIRB hosted a workshop on Regional Strategic EA for GNWT staff in December 2019. In 2020 MVEIRB released a perspectives paper (MVEIRB Perspectives Paper 2020) that outlines areas MVEIRB is targeting for collaboration and improvement, including: cumulative effects and regional strategic assessment; and climate change incorporation with EA.

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2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 E - Improve the assessment of cumulative effects on water from climate change and industrial development. (continued)	24 NWT CIMP-funded projects were identified as being able to contribute to an environmental decision. 12 NWT CIMP Final Project Reports are expected for projects that finished in 2019/2020.* NWT CIMP is working with 33 partners, including Indigenous governments and organizations, co-management boards, Canadian universities, and federal and territorial governments.* 5 peer-reviewed papers were published in 2019/2020 stemming from NWT CIMP-funded projects.* * 3 measures informing 1 Performance Indicator	2.1.E.2. NWT CIMP results are made available to regulatory decision-makers, technical reviewers, Aboriginal organizations, industry and the public.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	NWT CIMP results are made available to regulatory decision-makers, technical reviewers, Indigenous governments and organizations, industry and the public through several means: The NWT Discovery Portal; regional results workshops that bring together regulators, governments, community members and researchers; community meetings that are a requirement of all NWT CIMP-funded projects; NWT Environmental Research Bulletins; annual reports; environmental assessment and regulatory processes; and research results booklets.
			2.1.E.3. Use available information on cumulative effects in regulatory decision-making.	Ongoing	MVEIRB, LWB/IWB	Complete for reporting period, and ongoing	The MVRMA requires the MVEIRB to consider cumulative effects in its environmental assessment decision-making. Face-to-face scoping sessions, technical sessions, cultural community sessions, and public hearings (technical and community) are just some of the methods commonly used to help understand cumulative effects. This requirement is reflected in all environmental assessment processes and reasons for decision. An example of how available information was used to assess cumulative effects was the Jay Project environmental assessment (see section 4.3 of the environmental assessment report – Jay Project_Report_of_Environmental_Assesment_and_Reasons_for_Decision.PDF The developer presented water quality models for Lac de Gras that incorporated discharge from both Diavik and Ekati mines. In the 2019 Diavik environmental assessment (proposal to deposit processed kimberlite into pits and underground), cumulative effects to water quality in Lac de Gras and how water quality contributes to cultural well-being were carefully considered as areas of focus in the EA Diavik Report of Environmental Assessment and Reasons for Decision 2020. The MVEIRB provides specific guidance for cumulative effects in environmental assessment in Appendix H, pp80-83 of the Environmental Impact Assessment Guidelines 2004, Appendix H In accordance with the Inuvialuit Final Agreement (IFA), the environmental screening is conducted by the Environmental Impact Screening Committee (EISC). The IWB may consider cumulative effects in their decision making if concerns are identified during the application review process. Every time the LWBs do a screening, information is used to assess cumulative effects. Anytime cumulative effects analysis is used in a regulatory board's decision, it is reported and publically available as part of the reasons for a decision. A structured cumulative effects framework on water would further assist the LWBs in their decision-making processes. Cumulative effects assessment is challenged by the limited availability of information and the ability to combine information from a variety of sources. Recently developed metadata standards guidelines could be part of the solution to this issue.
			2.1.E.4. Communicate the methods and approaches undertaken by regulatory boards to assess cumulative effects to water partners.	2017	MVEIRB, LWB/IWB	Complete for reporting period, and ongoing	The Terms of Reference for an environmental assessment set out the methods and approach for cumulative effects assessment that the proponent must follow. The draft Terms of Reference and scope of assessment are informed by in-person scoping sessions (both technical and community sessions) and distributed for review to environmental assessment participants prior to being finalized by the MVEIRB. A Terms of Reference example with requirement for cumulative effects assessment can be found here: Jay Project_Terms_of_Reference_p27-28 When the decision is made on a project, environmental assessment participants and the media are notified and the reasons for a decision are publically reported (online). A Report of Environmental Assessment and Reasons for Decision example can be found here Jay Project_Report_of_Environmental_Assesment_and_Reasons_for_Decision.PDF In addition, regional and valley-wide workshops on resource co-management processes are held annually and MVEIRB staff actively participate in the annual Water Stewardship Strategy workshops and cumulative impacts monitoring program workshops. LWB/IWBs also communicate reasons for a decision on water licencing to stakeholders and to the public via an online registries: MVLWB - https://mvlwb.com/registry IWB - www.inuvwb.ca

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2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 E - Improve the assessment of cumulative effects on water from climate change and industrial development. (continued)		2.1.E.5. Address high priority cumulative impact monitoring questions by key regulators for water and fish.	2018 and ongoing	ENR	Complete for reporting period, and ongoing	NWT CIMP's Monitoring Blueprints identify the program's priorities for funding new projects. These Blueprints are revised annually with input from key stakeholders, including key regulators for water and fish. Through this mechanism, NWT CIMP ensures that funded projects are meeting key stakeholders' information needs. NWT CIMP's Monitoring Blueprints are available on the NWT CIMP website (nwtcimp.ca).
			2.1.E.6. Define traditional knowledge monitoring priorities that support cumulative impact assessment.	2018 and ongoing	ENR	In progress	NWT CIMP promotes the use of traditional knowledge in cumulative impact monitoring. In keeping with the holistic nature of traditional knowledge, the general focus of traditional knowledge monitoring in the program is on the biophysical environment, but the specific focus to be examined is at the discretion of the community or Indigenous organization conducting the monitoring. The goal is to support traditional knowledge that will result in information that can be incorporated into land and water use decision-making.
			2.1.E. 7. Implement traditional knowledge monitoring priorities that support cumulative impact assessment.	**2020**	**ENR**	In progress	NWT CIMP promotes the use of traditional knowledge in cumulative impact monitoring. In keeping with the holistic nature of traditional knowledge, the general focus of traditional knowledge monitoring in the program is on the biophysical environment, but the specific focus to be examined is at the discretion of the community or Indigenous organization conducting the monitoring.
			2.1.E.8. Determine trends in environmental quality, potential contributing factors to changes in the environment and the significance of those trends.	2017 and ongoing	ENR	In progress	GNWT's NWT State of the Environment Reports provide an assessment of environmental status and trends in the NWT, including trend reports on water flow and quality, vegetation, and wildlife. The *Environmental Rights Act* (2019) requires the release of the next NWT State of the Environment Report by 2022.
			2.1.E.9. Support cumulative effects research taking place in the NWT and communicate research findings to water partners.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	In 2019/20, NWT CIMP provided funding for 28 cumulative impact-related projects. Key findings from this research were made available through a community-oriented results workshop and/or other relevant northern meetings. One project was highlighted in the NWT Environmental Research Bulletin (NERB).
			2.1.E.10. Complete technical transfer of *Climate Impacts Tracking Analysis System* to the NWT Centre for Geomatics and create web map tool for this information.	2017	ENR, NWT Centre for Geomatics	In Progress	This project is currently on hold. The technical transfer for the Climate Impacts Tracking Analysis System application was completed during the 2016/17 fiscal year. The full development of the application has been paused pending funding. There has been no further development since the initial pilot was developed due to resource restraints.

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2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 E - Improve the assessment of cumulative effects on water from climate change and industrial development. (continued)		2.1.E.11. Update the Mackenzie River Basin Hydraulic Model to investigate hydrological trends and quantify the effects of climate change and industrial development on water quantity in the Slave River watershed.	2017	ENR	In Progress	A contract was started in 2015 to update the model and add more data to refine the predictions and the model's ability to investigate the effects of climate change and industrial development. Further adjustments of the Mackenzie River Basin Hydraulic Model is on hold. The hydraulic model is limited; it helps us understand the dynamics and fluid properties of water moving within a stream. Using a hydrological model, instead, will help us predict future flows under different climate scenarios. Current work has involved a detailed statistical analysis of historic streamflow and level data using the R statistical computing program. ENR is working with academic partners to build a hydrological model using the Raven hydrological modelling platform to predict flows under a range of RCP scenarios. Collaborations with the University of Waterloo have led to model development in the Liard River basin and ENR is looking to develop a hydrological model for the Snare River basin. Trend analysis has been completed on all rivers in the territory where the data are sufficient to do so. ENR will release this analysis in a Hydrological Overview Report later in 2020.
			2.1.E. 12. Explore approaches to assess the vulnerability of watersheds to climate change.	**2020**	**ENR**	In Progress	See status Description for 2. 1. E.11
	2.1 F - Increase the use of biological indicators in aquatic monitoring to assess ecosystem health.	10 water partner respondents indicated that their organization provided training for biological water-related monitoring. Of the 10, 4 respondents indicated that a total of 42 individuals were trained in biological monitoring in 2019; 5 respondents indicated that they did not know how many people were trained; and 1 chose not to respond. 17 water partner respondents indicated that aquatic monitoring projects or programs had a biological component; however, the exact number of projects or programs is unclear.	2.1 F.1. Further identify how more biological indicators can be part of ongoing aquatic monitoring, with a focus on lower trophic levels to provide early warnings about changes in the aquatic ecosystem.	2017 and ongoing	ENR	In progress	In the summer of 2019, benthic macroinvertebrates were collected in the Slave and Hay rivers near the Alberta-Northwest Territories border to determine current conditions and establish a baseline that can be used to track the status of those organisms over time. The 2019 benthic macroinvertebrate sampling program was the third year of a four-year project. NWT and Alberta have been working with community members in Fort Smith and Fort Resolution and researchers from Wilfrid Laurier University and the University of Saskatchewan to develop a pilot fish monitoring program for the Slave River. The goal of the pilot program is to track fish health and tissue contaminant levels over time. In September 2019, large and small-bodied fish were caught in the Slave River near Fort Smith and Fort Resolution. Fish were sampled for health indicators such as length, weight, and organ sizes and for tissue contaminant.
			2.1. F. 2. Integrate biological indicators into aquatic monitoring by building on current biomonitoring initiatives, relevant research in the NWT and transboundary water management agreement implementation.	2019	ENR	In progress	ENR completed a contract to explore the integration of datasets produced from various historic and ongoing research and monitoring programs for the Slave River. Historical and ongoing studies have focused on metals or organic compounds in one or two components of the aquatic ecosystem (e.g. fish, sediment, or in surface water), and little is known about the way these pollutants move through the aquatic ecosystem. This work explores linkages between biological and water quality indicators, and will support the development of triggers and biological objectives for the Alberta-NWT transboundary agreement, and will identify key knowledge gaps to guide future work.
	2.1 G - Integrate social science into water-related research to improve understanding of the human dimensions of water management (e.g. governance, adaptation, food and water security, sustainable livelihoods, and linking different knowledge systems).		2.1.G.1. Explore partnerships to undertake collaborative social science research that builds on identified research priorities for the Water Strategy.	2017 and ongoing	ENR	In progress	Water partners are continuing to explore and develop partnerships to undertake social science research projects linked to the goals of the Water Strategy. Examples of partnerships that have led to successful projects include: the Tracking Change research project (co-led by University of Alberta, ENR and the MRBB); the SRDP (includes academic, territorial and federal government and Indigenous partners); Bottled Water Use on the Land; Northern Water Futures program; the SRRB also continued to partner with University of Waterloo's Human Biomonitoring project with the communities of Fort Good Hope, Tulıt'a and Dél̨ı̨nę to support community knowledge about safety of local water and country foods consumption.

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2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 G - Integrate social science into water-related research to improve understanding of the human dimensions of water management (e.g. governance, adaptation, food and water security, sustainable livelihoods, and linking different knowledge systems). (continued	3 directly freshwater-related research projects with a social science focus were licensed by the Aurora Research Institute (ARI) for 2019.* 10 indirectly freshwater-related research projects with a social science focus were licensed by ARI for 2018.* * 2 measures informing 1 Performance Indicator	2.1.G.2. Water partners support research exploring NWT residents' and communities' interactions and relationships with the aquatic environment.	2017 and ongoing	ENR		Wilfrid Laurier University (WLU) researchers worked closely with traditional knowledge holders in the communities of Tsiigehtchic and Ft. McPherson to incorporate social science and Indigenous methodologies alongside Western science to evaluate the impacts of Dempster Highway ferry operations on traditional fisheries in the Peel and Mackenzie rivers. WLU researchers used collaborative social science approaches to support the Ka'a'gee Tu First Nation and Sambaa K'e First Nation to develop environmental stewardship strategies as part of the Dehcho K'éhodi program. A significant component of that strategy work set priorities around source water and aquatic ecosystem protection. Knowledge mobilization for the Dehcho work has occurred primarily through community partnerships and regional workshops, with scholarly publication currently still in the works on those projects. MRBB's Traditional Knowledge and Strenthening Partnerships (TKSP) Committee has continued to work with SOAER Committee and a contractor to develop an approach to incorporate scientific and TK systems into the upcoming SOAER. The intent is to use various signs and signals that emerge from both science and TK to tell a story of the basin.
			2.1.G. 3. Explore the ways social science research and partnerships can inform water management in the NWT.	**2020**	**ENR**	In Progress	Multiple organisations work on social science research that can inform water management in the NWT. Some examples include: WLU researchers strive to build partnerships with communities, regional and territorial organizations and governments to build strong networks to address climate change and food security issues. They work with communities to build research and monitoring networks to protect water resources and build community-based stewardship programs (in Deline and Kakisa). WLU researchers have worked with communities to build innovative mapping programs to bring together science and traditional knowedge to better inform adaptation and community decision making (Ka'a'gee Tu Atlas). This work uses a sustainable livelihoods approach, examining what barriers to and needs for climate change adaptation exist in NWT communities. Another theme is building sustainable food systems to ensure food security - from growing food to identifying policy gaps to better distribute food to people who need it in the NWT. WLU researchers have strong knowledge mobilization and communication through regional knowledge sharing workshops (more to come) and on-the-land camps linking water researchers with community members and youth. The SRRB is partnering with University of Waterloo and University of Alberta in Indigenous Knowledge and social science research focused on ecological change, risk perception, and governance.
	2.1 H - Identify research priorities to strengthen and inform the goals of the Water Strategy.	Water partners came to consensus on the importance of broad Water Strategy research topics in 2017. However, water partners agreed research priorities need to be locally and community driven. Water partners recommended supporting and enhancing existing research processes and protocols that identify specific research priorities in collaboration with communities. For more information, NWT Water Strategy Research Priorities: Summary of Survey Results and 2017 NWT Water Strategy Implementation Workshop Discussion is available at nwtwaterstewardship.ca.	2.1.H.1. Water partners identify research priorities for each goal of the Water Strategy.	2017	ENR	Complete	Water partners came to consensus on the importance of broad Water Strategy research topics in 2017. However, water partners agreed research priorities need to be locally and community driven. Water partners recommended supporting and enhancing existing research processes and protocols that identify specific research priorities in collaboration with communities. For more information, NWT Water Strategy Research Priorities: Summary of Survey Results and 2017 NWT Water Strategy Implementation Workshop Discussion is available at nwtwaterstewardship.ca. NWT CIMP, in collaboration with Regulators and subject matter experts, has developed three blueprints that outline NWT CIMP's specific research and monitoring priorities for water, fish and caribou in the NWT.

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2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 H - Identify research priorities to strengthen and inform the goals of the Water Strategy. (continued)	NWT CIMP, in collaboration with Regulators and subject matter experts, has developed three blueprints that outline NWT CIMP's specific research and monitoring priorities for water, fish and caribou in the NWT.	2.1.H. 2. Communicate research priorities to academic institutions.	2018	ENR, ARI	Complete for reporting period, and ongoing	Water partners continue supporting collaborative research processes and existing NWT research protocols that would enable researchers to identify specific water research priorities through collaboration with communities. ARI is supporting these initiatives also through the POLAR licencing system and are engaging researchers to contribute and/or participate in ARI outreach programs and initiatives (may use virtual platforms) related to water sampling protocols and skill sets and community driven water sampling strategies. Academics continue to participate in the annual Water Stewardship Strategy workshops with other water partners, where research priorities are an underlying theme.
			2.1.H. 3. Report and review research priorities at annual implementation workshops.	2018 and ongoing	ENR	In progress	See Status Description for 2.1 H. 1.
	2.1 I - Build upon existing geomatics capacity and capabilities in the NWT to collect and analyze water-related information to fill identified monitoring gaps.	21 (out of 42) water partner respondents indicated that their organization is currently using geomatics tools; however, the number of specific monitoring programs is unclear.	2.1.I.1. Share information about existing water-related geomatics and/or remote sensing uses to interested water partners.	Ongoing	ENR, NWT Centre for Geomatics	Complete for reporting period, and ongoing	In 2019/20, NWT CIMP updated the Inventory of Landscape Change human disturbance data set, which now displays water licence information. The data set can be used to visualize and download spatial data related to human and natural disturbance in the NWT. The NWTCG shares geospatial information as part of its service offer. This will continue beyond the scope of this action plan.
			2.1.I.2. Water-related indicators using remote sensing imagery are monitored and information is publically accessible.	2018 and ongoing	ENR	In progress	In 2019/20, ENR continued to work in partnership with C-Core, who is leading the Slave River and Delta and Great Slave Lake Community-Based Water Portal project. This was the final year of funding for the program. The program monitored key environmental indicators using both satellite imagery and community-based sampling data. Indicators included: temperature, ice build-up, suspended sediment, and chlorophyll. All data are currently available through free and accessible online services on C-Core's web portal – NWT Water Monitoring Service (looknorthservices.com/watermonitoring/). Long-term housing for the data needs to be addressed. The web portal was launched in 2017 with water quality, temperature, and sediment data for the Slave River and Delta region.
			2.1.I.3. When new data are acquired, improvements are made to the existing digital elevation model, which in turn can improve the hydrological model for the NWT.	Ongoing	NWT Centre for Geomatics	Complete for reporting period, and ongoing	The Arctic digital elevation model (DEM) has been released for the entire circumpolar region, including the NWT. There are holes in the Arctic DEM that are filled when new data becomes available. The NWTCG has a copy of the latest DEM available for sharing if clients need this for analysis.
	2.1 J - Continue to support source water protection planning in NWT communities.	1 project that is working to identify source water protection planning opportunities continued in 2019.	2.1.J.1 Engage with NWT residents to identify key concerns about their source water.	2019	ENR	In progress	ENR promotes and helps to support Source Water Protection planning in the NWT through existing tools (e.g., the Source Water Assessment and Protection guidance document and associated workbook) and providing in-kind technical support for communities interested in developing a source water protection plan. ENR did not conduct specific engagement with NWT residents on identifying key concerns about their source water in 2019/20.

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2.1 - Aquatic Ecosystems, including Water Quality, Water Quantity, Groundwater and Biological Components (continued)	2.1 J - Continue to support source water protection planning in NWT communities. (continued)		2.1.J.2. Link source water protection planning to land and water management, including supporting communities to develop source water protection plans where requested.	2018 and ongoing	ENR	In Progress	The University of Alberta and Brock University continue to work with the communities of Dél̨ı̨nę and Łutsel K'e to explore land-based water consumption practices and the factors that influence perceptions of water quality on the land. This project, Bottled Water on the Land, will identify opportunities for source water protection planning, public education and outreach needs, and potential new community-based monitoring sites to address community concerns. In 2019/2020 several youth were hired to carry out interviews in three communities: Dél̨ı̨nę, Fort Good Hope, and Tulita. They have completed almost 20 interviews in total and will be learning how to analyze results. See Status Description 2.1.J.1. regarding the development of source water protection plans.
			2.1.J.3. Use source water protection planning to support and communicate about the importance of municipal water licencing.	2018	ENR, LWB/IWB	In Progress	The LWBs/IWB undertake indirect initiatives to promote source water protection planning. For example, applying the Board's Water and Effluent Quality Management Policy allows the Boards to choose appropriate effluent quality criteria for the discharge of municipal wastewater that flows to the receiving environment. Water Licence conditions are written to protect the regional aquatic environment through the proper management of municipal waste and wastewater, and confirmed through water quality monitoring under the water licence's SNP. The development of guidelines and templates for municipalities help to improve municipal operations and reduce impacts on regional watersheds and source waters. The IWB hosts an annual Municipal Water and Waste Management Workshop to enhance the capacity of municipal governments' roles and responsibilities regarding municipal water licenses and to disseminate information regarding efficient water use and waste management systems. The IWB has developed templates to assist municipal governments for the submission of management plans including: solid waste disposal facilities operations and maintenance plans, sewage waste disposal facilities operations and maintenance plans, hazardous waste management and spill contingency plans which are available on the IWB website (www.inuvwb.ca).
2.2 - Collaborative Approach to Community-based Monitoring	2.2 A - Ensure continued support of aquatic community-based monitoring programs.	19 community-based monitoring programs were identified as active, had defined goals and standardized monitoring processes in 2019.	2.2.A.1. Continue to support community-based monitoring programs to build capacity, ensure proper data collection and analysis, and communicate results to communities and decision-makers.	Ongoing	ENR	Complete for reporting period, and ongoing	Nineteen aquatic community-based monitoring programs were identified as active in the NWT in 2019/20. The programs are led by different water partners and vary in scope, size and approaches to monitoring. Common methods of capacity-building and community participation include: involving community members in field work; providing opportunities for water quality sampling and equipment training; and seeking community input into the project design.
			2.2.A.2. Ensure community-based monitoring data is relevant to local decision-making and helps to address community concerns.	Ongoing	ENR, Dehcho AAROM	Complete for reporting period, and ongoing	CBM data is being used to detect changes and trends in water quality across the NWT, which have been identified as key areas of concern by NWT communities. The water quality data collected through the CBM program provides insight into these concerns. A review of CBM data 2012-2019 data and comparison of the 2017 report will confirm that the differences in water quality across the NWT are related to the speed of water flow and the type of rocks that the water is flowing through. Water quality in some regions is also being affected by climate change. This report will be complete the winter of 2020. Communities have also expressed an interest in better understanding why certain changes in water quality are being observed. Science explainers will be available on Mackenzie DataStream to support the interpretation of data by the fall of 2020. Dehcho AAROM has been developed to promote and carry out aquatic based monitoring and management, specifically in indigenous territories. Every year the program adds different research, monitoring and training initiatives. 2019/2020 projects include the Sanguez Lake Fish Down Study, mercury studies, Dehcho AAROM Community Based Monitoring, U of A permafrost monitoring, Climate Change Monitoring, Great Slave Lake Ecological Study, Fish Stock Studies. Every project incorporates on the job training as well.

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2.2 - Collaborative Approach to Community-based Monitoring (continued)	2.2 A - Ensure continued support of aquatic community-based monitoring program (continued)		2.2.A.3. Conduct a five-year review of the NWT-wide Community-based Water Quality Monitoring Program.	2018	ENR	Complete	The five-year evaluation of the CBM Program was completed in 2017 and suggests that respondents feel that the program is well managed and important to those involved with it. There is agreement among the respondents on the purpose of the program and a review of the program's documentation established that the original intent, purpose, and goals have remained consistent with the Water Strategy. There appears to be a strong commitment to the program. The technical review was released publically in 2018.
	2.2 B - Improve community participation and leadership in aquatic research projects.	34 aquatic research projects actively involving communities were identified via the ARI research licence database for 2019 (out of 66). 11 aquatic research projects where communities are part of leading the project were identified via the ARI research licence database for 2019.	2.2.B.1. Work with community monitors and others to build capacity to participate in and undertake research projects.	2018 and ongoing	Academic Partners, Aurora College	In Progress	Many academic water partners actively engage community members in aquatic research and monitoring projects. Common methods of capacity building and participation include: involving community members in field work; providing opportunities for water quality sampling and equipment training; and seeking community input into the project design (i.e. site selection, identification of research questions based on community concerns, best practices for information distribution). Dechinta delivered four courses last year accredited by the University of British Columbia and University of Alberta. The courses focused on land and water guardianship and law. We continue to support northern and Indigenous students to engage with community leaders, Elders and knowledge holders and develop and deliver appropriate post-secondary training opportunities. We have continued to work with academic partners, including the Decolonizing Water Project, to support new research relationships. See Status Description 2. 2. A. 2.
			2.2.B.2. Provide information about research activities via newspaper and radio.	2017 and ongoing	Academic Partners	In Progress	Based on research project descriptions available in the ARI database, most aquatic research activities are reported to communities through channels such as annual progress reports, individual face-to-face meetings, public open houses, workshops, plain language summary documents, written summaries distributed via email, information accessible on a website or online portal, posters and presentations.
			2.2. B. 3. Create and implement a plan to hand over responsibility and leadership of applicable research projects to communities.	2019	Academic Partners	In Progress	Academic partners continue to work to build capacity by carrying out research, working with local community members, having them assist with monitoring and sampling activities.

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3.1 - Municipal	3.1 A - Improve the sharing of information on municipal drinking water in the NWT.	The number of members of the public that accessed the drinking water website in 2019 is unclear as a result of the website reconstruction activities.	3.1.A.1. Provide information to NWT residents on treatment and distribution of municipal drinking water by maintaining the new drinking water website and producing annual reports.	2017 and ongoing	GNWT Inter-departmental Drinking Water and Waste Management Committee	Complete for reporting period, and ongoing	Redesign of the drinking water website continues with a plan to re-launched in late 2020 or early 2021. All information continues to be available on the MACA website in the interim. Annual reports are being phased out as improved access to information is available online.
			3.1.A.2. Continue to promote water tank maintenance and provide educational information.	2018	GNWT Inter-departmental Drinking Water and Waste Management Committee	Complete for reporting period, and ongoing	Communicating the importance of maintaining healthy drinking water practices, including water tank maintenance and proper cleaning, is a key part of ensuring safe drinking water. The GNWT departments of Health and Social Services (HSS) and MACA continue to encourage annual water tank cleaning when possible. Instructional videos providing directions on how to clean your water tank are available on the HSS website.
			3.1.A.3. Maintain or enhance the current public drinking water database containing chemical sampling results and weekly bacteriological samples.	Ongoing	HSS, MACA	Complete for reporting period, and ongoing	WaterTrax has been successfully launched. All chemical data is in the database and results are publically available online. The Department of Health continues to have sole possession of bacteria test results. At this time requests for bacterial results information can be made directly to HSS.
			3. 1. A. 4. Maintain the Circuit Rider Program training for water treatment plant operators, including routine maintenance, record keeping, course delivery for certification and drinking water sampling.	2017 and ongoing	MACA	Complete for reporting period, and ongoing	MACA's Circuit Rider Program provides onsite training to operators, technical support for communities on water and waste issues, and periodic system reviews to ensure that infrastructure is in good working order. The program continues to operate successfully, with 19 communities involved. A 20th community has requested to be added to the program in 2020/2021.
			3. 1. A. 5. Upgrade remote monitoring of drinking water parameters at specific water treatment plants.	2017 and ongoing	MACA	In Progress	MACA is continuing to implement the remote monitoring system. 13 systems are currently installed, with three more scheduled to be completed by the end of 2020.
			3.1.A. 6. Complete upgrades of water treatment plants to meet the Canadian Guidelines for Drinking Water Quality.	**2020**	**MACA, PWS**	In Progress	Significant work towards completing upgrades to water treatment plants has occurred. The final water treatment plant to be upgraded is expected to be commissioned in the summer of 2020, pending COVID-19 travel restrictions.
	3.1 B - Improve municipal waste and wastewater systems in the NWT through waste management activities and the development of standards and guidelines.	3 guideline documents were released in 2019/20, 1 of which is currently our for public review.	3.1.B.1. Create and update guidelines to improve wastewater treatment systems in the NWT.	2018 and ongoing	LWB/IWB, ENR	Complete for reporting period, and ongoing	The CSA Standard W203 – "Planning, design, operation and maintenance of wastewater treatment in northern communities using lagoon and wetland systems" was developed in collaboration with NWT Land and Water Boards and Government agencies from the Northwest Territories and the Nunavut, and published in June 2019. The IWB has templates to assist municipal governments for the submission of management plans including: solid waste disposal facilities operations and maintenance plans, sewage waste disposal facilities operations and maintenance plans, hazardous waste management and spill contingency plans which are available on the IWB website (www.inuvwb.ca). MVLWB has Operation and Maintenance Plan Templates for Municipal Water Licences for Sewage Disposal Facilities and Water Treatment Plans. The templates are available on the LWBs' websites. Information about these templates is communicated to municipal governments and MACA on an ongoing basis.
			3.1.B. 2. Work towards Northern Performance Standards that align with the national Wastewater and Sewage Effluent Regulations for northern wastewater treatment systems.	**2020**	**ENR**	In Progress	A Northern Working Group (NWG), consisting of representatives from the NWT, Nunavut, Nunavik (northern Quebec) and Nunatsiavut (northern Newfoundland and Labrador), of the National Coordinating Committee was established to develop standards for northern jurisdictions, which remain exempted from the Wastewater Systems Effluent Regulations (WSER) under the *Fisheries Act* . Discussion on northern performance standards were re-initiated outside of CCME by ECCC with face-to-face meetings in Yellowknife and Iqaluit in June 2019, and a second round of engagement is planned for the fall 2020.

	Key to Success	2019/2020 Performance Indicator Result	Action Item	Deliverable Date	Action Item Lead	2019/2020 Action Item Status	2019/2020 Action Item Status Description
3.1 - Municipal (continued)	3.1 B - Improve municipal waste and wastewater systems in the NWT through waste management activities and the development of standards and guidelines. (continued)		3.1.B.3. Develop visual communication material with clear descriptions of the various processes for municipal water licences and the respective roles and responsibilities.	2018	LWB/IWB	Complete for reporting period, and ongoing	The IWB and LWBs provide Roles and Responsibilities Guidelines on their respective websites: IWB: https://www.inuvwb.ca/sites/default/files/roles_and_responsibilities_-_community_water_and_wwm.pdf MVLWB: mvlwb.com/content/municipal-water-licences-roles-and-responsibilities-guideline
			3.1.B.4. Finalize NWT Guidelines for Municipal Landfills to improve leachate management practices for landfills in the NWT.	2018	LWB, ENR	Complete	The IWB used the ECCC's Solid Waste Management for Northern and Remote Communities, Planning and Technical Guidance Document (2017) and MACA's *Solid Waste Disposal Guidelines* (2003) in combination to develop the municipal solid waste disposal facilities Operation and Maintenance Plan template. ENR continued to remove electronic waste through its e-waste program. Several municipal and community initiatives took place under the *Waste Reduction and Recycling Initiative* . ENR was involved with the removal of significant quantities of hazardous waste from Fort Good Hope and Tulita's landfills, under the *Environmental Liabilities Fund* initiative. MACA was involved with removal of hazardous waste and old vehicles from Ulukhaktok, as part of the Waste Reduction and Recycling initiative. The Hamlet of Enterprise also diverted scrap metal from their solid waste site on their own initiative. The LWBs, in collaboration with the GNWT, updated the Operation and Maintenance Plan templates for Municipal Water Licences for Solid Waste Disposal Facilities to further define leachate management. The templates are available on the LWBs' websites. Information about these templates is communicated to municipal governments and MACA on an ongoing basis. LWBs, MACA and ENR participated in a leachate management course.
			3.1. B. 5. Implement NWT Guidelines for Municipal Landfills.	2019	LWB/IWB, ENR, MACA	In Progress	In 2020, ENR, the Inuvialuit Water Board and the LWBs of the Mackenzie Valley released the Guideline For Petroleum Hydrocarbon-Contaminated Soil Treatment Facilities in the Northwest Territories. This guideline will help to further ensure contaminated soil does not illegally enter municipal landfills. In June 2019, the GNWT released the Waste Resource Management Strategy and Implementation Plan (the Strategy) as its 10-year road map to preventing and diverting solid waste, and to improving how residual waste is managed across the NWT. The Strategy commits the GNWT to implementing or expanding 3-5 waste reduction or diversion programs, expanding the Clean Up, Clean Start program (including assisting 5-10 communities to remove hazardous waste from their landfills), adopting standards for compost facilities and waste management facilities, and establishing NWT standards and/or guidelines for solid waste management facilities. The GNWT is also participating in the development of the CSA standard titled Solid Waste Sites in Northern Communities: From Planning to Closure. The draft was available online for public review in June 2020. It is not clear if the CSA standard on solid waste management will be adopted by the LWBs of the Mackenzie Valley. The LWBs adopted ECCC's guidelines for Solid Waste Management for Northern and Remote Communities which has since been referenced in some municipal water licences. The IWB considers available relevant guidelines to establish the parameters during the water licence issuance process and in setting the conditions.
			3.1. B. 6. Identify opportunities to enhance community waste infrastructure through ongoing initiatives (e.g. Waste Reduction and Recycling Initiative and the Household Hazardous Waste Collection, and review of funding structure for solid waste management activities).	2019	ENR, MACA	Complete for reporting period, and ongoing	Opportunities to enhance community waste infrastructure through ongoing initiatives in 2019/20 included: - Investing in Canada Infrastructure Plan (ICIP), a federal initiative where communities and MACA are encouraged to apply for funding for solid waste infrastructure improvements in 2019, 2021, and 2022. In 2019-2020 MACA, in partnership with communities in the Beaufort Delta and Sahtu, applied for and received $3.225M in ICIP funding to support the removal of hazardous waste and scrap metal as well as operational improvements. - The Waste Resource Management Strategy developed by MACA and ENR was released in summer 2019. The integrated strategy is intended to improve waste management practices in the territory and prioritize waste reduction and diversion. - The Waste Reduction and Recycling Initiative is administered by ENR and communities regularly apply for improvements in their community. - Each year, MACA works with ENR and Finance to allocate limited resources from the Environmental Liability Fund to proactively remove hazardous waste from municipal solid waste sites.

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3.1 - Municipal (continued)	3.1 B - Improve municipal waste and wastewater systems in the NWT through waste management activities and the development of standards and guidelines. (continued)		3.1. B.7. Update the *Good Engineering Practices for Northern Water and Sewage Systems* .	2018	MACA	Complete	The Good Engineering Practice for Northern Water and Sewer Systems, Second Edition was updated and released in 2017. The document is available on the MACA website (maca.gov.nt.ca/sites/maca/files/resources/goodengpractice2ed.pdf).
	3.1 C - Improve municipal water licence compliance by addressing challenges and providing support and training.	0 formal meetings were held in support of maintaining and improving compliance; however, LWB/IWB staff liaise and communicate with municipalities on a regular basis through the year. For 2019/20, 62% of the municipal water licences holders submitted annual reports and 67% provided SNP monitoring data.	3.1.C.1. Clarify the approach to measure municipal water licence compliance in a meaningful and comprehensive manner.	2018	LWB/IWB, ENR	Complete for reporting period, and ongoing	ENR Water Resource Officers (WROs) conduct inspections for water licence holders and report on compliance in water use inspection reports. LWB/IWB staff tabulate water licence compliance information for each community based on the outcomes of the inspection. These compilations consist of the requirements for the water licence, plan submissions, submission dates, etc.
			3.1.C.2. Track and report on number of inspections of municipal water licences.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	The number of inspections of municipal water licenses is tracked by ENR WROs. In 2019, 28 municipal water licence inspections were completed.
			3.1. C.3 Develop and implement a plan to enhance municipal water licence compliance and address community issues and concerns.	2018	LWB/IWB, ENR	In Progress	Work to develop and implement a plan to enhance municipal water licence compliance is ongoing under the LWB/IWB's policies and areas of operation. Additional efforts to support communities to apply for, or comply with, their municipal water licence include outreach, education and template documents. See Status Description 3. 1. C. 4. LWBs, in partnership with ENR and MACA, have developed various tools (templates and standards) to provide assistance with water licence compliance and continue to discuss collaborative improvement methods. LWBs are working to develop SNP (sampling) manuals for all municipalities.
			3.1.C.4. Identify items, such as training, support and outreach activities, that would enable communities to apply for, or comply with, their municipal water licence.	2018	LWB/IWB, ENR	Completed for reporting period, and ongoing	The LWBs/IWB support communities to apply for, or comply with, their municipal water licence through various means, including outreach and education initiatives, development of template documents, community meetings and ongoing communication and support from LWB/IWB staff. At the request of a community and in partnership with ENR and MACA, the LWBs have led Waste Management workshops in order to help build capacity, knowledge and skills related to specific waste management needs (e.g. Fort Providence workshop in June 2019). The IWB hosts an annual workshop for municipal water and waste management. This workshop provides an opportunity for stakeholders to share information, including issues and challenges faced in relation to municipal water and waste management. ENR also participates in relevant outreach and education activities when opportunities arise, such as sharing information and presenting at the Northern Territories Water and Waste Association Conference and Operators Workshop. In partnership with ENR and MACA, the LWBs have developed various tools (templates and standards) to provide assistance with water licence compliance and continue to discuss collaborative improvement methods. LWBs are working to develop SNP (sampling) manuals for all municipalities. MACA is in the process of developing a Source Water Protection course that is designed to assist the municipal employee to understand the importance of protecting the NWT Municipal water sources.

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3.1 - Municipal (continued)	3.1 C - Improve municipal water licence compliance by addressing challenges and providing support and training.		3.1.C.5. Work with municipalities to ensure unauthorized waste is not accepted at the landfills.	2018 and ongoing	LWB/IWB, ENR	Complete for reporting period, and ongoing	Conditions to ensure that unauthorized waste is not accepted at municipal landfills are addressed through the water licence. Third party agreements required for industrial water licences ensure that unauthorized waste is not disposed of within municipal landfills. The LWBs/IWB also communicate with municipalities on an ongoing basis to ensure municipalities are aware of nearby industrial operations and that the associated industrial water licences do not allow for the use of municipal landfills, unless authorized by an inspector. ENR WROs continue to monitor and enforce unauthorized waste found in landfills during scheduled water licence inspections. Furthermore, during the water licence review process ENR provides feedback requesting communities control access to landfills through fencing and access control (gates). ENR also works directly with communities through the Clean Up Clean Start Program to remove historical stockpiles of hazardous waste and educate community staff on hazardous waste management. For 2019/2020 ENR worked with Fort Simpson for the Clean Up Clean Start program.
			3.1.C.6. Support communities by providing technical support and training for monitoring of SNP sites.	2018 and ongoing	LWB/IWB, ENR	In Progress	The LWBs and MACA continue to work towards developing customized SNP sampling manuals for municipal licencees to aid with SNP compliance. These manuals are still in the development phase. Completion of the SNP sampling manuals may facilitate additional opportunities for SNP training workshops for licenced communities. The IWB hosts an annual Municipal Water and Waste Management Workshop to enhance the capacity of municipal governments' roles and responsibilities regarding municipal water licenses and to disseminate information regarding efficient water use and waste management systems.
			3.1.C.7. Continue to promote the standardized application, renewal, compliance and reporting templates for municipal water licensing.	2017 and ongoing	LWB/IWB	Complete for reporting period, and ongoing	Templates have been created and are available on the LWBs'/IWB's websites. These templates are updated on a frequent basis. Information about these templates is communicated to municipal governments and MACA on an ongoing basis.
	3.1 D - Improve the understanding of waste and wastewater systems in NWT communities and consider traditional knowledge in municipal water licensing processes.	1 research project on environmental impacts of municipal waste and wastewater was identified via the ARI research licence database for 2019.	3.1 .D.1. Work with water partners and prioritize and support research areas to improve the understanding of the environmental impacts of waste and wastewater in NWT communities.	2018	ENR	In progress	Various research partnership initiatives have been established between ENR, MACA and both Dalhousie University and Fleming College, in order to better understand the specificities and complexities of wastewater treatment in the north, as well as possible impacts of NWT municipal wastewater discharges to the environment. Specific research and monitoring "Blueprints" have been developed for each of NWT CIMP's three priority valued components (caribou, water and fish) in partnership with NWT land and water regulators, subject-matter experts, and the NWT CIMP Steering Committee. The Blueprints inform funding applicants of NWT CIMP funding priorities, and guide program work planning.

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3.1 - Municipal (continued)	3.1 D - Improve the understanding of waste and wastewater systems in NWT communities and consider traditional knowledge in municipal water licensing processes. (continued)		3.1 .D.2. Ensure opportunities to include traditional and local knowledge in municipal water licencing are clearly communicated.	2017	LWB/IWB	Complete for reporting period, and ongoing	Traditional knowledge (TK) is considered at various stages in the regulatory process including the public review, the proponent's engagement with potentially affected communities, and the setting of licence conditions. Under the MVRMA, the LWBs are legally obligated to consider TK evidence as well as scientific information, and the IWB has stated similar direction in its strategic planning. The LWBs have an online public review system. Staff from LWBs also visit communities to hold meetings and hear concerns. These meetings are advertised beforehand and provide an opportunity for local community members to share traditional and local knowledge and their concerns. The IWB has no online public review system. The IWB distributes water licence application packages to stakeholders (e.g. community, co-management and government organizations) via email for their review and comment. The IWB does not hold community meetings as this is a requirement of the applicant. The applicant provides a community consultation record with the application package. Public Hearings may be held if there is a recognized need. TK may influence determining the location of SNP monitoring sites for municipal facilities, design and placement of municipal facilities, and licence conditions related to TK/land use. The LWBs also commonly work with community staff on setting SNP locations.
3.2 -Industrial Development	3.2 A - Ensure clarity and facilitate understanding of water use, waste and wastewater regulatory processes.	14 (out of 42) respondents indicated there was a moderate or high increase in understanding of roles and responsibilities within the water use, waste and wastewater regulatory processes, while 10 indicated that there was a minimal increase in understanding.	3.2.A.1. Ensure plain language information on regulatory processes for environmental assessments and water licensing is available to water partners.	2017 and ongoing	LWB/IWB, MVEIRB, ENR	Complete for reporting period, and ongoing	The LWBs/IWB have plain language documents available on regulatory processes, including a water licence application guide and plain language information on NWT water regulations. MVEIRB provides plain language environmental assessment information to the public, including information outlining the various environmental assessment steps MVEIRB step by step EA process information and the Environmental Assessment Guidance documents. MVEIRB has developed plain language pop-up displays; is in the process of developing a series of booklets and videos; and is also working with the NWT Board Forum to develop reference guides and online courses, including an Orientation to Resource Management in the NWT, available at www.nwtboardforum.com. The IWB has developed a step-by-step licence process in the ISR (https://www.inuvwb.ca/licencing/do-i-need-licence-my-project).
			3.2.A.2. Provide information on how to participate in the regulatory process at community meetings and other events.	2017 and ongoing	LWB/IWB, MVEIRB, ENR	Complete for reporting period, and ongoing	LWBs and MVEIRB publish notices of meetings, hearings and reviews in newspapers and in other ways based on direction from staff at the communities involved. The IWB distributes water licence application to the community, co-management and government organizations and also places notifications within the newspaper for public comment. At community scoping sessions and hearings, MVEIRB staff provide explanations about how to participate in the regulatory process and how each meeting fits into the wider regulatory process. In February 2020, MVEIRB, LWBs and the territorial and federal governments hosted a Resource Co-Management Workshop in Yellowknife, with a primary focus on engagement: Resource Co-Management in the Mackenzie Valley Workshop 2020 Engagement and Consultation. The MVEIRB also hosted or participated in various other outreach events in multiple regions of the NWT to help people understand and participate effectively in environmental assessment processes.

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3.2 -Industrial Development (continued)	3.2 A - Ensure clarity and facilitate understanding of water use, waste and wastewater regulatory processes. (continued)		3.2.A.3. Describe in plain language and communicate how traditional and local knowledge can be included in water licences and environmental assessments.	2018 and ongoing	LWB/IWB, MVEIRB, ENR	In Progress	See Status Description for 3. 1. D. 2. The MVEIRB prepares a Terms of Reference that describes the information a project developer must provide during an environmental assessment. In late 2018, the MVEIRB released draft environmental assessment initiation guidelines for developers of major projects. MVEIRB requires the developer to make all reasonable efforts to work with potentially affected Indigenous communities and incorporate traditional knowledge into the following: baseline project design; predictions and evaluations of impacts from the project on the environment and people; mitigations proposed to avoid or eliminate impacts; and follow-up and monitoring. During scoping at co-management workshops and other events, the incorporation of traditional knowledge into environmental assessment processes and decisions is always a topic of discussion. The MVEIRB's consideration and incorporation of traditional knowledge in decisions is explained in its reasons for decision/reports of environmental assessment. The MVEIRB is committed to working with co-management partners, developers, and Indigenous governments and organizations to continue improving how traditional knowledge is incorporated in environmental assessments. The methods used in the acquisition, analysis and presentation of traditional knowledge should be consistent with the MVEIRB's Guidelines for Incorporating Traditional Knowledge into the Environmental Impact Assessment and must follow local protocols. Licence conditions may directly address traditional knowledge collection and consideration. A recent example is the WLWB's inclusion of traditional knowledge conditions in the water licence for the Misery Underground Project at Ekati. These 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. The IWB distributes water licence application packages to stakeholders (e.g. community, co-management and government organizations) via email for their review and comment. The IWB does not hold community meetings as this is a requirement of the applicant. The applicant provides a community consultation record with the application package. Public Hearings may be held if there is a recognized need.
	3.2 B - Improve clarity and facilitate understanding of industrial water licence compliance.	21 (out of 41) respondents indicated a moderate to significant increase in understanding of water licence requirements and management plans, while 7 respondents indicated a minimal increase in understanding.	3.2.B.1. Clarify roles and responsibilities for industrial compliance and identify areas for policy improvements.	2017 and ongoing	LWB/IWB, ENR, Lands	Completed for reporting period, and ongoing	The Compliance and Enforcement Policy was completed last year. Work in now being done on directives to clarify the roles of inspectors in the NWT. The first directive, titled Support to Comply, has been drafted and is under review
			3.2.B.2. Track and report on number of inspections of industrial water licences.	2017 and ongoing	ENR, Lands	Complete for reporting period, and ongoing	52 industrial water use inspections were conducted in 2019-20. 6 in the Inuvik Region, 29 in the North Slave Region, 12 in the South Slave and 5 in the Dehcho Region.
	3.2 C - Review and develop guidelines and regulations to clarify existing regulatory and environmental assessment processes.	1 piece of water legislation was under review in 2019/20. 5 guidelines were under review in 2019/20.	3.2.C.1. Identify the components of an integrated water management system (e.g. water classification system, site-specific water quality objective derivation process, baseline data collection, mixing zone, environmental assessment initiation) to support the Water and Effluent Quality Management policy and decision-making in environmental assessments.	2017 and ongoing	LWB/IWB, ENR	In Progress	The integrated water management system consists of a number of initiatives intended to support the regulatory regime in the NWT, including: - Work on the Water Classification System continues to be on hold. Work is underway to reassess the concept and determine if and how such a system could enable assessment of water resources and support decision-making. - Mixing Zone Guidelines were developed by ENR and the LWBs. The guidelines were approved by the Boards and GNWT and released jointly in September 2017. - Water Quality Baseline Guidelines were developed and circulated for review in 2017/18 and are currently pending final approvals. The process is being directed by a steering committee with representatives from MVEIRB, LWBs and ENR. The Baseline Guidelines are anticipated to be completed in 2020. The guidelines are intended to fill a gap and support AEMP guidelines. MVEIRB provided input and intends to reference and encourage proponents to follow the guidelines, although MVEIRB is not a co-author. The guidelines are intended to fill a gap and support the review and update of the AEMP - Environmental Assessment Initiation Guidelines are being developed by MVEIRB. They were presented at the 2016 NWT Geoscience Forum and are now advancing to the drafting stage. Focus groups/collaborative meetings will occur before the draft is circulated for public review. MVEIRB held a session with chamber of mines in early 2019. ENR staff are participating in this process.

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3.2 - Industrial Development (continued)	3.2 C - Review and develop guidelines and regulations to clarify existing regulatory and environmental assessment processes. (continued)		**3.2.C. 2. Once a water classification system is established, develop and implement a Site-specific Water Quality Objective derivation approach to determine water quality objectives.**	**2020**	**ENR, LWB/IWB**	In Progress	Water classification system is on hold.
			3.2.C.3. Provide a short description of water license requirements and management plans.	2017	LWB/IWB, ENR	In Progress	Supporting documents are publically available regarding water license requirements in the NWT. However, there is a need to improve how lead partners communicate information about water licenses and management plans and how they relate to one another. LWBs/IWB developed a new plain language Guide to the Water Licensing Process. The draft was distributed in August 2019 and remains in draft. ENR provided comments on the draft. For the Inuvialuit Region, all relevant information and guidelines for the submission of a water licence application including associated environmental management plans can be found on the IWB website (www.inuvwb.ca).
			3.2.C.4. Review territorial legislation relevant to water management and identify areas for improvement.	2017 and ongoing	ENR	In Progress	A review of the *Waters Act* and the Waters Regulations began in 2016 and is ongoing. The *Waters Act* review is anticipated to be complete in 2022-23.
			3.2.C.5. Review existing regulatory guidelines and policies relevant to water management post devolution and revise as necessary.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	Regulatory guidelines continued to be reviewed in 2019/20: 1. Water Quality Baseline Guidelines (pending final approvals) 2. Aquatic Effects Monitoring Program Guidelines (finalized in conjunction with LWBs in March 2019) 3. Guideline for Hydrocarbon Contaminated Soil Treatment Facilities (completed in 2020)
			3.2.C.6. Review and revise existing AEMP Guidelines.	2018 and ongoing	LWB/IWB, ENR	Complete	A review of the *Aquatic Effects Monitoring Program Guidelines* was initiated in 2017. The guidelines were being revised following the closure of the initial review period to address reviewer comments. As of March 2019, the guidelines have been finalized in conjunction with the LWBs.
			3.2.C. 7. Develop Guidelines for Surface and Groundwater Monitoring for oil and gas development.	**2020**	**LWB, ENR**	Not started	No update at this time
			3.2.C.8. Develop guidelines for project descriptions in environmental assessments to support decision-making.	2018	MVEIRB	In Progress	MVEIRB held a workshop in June 2018, considered the workshop feedback, developed draft environmental assessment initiation guidelines for developers of major projects, released the draft in November 2018, and engaged interested parties through bilateral and small group meetings, workshops, and written comments up until the end of April 2019. The Review Board is now working on a revised draft guideline. MVEIRB is also working with preliminary screeners on a guideline for preliminary screenings.

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4.1: Routine Checks	4.1 A - Ensure progress on the Action Plan occurs.	54 Performance Indicators and 147 Action Items were assessed in the 2019/20 Progress Review (the fourth annual Progress Review).	4.1.A.1. Survey appropriate water partners to assess progress on specific Keys to Success using performance indicators, and to identify challenges and successes.	2017 and ongoing	ENR	Complete for reporting period, and ongoing	ENR launched a survey that was circulated to lead and supporting water partners in April 2020. ENR also contacted various water partners directly to collect additional information on Water Strategy implementation progress for 2019-2020. Progress is determined by defined Action Items and Performance Indicators in the NWT Water Stewardship Strategy Action Plan 2016-2020. Action Items are activities that specific water partners are leading and Performance Indicators are intended to measure the outcomes of those activities.
			4.1.A.2. Routinely update water partners on implementation activities (e.g. annual reports and website).	Ongoing	ENR	Complete for reporting period, and ongoing	Implementation updates were primarily provided to water partners through the 10th Annual Water Strategy Implementation Workshop held in October 2019. Water partners shared updates of recently completed, ongoing and planned implementation activities through presentations, posters and participation in panel discussions. Water Strategy implementation progress for 2018/19 was communicated to water partners and the public through the release of the 2018/19 NWT Water Stewardship Strategy Progress Review Summary and 2018/2019 NWT Water Stewardsip Strategy Progress Review – Comprehensive Raw Data Spreadsheet. The 2018/19 summary is intended for a public audience and uses plain language text and infographics to convey implementation status.
			4.1.A.3. Hold an annual workshop to report on successes, improvements and remaining challenges.	Ongoing	ENR	Complete for reporting period, and ongoing	ENR hosted the 10th Annual Water Strategy Implementation Workshop in Dettah in October 2019. The theme of the workshop was Northern Waters in a Changing Climate. The objectives of the workshop were to: Emphasize the importance of our individual and collective responsibilities to ensure the waters of the NWT remain clean, abundant and productive for all time; Increase awareness of water partners' implementation initiatives towards water stewardship in the NWT, emphasizing those that link with climate change; Provide opportunities for meaningful discussion, knowledge sharing and relationship building among water partners; and Identify new opportunities for collaboration or partnerships towards water stewardship in the NWT. The workshop included thematic fireside chats, an interactive session to map the water-related impacts of climate change, a traditional knowledge holders' panel, and a youth-led dialogue about engaging the NWT's youth in water and climate issues.
			4.1.A.4. Document and share how traditional and local knowledge information is included in the different components of the Action Plan and make it part of routine reporting.	2018 and ongoing	ENR	Complete for reporting period, and ongoing	Implementation activities under the Work Together, Know and Plan and Use Responsily components of the 2016-2020 Action Plan all identify approaches for including traditional and local knowledge in Water Strategy implementation. Approaches include: providing opportunities for knowledge holders to provide guidance and input at regulatory workshops, meetings and hearings; integrating technologies for information collection and sharing on the land and water; including traditional and local water-related knowledge in existing school curriculums and science fairs; holding intergenerational on-the-land camps; developing Traditional Knowledge Research Guidelines for the Sahtú Region; providing opportunities for researchers and traditional knowledge holders to interact and exchange experiences and knowledge, supporting community-led water-related traditional knowledge projects; defining and implementing traditional knowledge monitoring priorities related to cumulative impacts; and working to ensure that traditional knowledge and community concerns are included in projects or monitoring programs such as AEMPS for industrial activities in the NWT. Water Strategy implementation activities that included traditional and local knowledge in 2019 included: ongoing guidance from the Aboriginal Steering Committee on research activities related to tradtional knowledge; supporting on-the-land camps; a review of traditional knowledge frameworks for bilateral water management agreement decision making and their applicability in implementing the Alberta-NWT Bilateral Water Management Agreement; storytelling panels and presentations at the Water Strategy Implementation Workshop in October 2019; supporting community-led water-related traditional knowledge projects (e.g. Tracking Change); and working to ensure opportunities to include traditional and local knowledge in municipal water licencing are clearly communicated.

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4.2: Independent Evaluation	4.2 A - Ensure an independent evaluation of the Water Strategy takes place every five years and recommends actions to be undertaken.	15 water partners participated in the independent evaluation through the Evaluation Committee and Aboriginal Steering Committee. 35 water partner organizations participated in the independent evaluation as interviewees.	4.2.A. 1. Establish an evaluation committee.	2019	ENR	Complete	An evaluation committee was established in December 2019 to guide and coordinate the independent evaluation of the NWT Water Stewardship Strategy Action Plan 2016-2020. The committee consists of members from the Mackenzie Valley Land and Water Board, Aurora Research Institute, North Slave Métis Alliance, Wilfrid Laurier University and the GNWT Department of Environment and Natural Resources.
			4.2. A. 2. Establish an evaluation plan	2019	ENR	Complete	An evaluation plan was established in March 2019 by the contractor chosen to conduct the independent evaluation, Eco-Logical Resolutions Consulting Ltd. The plan was reviewed and approved by both the evaluation committee and the Aboriginal Steering Committee.
			4.2.A. 3. Conduct independent evaluation.	**2020**	**ENR**	In progress	Eco-Logical Resolutions Consulting Ltd. was contracted in February 2020 to conduct the independent evaluation of the Water Strategy. Key phases of the evaluation include the development of an evaluation plan, criteria and engagement strategy, interviews with Water Partners and key informants, document review, and analysis. Findings from the independent evaluation are to be published in a report and plain language summary in August 2020.
			4.2.A. 4. Publish evaluation results and distribute findings.	**2020**	**ENR**	In progress	The results of the independent evaluation, once finalized, will be published in a final evaluation report and plain language summary and distributed to Water Partners and the general public. A teleconference for Water Partners will be held in August 2020 to share the results of the evaluation.
			4.2.A. 5. Document which evaluation recommendations are carried forward into subsequent Action Plans and include rationale.	**2020**	**ENR**	Not started	The final evaluation report and plain language summary will include recommendations to address challenges and build upon successes to inform the development of the 2021-2025 NWT Water Stewardship Strategy Action Plan. The incorporation of these recommendations into the 2021-2025 Action Plan will be documented by ENR