Northern Voices, Northern Waters

NWT Water Stewardship Strategy

The waters of the Northwest Territories will remain clean, abundant and productive for all time.

Government of
Northwest Territories

If you would like this information in another official language, call us.
English

Si vous voulez ces informations dans une autre langue officielle, contactez-nous.
French

Kīspin ki nitawihtīn ē nīhīyawihk ōma ācimōwin, tipwāsinān.
Cree

Tłıchǫ yatı k'ęę. Dı wegodı newǫ dè, gots'o gonede.
Tłıchǫ

ʔerıhtł'ıs Dëne Sųłıné yatı t'a huts'elkër xa beyáyatı theʔą ʔat'e, nuwe ts'ën yółtı.
Chipewyan

Edı gondı dehgáh got'ıe zhatıé k'ęę edatł'éh enahddhę nıde naxets'ę edahłı.
South Slavey

K'áhshó got'ıne xədə k'é hederı ʔedıhtl'é yerınıwę nıdé dúle.
North Slavey

Jii gwandak izhii ginjìk vat'atr'ijąhch'uu zhit yinohthan jì', diits'àt ginohkhìi.
Gwich'in

Uvanittuaq ilitchurisukupku Inuvialuktun, ququaqluta.
Inuvialuktun

ᑲᑦᑯᐊ ᑎᑎᕐᒃᑲᐃᑦ ᐱᓕᒍᐃᖏᑦ ᐃᓄᒃᑎᑐᓕᕐᒃᓴᒪᓂᖅ, ᐅᓪᓚᑦᑎᐊᓄᑦ ᐅᕐᑲᓕᓕᐊᓇᕐᓂᑐᑦ.
Inuktitut

Hapkua titiqqat pijumagupkit Inuinnaqtun, uvaptinnut hivajarlutit.
Inuinnaqtun

Aboriginal Languages Secretariat: 867-767-9346 ext. 71037
Francophone Affairs Secretariat: 867-767-9343

Cover photos: Top: M. Ehrlich – Bottom: B. Swallow

Table of Contents

About the New Edition

Northern Voices, Northern Waters: The NWT Water Stewardship Strategy (the Strategy) is a made-in-the-North Strategy developed to guide long-term stewardship of water resources in the Northwest Territories (NWT). Beginning in 2008, the Government of the Northwest Territories (GNWT) and Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada) started working with representatives from Aboriginal governments, NWT communities, regulatory boards, environmental organizations, industry, academic institutions and the general public to develop a water strategy for the NWT.

To ensure Aboriginal water partners were at the decision-making table during the development of the Strategy, all Aboriginal governments were invited to participate in an Aboriginal Steering Committee (ASC). ASC members played a key role in guiding the development of the Strategy and continue to provide ongoing guidance in implementing the Strategy.

The Strategy was initially released in 2010. In the years leading up to its release, a series of workshops, meetings and presentations were held to discuss peoples' water-related concerns in the NWT. The ideas from these dialogues, in addition to influences from broad environmental stewardship initiatives (such as the NWT Environmental Stewardship Framework), formed the basis of the Strategy.

The Strategy continues to guide our collective work towards ensuring NWT waters remain clean, abundant and productive for all time. This 2018 Strategy update retains the original goals, vision, guiding principles, approaches and Keys to Success adopted in 2010, while providing updated policy, legislation and program information to reflect changes and progress that have occurred since 2010.

In particular, the update reflects the significant policy changes stemming from the *NWT Lands and Resources Devolution Agreement*, which came into effect on April 1, 2014. Under the Agreement, responsibilities related to water and land management in the NWT were transferred from Indigenous and Northern Affairs Canada (INAC) to the GNWT. The GNWT is now solely responsible for coordinating the implementation of the Strategy. A number of GNWT departments, divisions and programs contribute to this ongoing implementation.

Message from the Minister

On behalf of the Government of the Northwest Territories, I am pleased to present the updated ***Northern Voices, Northern Waters: The NWT Water Stewardship Strategy*** (the Strategy). The document has been updated to reflect policy, legislation and program changes that have occurred since the Strategy was first released in 2010. The goals, vision, guiding principles and Keys to Success remain unchanged and continue to guide effective long-term stewardship of our water resources as we move forward with implementation.

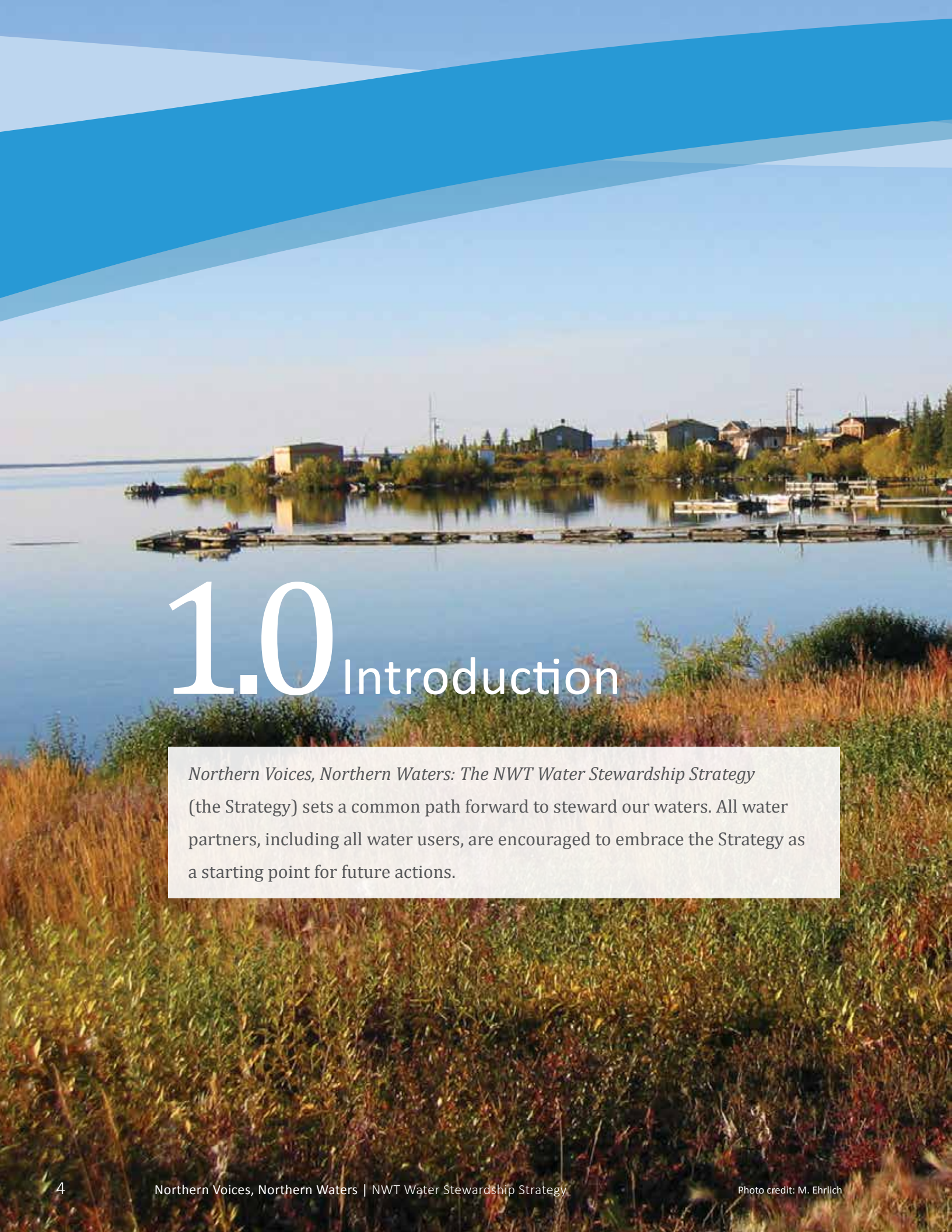
Since the release of the Strategy, water partners (with guidance from the Aboriginal Steering Committee); have made significant progress towards achieving the goals and vision of the Strategy. In 2011, water partners developed *NWT Water Stewardship: A Plan for Action 2011-2015*, a detailed plan outlining actions and Keys to Success to implement the Strategy. Key accomplishments achieved during the first five-year implementation phase include the development and implementation of the NWT-wide Community-based Water Quality Monitoring Program (CBM) and the signing of two Transboundary Water Management Agreements (NWT-Alberta, NWT-British Columbia). Water partners also made significant progress in water stewardship information sharing through the launch of the NWT Water Stewardship website, the NWT Discovery Portal and Mackenzie DataStream. The partnership approach laid out in the Strategy facilitates the strengthening of existing partnerships and the forging of new collaborative relationships among water partners within the NWT and beyond.

Further to these accomplishments, an independent evaluation of progress during these first five years of implementation was conducted in 2015. The evaluation identified a number of successes during the first implementation phase. Recommendations from the evaluation informed *NWT Water Stewardship Strategy: Action Plan 2016-2020* and included activities related to improving collaboration among water partners, strengthening the role of Traditional Knowledge in water management and improving capacity building through local monitoring and training opportunities.

Our progress thus far highlights the importance of continued partnerships and collaboration to ensure we are effectively implementing the Strategy. As we further our work it remains clear that everyone in the NWT has a shared role to play in ensuring NWT waters are sustained for human use and northern ecosystems remain healthy and productive. We have a strong foundation to build upon as we continue to enhance our knowledge and understanding and make sound water stewardship decisions in the NWT.

Throughout the implementation process, it has been evident that NWT residents deeply value our waters and are willing to collaborate to make the best possible choices. We appreciate everyone who has participated in the development and implementation of the Strategy to date, and we look forward to continuing to work together to ensure that the waters of the NWT remain clean, abundant and productive for all time.

Honourable Robert C. McLeod
Minister of Environment and Natural Resources
Government of the Northwest Territories



1.0 Introduction

Northern Voices, Northern Waters: The NWT Water Stewardship Strategy (the Strategy) sets a common path forward to steward our waters. All water partners, including all water users, are encouraged to embrace the Strategy as a starting point for future actions.

Photo credit: M. Ehrlich

Freshwater is fundamental to life. Clean and abundant freshwaters ensure healthy, productive **ecosystems**. These are essential to the social, cultural and economic well-being of people, particularly the residents of the Northwest Territories (NWT). The rivers, lakes, streams and ponds of the NWT are an essential part of northern life and traditional Aboriginal cultures.

All populations require water to develop and prosper. All economies require water to produce goods and services. In the NWT and its shared watersheds, it is evident now more than ever that stresses are being placed on **aquatic ecosystems**. The effects from climate change and the impacts of growth and development can have consequences for **water resources**, ecosystems and residents of the NWT.

Today, as in the past, the deeply held values of Aboriginal people have brought water issues to the forefront in the NWT. Many residents have a deep and fundamental relationship with our waters. At the same time, territorial residents support responsible economic development within a sound environmental context.

Since pressures on waters throughout the NWT and in neighbouring jurisdictions continue to increase, residents have been clear that improved water stewardship is essential. As **water partners**, we can show strong leadership in water stewardship by setting high standards to hold ourselves and others responsible and accountable. We have the opportunity to ensure future generations have the resources and opportunities we treasure today.

Freshwater is needed for life. It is vital to the social, cultural and economic well-being of people living in the NWT. Freshwater contains very little or no salt.

Ecosystems include all living and non-living things in a given area and all the ways they interact with each other.

Aquatic ecosystems refer to the interacting components and interdependencies of air, land, water and living organisms that depend on water resources. The two main types of aquatic ecosystems are marine and freshwater ecosystems. The Strategy only addresses freshwater ecosystems.

Water resources include lakes, rivers, deltas, wetlands and the surface and groundwater that supply them—whether in a liquid or frozen state. In addition to ecological benefits, these resources can provide economic and socio-cultural benefits.

Water partners include anyone that has a role in water stewardship. They may also be referred to as water stewards.

1.1 The Importance of Water to Aboriginal People in the NWT

Aboriginal people have a long and intimate relationship with the natural environment. They draw their spiritual and cultural integrity and strength from the land and water (i.e. ecosystem). Their Traditional Knowledge comes from a deep understanding of the natural world around them. Aboriginal people make up approximately half of the total population of the NWT. Today, all residents and visitors benefit from this legacy and rely on the waters of the NWT for their needs.

Aboriginal people expect their traditional ways of life and cultures to be sustained. Many places and features associated with water have important cultural, spiritual or historical meaning. They are highly valued by Aboriginal people and need to be respected and maintained.

> *"Water and the land are like blood in the body. If you pollute or cut off water, the land will die. Water is fundamental to all life and we must work together to protect it".*
> Chief Charlie Football, Wekweètì, NWT

Aboriginal people expect to be directly involved in the Strategy, especially the implementation phase. The appropriate use and consideration of all types of knowledge, including traditional, local and western scientific, are an integral part of the Strategy and related initiatives.

Aboriginal Rights

The NWT Water Stewardship Strategy does not alter existing water management responsibilities. It does not affect or infringe upon existing or asserted Aboriginal rights, treaty rights or land, resource and self-government agreements. In the case of any inconsistency between the Strategy and existing or future treaties or land, resource and self-government agreements, the provisions of the treaties and agreements shall prevail.

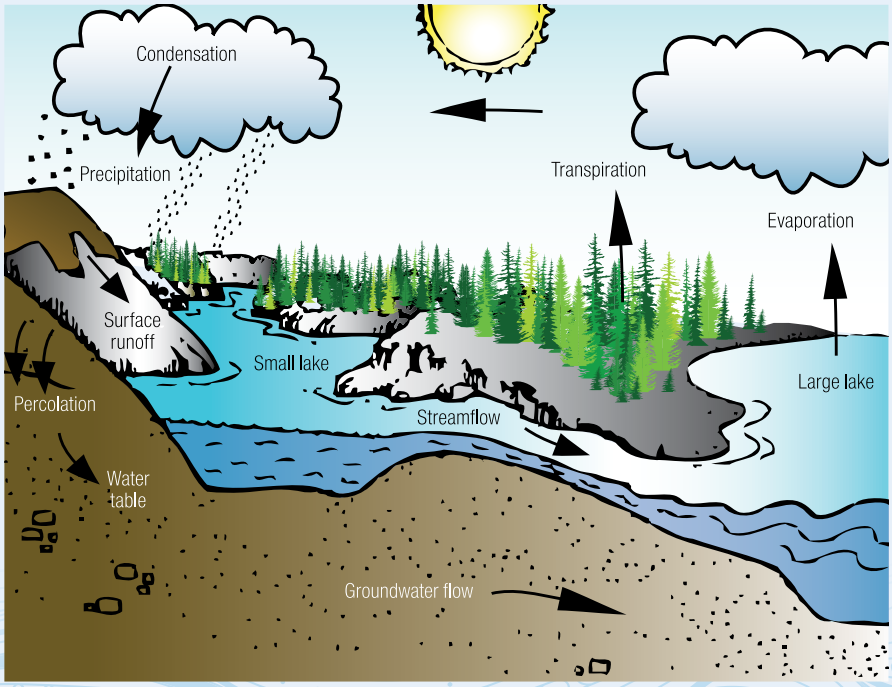
Figure 1: Watersheds of the NWT

1.2 The Importance of Water to the NWT

The natural environment is one of the NWT's most valued features. Its water resources are particularly significant. The Mackenzie River Basin is Canada's largest river basin (see Figure 1 – Watersheds of the NWT Map).

Water is a defining feature for much of the NWT's environment, including **karst topography**, widespread **permafrost**, deltas and internationally recognized wetlands. Lakes, rivers, groundwater and wetlands help to ensure the survival of fish species, other animals such as waterfowl, furbearers, moose and caribou, and plants. The continued sustainability of our natural environment is directly dependent on its waters and the movement of these waters through the water cycle (see Figure 2 – Water Cycle).

Figure 2: Water Cycle



This diagram depicts how water moves through the aquatic ecosystem from precipitation to surface and groundwater, to rivers and lakes, and back into the atmosphere through evaporation and transpiration.

Karst topography is a landscape created when groundwater dissolves sedimentary rock, such as limestone.
Permafrost is permanently frozen subsoil which is found in many areas in the NWT.


Photo credit: N. Snowshoe

The waters of the NWT, both within and outside the Mackenzie River Basin, have many uses, including agriculture, oil and gas, mining and related activities, community water supply, commercial fishing, hydroelectric power generation, and forestry. They are important for the efficient transport of goods, services and people, both in the winter (ice roads) and summer (barge and other boat traffic). Residents also rely on these waters for personal travel to hunting areas, cultural sites and other communities. Travelling along rivers and lakes by canoe honours and celebrates ties to Aboriginal heritage.

NWT communities rely on surface water, and in some cases groundwater, as sources for their public water supply. If sources are kept clean and abundant, water is more easily made suitable for drinking and other uses. After we use water in communities, it is then returned to the environment. Safe public water supplies need to be sustained by communities without compromising downstream ecosystems.

The waters of the NWT also contribute to the economic well-being of residents. For example, the NWT has important commercial and domestic fisheries. Fishing lodges and outfitter camps play a valuable role in the economy and rely on water for their activities. The fur harvesting industry depends on the health and abundance of water resources.

Mining is a significant aspect of the NWT economy. All mines require substantial amounts of water for processing and other purposes. All mines discharge water into the environment. This water must be treated before it is discharged to meet regulatory requirements.

Water Resources Facts

The Mackenzie River is Canada's longest river at 1,800 km.

The Mackenzie River Basin is the largest river basin in Canada at 1.8 million km^2. This basin is approximately 1/5th the size of Canada.

Great Bear Lake is the largest lake located entirely within Canada, with a surface area of 31,328 km^2.

Great Slave Lake is the deepest lake in Canada at 614 m, and the fourth largest.

Great Bear Lake and Great Slave Lake are two of the cleanest lakes of their size in the world.

The Mackenzie Delta is Canada's largest freshwater delta, and the 12th largest in the world covering a surface area of 13,500 km^2.

Oil and gas developments are also key to the NWT economy. Water is needed for general operations, including downhole injection and watercourse crossings. Upstream developments in neighbouring jurisdictions, including oil sands operations in northern Alberta, have implications for our waters and are of particular concern to our residents.

Rivers are a source of energy that can be used to create electrical power. They generate almost half of the overall power needed for the territory. There is increased interest in further developing the hydroelectric potential of the NWT to offset or eliminate diesel-fired power generators and provide naturally produced power to industrial developments.

The waters of the NWT are not only important to the territory but are regarded as a significant resource worldwide. The Mackenzie River Basin's natural water-ice-climate system helps stabilize the Earth's climate. There could be ecological and water-related implications for the entire continent if the Mackenzie River Basin system changes too much. Climate change experts are forecasting that the Mackenzie Valley will likely experience the greatest increases in temperature in the world during the coming decades. Climate change affects the NWT's water through extreme weather events, increased variability in precipitation, the melting of glaciers and polar ice sheets, the global rise of sea level and ocean warming. Consequently, the populations and ranges of various species are also affected which influences ecosystem integrity. Once completed, the *NWT Climate Change Strategic Framework* will act as a road map to guide our efforts over the next twenty years as we continue to experience and adapt to the impacts of climate change.

In 2007, the 15th Legislative Assembly of the NWT declared, "all peoples have a fundamental human right to water that must be recognized nationally and internationally, including the development of appropriate institutional mechanisms to ensure that these rights are implemented." (see Appendix A – Right to Water Motion)

1.3 Why Do We Need the NWT Water Stewardship Strategy?

In 2008, the Government of the Northwest Territories (GNWT) and Indian and Northern Affairs Canada (INAC) (now called Indigenous and Northern Affairs Canada) started working with representatives from Aboriginal governments (see Appendix B – Aboriginal Steering Committee) to develop a water stewardship strategy that focuses on freshwater in the NWT. Other strategic plans exist that address NWT marine and coastal waters.

The partners involved in this collaborative approach to **water stewardship** include the Government of Canada, the GNWT, Aboriginal governments, regulatory boards and agencies, environmental organizations, industry, academic institutions and the general public. All have a vested interest in preserving and protecting the waters of the NWT.

Water stewardship recognizes that people are part of the environment and that all water users have a duty to ensure their actions safeguard the environment. Some Aboriginal groups consider water to be a steward of people. Both perspectives recognize the importance of the environment.

The GNWT is responsible for the management of water resources in the NWT, except in federal areas as defined by the *NWT Lands and Resources Devolution Agreement.* This management responsibility includes, but is not limited to, the following: water data collection, water supply regulation, water research, and habitat and freshwater environments. The Government of Canada retains responsibilities for protecting migratory birds, safeguarding fisheries resources and maintaining navigable waterways. Regulatory boards issue water licences for the use of water and/or disposal of waste into water. Settled land claim and self-government agreements, as well as current legislation, policies and programs, provide many of the tools needed to establish the effective and sound stewardship of our water resources. More detailed information about water-related roles and responsibilities in the NWT can be accessed on the NWT Water Stewardship website: www.nwtwaterstewardship.ca.

Photo credit: J. Charlwood

The Strategy is a living document intended to reflect the deep fundamental relationship between NWT residents and the waters of the NWT. It encourages water partners and **water managers** to work together in a collaborative manner. It promotes initiatives that encourage responsible economic development within a sound environmental context. It also supports the sharing of information and knowledge (traditional, local and western scientific). In these ways, we can make the best water-related decisions.

The Strategy addresses gaps and weaknesses in collective water stewardship efforts at all levels. It is intended to help make the best use of our current **capacity** and to build capacity where it is lacking.

This document sets out a vision for NWT water resources that can be achieved by implementing the broad **Keys to Success**. Progress towards realizing the Strategy's goals will be measured on an ongoing basis. It is recognized that changes occur over time and that the Strategy will need to be updated as necessary. More details on the Keys to Success can be found in Section 4.0.

Residents of the NWT have expressed a desire to lead in the area of water stewardship. This means setting high standards to hold residents and others responsible and accountable. The purpose of developing this Strategy is to proactively care for our water on a territory-wide basis, and to take the steps necessary today to ensure our water is used respectfully and remains clean, abundant and productive for all time.

Water managers include any government, agency or regulatory board that has a role in decision-making processes, in addition to being a water partner.

Capacity is the ability to complete or be involved in the completion of an activity. Capacity can refer to human and financial resources.

Keys to Success are activities or action items that are fundamental to the overall success of the Strategy. These actions must take into account the key elements of the watershed, including ecosystem components and their interrelationships, natural changes and changes resulting from human activity and human uses within, and adjacent to, the watershed.

2.0
What the Strategy Will Achieve

Photo credit: P. Vesci

2.1 Vision

> "The waters of the Northwest Territories will remain clean, abundant and productive for all time".
>
> NWT Water Stewardship Strategy Vision

NWT waters are important for ecosystems and the people within those ecosystems. The vision of the Strategy reflects the desire of NWT residents to safeguard our water resources for current and future generations. Collectively and individually, we must commit to achieving this vision.

Abundant and clean water ensures safe drinking water in adequate quantities for NWT residents and sustains healthy aquatic ecosystems. People depend on aquatic ecosystems for their food and drink, travel, economic growth, culture and spirituality. We need certainty that these ecosystems are healthy. Abundant and clean water also ensures we can continue to use water respectfully and productively in our chosen ways of life and economy. How we live depends on water, as does our community life, power, transport and industry.

Productive means that waters are able to sustain ecosystem life and human activities.

2.2 Guiding Principles

The following principles guide how we use our water in the long term.

Respect

- Water stewardship decisions respect values held and various lifestyles chosen by NWT residents. These include spiritual, cultural, public health, recreational, economic and ecological values.
- Water stewardship decisions respect Aboriginal rights or treaties including land, resource and self-government agreements.

Sustainability

- Water stewardship decisions sustain healthy and diverse aquatic ecosystems over time. They maintain the ability of current and future generations to choose their way of life.

Sustainability is the capacity to endure. In ecology, sustainability describes how biological systems remain diverse and productive over time. For humans, the well-being of current and future generations depends on the health of the natural world and the responsible use of natural resources.

Responsibility

- Water stewardship is a collective responsibility. Each of us must make thoughtful decisions about our actions that may affect NWT aquatic ecosystems.

Knowledge

- Water stewardship decisions are based on accurate and up-to-date traditional, local and western scientific knowledge.
- As knowledge evolves, stewardship decisions evolve accordingly.
- Where there are threats of serious or irreversible damage to aquatic ecosystems, lack of certainty is not used as a reason to postpone effective measures that can avert the potential threat.

Accountability

- Water stewardship decisions are made in an informed, transparent and participatory manner. Those who make decisions must be held responsible for the consequences of those decisions.

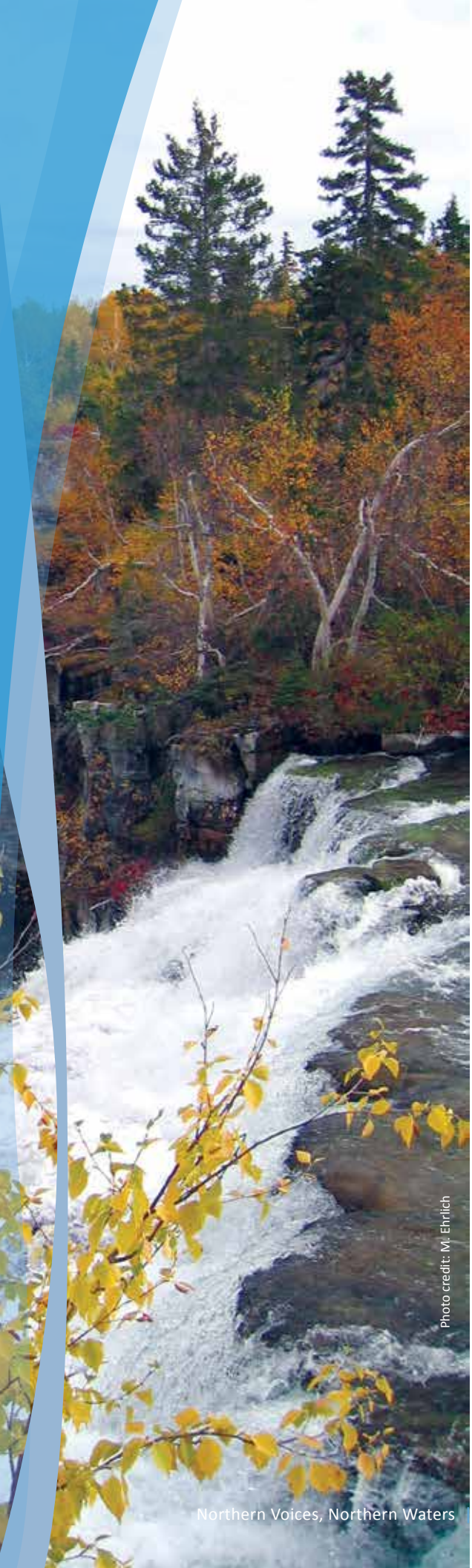


Photo credit: M. Ehrlich

2.3 Goals

The goals of the Strategy are to assure:

- Waters that flow into, within or through the NWT are substantially unaltered in quality, quantity and rates of flow.
- Residents have access to safe, clean and plentiful drinking water at all times.
- Aquatic ecosystems are healthy and diverse.
- Residents can rely on their water to sustain their communities and economies.
- Residents are involved in, and knowledgeable about, water stewardship.
- All those making water stewardship decisions work together to communicate and share information.

3.0 Approaches to Meet Our Goals

The Strategy uses four inter-related approaches to ensure progress towards its goals. These are stewardship, an ecosystem-based approach within watersheds, understanding and accounting for the value of water and watersheds, and translating information into informed decision-making.

Photo credit: M. Bradley

3.1 Stewardship

Stewardship recognizes people are part of the environment and as water users or water managers we have a duty to ensure our actions safeguard the environment. Some Aboriginal groups consider water to be a steward of people. Through vigilance and effective stewardship all of us can help to ensure clean, abundant and productive waters in the NWT and for our downstream neighbours.

Stewardship requires the cooperation and coordinated effort of individuals, governments, boards, organizations, communities, industry and others to be successful. The long-term sustainability and health of our water is a shared responsibility.

Ecosystem-based approach is a method of decision-making that considers the structure, function, processes and values of an ecosystem as well as how humans and other species interact.

3.2 Ecosystem-based Approach Within Watersheds

Watersheds are areas of land which drain water through a network of pathways both on and under the surface (via groundwater). As the waters flow downstream, these pathways converge into progressively larger streams, rivers, lakes and oceans. Watersheds exist on different scales and are of varying sizes. Watersheds can be sub-units of each other. For example, the Peace River is a sub-watershed of the much larger Mackenzie River Basin. All lands are watersheds; therefore activity on land influences our waters.

The Strategy is guided by a holistic approach known as an **ecosystem-based** approach within **watersheds**. This approach is founded on the understanding that it is important to sustain a diverse and healthy ecosystem for the benefit of people, plants and animals within a watershed.

To apply this approach we need to practice water stewardship at various scales – from local to river basin-wide collaborations. An ecosystem-based approach within watersheds requires that those who make decisions, which may affect water, understand and consider the structure, function and processes within the ecosystems as well as all values within the watersheds. We need to understand how human actions affect ecosystems and how ecosystems affect humans.

An ecosystem-based approach places social and economic considerations in the context of ecosystem health and diversity, emphasizing the following key elements:

- People are a part of ecosystems.
- Ecological, social and economic goals are inter-related in water and land use decisions.
- Watersheds are the basic unit of consideration. Other ecological and migratory paths and political boundaries are layered over the watershed boundary.
- Natural processes and social systems are considered in all their complexity to ensure decisions can be adapted based on new information and do not lead to irreversible consequences.
- Interested parties have the opportunity to be involved and collaborate to define problems and find acceptable solutions that anticipate ecosystem change.
- Understandings of ecosystem structure, function and processes along with responses to environmental disturbances are incorporated in decisions.
- The health and diversity of ecosystems and human uses are sustained.

3.3 Water and Watershed Values

Water holds significant value for the natural environment and people. Water and watershed features, which include wetlands and forest cover, provide services such as keeping water clean and storing water. These services are valuable to nature and humans. Such services are often overlooked in water and land use decisions.

Water and land use decisions are challenging in that many diverse and sometimes conflicting interests must be taken into account. Whenever a decision relating to water and land use is made, trade-offs and compromises occur. Improving the understanding of natural values, prioritizing values and uses, and assigning respective weightings to water and **watershed values** can help us make more informed decisions regarding water and land use.

Water valuation is a tool that can be used to identify and understand the spiritual, cultural, social and economic values within a watershed. **Sustainability accounting** is a tool that can be used to track how the values of interest change over time.

Values related to human uses include fisheries, energy production, transportation and fur harvesting, to name a few. Natural values include wildlife habitat, areas that naturally replenish groundwater, wetland water filtering services and the stability forests provide to river banks.

Spiritual and cultural values may be invaluable or irreplaceable. If we use a monetary value to make decisions on water and land use, we need to ensure values are compared adequately. For example, the value of fishing may be different on a local level than regionally or nationally. Locally, the fish resource may be very valuable to those people who would need to replace a food source if it were lost. Regionally, the money saved through the use of hydroelectric power, as compared to money spent on diesel fuel, may be considered when making decisions, even if use of hydroelectric power could have an impact on local fisheries. Cultural or spiritual values in a specific area may vastly outweigh any possible commercial value and may indeed be irreplaceable. These two types of values cannot be compared directly.

Collectively, we must come to some consensus on the various values we attribute to water, watershed features and water uses. Continued dialogue at the community level is necessary to assign priorities to the various water uses and associated values. Achieving consensus would lead to broad support for decisions that are better informed, transparent and accountable.

Watershed values include spiritual water features, significant aquatic furbearers, waterfowl or fish habitat, navigational channels, river crossings, ice road routes, particularly biodiverse areas, community public water supply sources, significant wetlands that may purify or slowly collect and release waters to a specific area, and recreationally significant areas.

Water valuation means understanding and accounting for the value of water and watersheds.

Sustainability accounting is tracking the value of water and watersheds for consideration in decision-making.

3.4 Information to Understanding

As water partners in the NWT, we have been collecting water-related information for quite some time through multiple studies and monitoring programs. Monitoring activities need to continue. We must make sure existing and new information (traditional, local or western scientific) leads to increased understanding and continuously informs water stewardship decisions. By doing so, we will better understand our aquatic ecosystems and how we impact them through our actions. Early detection of change points us to gaps in knowledge and areas requiring further study. These studies can determine why observed changes occur and what we can do about them. There is also value in using decision support tools to ensure human actions are being assessed in consistent ways and that predictive models help to forecast what changes might occur. Both of these approaches increase our understanding and help us to make appropriate decisions, however, both rely on the input of substantial and accurate information. Using information to increase our understanding with the objective of making informed decisions is part of **adaptive management** (see Figure 3 – Information to Understanding to Decision-Making).

Figure 3: Information to Understanding to Decision-Making

If we use adaptive management, we can improve how we manage risk to the environment and human health. Ongoing monitoring can confirm whether actions taken to prevent or reduce negative impacts on the environment are working. For example, a robust monitoring program at an industrial or municipal development could detect change in water quality and point to changes needed in water treatment processes or other measures before environmental harm is irreversible or too significant.

Adaptive management is the process of continually incorporating newly gained knowledge or information into decision-making.

4.0 Components of the Strategy

As discussed in Section 2.0, the Strategy's vision, guiding principles and goals outline a desired outcome for the NWT that can be achieved through active water stewardship.

The success of the Strategy is based on four main areas that require concentrated efforts: Work Together, Know and Plan, Use Responsibly and Check Our Progress. The drum diagram represents these four areas of work (see Figure 4 – Components of the Strategy). The Strategy's vision and goals, which are in the center of the drum, along with the guiding principles focus our work.

In the NWT, we already have a significant amount of work underway and a number of accomplishments that fall into each of the four components of the Strategy. However, to be effective we will always need to continue building on our progress. The following discussion identifies what activities are occurring and actions that need to occur to improve efforts in each component. The actions stemming from this discussion form the broad Keys to Success for each of the four components. Keys to Success may be primarily accomplished through one water partner or they may be a shared effort.

Each year water partners need to collectively set priorities and find ways to realize these actions. In some cases, initiatives undertaken through broad environmental stewardship actions may also advance the Strategy's vision and goals.

Figure 4: Components of the Strategy

Work Together

Build a cooperative environment that supports water managers and water partners in sharing information, building capacity and working together.

Know and Plan

Build and implement multi-disciplinary aquatic monitoring and research programs that consider traditional, local and western scientific knowledge. Use this information to assist in the planning of water-related stewardship activities.

Use Responsibly

Ensure decision-makers have tools available that work well together and are easy to use in a consistent manner.

Check Our Progress

Ensure we make progress towards the Strategy's vision of clean, abundant and productive waters.

4.1 Work Together

What We Are Doing

Communication and cooperation among water partners, as well as public involvement on water issues, promote water stewardship and help us achieve our goals. If we use the best available knowledge (traditional, local and western scientific), our water stewardship decisions can be more effective. Water partners have already taken the first steps towards working together and sharing information by participating in the development of the Strategy by attending a number of meetings and workshops.

What We Need to Do – Keys to Success

The success of the Strategy requires water partners to build a cooperative environment for all involved. This means improved communications, information sharing and capacity building. We must consider current realities that hinder working together and address these issues if we are to achieve our vision and goals.

Many strong partnerships between agencies already exist in the NWT. For example, Environment and Climate Change Canada operates the Hydrometric Monitoring Network in conjunction with GNWT as a way to combine resources for a more effective NWT monitoring program.

Working together also requires cooperation between and among neighbouring jurisdictions including Alberta, Yukon, Saskatchewan, British Columbia and Nunavut. Within the Mackenzie River Basin, the Strategy is intended to inform sub-agreements as outlined in the Transboundary Waters Master Agreement (see Appendix C – Mackenzie River Basin Transboundary Waters Master Agreement Background).

By strengthening communications, existing agreements and collaborative opportunities, we can reinforce each other's efforts, make better use of existing capacity and address gaps.

4.1.1 Develop a cooperative working environment for water partners

Through regular communication, water partners will have a better mutual understanding of each other's values, roles and responsibilities. Such an understanding allows partners to work well together, develop relationships and, over time, build trust. As we implement the Strategy, stronger and more effective relationships among all NWT water partners will evolve.

Water-related management responsibilities are held by various levels of government (Aboriginal, community, territorial and federal), regulatory boards and agencies and resource management boards. Much of the NWT water management framework is laid out in land, resource and self-government agreements. Additional roles and responsibilities are set out in other legislation. More detailed information about water-related roles and responsibilities can be accessed on the NWT Water Stewardship website: www.nwtwaterstewardship.ca.

4.1.2 Implement collaborative planning to address capacity issues

Since the NWT covers a vast area while the population is so small, one of the biggest challenges in the NWT is capacity. This includes limited human resources and adequate training at almost all levels. However, when agencies and individuals work together towards a common goal, overall capacity is enhanced. This leads to more effective water stewardship. To increase our capacity effectively, we must routinely scan information and educational challenges, evaluate and update in-kind service or funding programs, improve training programs or develop new educational opportunities.

Collaborative strategic planning can make the best use of existing and limited resources and justify individual or collective requests for additional resources or training. Better use of resources through cooperation, coordination and partnerships will lessen the impact of limited capacity. Coordinated funding arrangements for aquatic ecosystems monitoring and research programs will increase efficiencies. All of these activities can help ensure partners are aware of each other's roles, responsibilities and needs. Learning from each other is not only beneficial, it is necessary.

For example, for community-based monitoring to be effective, coordinated training and education programs are needed. These ensure communities learn how to design and implement monitoring programs and interpret results in a consistent way. Water managers can learn more about community concerns and values through the results of community-based monitoring.

Photo credit: A. Mills

"The water is a very important thing, and we respect that, that's the reason why they have stories behind it. I want to try to protect all the watersheds that we talk about."
Dennis Deneron, Fort Simpson, NWT

4.1.3 Use best available knowledge to help inform all water partners

A considerable amount of information and effort is required to make informed decisions. These decisions must consider the values of residents and the best available knowledge (traditional, local and western scientific) on the entire watershed. The information must be widely shared through meetings, workshops, databases and websites, and be applied collectively.

Monitoring programs and research results, together with traditional and local knowledge, provide important information about the state of water resources. They also help identify actions needed to keep ecosystems healthy and productive and ensure water uses remain sustainable. Ultimately, the comprehensive collection of all readily available and accessible information about watersheds in the NWT is required and must be made available to all water partners. Developing and updating compatible and/or common information databases will support this endeavor.

Best Available Knowledge

Traditional and Local Knowledge

Traditional Knowledge provides valuable information and important guidance for all stewardship actions. Traditional Knowledge is not just another source of knowledge or information – it considers how to effectively involve residents in decision-making processes. Traditional Knowledge is based on respect and understanding the values of others. It has cultural elements that stand alone because they cannot be clearly translated into western counterparts.

The appropriate incorporation of Traditional Knowledge requires continuity and sound, respectful and collaborative working relationships with Traditional Knowledge holders. Existing Traditional Knowledge protocols developed by communities, regions and Aboriginal governments must be used wherever available. These protocols, together with the *GNWT Traditional Knowledge Framework* and the *GNWT Environment and Natural Resources Traditional Knowledge Implementation Plan*, guide how research should be carried out appropriately with communities and Traditional Knowledge holders. They also guide how Traditional Knowledge research results can be respectfully incorporated in collaborative decision-making. Local knowledge is also a valuable source of information and can provide important guidance for decision-makers and other parties.

Western Science Knowledge

Government agencies, industry, academia and individuals gather a great deal of scientific information about water resources in the NWT. This includes data and information related to water quantity, quality, flow, aquatic ecosystems and water values. The available information is dispersed among various organizations and is not readily or widely available. Knowledge gaps need to be filled. Current and new information must be made more accessible to all water partners. A technically sound framework must be established to enable better understanding and application of this information.

4.1.4 Continue ongoing communication, awareness and engagement among water partners and with the general public

Regular, consistent and transparent communication among water partners is essential to gain a full understanding of issues, values and results. Opportunities for all partners to learn more about water must be encouraged.

Continuous communication, education and awareness about water issues is required to keep NWT residents fully engaged in water stewardship. Regular public forums, workshops and meetings are ideal settings where information sharing and collaboration can occur. Communication tools such as brochures, newsletters, fact sheets and other plain language documents can be distributed to interested residents to further engage them in this process. The NWT Water Stewardship website (www.nwtwaterstewardship.ca) hosts general material on the Strategy to ensure relevant water information is easily accessible to water partners and the public.

4.1.5 Advance transboundary discussions, agreements and obligations

The Strategy has informed, and will continue to inform, the NWT's approach to transboundary water agreement negotiations and implementation with neighbouring jurisdictions. To advance negotiations, as well as implement existing bilateral transboundary water agreements, the collection and analysis of relevant information are necessary to make meaningful and effective upstream and downstream decisions that will contribute to the Strategy's goals. Collecting and analyzing information will help identify gaps in knowledge and potentially point to new areas of research that may be required to address specific transboundary issues.

All agreements must respect Aboriginal and treaty rights. *The Mackenzie River Basin Transboundary Waters Master Agreement* and other inter-jurisdictional agreements generally address matters such as the following:

- objectives for healthy ecosystems;
- objectives for quality of surface water and sediments;
- water withdrawal limitations such that water quantity and flows are not affected;
- impacts of development on water, watersheds, aquatic and terrestrial life, groundwater quality and quantity;
- monitoring protocols;
- prior notification protocols;
- consultation mechanisms;
- mitigative measures; and
- dispute resolution protocols.

4.2 Know and Plan

Monitor is to make detailed observations on current conditions.

Viability is the capability of surviving or living successfully.

Biodiversity is the variety of life in a particular habitat.

What We Are Doing

People of the NWT have lived and worked on the land and with its water resources for thousands of years. This presence has allowed us to observe and study how aquatic ecosystems work and how to maintain their integrity. As the territorial population increases, we must continually **monitor** aquatic ecosystems and plan our activities to ensure they remain healthy and productive. Further, traditional, local and western scientific knowledge all contribute to understanding these aquatic ecosystems and their stressors.

We recognize aquatic ecosystems within NWT watersheds may resemble those located elsewhere in the world. However, extreme cold and species found only within the NWT may result in aquatic ecosystems that are unique to our region. We also acknowledge our social and economic reliance on aquatic ecosystems may differ from elsewhere.

There are certain aquatic ecosystems such as deltas, shorelines and spawning beds that can be used as indicator areas to assess the **viability** and **biodiversity** of the ecosystems.

A number of government, academic and industry monitoring and research programs address specific questions about the conditions of aquatic systems within the NWT. They inform on the current state of the environment and how it may be changing. They also contribute to our understanding of ecosystems and how well we are managing our activities within these ecosystems. Collectively, these activities provide valuable information for water stewardship, from land use planning to community water supply protection.

Many of these monitoring and research activities work collaboratively with Aboriginal governments, organizations and communities. The Strategy encourages further leadership and involvement of Aboriginal people in monitoring and research programs.

The following planning initiatives contribute to achieving the Strategy's vision and goals.

- Land, resource and self-government agreements – determine who manages the various aspects of the environment and how we work together.
- Land use planning – determines overall planning objectives with respect to watershed values, including where certain development can occur.
- Protected areas – include intact ecosystems, have a high level of protection and don't allow industrial development, are permanent, and are managed and monitored to make sure the areas remain healthy into the future.
- Conservation areas – protect various natural and cultural values but have less restrictive protection than protected areas and are not always permanent.
- Conservation network – includes protected areas and conservation areas that together better help to keep ecosystems healthy than individual areas could on their own.

Examples of NWT monitoring and research programs include the NWT Cumulative Impact Monitoring Program, programs for monitoring individual, industry or community water licences, drinking water quality monitoring and Conservation Planning's freshwater classification research.

Conservation Planning and Water Stewardship

In October 2016, the GNWT released *Healthy Land, Healthy People: GNWT Priorities for Advancement of Conservation Network Planning 2016-2021* (www.enr.gov.nt.ca/programs/conservation-network-planning/healthy-land-healthy-people), a five-year work plan to advance conservation network planning in the NWT. Conservation network planning includes the establishment and management of a conservation network. It also involves the consideration of ecosystem processes and connectivity.

The document outlines two conservation planning priority outcomes for the GNWT to achieve during the next five years in partnership with Aboriginal governments and other planning partners. These are: to conclude planning and decision-making for eight existing candidate areas to a point of final decision on establishment; and to develop a renewed strategy for NWT conservation network planning, which builds upon the NWT Protected Areas Strategy, includes ecological representation planning and defines the extent of the conservation network.

Freshwater is an important value to communities when proposing areas for protection. Freshwater values include protecting entire watersheds, maintaining traditional fishing activities and protecting wetlands and waterfowl. Part of the planning process includes assessing the ecological, cultural and economic values of proposed areas in order to make balanced decisions about their designation, boundaries and management.

The Conservation Planning Unit of Environent and Natural Resources (ENR), together with its planning partners, developed a coarse-level freshwater classification for the NWT. Work is ongoing to further develop the classification and ensure freshwater ecosystems are included in the conservation network. The freshwater classification currently describes the dominant regional patterns of environmental conditions that influence our aquatic ecosystems.

Watershed planning considers industrial and community development activities that occur within the watersheds and other stressors, which may come from outside sources (e.g., precipitation, water bodies that flow through the watershed). This information can then be used to inform land use planning, conservation planning, other strategic plans and implementation actions related to the use of particular water resources or disposal of wastes to water.

Photo credit: M. Ehrlich

Community drinking water protection and management in the NWT is guided by *Managing Drinking Water in the NWT: A Preventative Framework and Strategy.* The framework adopts a multi-barrier approach to protecting drinking water in the NWT, which calls for three lines of defense – keeping NWT water clean, making drinking water safe and proving drinking water is safe.

Four GNWT Departments work together to support drinking water management in the NWT: ENR, Health and Social Services (HSS), Municipal and Community Affairs (MACA) and the Department of Infrastructure (INF). These departments coordinate their efforts through the GNWT Interdepartmental Drinking Water and Waste Management Committee.

ENR holds the primary responsibility for water management in the NWT, including protecting municipal drinking water sources. HSS is responsible for reviewing data collected by community governments during their drinking water testing and has the authority to take action if results exceed the *Guidelines for Canadian Drinking Water Quality*. MACA provides support to community governments through training water treatment plant operators, providing funding for the operation of water and wastewater services and technical operational support. INF offers technical guidance to communities on water, wastewater and municipal waste disposal and helps to develop and update technical standards and guidelines.

Discharges from community wastewater systems are guided by the *Canada-wide Strategy for the Management of Municipal Wastewater Effluent* which sets out a path forward for federal, territorial and municipal governments to work together to develop appropriate requirements. The *NWT Energy Strategy Discussion Guide*, which is intended to inform a new 10-year NWT Energy Strategy, recognizes the need for renewable energy sources and discusses the potential expansion of hydroelectricity in the NWT.

Community Water Supply and Wastewater

Communities want to ensure their public water supply sources are protected and that wastewater does not harm the surrounding environment. NWT communities draw their public water supply mostly from surface water and in a few cases from groundwater. Information about drinking water including testing, boil water advisories, drinking water contacts and community water supply systems can be found on the GNWT drinking water website: www.nwtdrinkingwater.ca. If communities understand the extent of the watershed from which they withdraw their water source, it is easier to take action to ensure the water source remains clean and abundant. Community watershed catchment maps are available from the NWT Centre for Geomatics website: www.geomatics.gov.nt.ca/maps.aspx?i=8.

Communities require water licences to use water or deposit waste into water in the NWT. These water licences are issued by regulatory boards and define how much source or "raw water" a community can take and how to dispose of waste to ensure water bodies are not harmed. A Surveillance Network Program (SNP) is put in place, as required by the water licence, to make sure that water used or discharged by the community is safe for the environment. Under the *Public Health Act* and the associated Water Supply System Regulations, communities are also required to take water quality samples within their operating systems. Environmental Health Officers monitor these samples to ensure they will not pose health threats. In the event that the water quality data suggests a threat to public health or if there is a concern that contamination may occur, the Environmental Health Officer can issue a Drinking Water Advisory.

When community members know about their water, including public water supply systems, municipal wastewater effluent and other water-related issues, risks can be properly identified and managed. Activities associated with the implementation of the Strategy and Action plans, the regulatory review processes required under municipal water licences and the oversight of Environmental Health Officers help manage and mitigate these risks.

Researchers routinely monitor water quality, quantity, flows and **biological parameters**. Ongoing monitoring is often referred to as long-term or baseline monitoring. It serves as a comparison base prior to a development project being undertaken.

When a substantial development project is proposed, the developer may be asked by the regulatory board to conduct baseline environmental studies. These usually include water quality, quantity and biological monitoring. Compliance monitoring, known as Surveillance Network Programs (SNPs), are generally required as a condition of the water licence.

SNPs can help gather a large body of valuable information about the watershed. When the larger scale development project is approved, it may also be required to conduct ongoing monitoring as part of an Aquatic Effects Monitoring Program (AEMP). Guidelines are available to ensure consistent and comparable data results from all AEMPs. Ongoing monitoring and compliance **monitoring programs** are put in place to ensure that water licence conditions are being followed.

Research programs improve our understanding of aquatic ecosystems and ecosystems as a whole. They can focus on potential effects from water uses, address specific aspects of water management, identify influences and relationships affecting water resources and anticipate how societies and economies may change if the aquatic ecosystems they rely on are disturbed. Combined with sound monitoring, effective research programs contribute to the precision, accuracy and reliability of the information needed for water management decisions.

Current and accurate information is needed for the successful implementation of the Strategy. Results from monitoring and research programs contribute to the continuous improvement of available information and assist in making wise decisions. They help us to understand water processes and changes to the ecosystem, as well as to plan for current and future water uses.

Biological parameters include fish and microscopic plants and animals.

Examples of long-term **monitoring programs** are the National Hydrometric Network (operated by the Water Survey of Canada), the NWT Snow Survey Network and the Canadian Aquatic Biomonitoring Network (CABIN) program that studies benthic invertebrates (small animals that live on river or lake bottoms).

What We Need to Do – Keys to Success

There are a number of monitoring programs, research initiatives, planning efforts and legislation that relate to water stewardship in the NWT. However, more work must be done to strengthen existing efforts, address gaps and improve opportunities for cooperative work. To achieve the vision and goals of the Strategy, we require improved knowledge of the structure and functions of our aquatic ecosystems, along with the water and watershed values associated with them.

Benefits of Monitoring and Research

Effective monitoring and research programs allow us to:

- Track and measure changes to water quality, quantity, rates of flow and biological parameters over time and space;
- Determine what may have caused these changes;
- Determine the significance of any changes; and,
- Determine if we need to modify the way we manage human activities within the watershed or beyond.

4.2.1 Collectively develop comprehensive monitoring and research programs to understand ecosystem health and diversity

Effective ecosystem-based monitoring programs need to be developed and implemented. Critical gaps in current monitoring programs include the collection of baseline data and long-term monitoring of aquatic ecosystems. Standard protocols are required to ensure data can be readily compared and analyzed. These programs are necessary to understand how we are affecting aquatic ecosystems and to detect changes early. Existing monitoring programs need to be enhanced and coordinated more effectively.

Research contributes to the growing knowledge base that helps us understand the complex relationships within ecosystems and the stresses placed on these systems. For example, in the NWT, water resources are highly influenced by seasonal and year-to-year changes in weather and climate along with changes to permafrost.

Accurate and reliable information improves our understanding of water resources, the causes and effects of changes to water resources, and the quantification of the values NWT residents attribute to water resources. Effective monitoring and research programs along with coordinated planning efforts will serve to increase our overall understanding of the functions and processes of specific ecosystems.

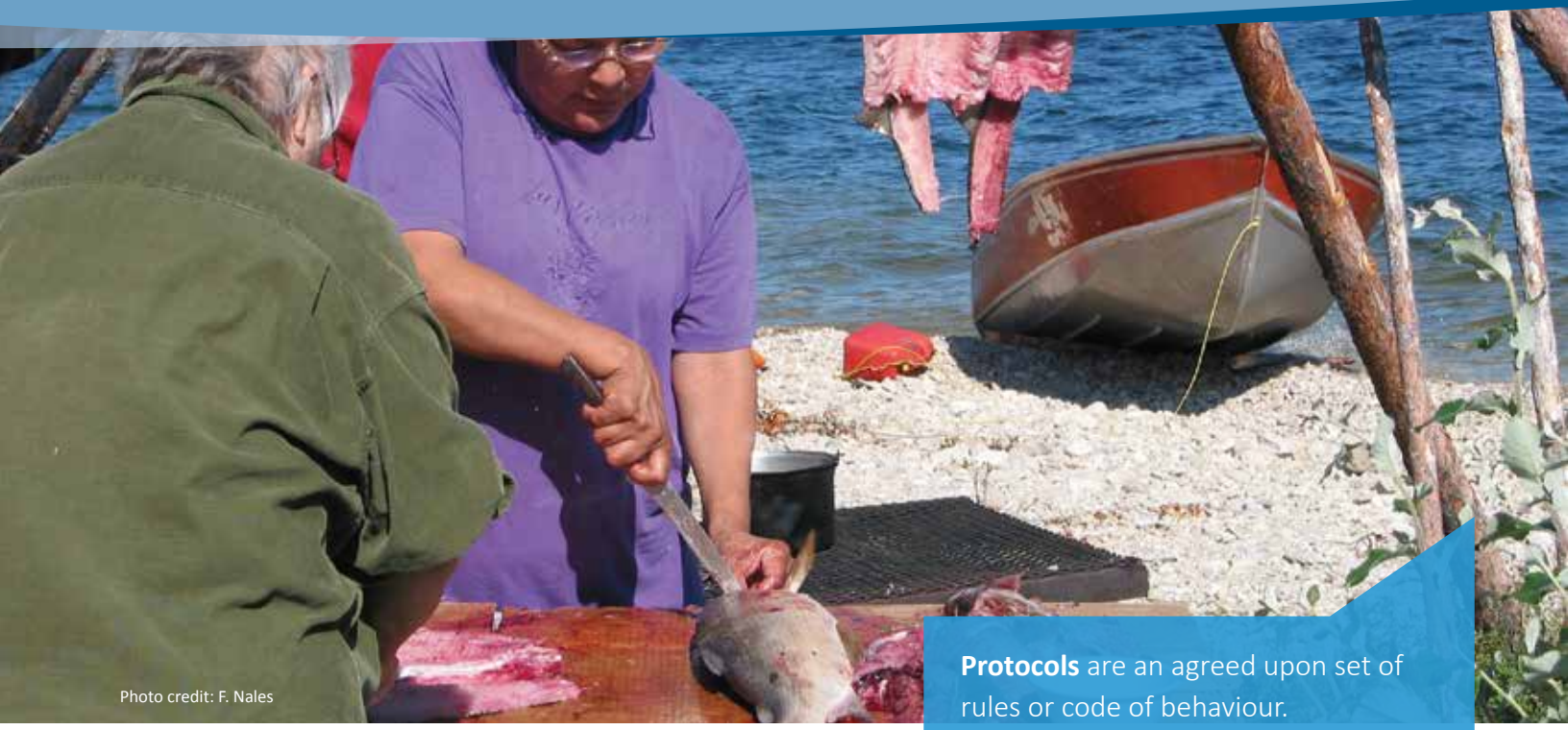


Photo credit: F. Nales

Protocols are an agreed upon set of rules or code of behaviour.

4.2.2 Ensure communities have the opportunity to be actively involved and collaborate on research, monitoring and planning initiatives

Water partners that conduct research and monitoring programs generally base their work on established methodologies and **protocols**. When NWT residents and communities lead or are involved in these initiatives through community-based programs, we gain a more holistic understanding of what is being researched or monitored and why. This broader perspective that includes traditional or local knowledge, values and experience helps us improve initiatives. Communities can lead or contribute to identifying issues and values, participating in the planning and design stages, collecting and interpreting information and reporting results.

When communities are directly involved in these initiatives, all water partners benefit from traditional or local knowledge provided and relevant information tends to be more readily shared to make to stewardship decisions.

Newly gained knowledge can be incorporated more effectively and water stewardship decisions adapted accordingly. It is vital that monitoring and research programs related to water use in the NWT are responsive to community needs and concerns.

4.2.3 Develop consistent approaches to research and monitoring that will increase our ecosystem understanding

Under current legislation, the governments, agencies and regulatory boards responsible for making decisions must analyze scientific data, Traditional Knowledge and other information that contribute to our understanding of the cumulative environmental impacts of our uses of land and water, including deposits of waste.

Using consistent approaches to gather information from aquatic ecosystem monitoring and research programs provide the following benefits:

- Improved knowledge and understanding of the NWT's water resources for current and future water management decisions.
- Enhanced evaluation of the effectiveness of past decisions and the ability to change management practices as required.
- Increased understanding of cause and effect relationships from stressors on the environment and the evaluation of the significance of change.
- Improved ability to assess potential risks to the aquatic ecosystems and what limits or conditions may need to be set on development.

4.2.4 Report research and monitoring results

Research and monitoring studies are only useful if the results can be applied in decisions. State of the environment or aquatic ecosystem reporting details monitoring and research results, which can benefit future work. Agencies, such as governments and the Mackenzie River Basin Board, publish reports that give overviews of the current status of the environment. Research and monitoring results may also be published through research institutes, academic publications or journals. Timely results of state of the environment or aquatic ecosystem reporting are also useful for land use planners, potential developers, water managers and others.

If community, government, industry, academic and other expertise is shared and methods are put in place to routinely review, monitor and share research, it is easier to define future research and monitoring needs. It also helps to secure the resources necessary to continue these programs. Sharing information means the identified partners must work together and have a process in place to make sure results can be effectively and regularly reviewed. Ongoing opportunities for information transfer among water partners and researchers ensure water partners are aware of study results and their associated implications.

4.3 Use Responsibly

What We Are Doing

All of us use water in some way. Each of us determines our own actions based on our own knowledge of how we need or want to use water. General legislation and regulations, which address environmental contaminants or public health, applies to all residents of the NWT. Other legislation applies to those who wish to use a public resource, such as water or land, in certain ways. A description of water-related roles and responsibilities can be accessed on the NWT Water Stewardship website: www.nwtwaterstewardship.ca.

Generally, the *Mackenzie Valley Resource Management Act*, the *Waters Act* and comprehensive land claim agreements provide the legislative framework for environmental assessments and regulatory approvals in the Mackenzie Valley and the Inuvialuit Settlement Region. Various government departments enforce the terms and conditions of authorizations and permits issued by regulatory boards and agencies under this legislative framework. This legislation is also important to the environmental assessment and regulatory processes and is applied generally to protect or conserve aspects of aquatic ecosystems.

When we plan to use land in a watershed, use the water itself or deposit waste into water, we may need authorization pursuant to specific legislation. For example, if a certain amount of water is used, an authorization is required under the *Waters Act* and Regulations. In addition to legislation, we also use guidelines, policies and strategies to inform industry, commercial and community water users about best practices and approaches for water use and deposit of waste in the NWT. These documents work together to ensure each user knows what to consider when using water or depositing waste into water, even accidentally. Examples of relevant guidelines, policies and agreements can be found in Appendix D.

Collectively, all our actions, even those that do not fall under legislation and do not require a water licence or permit, may affect aquatic ecosystems. Therefore, effective water stewardship should consider all uses of water and deposits of waste within each watershed that can individually, and collectively, affect water resources over time and distance.

What We Need to Do – Keys to Success

In order to achieve the vision and goals of the Strategy, all of us as water partners must take steps to ensure waters and land within shared watersheds are used in a responsible and sustainable manner. Improved cooperation among water managers and interveners in the environmental assessment and regulatory process can facilitate more coordinated decision-making. A better understanding of the respective needs of each agency can improve this coordination.

4.3.1 Develop and update guidance and policy documents for water partners to ensure consistent, transparent stewardship actions and decisions

To use water responsibly, we need to consider all of our water uses and pay attention to how these uses are regulated. We need to refer to current guidance and policy documents to help us with our decisions and actions. These documents need to be available, consistent and easy to use for all water partners.

Land and water users and water managers may need clarification on the conditional use of water, including where, and under what conditions, development activities are supported. This guidance can come from an approved regional land use plan or designated protected area management plan. In some cases, certain uses may need to be prohibited to protect the health of aquatic ecosystems. In the absence of these plans, water managers must develop a better understanding of the public values and perceptions associated with a development of a particular kind in a particular area. Guidance and policy documents, such as this Strategy, need to consider new knowledge and information on a regular basis.

"We don't manage our water; we can manage human activities and developments."
Richard Binder, Inuvialuit Aboriginal Steering Committee Member for the NWT Water Stewardship Strategy 2009-2016

Photo credit: R. Kennedy

4.3.2 Routinely evaluate current legislation and regulations and amend as required to ensure they effectively achieve their intended purpose

Regulatory improvement initiatives will help to identify how we can do a better job at improving water stewardship in the NWT. Consistent, clear legislation and regulations will help us address risks to water resources and consider the cumulative effects of water and land use on a watershed basis. Considering aquatic ecosystems as we work through regulatory improvement initiatives that can promote water stewardship is important. We must also consider how new information and changes in water uses might require updating legislation and regulations.

4.3.3 Ensure water managers have the capacity to fully promote compliance

Water managers and water users themselves make decisions that affect our water resources. Often these decisions are carried out under legal authorities contained in broad legislation; licences, permits and authorizations; by-laws; and land use plans. When conditions are placed in these types of management tools, compliance with the conditions helps ensure water resources are protected or conserved.

We must develop and implement follow-up and compliance monitoring programs to ensure regulations and conditions within these instruments are being followed. Strategic cooperation among water managers improves the capacity to enforce the conditions of various regulatory authorizations and to seek additional resources as required.

Given the extent of the NWT landscape and its vast amount of water, comprehensively monitoring every part of our watersheds is an immense task. However, increased collaboration and cooperation among water partners can help us be more informed about environmental changes.

Photo credit: J. Lariviere

4.4 Check Our Progress

What We Are Doing

Audits and **evaluations** provide the "check and balance" that is essential to well-functioning systems. These systems can include ecosystems, social systems and management systems, as well as interactions between these different systems.

Aspects of these routine checks may link to other auditing and reporting programs. Examples of state of knowledge reporting include the *Mackenzie River Basin State of the Aquatic Ecosystem Report* and legislated audits such as the NWT Environmental Audit, a requirement of the *Mackenzie Valley Resource Management Act*. Reports and audits such as these can inform what needs to be completed or what could be completed better. As audits allow for public participation, they are considered open and transparent.

There are also many informal evaluations at an individual program level. These also provide valuable information when assessing programs.

What We Need to Do – Keys to Success

Progress can only be measured when compared to something else. Studies and the best available knowledge from past years need to be shared and recorded and then considered when making decisions for water users today. It is very important this information sharing occurs before observations, experiences and data are lost. Traditional, local and western scientific knowledge can be used to determine the current state of the NWT waters.

Monitoring and research programs must be long term, timely and relevant to ensure the most accurate information is available.

Audits are comprehensive evaluations completed by independent parties. Audits are not necessarily related to money and can evaluate the successes and challenges experienced by programs.

Evaluations are reviews completed by those implementing or involved in a program. These can be internal or external.

4.4.1 Conduct comprehensive evaluations of the Strategy's implementation progress

Developing performance indicators was the first step towards planning for future evaluations of the Strategy's implementation progress. Performance indicators are measureable and are related to specific actions outlined in the Strategy's Keys to Success. The indicators allow water partners to evaluate progress toward achieving the Strategy's overall goals and will assist in assessing and reporting on progress over time.

Water partners need to collaborate regularly with each other, communities and residents to best determine how to implement recommendations from audit and evaluation processes. Meetings and workshops are ideal venues to share information, reports on progress and upcoming actions and to establish potential future collaborations for undertaking priority actions.

It is necessary to check our progress each year, report on results to residents and make adjustments as needed to ensure we are on track to achieve the Strategy's vision and goals. Effective evaluation on a regular basis will allow water partners to plan and report on progress within their respective organizations.

Photo credit: D. Livingstone

4.5 Summary of Broad Keys to Success

Below is a summary of the actions described under "What We Need to Do" in Section 4.0. These actions form the broad Keys to Success for each of the four components of the Strategy (see Figure 4 on page 23).

Work Together

- Develop a cooperative working environment for water partners.
- Implement collaborative planning to address capacity issues.
- Use best available knowledge to help inform all water partners.
- Continue ongoing communication, awareness and engagement among water partners and with the general public.
- Advance transboundary discussions, agreements and obligations.

Know and Plan

- Collectively develop comprehensive monitoring and research programs to understand ecosystem health and diversity.
- Ensure communities have the opportunity to be actively involved and collaborate on research, monitoring and initiatives.
- Develop consistent approaches to research and monitoring that will increase our ecosystem understanding.
- Report research and monitoring results.

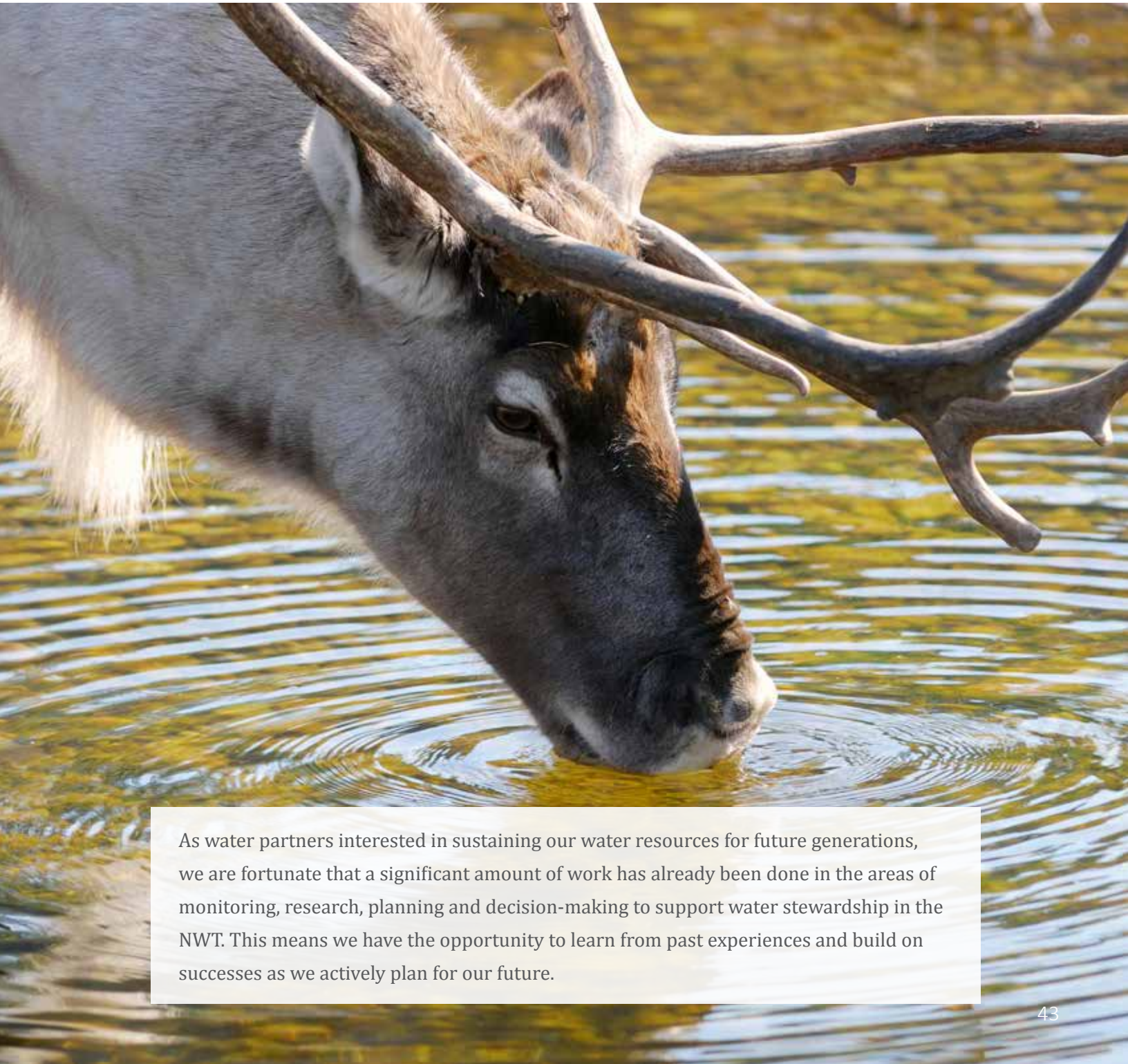
Use Responsibly

- Develop and update guidance and policy documents for water partners to ensure consistent, transparent stewardship actions and decisions.
- Routinely evaluate current legislation and regulations and amend as required to ensure they effectively achieve their intended purpose.
- Ensure water managers have the capacity to fully promote compliance.

Check Our Progress

- Conduct comprehensive evaluations of the Strategy's implementation progress.

5.0 Moving Forward



As water partners interested in sustaining our water resources for future generations, we are fortunate that a significant amount of work has already been done in the areas of monitoring, research, planning and decision-making to support water stewardship in the NWT. This means we have the opportunity to learn from past experiences and build on successes as we actively plan for our future.

"Humans and the environment cannot survive without clean and healthy water".
Northwest Territory Métis Nation

The Strategy highlights the importance of strengthening relationships, improving communication and working together. It provides a forum for Northerners to share their collective wisdom and identifies Keys to Success that will continue to help water partners move from information to understanding to action – taking what we have observed, analyzing and understanding this information, and then using it to make sound decisions. This is true on a local, regional, territorial and even broader scale.

NWT Water Stewardship: A Plan for Action 2011-2015 was the first Action Plan developed to put the vision of the Strategy into motion. It described detailed actions based on the Strategy and additional input from Aboriginal leadership, communities, governments, industry, non-government organizations, academics and the public.

An independent evaluation of the 2011-2015 implementation phase was conducted in 2015. The evaluation underscored the success of several important initiatives and suggested improvements for water partners to work together more effectively to meet the goals of the Strategy. Independent evaluations are scheduled to take place every five years to determine progress and identify emerging challenges and actions required to address new challenges.

The outcomes of the independent evaluation also informed the development of *NWT Water Stewardship Strategy: Action Plan 2016-2020*, which represents the second five-year implementation phase of the Strategy. Similar to the first, the 2016-2020 Action Plan identifies lead and supporting water partners and Keys to Success with associated Action Items and deliverable dates. The Action Plan for 2016-2020 also identifies performance indicators to track implementation progress through future evaluations and progress reviews.

Continuing dialogue among multiple and diverse parties will help to ensure all ideas and concerns are expressed, heard and addressed. By working together at all levels, we can determine the most appropriate steps for the future. In a coordinated manner, much more can be achieved. This Strategy sets the foundation to ensure the waters of the NWT remain clean, abundant and productive for all time.

6.0 Appendices

Photo credit: M. Ehrlich

Appendix A: Right to Water Motion

Right to Water Motion (20-15(5))

In March 2007, the 15th Legislative Assembly of the Northwest Territories unanimously passed the following motion: WHEREAS water is essential to life, and constitutes a fundamental human right;

AND WHEREAS this right includes access to water bodies for purposes of harvesting, travel and navigation, and mechanisms to prevent or seek redress for any action that may affect these rights;

AND WHEREAS this right extends to water as part of a healthy environment and recognizes spiritual and cultural values, taking into consideration the needs of the most disadvantaged and of future generations;

AND WHEREAS on September 7, 2006, in Fort Simpson, representatives of the peoples residing in the vast basin including Lake Athabasca, the Slave River, Great Slave Lake and the Mackenzie River issued the Keepers of the Water Declaration which asserts fundamental human rights with respect to water;

AND WHEREAS the United Nations Committee on Economic, Social and Cultural Rights adopted, on November 26, 2002, the General Comment on the Right to Water, which states that "Water is a limited natural resource and a public good fundamental for life and health. The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights;"

AND WHEREAS climate change and the expansion of industrial activity are diminishing the quantity and quality of water in the Mackenzie Basin;

NOW THEREFORE I move… that this Legislative Assembly recognizes that all peoples have a fundamental human right to water that must be recognized nationally and internationally, including the development of appropriate institutional mechanisms to ensure that these rights are implemented;

AND FURTHER that this Legislative Assembly recognizes that this right includes access to water bodies for purposes of harvesting, travel and navigation, and mechanisms to prevent or seek redress for any action that may affect these rights;

AND FURTHERMORE that this Legislative Assembly recognizes that this right must take precedence over the use of water for industrial and commercial purposes;

AND FURTHERMORE that this Legislative Assembly endorses the application of the precautionary approach in all

management decisions or actions that may affect the quality, quantity or natural rate of flow of water within the basin;

AND FURTHERMORE that this Legislative Assembly urges all parties to complete and implement comprehensive watershed management and land use plans as soon as possible in order to safeguard water sources and maintain ecosystem integrity across the basin.

March 5, 2007 Northwest Territories Hansard Page 1168-9

Appendix B: Aboriginal Steering Committee

The Government of the Northwest Territories' Department of Environment and Natural Resources recognizes that in order to be effective, a water stewardship strategy must reflect the voices of the NWT. To ensure Aboriginal water partners were at the decision-making table during the development of the Strategy, all Aboriginal governments were invited to participate in an Aboriginal Steering Committee (ASC). As a result, ASC members played a key role in guiding the development process and shaping the final Strategy.

Designated representatives from the Inuvialuit Regional Corporation, Gwich'in Tribal Council, Sahtu Secretariat Inc., Tłı̨cho Government, Dehcho First Nations and Northwest Territory Métis Nation formed the ASC in 2009. Representatives from Acho Dene Koe First Nation, Kátlodééche First Nation, Nahanni Butte Dene Band, North Slave Métis Alliance, and Salt River First Nation joined the ASC during the implementation phases of the Strategy. Current representatives are listed on the NWT Water Stewardship website: www.nwtwaterstewardship.ca.

Appendix C: Mackenzie River Basin Transboundary Waters Master Agreement Background

The *Mackenzie River Basin Transboundary Waters Master Agreement* was signed by the Governments of Saskatchewan, Alberta, British Columbia, Northwest Territories, Yukon, and Canada and came into effect in 1997. This agreement established the Mackenzie River Basin Board, which operates as a forum for discussion by the signatories.

The Master Agreement commits the signatory jurisdictions to the following principles:

- manage the water resources in a manner consistent with the maintenance of the ecological integrity of the aquatic ecosystem;
- manage the use of the water resources in a sustainable manner for present and future generations;
- allow each Party to the agreement to use or manage the use of water resources within its jurisdiction, provided such use does not unreasonably harm the ecological integrity in any other jurisdiction;
- provide for early and effective consultation, notification and sharing of information on developments and activities that might affect the ecological integrity of the aquatic ecosystem in another jurisdiction; and,
- resolve issues in a cooperative and harmonious manner.

Under the agreement, neighbouring jurisdictions can negotiate bilateral water management agreements to address water issues across jurisdictional boundaries on transboundary streams, rivers, lakes, deltas and wetlands, as well as groundwater, and to provide parameters on ecological integrity and the quality, quantity and flow of water. Jurisdictions can negotiate conditions that Parties determine necessary to maintain healthy and diverse aquatic ecosystems.

Information on the current status of bilateral water management agreement negotiations and implementation is available on the NWT Water Stewardship website: www.nwtwaterstewardship.ca/transboundary.

Appendix D: Guidelines, Policies and Agreements

There are a number of strategies, guidelines, policies and agreements relevant to water stewardship in the NWT. These include existing water agreements, such as the *Mackenzie River Basin Transboundary Waters Master Agreement*, water-related policies such as the *Federal Policy on Wetland Conservation*, and different guidelines, such as the *Canadian Water Quality Guidelines for the Protection of Aquatic Life*, used to set standards for water and sediment quality.

More information about relevant guidelines, policies and agreements can be accessed on the NWT Water Stewardship website: www.nwtwaterstewardship.ca.

Photo credit: J. Wilson

More information on the NWT Water Stewardship Strategy can be found at:

nwtwaterstewardship.ca

January 2018