Our Water, Our Future

A Conversation with Albertans

Summary of Discussions

Alberta Government

Photo Credit:
Cover Image - Elbow River in southwest Calgary - Arnold Janz, ESRD
Page 1 - Canoeist on the Carbondale River - Arnold Janz, ESRD
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MESSAGE FROM THE MINISTER

Albertans are passionate about our water resources. We all know the importance of talking about our water, which is why our government held a Water Conversation with Albertans – a conversation that is summarized in this report. Water is the essence of life itself – we need it to develop our natural resources, to grow and raise the food we eat. In fact, water is important for all aspects of our lives whether we are at home, at work, or at play.

With that in mind, it is my pleasure to release Our Water, Our Future: A Conversation with Albertans, Summary of Discussions. These conversations build on more than a century of managing this most precious resource and are an important part of renewing our Water for Life action plan.

I wish to thank the more than 1,300 Albertans who took the time to have a conversation with us through the community meetings, stakeholder sessions, First Nations and Métis sessions. We also received 760 completed water conversation surveys and 353 written submissions through email, twitter, blog, and letter. I especially wish to thank the young people from the Youth Advisory Panel for their participation because they may have the largest stake. Their future depends on the decisions we make today and going forward about our precious water resources.

Speaking of going forward, these conversations form a basis for the next steps toward a renewed Water for Life action plan. We have developed 20 actions to be undertaken over the next three years to protect, conserve, or enhance Alberta's water resources. The short-term actions are the initial building blocks for the more-involved, long-term actions. We will have further conversations with Albertans as we work on the long-term actions.

I am looking forward to those future conversations as we work together to protect, conserve, and enhance our water resources. There will be a lot to talk about.

Honourable Kyle Fawcett
Minister of Environment and Sustainable Resource Development

EXECUTIVE SUMMARY

The management and safeguarding of Alberta's water resources is guided by the commitments in Alberta's Water for Life strategy. While these commitments are serving us well, our province needs to prepare for a future that includes a growing population, an expanding economy and higher expectations for environmental performance. To do this, we need to consider enhancements to ensure our water resources can continue to meet the needs of our environment, economy and society.

In February 2013, the Government of Alberta began a renewed conversation with stakeholders, First Nations, Métis organizations and all Albertans about our province's water resources. Several mechanisms were used to gather people's input:

- A total of 20 community conversations were held in locations across Alberta, which featured an open house and small discussion groups where participants could exchange their views freely and frankly.
- A series of in-person conversations were held with stakeholder groups having particular interests in water, including environmental organizations, various industries, local businesses, municipalities, conservation groups, local stewardship organizations and those involved in water research.
- A series of dedicated conversations were also held for Alberta First Nations and Métis organizations, recognizing their special relationship with water and land.
- A survey was made available on the Water Conversation website, and hard copies were available at all in-person conversations.
- Albertans could also make submissions to the Government of Alberta through post mail, email, a blog on the Water Conversation website, and over Twitter.

Although participants were able to identify any water issue they felt was important, four specific topics, reflecting areas of common interest, concern and sometimes tensions, but most importantly, issues having significant potential impact on water management over the coming decades, served as the focus of the conversation:

- Healthy Lakes;
- Hydraulic Fracturing and Water;
- Drinking Water and Wastewater; and
- Water Management.

Participants in the conversation spoke passionately on how to better manage and safeguard

water resources. They generously provided ideas, advice and compelling personal stories. In an effort to best reflect this input, in terms of what was discussed, not just what may have been heard, the following are the raw themes that emerged from the conversation:

Healthy Lakes

- A holistic approach to lake management should be taken, recognizing the interconnectedness of lakes to other waters.
- Lakes should be managed as part of the overall watersheds in which they are located, including upstream activities in the watershed that impact lakes.
- Governance of lake management needs to be strengthened, including formalizing and clarifying the roles of Watershed Planning and Advisory Councils (WPACs) and volunteer-based stakeholder groups.
- A provincial lake management framework should set out province-wide policies and guidance, but not be an additional level of bureaucracy.
- A lake management framework should include Aboriginal perspectives, since each lake has different implications for First Nations and Métis individuals who use them.
- First Nations and Métis should be engaged when developing the framework.
- Development on lakes needs to be better managed, including establishing and enforcing regulations around setbacks and septic systems.
- Awareness needs to be raised among Albertans about the ecosystem benefits that lakes provide and how they can do their part to help keep lakes healthy.
- Reservoirs should be included in a provincial framework and managed, where applicable, for multiple uses, just as lakes are managed.
- Guidance should be provided on which lake uses are compatible with which lakes, and striking a balance among these uses to minimize and resolve conflicts.
- Provide an effective policy and regulatory scheme and enable local residents and groups to effectively manage their lakes within this framework.
- Employ a risk-based and outcome-based approach to allow local flexibility and ensure management efforts are appropriate for the level and nature of risks.
- Decision-making about lakes should be based on science.
- More funding for lake management is needed.
- The Government of Alberta needs to strengthen enforcement capacity to ensure regulations are enforced and more robust management activities are undertaken.

Hydraulic Fracturing and Water

- Greater public education is needed about hydraulic fracturing, including its nature and risks, where it presently occurs and where it might occur in the future.
- The Government of Alberta must be proactive, not reactive, in the regulation and monitoring of hydraulic fracturing operations.
- The integrity of groundwater sources is critical, and the government should redouble efforts to map aquifers and build knowledge on groundwater interactions.
- Hydraulic fracturing is not a good use for fresh water, so policies and regulations should be established to limit the use of fresh water by these operations.
- Strict controls around chemical use and waste disposal are essential.
- Enhance rules around maintaining well bore integrity, recognizing that external activities and age can impact integrity in the future.
- Undertake baseline water well testing before hydraulic fracturing operations are commenced, to better protect landowners and ensure accountability.
- Data and results of wells drilled using hydraulic fracturing should be documented and submitted to regulatory authorities.
- Regulations need to establish strict expectations on industry, backed by meaningful consequences should those expectations not be met.
- The surface effects of hydraulic fracturing should also be considered, since heavy equipment can compact soil, change water flows and compromise the ecosystem.
- Government of Alberta policies around natural resource development and water management are sometimes in conflict and need to be reconciled.
- Play-based and regional approaches should be used, to ensure that required procedures are appropriate for varying geological conditions across the province.
- To be effective, regulations need to be consistently enforced.

Drinking Water and Wastewater

- Municipalities are finding it difficult to manage rising costs they face to expand and maintain their water systems, and their human resources are also strained.
- First Nations often have difficulty hiring and retaining operators for their water systems and may not have the capacity to upgrade systems when necessary.
- Study cases where municipalities have worked together constructively to enhance their water systems and use these as models for the rest of the province.

- A key concern is that geographic management authorities would risk adding bureaucracy and cost, and would diminish local voices and ignore local priorities.
- The Alberta government should work at the regional level to facilitate municipal cooperation on water systems and structure provincial policies to incentivize this.
- Consider bringing water co-ops, which have aging infrastructure and sustainability challenges, under the larger umbrella of municipal water systems.
- Power imbalances around water need to be addressed, especially where small communities connect to the water systems of larger centres.
- Consider a risk management approach to establishing water standards rather than a single drinking water standard for the whole province.
- Awareness needs to be raised among consumers about how drinking water systems work, the true costs of these systems, and what fees are charged and why.
- Encouraging better water use through policy changes would lower demands for treated drinking water, and in turn keep costs down for municipal systems.
- Take aggressive action to protect source waters, including headwaters in the Eastern Slopes, and actions on the landscape to safeguard lakes and rivers.
- While funding for municipal systems should come from consumers served by those systems, the Alberta government could provide funds to support municipalities that are pursuing collaboration on water systems.
- Wastewater treatment facilities should be made more sustainable through regionalization, partnership and efforts to prevent pollutants from entering the water.
- Human consumption should be the “first priority for water”, and this principle should underlie the Government of Alberta’s entire policy approach.
- Action must be taken to limit industrial impacts on drinking water sources.
- There are concerns the federal government will download responsibility for drinking water to First Nations without giving them the capacity to fulfil these responsibilities.
- Help municipalities plan so that investments made in water systems prepare for projected population growth and economic development over several decades.

Water Management

- Place the focus on water optimization rather than water scarcity, so that everyone works to manage what we have, rather than fixating on what we do not have.
- Enhance water storage as soon as possible, so that water that comes during high volume periods can be strategically managed and used throughout the year.

- At the same time, the development of reservoirs and other storage options must not cause significant cultural impacts on First Nations and Métis.
- Since the water in a watershed is all connected, it makes sense to plan and manage water resources at this level; regional planning would align with this philosophy.
- Water should be managed within the existing water allocation system, with water licence holders encouraged to work together to better manage available resources.
- The Agriculture industry has a duty to continually strive to maximize the efficiency of its water use.
- The Government of Alberta should make Alberta a leader in water conservation, using a variety of policy and financial levers to encourage Albertans to conserve.
- Ensure the rules governing water licence transfers are fair and transparent, and that transfers go to the right priorities rather than to those with the deepest pockets.
- All Albertans should have access to clean drinking water because it is vital for life, so municipalities' water licences should not be eligible for the transfer market.
- The best available scientific and traditional knowledge should be used when establishing protected water in each watershed.
- Tailings ponds pose a threat to wildlife and the watershed and should be reclaimed as soon as possible.
- The Government of Alberta needs to establish a wetland policy as soon as possible, and ensure First Nations have sufficient input into this policy.
- If Alberta's water allocation system is based on the principle of "first in time, first in right", then First Nations should have the most senior priority of use.
- Safeguard water sources as part of overall actions to achieve water optimization.
- Enhance understanding of Alberta's watersheds, especially groundwater, so that better informed water management decisions are made.
- Enhance monitoring to provide regulatory oversight and protect water, and enhance data transparency so that monitoring data is publicly available.

We also heard some themes that crossed all four topic areas. These include:

Strengthen tools for assurance

- Albertans want to feel assured major water users are adhering to the requirements of their water licences along with the provincial regulations that protect the quality and quantity of water in the province.

Improve access to information and data

- Albertans want to know more about what development is happening in their area and how the Government of Alberta is managing any potential impacts.

Move forward with prudent action. We don't need an overhaul of water management system but don't delay action on adjustments that will help the system.

- Albertans have been waiting to see some changes that will enhance the system, including optimizing use of available water, enhancing lake management and providing more environmental assurance around hydraulic fracturing.

Government needs to provide more information about what processes are in place for ensuring licence holders comply with their licence requirements.

- Without this information, people are more likely to have the perception that some operators break rules when no one is watching.

INTRODUCTION

Water plays a vital role in the lives of Albertans.

This precious commodity underpins our entire society - for the food and crops we produce, the industries and businesses that support our economy, and the quality of life of our communities. Importantly, water also supports healthy ecosystems, on which everything else depends. It is, quite simply, an essential element for Alberta's future prosperity.

Given its critical functions, our province's water resources need to be carefully and prudently cared for and managed.

The management and safeguarding of Alberta's water resources is guided by the commitments in Alberta's Water for Life strategy, which has three goals:

- Safe, secure drinking water;
- Healthy aquatic ecosystems; and
- Reliable, quality water supplies for a sustainable economy.

The commitments of Water for Life continue to serve as important touchstones for the future and they are serving us well. They are based on a rich history of prudent water management. At the same time, our province needs to prepare for a future that will feature a growing population, an expanding economy and higher expectations about Alberta's environmental performance.

This future will mean increased demands for water for a variety of uses, and the potential for increased impacts on our water resources. We have the ability to see how other jurisdictions have managed water as their demands grew – some good experiences and some poor experiences, but all valuable knowledge to inform how we look to our own future.

To effectively plan for this future, our province needs to consider enhancements that may be necessary to ensure Alberta's water resources can continue to meet the needs of our environment, economy and society.

With this in mind, the Government of Alberta began a renewed conversation with stakeholders, First Nations, Métis and Albertans about our province's water resources. This conversation took place over several months, involving individuals and organizations from rural and urban communities across the province.

This document summarizes the various elements of this conversation. In doing so, it includes ideas, concepts, suggestions and areas of concern that citizens brought to the table. As such, the summary should not be seen as list of 'what government will be doing'. Instead, it serves as a broad foundation for the Government of Alberta to work with Albertans to move forward to ensure we can effectively safeguard and manage Alberta's water resources while meeting future needs.

A RENEWED CONVERSATION WITH ALBERTANS

This was the first of many conversations that the Government of Alberta intends to have with Albertans about our province's water resources. It represented the opening of a renewed dialogue on important water-related issues that need to be addressed. As work continues in the future, the conversation with Albertans will also continue.

The conversation built on the many formal and informal processes that Albertans have used to provide input into government policies, such as:

- Engagement activities regarding the development of regional plans under the Land-use Framework;
- Meetings held and reports submitted by various scientists and academics, non-governmental organizations, municipal governments, aboriginal organizations and other individuals and organizations; and
- The ongoing work of Watershed Planning and Advisory Councils (WPACs), lake stewardship groups and other water-related organizations.

From the input and advice gathered though these processes, four major topics emerged as priorities:

- Healthy Lakes;
- Hydraulic Fracturing and Water;
- Drinking Water and Wastewater; and
- Water Management.

These four topics served as the focus of the conversation, although additional areas of interest were welcome.

To provide context, a Conversation Guide was published on the internet and in hard copy format. The Conversation Guide presented information on the four topic areas. It outlined key issues in each area and identified possible options the Alberta government could consider to enhance its water policies and management approaches.

All Albertans have interests in the province's water resources. As such, a number of mechanisms were used to enable as many Albertans as possible to participate and provide input:

Community Conversations

A total of 20 community conversations were held between February and April 2013, in locations across Alberta. Each of these featured an open house that provided background information on the four topic areas. Participants then had the opportunity to engage in small discussion groups covering each topic.

The small discussion groups enabled people to offer their views and engage in dialogue with other participants. In the groups, participants discussed issues around each topic. They were also invited to provide feedback on possible options the Government of Alberta could pursue to address these issues. About 1,000 individuals participated in the community conversations.

Stakeholder Conversations

Similarly, a series of in-person stakeholder conversations were held with stakeholder groups having particular interests in water. These included organizations such as: lake stewardship groups, WPACs, landowner associations, municipal governments, irrigation districts, agricultural producers, recreation associations, conservation groups, and other environmental non-governmental organizations.

The stakeholder conversations used a format similar to the community conversations. Participants had the opportunity to discuss each topic area in small discussion groups. They were invited to identify issues and share their views on possible options the government could pursue to address these issues.

A total of 250 individuals representing more than 140 organizations from various sectors participated in 11 stakeholder conversations across the province. More information on the watershed stakeholder discussions is provided in Appendix A.

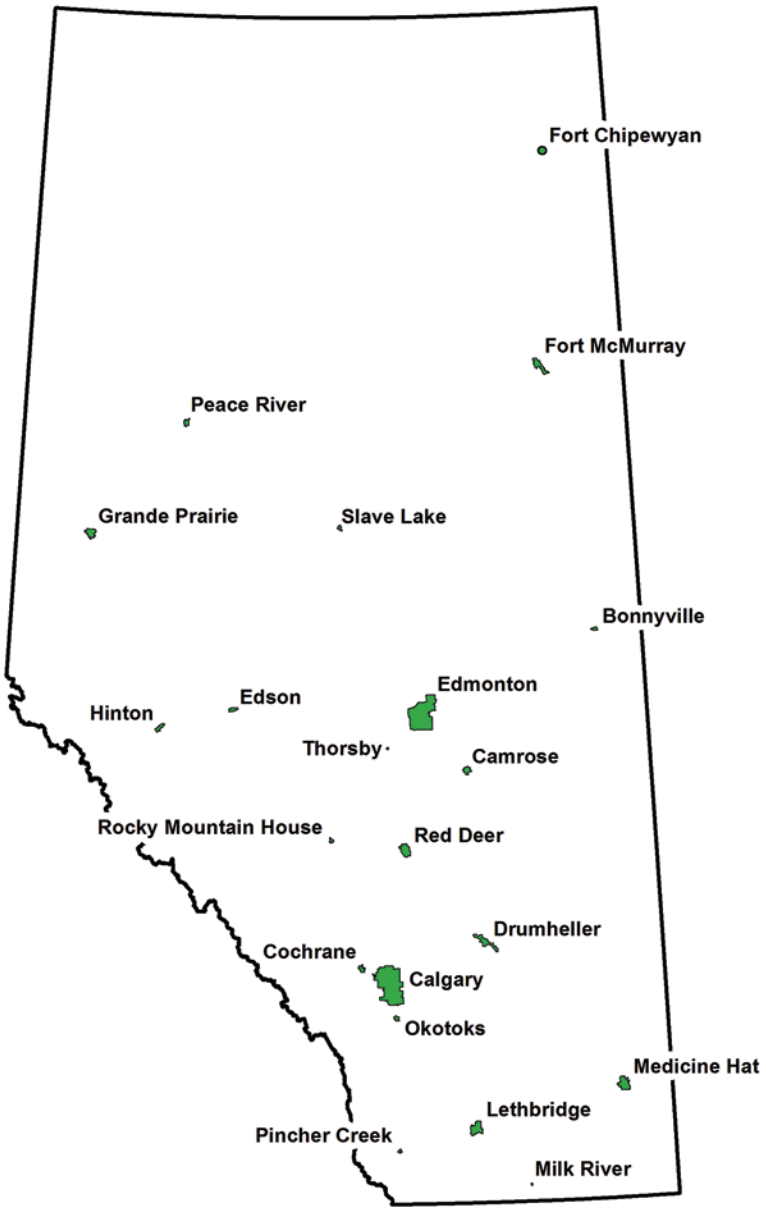
Conversations with First Nations and Métis

Given their special relationship with the water and the land, a series of dedicated conversations were also held for Alberta First Nations and Métis.

Individuals from Treaty 6, Treaty 7 and Treaty 8 First Nations were invited to attend conversation sessions in Edmonton, Peace River, Fort McMurray, Calgary, Slave Lake and Fort Chipewyan. Métis organizations were also invited to attend conversation sessions in Edmonton, Peace River, Slave Lake and Grande Prairie.

These conversation sessions served as additional opportunities for First Nations and Métis to provide input on the four topic areas. Other, ongoing processes are currently underway between the Government of Alberta and First Nations and Métis organizations to identify and address water concerns. These ongoing processes provide an opportunity for First Nations to raise concerns regarding the Treaties and associated obligations on the part of the Alberta and federal governments.

Water Conversation Locations 2013



Water Conversation Survey

Albertans also had the opportunity to provide input through a survey. The survey was made available on the Water Conversation website, and hard copies were available at all in-person conversations.

The survey asked respondents for their views on the four topic areas and possible options the government could pursue in these areas. Among other questions, the survey asked respondents to gauge the effectiveness of proposed options and to convey their level of support for certain options. There were 764 responses to the survey, the results of which were analyzed.

Other Submissions

Albertans could also make submissions to the Government of Alberta through post mail, email, a blog on the Water Conversation website, and over Twitter. A total of 353 submissions were received.

Source of Submissions

Number of Submissions	Method of Communication
183	Email
131	Twitter
15	In Person (at a session)
13	Blog
9	Letter
2	Stakeholder-led Session

Youth Advisory Panel

Alberta also engaged members of the Youth Advisory Panel, which was established in 2000 and is comprised of Albertans between the ages of 16 and 22 who are committed to improving the condition of our province. Panel members met with Minister Diana McQueen and the Department of Environment and Sustainable Resource Development on March 2, and were invited to share their concerns, values, ideas and perspectives on the four priority areas.

The Panel was presented with the opportunity to continue the dialogue using a new online collaborative policy platform being tested within the Department of Environment and Sustainable Resource Development. They used the platform to read through the ideas, comments and suggestions they contributed March 2, in order to validate the material and clarify any statements. They followed up by ranking themes on the platform, which formed the basis for the panel's written submission which is included later in this report.

The input gathered through all of these mechanisms was thoroughly reviewed and a number of consistent themes emerged. Some themes that crossed all four topic areas include:

Strengthen tools for assurance

- Albertans want to be assured major water users are adhering to the requirements of their water licences along with the provincial regulations that protect the quality and quantity of water in the province.

Improve access to information and data

- Albertans want to know more about what development is happening in their area and how the Government of Alberta is managing any potential impacts.

Move forward with prudent action. We don't need an overhaul of the water management system but don't delay action on adjustments that will help the system.

- Albertans have been waiting to see some changes that will enhance the system, including optimizing use of available water, enhancing lake management and providing more environmental assurance around hydraulic fracturing.

Government needs to provide more information about what processes are in place for ensuring licence holders comply with their licence requirements

- Without this information, people are more likely to have the perception that some operators break rules when no one is watching.

Strengthen engagement opportunities

- The Government of Alberta tried to provide new options to encourage Albertans to become engaged in the water conversation, including social media and world café style meeting formats for the public and stakeholders. While feedback was generally positive we also heard that we:

- took on very deep and complex issues, which meant some areas did not get enough time for discussion;

- need to provide for further information on the topics, especially the options for tomorrow.

The following pages summarize these major themes of input, and identify key findings emerging from the survey. Also summarized are additional themes of input that emerged from conversations with First Nations and Métis organizations and from a conversation process involving Alberta youth.

COMMUNITY AND STAKEHOLDER CONVERSATIONS

The following are major themes that emerged from participants in the community and stakeholder conversations, including those who made written submissions. Major input provided by survey respondents is also summarized.

Healthy Lakes

- ***Governance of lake management needs to be strengthened.***

Participants in many communities highlighted the need to strengthen governance around lake management. The role of WPACs in addressing lake management is not clear, nor is it clear who has authority for managing certain lakes. This includes authority for monitoring and enforcement; in the absence of an identifiable authority, the quality of a lake will suffer.

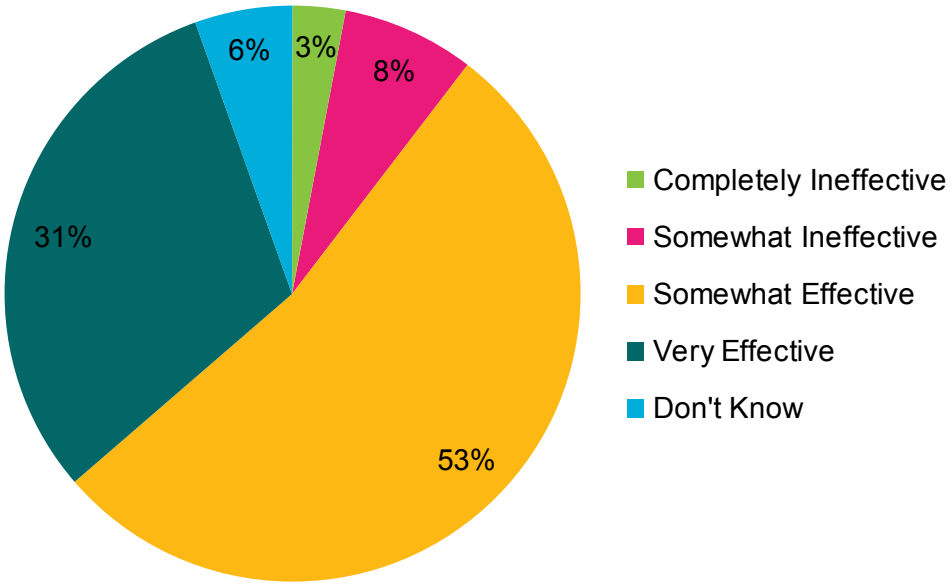
Presently, a number of volunteer-based stakeholder groups play various roles with respect to lakes. More formality needs to be brought to these relationships, so that these groups have guidance on how to build capacity, work collaboratively and work constructively with government. Participants noted need for enhanced communication and integration between all levels of lake stewardship. One suggestion was that the governance approach for lakes should be just as robust as the one used for Alberta's rivers. Stronger governance would ensure Alberta's lakes have clear champions and advocates. As one participant observed, "Someone needs to speak for the lake."

- ***A provincial framework has value, if it's done right.***

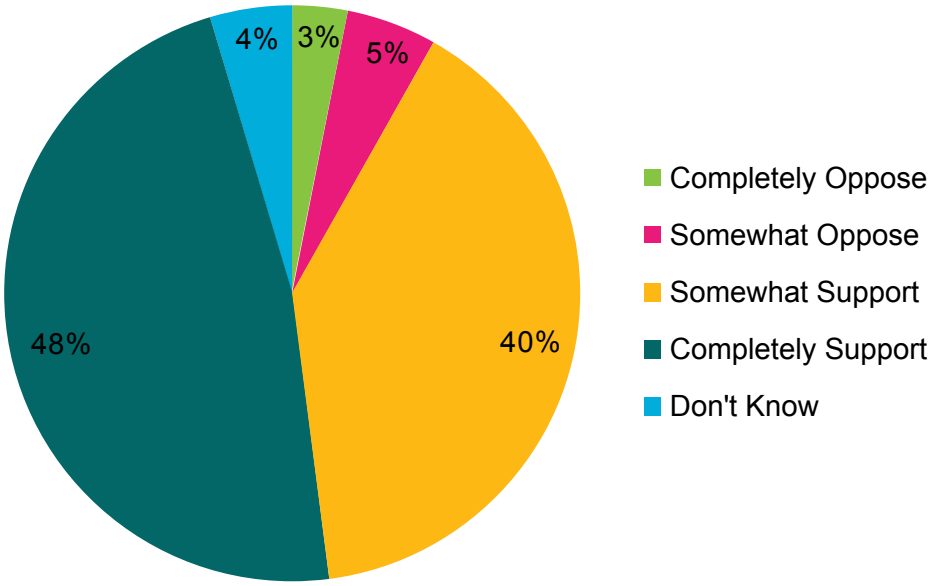
Given the many issues facing lakes and that pressures on lakes stand to grow in the future, most participants felt that a provincial framework for lake management would be helpful. A total of 84 per cent of survey respondents felt a provincial lake management framework would be "somewhat effective" or "very effective". Nearly nine in ten (88 per cent) survey respondents expressed support for the development of a framework.

Although some participants indicated that current management approaches are working well, many others said the state of Alberta's lakes illustrates the need for enhanced approaches. It was said the Alberta government has levels of capacity and expertise that many municipalities and volunteer groups do not have. It is also best positioned to take a "big picture" view, and establish and enforce policies and outcomes that makes sense for all lakes in the province.

In your opinion, would establishing a provincial framework to guide lake management decisions be an ineffective or effective way to maintain and protect the health of Alberta's lakes?



Do you oppose or support establishing a provincial framework to guide lake management decisions?



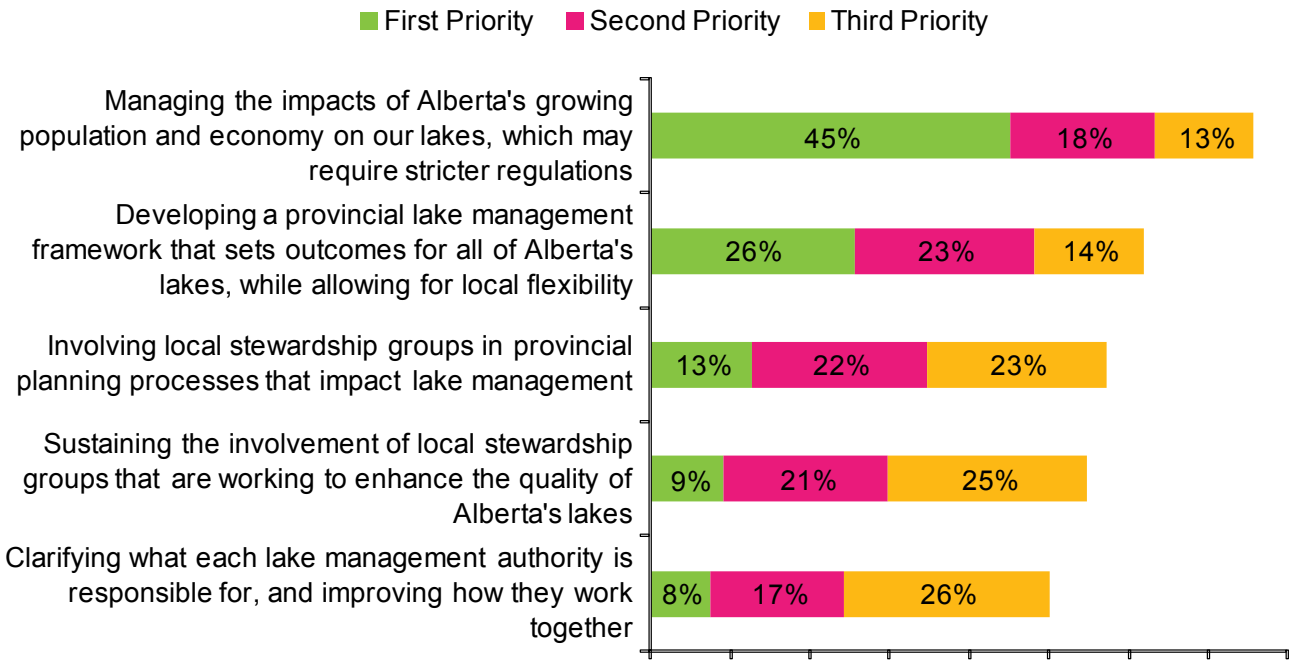
However, participants cautioned that a provincial framework needs to be limited in scope. Some worried about a provincial framework becoming a "paper tiger" that "turns into a costly, bureaucratic layer". To be useful, the provincial framework should be a document that sets out province-wide policies and guidance. It should not be an additional level of governance. Another layer of bureaucracy would create confusion and would consume resources that would be better directed at on-the-ground lake management efforts.

- ***Development on lakes needs to be better managed.***

A widely shared concern across the province was the extent of development on, around and near Alberta's lakes. The demand for lake living is high and is increasing. This has led to growing pressures on many lakes. Participants pointed to issues such as: how close houses are built to the water; inadequate septic systems on these properties; the way waste is handled; the impacts on riparian areas; the threat of aquatic invasive species; and increased incidences of algal blooms.

Many participants strongly urged the Government of Alberta to show leadership on this front by establishing and enforcing regulations around lake development - including regulations regarding setbacks and septic systems. It was felt such action would assist municipalities with this issue. Some people said that municipal governments value lakes, but also value the tax base that lake developments generate. By establishing regulations, the Alberta government would alleviate this inherent conflict. The Alberta government also has the expertise to enact such regulations. Survey respondents echoed these sentiments. When asked to rank the importance of lake management issues, the top priority identified by respondents was "managing the impacts of Alberta's growing population and economy on our lakes, which may require stricter regulations."

If a provincial framework to guide lake management decisions is developed, what lake-related issues are priorities for you?



- ***Enhanced public awareness about lake management is required.***

If the quality of Alberta's lakes is to be maintained and enhanced, members of the public have important roles to play. Neither the government nor volunteer groups alone can keep lakes clean; individual users must be part of the solution. Participants felt that all Albertans share the goal of having healthy lakes, but many do not know or understand how they can and must help achieve this goal. Awareness needs to be raised in the general public about the vital functions and ecosystem benefits that lakes provide. Empowering Albertans with information about how they can do their part to help keep lakes healthy would be a step in the right direction. Participants observed that lake stewardship groups are well positioned to undertake this kind of awareness-raising, but to be effective, these efforts will need to be supported with adequate resources.

- ***Reservoirs should be included in a provincial framework.***

Participants in southern areas of the province were quick to point out that natural lakes are few and far between in southern Alberta. Instead, these parts of the province are characterized by the presence of many man-made reservoirs. While there are differences between lakes and reservoirs -- some of which are designated for a single use – there are many cases where reservoirs serve uses similar to lakes, including recreation, lake living and as sources of drinking water. They are also experiencing similar issues. Participants noted that development around and near reservoirs is happening without robust management. Concerns about riparian areas around reservoirs were also raised.

Consequently, participants said, it makes sense for the scope of a provincial framework to include reservoirs. The quality of reservoir water is just as important as the quality of lake water, and has economic implications for the irrigation districts that utilize the reservoirs for irrigation operations. Some people went a step further, suggesting that a provincial framework might encourage reservoirs to be managed for multiple uses, just as lakes are managed. Input suggested that any consideration of a provincial framework must still respect the original intent and purpose of these reservoirs such as for irrigation and industrial purposes.

Lake Abraham with the spillway gates
Photo Credit: Michael Seneka, ESRD

- ***Take a holistic approach to lake management.***

In some conversations, participants wondered which water bodies would be considered lakes under a provincial framework. Some asked whether the province had an official definition of what constitutes a lake. Many others, however, encouraged the Alberta government not to focus on a definition because doing so would inevitably cause certain water sources to be arbitrarily excluded.

Instead, the Alberta government should take a more holistic approach to lakes than in the past. The quality of a lake is affected by wetlands and other waters that flow into the lake. Rather than treating lakes as isolated water bodies, the provincial framework should recognize the interconnectedness of lakes to other waters. This would improve the framework's success in supporting better lake management. Participants noted that to do this effectively, the Alberta government needs to develop a good inventory and understanding of which waters flow into and are connected to which lakes.

- ***Upstream management is as important as the lake itself.***

Participants said that lakes should be managed as part of the overall watersheds in which they are located. Consistent with this philosophy, a provincial framework for lake management should place focus not only on managing lakes, but also on upstream activities in the watershed that impact lakes. This includes managing matters such as:

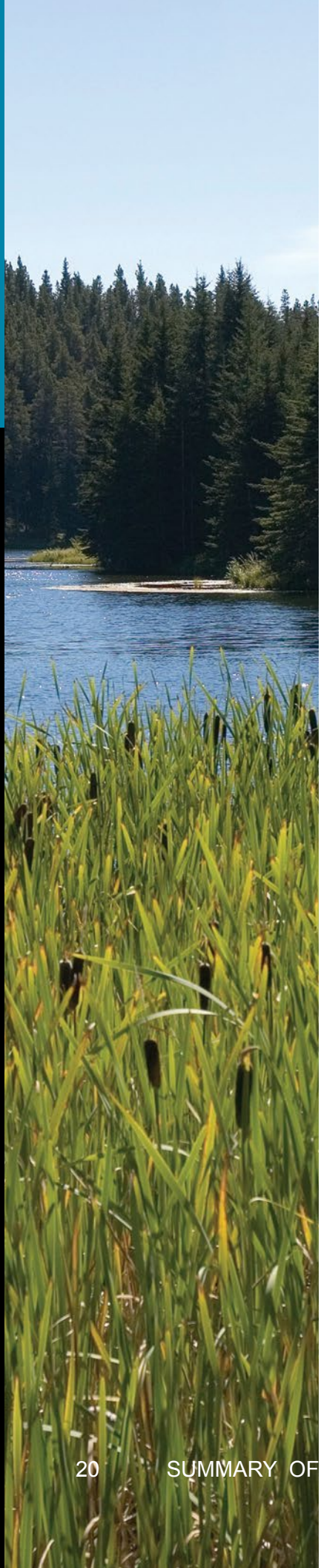
- wastewater from any source, including industrial activities and municipalities;
- septic releases;
- runoff from grazing and agricultural activities; and
- wetlands protection.

More robust management of these matters will directly contribute to improving and maintaining the health of Alberta's lakes.

Many participants stated the need for increased protection of wetlands and to get on with the implementation of Alberta's wetland policy.

- ***Develop mechanisms to manage conflicting uses of lakes.***

Some people suggested that a provincial framework for lake management could provide guidance for better coordinating multiple uses of a lake. Some of Alberta's popular lakes see multiple and diverse uses. This can often lead to conflict between certain users, sometimes even between those who engaged in the same type of use. For example, participants noted that different types of recreational users - such as motorized boaters and anglers - will at times conflict with one another. The Government of Alberta could consider providing guidance on which uses are compatible with which lakes, and how a balance can be struck among these uses, so as to minimize and resolve conflicts.



- ***Keep decision making local and regional.***

While there was support for a provincial framework for lake management, many participants were anxious about the possible loss of local influence over the future of their lakes. Although there is room to improve lake management, Albertans value the local flexibility that the current scheme provides. As one participant stated, “As local residents, we understand our lakes best and we have the strongest motivation to keep them healthy.” Local residents and groups are also best positioned to engage the right partners for lake stewardship. Decisions about lakes are often made in consultation with local stakeholders and major users.

Participants strongly cautioned the Alberta government against diminishing this local role. Some worried that centralizing decision-making about lakes would lead to decisions based on drivers that are inconsistent with those of local residents, users and stakeholders. Instead, the Alberta government should use its knowledge base and expertise to establish a provincial framework that provides an effective policy and regulatory scheme. This will enable local individuals and groups to develop local partnerships and effectively manage their lakes.

- ***Employ a risk-based and outcome-based approach.***

Recognizing that Alberta’s lakes are incredibly diverse, participants noted that a “one size fits all” approach to lake management will not be effective. Instead, a provincial framework should take an outcomes-based approach - that is, articulate what goals Alberta wants to achieve for its lakes, and allow lake-by-lake flexibility in how those goals are met. Staying focused on outcomes would respect local authority for lake stewardship, while providing guidance that will help bring about better consistency across the province. This approach would also accommodate the fact that lakes each have their own natural range of variation, and are starting from different points of quality.

Participants also encouraged the government to develop a framework that employs a risk-based approach. Such an approach would help ensure that lake management efforts are appropriate for the level and nature of risks present for a lake. People noted that lakes which are most at risk are likely those with the worst quality, those with the highest levels of use, those facing the most pressures and those near cities.

Spruce Coulee
Photo Credit: Ron Zurawell, ESRD

- ***Decision-making about lakes should be based on science supported by enhanced monitoring information.***

For lake management to be most effective, science and evidence need to inform lake management decisions and government regulations that relate to lake health and lake management. Participants called for open and transparent access to data about lakes, so that local lake stewardship groups and other lake management partners can make informed choices. They also stressed the need for reliable and credible monitoring of lake conditions. Many said there should be independent monitoring of lakes, so that Albertans can have trust in the numbers.

- ***More funding for lake management is needed.***

A strong message delivered to government was the need to backup good intentions with solid funding. Participants made it clear that although many lake stewardship groups are volunteer-driven, meaningful and effective lake management requires adequate financial resources. Some people expressed skepticism about government's level of commitment to lake management. Too often, they said, a "framework" or "strategy" is used as a way of avoiding action and investment.

Others said a provincial framework could be helpful by providing guidance on how funding for lake management is deployed. Ideally, it would set out a scheme for enhancing funding for lake management and for funding WPACs and lake stewardship groups across the province. Right now, certain areas of the province have better access to funding sources than others. Often the areas that need the most work on the ground are those that have the scarcest funding. Participants said this challenge needs to be addressed if the health of Alberta's lakes is to be improved and maintained.

- ***Stronger enforcement of regulations is critical.***

Similarly, good intentions for better lake management will be undermined if there is inadequate enforcement of regulations and rules. Many participants felt that Alberta currently has policies and regulations in place to help safeguard the health of lakes, but these have gone unenforced. This has led to a situation where individuals and organizations feel there are no rules, resulting in mistreatment of lakes. Participants said the government needs to enhance enforcement activities of existing rules, and ensure there is sufficient enforcement capacity as more robust lake management activities are undertaken.

Hydraulic Fracturing and Water

- ***Albertans want more information about hydraulic fracturing.***

A clear message delivered by participants across the province was that greater education and awareness is needed about hydraulic fracturing. Some members of the public said they did not know enough about the technology to offer informed opinions on how the Government of Alberta should strengthen its regulatory framework. Others indicated they had obtained some knowledge about hydraulic fracturing, mainly through media stories and anecdotes. Even stakeholders who were informed about hydraulic fracturing said more must be done to improve Albertans' awareness of the technology.

People indicated that Albertans want to know more about:

- how hydraulic fracturing works;
- where it is being used;
- where it might be used in the future;
- the risks associated with the technology;
- how Alberta's geology compares to other places where the technology has been used; and
- what happens if something goes wrong with the technology.

Participants stressed the importance of empowering Albertans with this information as soon as possible. Without information from a credible source, people will develop opinions about the technology through media, movies, word-of-mouth, and incidents that occur in jurisdictions that are not as well regulated. Information about the technology needs to be forthright - the "warts and all", as one participant said. It was suggested that the Alberta government should work with municipalities, local stakeholders and Synergy Groups to deliver this information.

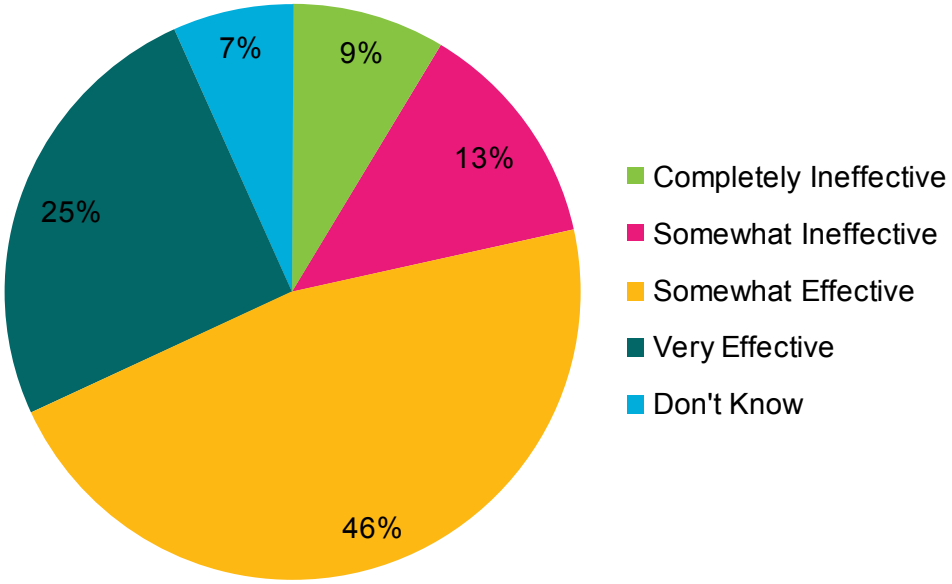
- ***There are mixed views about regulation of hydraulic fracturing in Alberta.***

Throughout the conversations, there was a diversity of opinions about allowing hydraulic fracturing in Alberta. Some of these extended to Alberta's regulation of oil and gas developments generally. Several participants said they were opposed to further oil and gas development in the province, including the use of hydraulic fracturing. Others were supportive of oil and gas development, but felt that regulations should be enhanced and more should be learned about hydraulic fracturing before its further use is allowed. One view was that the government was "jumping into the technology too quickly" without having sufficient knowledge.

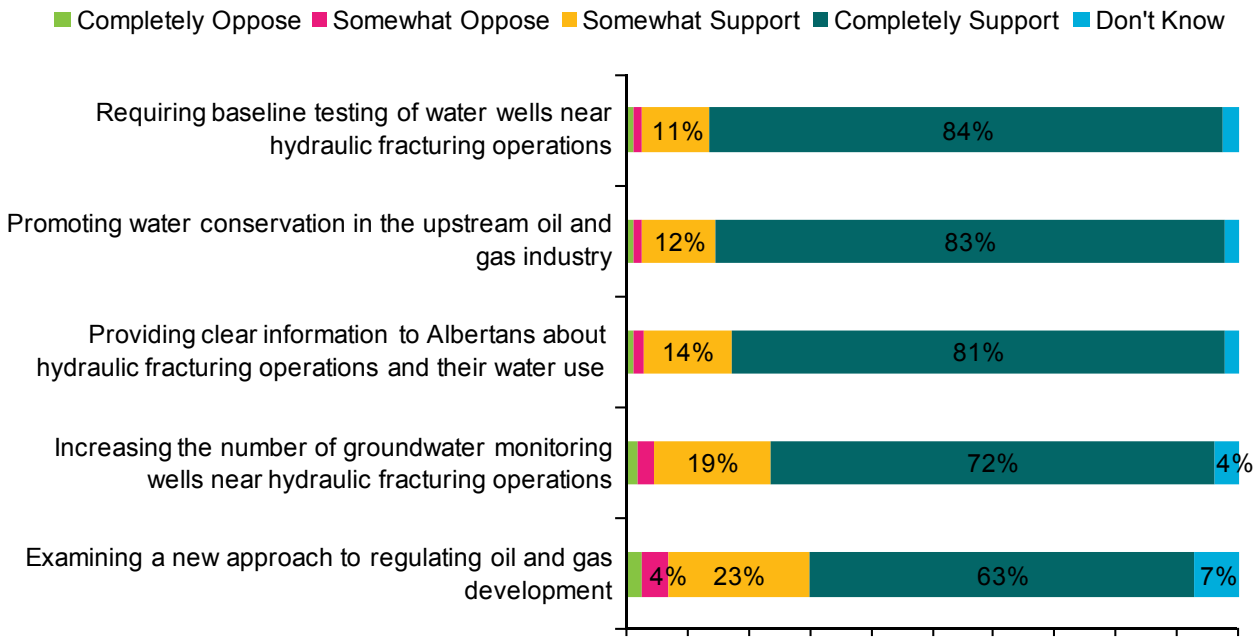
Others expressed confidence in Alberta's ability to regulate the technology. Several people pointed to the province's decades of energy development and said that Alberta has demonstrated experience and thoroughness when it comes to regulating oil and gas. They felt inclined to trust that government will appropriately update regulations to respond to the use of hydraulic fracturing, just as it has responded to other technological advances over time. A view shared among all participants was that the Government of Alberta must be proactive, not reactive, in the regulation and monitoring of hydraulic fracturing operations.

Survey respondents were presented a number of potential regulatory changes for enabling hydraulic fracturing while protecting water. A majority of respondents (71 per cent) felt these changes would be somewhat effective (46 per cent) or very effective (25 per cent). Survey respondents expressed high levels of support for each of the proposed regulatory changes, with no less than 86 per cent indicating support for each of the proposals.

In your opinion, would implementing these regulatory changes be an ineffective or effective way to protect Alberta's water resources during hydraulic fracturing?



Do you oppose or support each of the following potential regulatory changes, as described above?



- ***The integrity of groundwater sources is critical.***

Participants stressed the need to safeguard Alberta's groundwater resources as they are vital for many agricultural operations and for rural drinking water. It was pointed out that since surface water resources are limited, groundwater will become more important in the future. It is also extremely difficult to clean or repair groundwater resources should they become contaminated or otherwise impacted.

For these reasons, participants said, the Government of Alberta needs to tread carefully with hydraulic fracturing operations. Ideally, government should know as much as possible about groundwater resources before allowing use of the technology. Many people called for the government to redouble its efforts to map aquifers and enhance its knowledge about groundwater interactions. Knowing how things work underground will help minimize the risks of hydraulic fracturing operations impacting groundwater. Participants also said this knowledge is required for accountability. Without a good understanding of groundwater sources, it is difficult to determine whether and how hydraulic fracturing has impacted those sources.

- ***Use of water by hydraulic fracturing must be minimized.***

A concern raised in virtually every community was water use by hydraulic fracturing operations. Participants noted that much of the water injected into the ground by these operations does not come back to the surface. Volumes that do not return are "lost" to other uses; amounts that return do so as waste. Given this fact, hydraulic fracturing is not a particularly good use for fresh water, especially considering the many competing needs for fresh water that already exist. People expressed particularly concern about surface water being used for hydraulic fracturing operations in southern Alberta, where the amount of surface water can be quite limited.

Participants urged the Government of Alberta to enact policies and regulations that discourage, limit or prohibit the use of fresh water by hydraulic fracturing operations. It was noted that government has worked to encourage water conservation in the oil and gas industry, offering a base on which to build. People suggested various options that could be considered as part of limiting fresh water use by hydraulic fracturing, including:

- using regulatory mechanisms to employ "full cost accounting", so that industry pays the real costs of its environmental impacts;
- charging oil and gas companies for the water they use in their operations, especially hydraulic fracturing operations;
- consider using water from municipal sewage lagoons for hydraulic fracturing as a substitute for fresh water;
- recycling and reusing fracture fluid to the greatest extent possible;
- prohibit municipalities from providing fresh water under their water licenses to hydraulic fracturing operations; and
- require hydraulic fracturing operations to use water from saline aquifers that cannot be used for other purposes.

People said the government should base its regulatory approach on a “bedrock principle” that hydraulic fracturing should not affect the quantity or quality of fresh water available for public use. They observed that technology will play a crucial role in minimizing or eliminating fresh water use in hydraulic fracturing. Consequently, industry needs to be encouraged to develop and deploy this technology and, once it is available, Alberta’s regulatory scheme needs to accommodate its use.

- ***Strict controls around chemical use and waste disposal are essential.***

Alberta’s regulatory approach needs to be robust when it comes to the use of chemicals and disposal of waste in hydraulic fracturing operations. Participants said that Albertans need to have more information about the nature of chemicals used in these processes, and the risks involved with their use. Regulations should be strict about how these chemicals are stored and how they are deployed. Some people said the government should require the use of “safe materials” in the fracturing process that pose little or no harm to the environment.

- Similarly, participants called for assurances around safe storage and disposal of wastewater from hydraulic fracturing operations.

- Some people expressed concern that companies might dump wastewater into rivers and lakes, or that inadequate storage of wastewater could leech into the environment. As such, participants said it was very important for government to provide assurance that wastewater is safely stored and disposed.

- ***Enhance rules around maintaining wellbore integrity.***

Concerns were raised about the possibility of the wellbore of an oil or gas well serving as a convenient channel for contaminants when hydraulic fracturing of the well is undertaken. People expressed particular worry for how the wellbore could serve as a pathway for chemicals and wastes to impact shallow groundwater sources.

The government was encouraged to take a long-term view around rules for wellbore integrity. Although a wellbore might be in good shape today, participants said, there is a risk that nearby drilling or other activities could impact the wellbore in the future. Since the wellbore is located underground, it would be a long time before a problem is identified. For this reason, government should “err on the side of caution” in its regulations.

Water quality sampling at Jarvis Lake
Credit: Ron Zurawell, ESRD

- ***Measure before drilling.***

There was strong support for requirements that companies undertake baseline water testing before hydraulic fracturing operations are commenced. Participants said this information is critical for ensuring industry is held accountable. With baseline testing in hand, it is easier to determine whether and how changes in water quality have occurred and whether hydraulic fracturing operations are responsible. Some people said a baseline water testing requirement should apply not only to hydraulic fracturing operations, but to all oil and gas drilling and seismic activities.

Participants also had views about the scope of baseline water testing. Several called for "across the board" testing, such that everything meaningful about the water's quality and characteristics can be known. It was also suggested that the testing radius include the area of actual drilling, and an additional distance into which the resulting fractures can extend.

- ***Reporting needs to be enhanced.***

To ensure there is adequate oversight of hydraulic fracturing operations, the reporting requirements of these operations should be enhanced. Participants said that data and results of wells drilled using hydraulic fracturing should be documented and submitted to regulatory authorities, and be reviewed to ensure nothing went wrong. Any problems encountered during the hydraulic fracturing operation should also be clearly documented and submitted. Hydraulic fracturing operators should have a clear duty to inform government about their activities.

Participants said this reporting is essential for public assurance. Albertans should be able to know about the health of oil and gas wells that have used this technology. If there is an issue with a well, time is of the essence in addressing the issue and people deserve to be informed. As one participant explained, "The public shouldn't be left trying to connect the dots later on about what happened."

- ***Place serious expectations on industry.***

Companies engaged in hydraulic fracturing operations need to understand that the Government of Alberta is serious about safeguarding water supplies. Participants said that Alberta's regulations need to establish strict expectations, backed by meaningful consequences should those expectations not be met. The regulatory scheme should also be proactive, with the goal of preventing impacts on water and the rest of the ecosystem. Consistent with this, participants suggested numerous measures that could form part of Alberta's regulatory approach to hydraulic fracturing. These included:

- Heavy fines for causing water impacts;
- A requirement that if a company damages a water source, including an aquifer, they must remediate those impacts;
- Bonds or other funds deposited by companies in advance of drilling, so that money is on hand to address any impacts that occur; and
- Continuous testing of water sources with a certain radius of wells of that have been drilled using hydraulic fracturing.

- ***Consider using play-based and regional approaches.***

Participants expressed support for the idea of using play-based approaches to regulating the use of hydraulic fracturing. This would recognize that geology varies across the province, and would ensure that required procedures are appropriate for the geological conditions at play. People acknowledged this might mean different requirements in different areas, but noted that the ultimate objective should be the same everywhere: protect the quantity and quality of Alberta's water supplies.

Many people suggested that government also look at using a regional approach to proactively improve the environmental performance of hydraulic fracturing operations. Where industry has limited alternatives for water sources or disposal options, it can be tempted to use the cheapest options rather than the most environmentally prudent. It was noted that some parts of the province might have a poor selection of water sources, but a good selection of waste disposal options, or vice versa. Examining options from a regional perspective could enhance the range of alternatives for industry, thereby making it easier for companies to "do the right thing".

- ***Monitoring and enforcement must be enhanced.***

Strengthening Alberta's regulatory framework is only part of the answer. To be effective, these regulations need to be consistently enforced. Several participants expressed a belief that enforcement is currently not as strong as it could be. Some relayed their suspicions about hydraulic fracturing operations engaging in "funny business" and "cutting corners". Others said that a perceived lack of enforcement has created a climate "where people think they can do anything because no one is watching".

Participants called for the Government of Alberta to improve its enforcement capability, including its ability to know what is happening on the ground. Albertans need assurance that hydraulic fracturing operations are being properly monitored, including their levels of water use, their storage and waste disposal practices, and the drilling itself. Water sources near these operations also need to be monitored regularly, so that Albertans have assurance that government is guarding against negative impacts.

Drinking Water and Wastewater

- ***Sustainability of water systems is a challenge.***

Participants discussed the state of their municipal water systems, and said that keeping these systems sustainable is a major challenge. Municipalities are facing rising costs to expand and maintain these systems, which they are finding difficult to afford. In addition, their human resources are strained and the people operating their systems often have to divide their time between the system and several other jobs. Some participants noted that in their municipality, the individual who runs the water plant also serves other roles in the municipality. Sometimes the job is tasked to whoever is available.

It was also said that choices made by municipal governments have sometimes made water systems less sustainable. Several participants questioned why their municipalities had chosen

to construct new water treatment facilities rather than linking to the existing water system of a nearby community. Some participants highlighted the success and sustainability of their systems (regional or stand-alone) and preferred to keep management at the local and community level.

- ***Municipal cooperation on water systems makes sense.***

The idea of having municipalities collaborate on water system management made sense to a lot of participants. Many noted examples where municipalities have worked together constructively to enhance their water systems. Several people spoke proudly about how their municipalities had collaborated with others to develop more reliable and sustainable systems.

Participants said it makes sense to study these examples, use them as models and encourage their replication across the province. The big question for the province is how to do this effectively. One comment was that the Alberta government “needs to do more beyond merely suggesting it’s a good idea.”

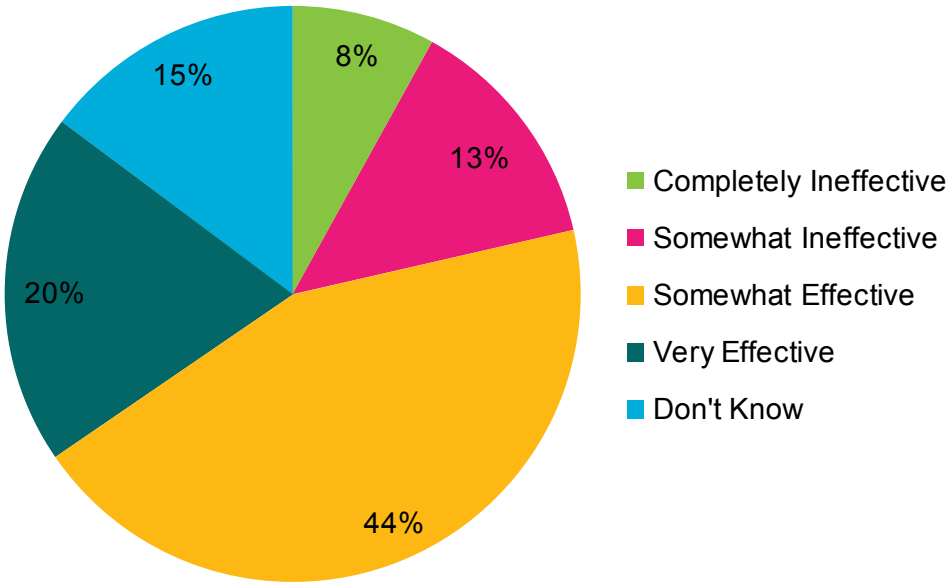
- ***Local influence over water system management is important.***

While they recognized sustainability challenges and the need for change, participants at the meetings were skeptical about the concept of establishing geographic management authorities for water systems. Many expressed concern this would lead to a new layer of bureaucracy and additional costs. Several people worried about the creation of a water “super board” that would diminish local voices and ignore local priorities.

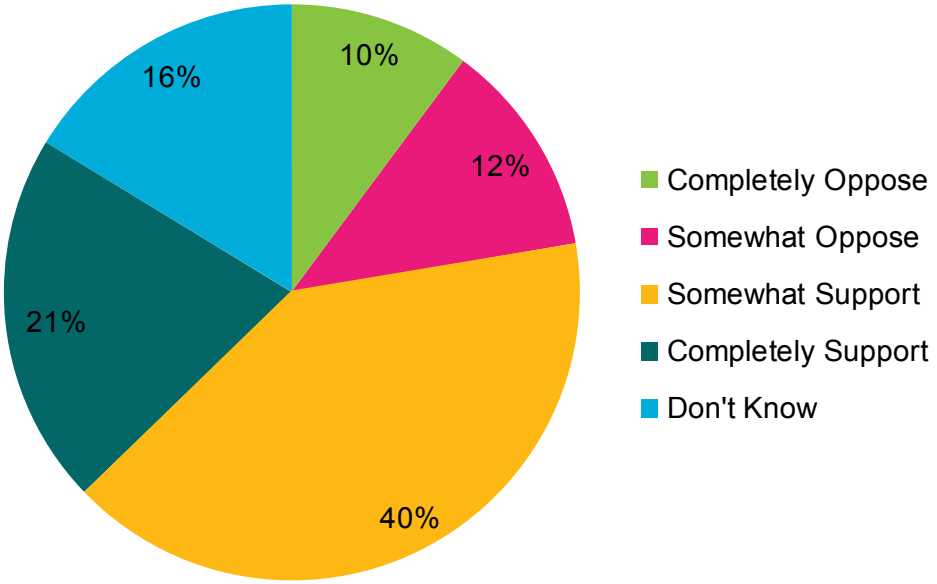
However, roughly two-thirds (64 per cent) of survey respondents felt geographic management would be very or somewhat effective as a way to ensure financial sustainability of drinking water and wastewater services, while 21 per cent felt it would be somewhat or completely ineffective. Nearly a quarter of respondents (22 per cent) said they opposed shifting towards geographic management of drinking water and wastewater systems in the province.

Participants stressed the need for local influence over decisions for water systems. Residents want to know that their local water systems will be managed in line with local needs and priorities. Many would be uncomfortable with what they see as a “top-down” approach in which decisions are made by people who are far away from the community. Participants encouraged the Alberta government to consider alternative approaches that would accomplish the same goals of improving economies of scale and making water systems more sustainable.

In your opinion, would shifting toward geographic management be an ineffective or effective way to ensure the financial sustainability of Alberta's drinking water and wastewater services?



Do you oppose or support shifting toward geographic management of Alberta's water systems?



- ***The Alberta government should act as a catalyst for municipal collaboration.***

Rather than creating new level of bureaucracy or imposing new management structures, the Alberta government should work at the regional level to facilitate cooperation and improvement among municipalities. Participants said the Alberta government is well positioned to identify opportunities for municipal collaboration on water systems. Using its policy and financial levers, the Alberta government can "nudge" municipalities in the right direction so that they make choices that lead to more sustainable water systems.

Participants said the Alberta government should also re-examine provincial policies and processes that may be leading to questionable choices on the ground. For example, the existing grant process might be encouraging municipalities to build their own water facilities rather than cooperate with other municipalities. People said the Alberta government should structure its policies so that municipalities have incentives to partner and regionalize; presently, there are few incentives to do so. Where municipalities decide to work together, the Alberta government could provide information, expertise and other resources to assist these projects.

- ***Consider the role of water co-ops.***

Rural water co-ops do not typically have access to the same level of government funding as municipalities. However, they have aging infrastructure, and demographic changes over time have made it harder for them to recoup the costs of infrastructure improvements. Participants said that by bringing rural water co-ops under the larger umbrella of municipal water systems, efficiencies could be leveraged while providing better drinking water to Albertans.

It was noted that some municipal water commissions have taken over local rural water co-ops, but that others are reticent to do so. Participants suggested that as the Government of Alberta works with municipalities to identify potential partnerships and opportunities for water system collaboration, it should consider ways of engaging rural water co-ops.

- ***Power imbalances around water need to be addressed.***

One reason that municipalities are sometimes reticent to cooperate on water systems, participants explained, is that doing so can create power imbalances between the communities. Small communities that connect to the water systems of larger centres worry about losing control over decision-making. People said that in some cases the larger centre, which often runs the shared system, will set prices and flow rates without sufficient regard for the conditions of smaller communities. Smaller communities are left "at the mercy" of the larger city. Anecdotes about these experiences discourage other municipalities from partnering or regionalizing their water systems. If the province wishes to see more inter-municipal collaboration, participants said, then it needs to take action to address the power imbalances that can result.

Similarly, participants said that municipalities should not be allowed to "bully" other municipalities with access to water. It was said that certain municipalities will "use water as a weapon" and refuse to collaborate unless they extract commitments on other fronts, such as rezoning or land use concessions. Water systems go to the heart of the health and well-being of a community's residents. All Albertans need access to drinking water, making it fundamentally unfair to "play politics with water". Participants said that cooperation on water systems should not be tied to other policy issues, and encouraged the Alberta government to address this issue.

- ***Take a risk management approach when establishing water standards.***

A number of participants took issue with changes to drinking water standards, and expressed a view that these changes have undermined the sustainability of municipal water systems. Each time a standard changes, municipalities are forced to spend millions of dollars to upgrade their water facilities to keep pace with the standards. Several people felt the Alberta government "is changing standards for change sake". Others questioned whether certain standards are needed to protect public health.

One suggestion was that a single drinking water standard might not appropriate for the entire province. Some communities might be satisfied with their current water quality, with no health concerns, and do not see the need to invest money trying to chase a higher quality. It was pointed out that differences in drinking water quality already exist across the province. While standards are set for municipal water systems, no such standards exist for private water wells, yet the government seems to take no issue with this. Some participants said the Government of Alberta should use a risk management approach when setting standards for municipal systems. This would help ensure public health is protected, without making it financially or administratively onerous for municipalities to maintain their water systems.

- ***Consumers need to be educated about the costs associated with drinking water and wastewater operations***

A widely shared sentiment was that Albertans have low levels of awareness about how drinking water is provided, including the true costs of delivering the service. Many participants said that water is "undervalued" by consumers. Some suggested this is due to existing fee structures. Although consumers pay for delivery charges (to help defray maintenance and infrastructure costs), they do not pay for the water itself. This makes water "artificially cheap", leading to expectations that water is "free" and "should not cost them anything". Consequently, some residents respond badly when the municipality raises delivery charges to recoup the costs of getting the water to people's homes. It was noted that some Albertans will spend two dollars to buy a single bottle of water at a convenience store, but dislike spending two dollars a month to have quality drinking water piped to their homes.

Participants said that work needs to be done to raise awareness among consumers about how drinking water systems work. Albertans should understand the true costs of their municipal water systems, what fees they are charged and why. Empowered with this information, consumers will be more likely to support changes that will make their water systems more sustainable.

Participants suggested that better water use could help municipal water systems become more efficient and more sustainable. It was noted that treated drinking water is currently used for applications in which it is not required. People suggested a number of approaches that could lower demands for treated drinking water, which would in turn keep costs down for municipal water systems. Participants also suggested the Government of Alberta support research and development of alternative technologies.

One idea was the construction of dual piping systems when building new communities, thereby enabling treated water and non-treated water to be delivered to households. Non-treated water could be used for irrigating, outdoor chores and other "grey water" applications. Another idea

was to provide tax breaks to homeowners who do not have lawns, since lawn watering is a use that places huge pressure on water systems. People also said water metering should be an expectation throughout the province. Metering reminds people that water is a finite resource and helps reduce water consumption. Participants encouraged the Government of Alberta to explore policy changes that would encourage better water use.

- ***Protect source water and take action upstream.***

The quality of water sources affects the sustainability of municipal water systems. If source water is clean and healthy, less rigorous treatment is required and fewer costs are incurred. Participants said it is often more cost-effective to prevent the degradation of source waters than to upgrade infrastructure so that degraded water can be made drinkable. Many people cited the experience of New York City, which was said to have saved billions of dollars by protecting the upstream watershed.

Some participants argued the Government of Alberta should adopt a similar approach and take aggressive action to protect source waters. This should include action to protect headwaters in the Eastern Slopes, and actions on the landscape to safeguard the quality of lakes and rivers. People suggested a range of actions in this regard, including: establishing buffers around rivers; managing runoff from municipalities and agricultural operations; and preventing industrial, commercial and household pollutants from getting into water sources.

- ***Municipal systems need access to funding.***

Many participants noted that municipal systems need additional funding if they are to remain sustainable. However, there were mixed views about how that funding should be used and from where it should come. Several participants said the Alberta government needs to provide increased, long-term funding to municipalities to pay for needed upgrades and subsidize the operation of their systems. However, many participants disagreed, saying that provincial transfers only serve as “Band-Aids” that discourage municipalities from making the changes that are needed to become sustainable. Others pointed out that funding from the Alberta government can come “with strings attached”, which can curtail local choices.

Many people said that funding for municipal systems needs to come from the consumers served by the system. The fees charged by municipal systems need to reflect the “true costs” of their operation and consumers should understand the nature and level of these costs. At the same time, participants pointed out that there are costs associated with pursuing inter-municipal collaboration on water systems. It was suggested the Alberta government could establish a pool of funds to provide loans to municipalities who are pursuing collaborative initiatives and investments. This would encourage and enable water systems to become more sustainable.

- ***Wastewater needs to be properly managed.***

The principles that apply to cooperation and sustainability among drinking water systems also apply to wastewater systems. Participants said that wastewater treatment facilities can be made more sustainable through regionalization, partnership and efforts to prevent pollutants from entering the water. The observation was made that many communities do not have wastewater systems, but instead use other mechanisms. For example, some have their wastewater hauled away. Regardless of the mechanisms used, adequate standards and oversight need to be

in place. The handling of wastewater directly affects the watershed, which in turn affects the sustainability of drinking water systems.

- ***Put the water needs of people first.***

Many participants said that human consumption should be the “first priority for water”, saying this principle should underlie the Government of Alberta’s entire policy approach.

People also stressed the importance of ensuring Albertans have equitable access to safe, quality drinking water. At the same time, it was noted that Albertans need to have realistic expectations about their level of water service and quality, depending where they live. Albertans who choose to live in remote communities cannot expect the same level or cost of service as those who choose to live in a large urban centre. However, regardless of where they live, all Albertans should be able to access safe drinking water in some fashion.

- ***Take a long term view and help municipalities plan.***

Alberta needs to adopt a long-term outlook if it is to have safe, reliable and sustainable water systems. Participants said that lessons need to be learned from past choices, especially the lesson of building for the future. In too many cases, people said, water systems were built for current demand without any plan or accommodation for future needs. Going forward, investments that are made in water systems should be based on projected population growth and economic development over the next several decades.

Participants said the Government of Alberta should play a role in this area. Most municipalities do not have the capacity to undertake population or economic forecasting. By lending its expertise and information resources, the Alberta government can help municipalities better understand and prepare for future challenges and demands. The province can also assess needs and assets at the regional watershed level, and identify strategic opportunities.

One area of particular concern is resource development, which is beyond the control of municipalities but impacts their water systems. In certain areas of the province, energy development has led to the creation of temporary work camps. These camps place heavier demands on drinking water and wastewater systems, sometimes unexpectedly. Participants said the Alberta government should work with municipalities to plan for these impacts. It was suggested that industry could assist municipalities with this challenge, by contributing information, financial support and expertise.

Water Management

- ***Focus on water optimization rather than water scarcity.***

Many participants, especially those from communities in southern Alberta, felt the government appears preoccupied with water "scarcity". Some people disliked this term, saying that it leaves the false impression that southern Alberta communities have no water and cannot accommodate further economic development. They pointed out that there is water in southern Alberta but its availability does not always line up with water demands. It was noted that some communities have actually had to deal with "water abundance" in recent years, with large amounts of precipitation causing flooding.

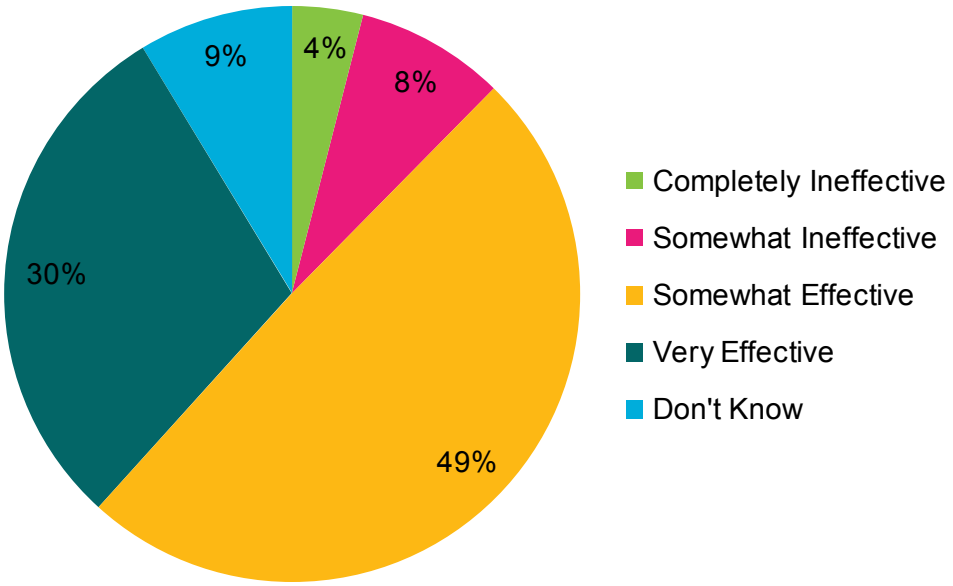
Participants said the Alberta government should place its focus on optimizing the water that is available rather than fixating on what is not available. As one person stated, "We don't have a scarcity of water; we have a scarcity of management." Many agreed that the goal should be to improve water management so that the availability of water supplies better matches water demands throughout the year.

Survey respondents echoed this sentiment. Respondents were presented with a number of enhanced management strategies that the government could pursue to optimize water supplies. Nearly eight in ten respondents (79 per cent) felt these would be effective at optimizing water, with 30 per cent indicating they would be "very effective".

- ***Enhance water storage as soon as possible.***

The need for more water storage was consistently raised across the province, and strongly advocated in southern Alberta. Participants noted that at certain times of year, vast amounts of water - more than is needed at the time - will flow through southern rivers and into Saskatchewan. That water is effectively lost to Alberta. Storing water during high volume periods

In your opinion, would implementing these enhanced management strategies be an ineffective or effective way to optimize our water supplies so that we can meet Alberta's current and future needs?



would enable the province to manage and use the water when it is needed throughout the year. It would also improve Alberta's ability to meet in-stream flows with more reliability. People noted this would be healthier for aquatic ecosystems. Over three-quarters (77 per cent) of survey respondents indicated they somewhat or completely support enhancing water storage.

Participants urged the Government of Alberta to work with WPACs and major stakeholders in all watersheds to explore and coordinate the development of more water storage. They offered several suggestions including:

- Exploring both on-stream and off-stream storage;
- Considering innovative approaches such as underground storage and conjunctive water management;
- Enhancing existing reservoirs to improve their capacity;
- Encouraging the construction of water towers in communities;
- Rewarding landowners for creating storage facilities;
- Planning storage at the watershed level to minimize the impacts of water storage on downstream users.

Some participants thought that protecting and maximizing natural storage systems such as wetlands and riparian areas that contribute significantly to water quality and quantity is important. Participants that were opposed to enhancing storage options were concerned about habitat destruction, downstream effects, and evaporative losses.

Waterton Reservoir spillway
Credit: Michael Seneka, ESRD

- ***Manage water as a system at the regional level.***

Since the water in a watershed is all connected, it makes sense to plan and manage water resources at the watershed level. Participants observed that the boundaries of Alberta's watersheds generally align with the land-use regions identified by the Alberta government under the Land-use Framework. Integrating water planning with regional planning therefore makes a great deal of sense. Survey respondents agreed, with 84 per cent signaling support for managing water at the regional level.

Managing water at the regional level would recognize that each watershed has unique characteristics, hydrographic profiles, and growth prospects. It would also respect the fact that people living in the region have the greatest familiarity with the watershed. Participants said that as part of regional water management, the Alberta government should bring together key stakeholders and users in the watershed to identify ways of optimizing the region's water resources. This would give individuals and organizations an opportunity to brainstorm ideas and find ways to implement these ideas. People noted that WPACs should also have a practical level of involvement in these efforts.

In addition, participants urged the Alberta government to develop and establish river basin management plans for all of Alberta's river basins. Rigorous water management will be vital as water demands increase, especially in parts of the province that are expected to see further energy development, such as Peace River and Fort McMurray. Participants in northern Alberta communities stressed the importance of planning now, before northern river basins experience pressures similar to those in southern Alberta.

- ***Manage water within the existing water allocation system.***

There were some calls for the Government of Alberta to re-examine the operation of Alberta's water allocation system. Some people said the principle of "first in time, first in right" has led to existing water challenges and should be revisited.

However, many other participants disagreed, saying the current water allocation system has worked quite well. They also noted that changing the fundamental underpinnings of the system would hamper efforts to achieve water optimization.

Side roll irrigation pipes near Fort Saskatchewan
Credit: Arnold Janz, ESRD

If people think the government is going to dismantle the current system, participants reasoned, they will "fight to hold on to what they have" rather than collaborate. Drastically changing the rules of the system would also create massive uncertainty, which would further put a chill on optimization efforts. Most participants suggested the Alberta government should work within the current system, encouraging water licence holders to work together to better manage available water resources.

- ***Remember the value and importance of agriculture.***

Participants emphasized the need to recognize the water needs of agriculture and its value to the province. Agriculture produces food for Albertans and it stands to have greater importance as world demand for food increases. Participants said that efforts to achieve water optimization must not negatively impact the agriculture industry. At the same time, agriculture has a duty to continually strive to minimize its water use, just as other industries should do. Many people observed that although it is often characterized as a heavy water user, agriculture, like other industries, has made significant advances in water conservation.

- ***Do more to encourage conservation.***

Water conservation will remain a vital part of efforts to optimize Alberta's water resources. Participants noted that decent headway has been made on conservation efforts over the past number of years. For instance, irrigation districts have made considerable advances in water conservation, and municipalities have undertaken many programs to reduce household and commercial water use. These efforts need to be built upon with a renewed push to encourage Albertans to conserve water. Eighty-five percent of survey respondents indicated support for using incentives and rewards to encourage efficient and productive water use.

It was said that cost and measurement are two important elements that influence conservation. Participants said that water metering should become a standard practice everywhere; as one person stated, "You can't manage what you can't measure." People also said that Albertans need to connect water use with increased cost. This does not mean putting a price on water, but somehow helping Albertans understand that using less water has cost advantages for society and for them personally.

Participants said the Government of Alberta should "make the province a leader in conservation" and suggested approaches to this end, including:

- Developing incentive programs to encourage the energy industry, agriculture producers, business and residents to use less water;
- Educating water users on best practices for water management and in some cases mandating these practices;
- Examining mechanisms and strategies used worldwide, especially by jurisdictions with limited water resources; and
- Providing resources to water stewardship groups that can translate into cost-effective "boots on the ground" and programs that encourage conservation.

- ***Examine the rules governing water licence transfers.***

There were many questions about the ability of water licence holders to transfer portions of their licence to other users. People wanted to know more about how the process works, and wanted reassurance that the Government of Alberta oversees and approves licence transfers. One worry was that water licences would be transferred to those "with the deepest pockets" instead of to the right priorities. Some participants said the Alberta government should examine the status of the applicable water basin and the proposed use for the transferred water. They suggested that certain uses should be given priority for transferred water, and that proposed transfers should be consistent with these priorities to be approved.

Participants had strong views about the rules governing water licence transfers, saying that the system needs to be fair. They drew a distinction between licence holders who have reduced their consumption and those who were given licences far too large to begin with. People said that if a licence holder has invested in efforts to conserve water and actually uses less water as a result, then the licence holder should be able to transfer the savings and recoup the costs of their investment. However, if a licence holder was given a licence far larger than they ever have required, they should not be able to profit by transferring the excess. Participants emphasized that the water belongs to all Albertans, and over-allocations should be returned to the water basin, in some way, for ecological needs, which benefit the public good.

It was noted that Albertans have a poor understanding about the rules governing water licence transfers. This leads to rumours and innuendo in the general public about what is happening. It also results in an erroneous perception among licence holders that the governing principle is "use your allocation or lose it", which runs counter to the goals of conserving and optimizing water. Participants urged the Government of Alberta to enhance levels of knowledge about licence transfers and ensure the rules are fair.

- ***Drinking water should be treated differently.***

Water licence transfers were also discussed in the context of drinking water. Participants noted that while some municipalities' water licences are not large enough to accommodate population and economic growth, other municipalities were given water licences far exceeding their needs. This has led to a situation where municipalities effectively need to purchase licence room from other municipalities so that their residents can have drinking water. Participants felt that some communities are being unfairly burdened as a result.

Many people described this situation as fundamentally wrong, saying that all Albertans should have access to clean drinking water because it is vital for life. They suggested that municipalities' water licences should not be eligible for the transfer market. Instead, the Government of Alberta should ensure that water is shared between municipalities in ways that do not unfairly burden taxpayers or disadvantage certain communities.

- ***Use science when establishing protected water.***

A proposal to establish protected water in all of Alberta's major river basins was met with widespread approval. Ninety-one percent of survey respondents indicated support for establishing protected water, with 76 per cent indicating they "completely support" the proposal. The key question, several participants noted, is how much water should be protected. Many

people said that amounts of protected water should be determined based on the best available information about the workings of each watershed. Accordingly, the province should learn as much as possible about each watershed, including surface water flows, groundwater discharge and recharge, and how surface water interacts with groundwater. It was said that protected water should be supported by solid scientific data about the in-stream needs of aquatic habitats.

Once established, participants said, protected water should be given higher priority than other uses in the river basin. Some people suggested an exception should be drinking water, since it is vital for human life. Others disagreed, saying that even if Albertans have drinking water, our society will have no long-term future if ecosystems fail.

- ***Undertake water source protection.***

People reiterated the importance of safeguarding water sources as part of overall actions to achieve water optimization. The protection of Alberta's headwaters, major rivers, lakes and other water sources is vital to ensure that the province's water supplies are as healthy and ample as possible. Participants urged the Government of Alberta to redouble efforts to protect riparian areas, establish setbacks from water sources, and minimize impacts on water from municipal, commercial and industrial sources. They also stressed the need for policies to better protect wetlands, peatlands and muskeg. These water bodies provide important ecological values that help enhance water quality and supplies in the province.

- ***Enhance understanding of Alberta's watersheds, especially groundwater.***

In order to manage water effectively and identify opportunities for optimization, people said there needs to be a thorough understanding of the dynamics and demands in each watershed. Participants in southern Alberta placed particular emphasis on the need for better information about the province's groundwater sources. Right now there are gaps in knowledge about groundwater, and limited mapping of these resources has occurred.

Participants in northern Alberta stressed the need for better information about northern watersheds. This data is essential for ensuring the right water management decisions are made in the north, to avoid similar challenges to those of the south.

Participants urged the Government of Alberta to undertake further research of the province's watersheds and to share that knowledge with stakeholders and the public. This should include more study and mapping of groundwater resources and more learning about the interactions between underground aquifers and surface water.

- ***Enhance monitoring and data transparency.***

A widely shared opinion was that the Government of Alberta needs to significantly enhance monitoring of water resources. To effectively manage water, the province needs to know who is taking water from which water sources, how much is taken, and how often. Monitoring should provide sufficient oversight to ensure rules and regulations are followed, and to identify and stop unauthorized water uses. Several people said that monitoring should be undertaken by independent authorities. Some expressed unease about industrial water users monitoring their own activities. If industry is to conduct its own monitoring, then the data should be regularly audited and open to the public.

Transparency of water monitoring data was a popular topic. Participants urged the Government of Alberta to make monitoring data publicly available, including data about water allocation and actual water use. Open data would enable Albertans to better understand what is happening with water resources, giving them confidence that these resources are being well managed. Open data would also give individuals and stakeholders the means to identify water optimization opportunities on their initiative.

One comment was the Alberta government should also provide tools for presentation and interpretation of water monitoring data. Although raw data will be useful for some audiences, many others will need the data placed in context so they can understand what it all means. To this end, information needs to be provided in plain language, with definitions provided and minimal use of jargon.

Government of Alberta staff and stakeholders being trained in the detection of aquatic invasive species.
Oldman Dam Reservoir
Credit: Andrew Langvand, ESRD

CONVERSATIONS WITH INDIVIDUALS FROM FIRST NATIONS AND MÉTIS ORGANIZATIONS

Many of the issues and themes raised in the community and stakeholder conversations were echoed by individuals from First Nations and Métis organizations, both in conversation sessions and through written submissions.

In addition, participants from First Nations and Métis communities offered several unique perspectives about water. They talked about the special relationship that Aboriginal peoples have with water resources, and they emphasized the importance of managing these resources with great care. Numerous points of advice were offered to the Government of Alberta, including the very strong message that First Nations Treaty rights around water must be acknowledged and respected.

The following are key themes that were uniquely raised by participants from First Nations and Métis organizations. It is important to note that participants provided input as individuals, and not as official positions of their First Nations and Métis organizations.

Healthy Lakes

- ***Ensure a lake management framework includes aboriginal perspectives.***

A province-wide effort to better manage lakes and improve their health is positive and seems to be a common-sense approach. However, the framework cannot simply impose a “one-size-fits-all” management approach for all lakes. Each lake has to be managed individually, consistent with province-wide objectives. The way each lake is managed needs to incorporate and respect First Nations and Métis perspectives. Every lake is unique, having different implications for individuals from First Nations and Métis organizations who use the lake. Consequently, participants said, the Government of Alberta needs to ensure that Aboriginal perspectives are considered and form part of any provincial lake management framework.

- ***A lake management framework should cover more than lakes.***

For it to be effective, a lake management framework should be about more than individual lakes. The needs of lakes cannot be addressed without addressing the watersheds upstream of lakes. As part of this broader approach, the government needs to ensure there are appropriate regulations in place to prevent and mitigate spills into waterbodies and ensure quick response when incidents occur.

- ***Engage local First Nations and Métis about lakes.***

First Nations and Métis organizations and their residents know a great deal about local lakes. Communities have lived off these lakes, and the land around these lakes, for a very long time and therefore have historical knowledge about them. Lakes play a central part in First Nations' traditional way of life. The Government of Alberta needs to engage First Nations and Métis organizations to capture this knowledge, so it can inform the policy choices and actions made by government. Each First Nation, Métis Settlement and Métis Local is unique, with different geographic areas and different lake uses. These communities therefore each need to be engaged individually.

- ***Build on work that has already been done.***

There have been discussions between First Nations and the Government of Alberta regarding lake management and issues about lakes. Work related to the development of the Lower Athabasca Regional Plan and the South Saskatchewan Regional Plan has also been undertaken with First Nations and Métis organizations. The outcomes of these discussions and the information captured through this work must not be lost. The Government of Alberta needs to build on work that has already been done so that meaningful action can be taken sooner to address First Nations and Métis issues.

- ***Better enforcement of rules and regulations is required.***

Individuals from First Nations and Métis organizations expressed concerns about levels of enforcement. From their observations and experiences, applicable regulations are not being enforced by the Government of Alberta or municipal governments. For example, random people have been seen fishing in lakes off-season and taking far more fish from lakes than is allowed. This is contributing to declines in fish populations. Damage to lakes from sewage, agricultural runoff, industrial pollutants and other sources is also occurring, and appears to be happening without sanction. First Nations have noticed a "remarkable decline" in water levels in lakes across Alberta, and water advisories (such as those to avoid swimming in, fishing from or consuming water from lakes) have become commonplace.

Participants emphasized that Treaty fishing rights, and the very usability of First Nations reserve lands, are intertwined with the health of lakes. The Government of Alberta needs to enhance its enforcement of regulations to prevent negative impacts on lakes. This includes enforcement of air pollution emissions, which can impact lakes that are very far away from the pollution source.

- ***Designate priority uses for lakes.***

Lakes should be inventoried, and each lake should be assigned priority uses. This way, competition and conflict among uses would be managed. As part of this, certain healthy lakes should be effectively "set aside" with limited uses permitted, so that these lakes can remain as pristine as possible. Ideally, development would not be allowed near or around these lakes. Meanwhile, other lakes could be designated for recreational use, with managed development allowed around them. Permitted uses for each lake would be matched to the social, cultural and environmental values of the lake.

This approach would provide the Government of Alberta with a mechanism of better protecting lakes and keeping them healthy. It would still allow people to use lakes, but in ways that make sense given the conditions and value of the lake. Importantly, this would better respect First Nations traditional uses of lakes, which needs to happen.

- ***Communities need support for lake management.***

First Nations and Métis organizations can play valuable roles in lake management. The lives and livelihoods of members depend on the lakes, and so they are good stewards of lakes. However, capacity is a major challenge for most communities. The Government of Alberta should provide funding so that First Nations and Métis organizations can enhance their capacity and participate in lake management activities.

- ***Address challenges caused by reservoirs and dams.***

First Nations have concerns about the way that reservoirs and dams are managed. Studies ought to be undertaken to examine how water releases from reservoirs can be better managed to ensure vegetation and wildlife in the watershed remain diverse and healthy. First Nations rely heavily on riparian areas for cultural and spiritual practices and traditional uses. These riparian areas need to be preserved and kept healthy.

In addition to reservoirs in Alberta, dams in other places also cause concerns. For example, the construction of dams in British Columbia has impacted wetlands and lakes in northern Alberta. The operation of these dams has caused changes in flooding patterns and the seasonal rates of water flow. This has had a serious effect on ecosystems in northern Alberta, including the condition of the land and vegetation and the availability of fish and wildlife. This in turn has impacted First Nations' traditional use and way of life.

Participants raised concerns about talk of more dams being constructed in British Columbia. They urged the Government of Alberta to defend the interests of Alberta's ecosystems. It was suggested that Alberta use bilateral water negotiations with British Columbia to secure commitments from that province to institute changes. It would be helpful if British Columbia would adjust the quality and quantity of water flow on the Peace River so that it approximates the natural seasonal flow regime. This would help restore wetlands and lake ecology in parts of northern Alberta.

Hydraulic Fracturing and Water

- ***Fresh water should not be used or hydraulic fracturing.***

Individuals from First Nations and Métis organizations expressed concern about the amount of fresh water that is used by hydraulic fracturing operations. Water used in hydraulic fracturing is effectively removed from the water cycle once injected into the ground. This is not a good use for fresh water supplies. Participants said the Government of Alberta should not allow fresh water to be used in hydraulic fracturing. Instead, alternatives such as saline aquifers or municipal wastewater in lagoons should be considered.

- ***Greater assurance is needed around disposal.***

Sufficient controls need to be in place to ensure the safe disposal of wastewater from hydraulic fracturing operations. There are concerns that contaminated water injected into disposal wells could leak into groundwater aquifers and water wells. Given that hydraulic fracturing creates cracks underground, people worry about seepage and circulation of wastewater. They also worry that contaminated water sent underground could return to the surface and kill trees, vegetation and wildlife in traditional use areas. Participants said the Government of Alberta should require industry to undertake ongoing testing of water in the vicinity of hydraulic fracturing operations, and in the vicinity of disposal operations, including wells and storage sites.

- ***Guard against damages to the land surface.***

While many people have concerns that are focused on the effects of hydraulic fracturing underground, it is also important to consider the surface effects of these operations. People noted the equipment used for hydraulic fracturing is quite heavy. This is problematic for wetlands. The ground under hydraulic fracturing equipment can become extremely compacted. This can change water flows and compromise the natural processes and benefits provided by the soil in the wetland.

- ***Regional environmental assessments should be undertaken.***

First Nations want to have assurance that environmental impact assessments will be carried out for hydraulic fracturing projects. Without assessments, there is a risk that northern Alberta's landscape will end up looking similar to that of British Columbia. People expressed the view that shale development in British Columbia, which uses hydraulic fracturing, has caused considerable environmental degradation. Many felt that these areas of British Columbia can never be properly restored to Boreal forest.

Participants said the Government of Alberta should perform regional environmental assessments. This would go beyond the single project scope of a typical environmental impact assessment and instead look at the cumulative impacts of hydraulic fracturing at a regional scale. The regional assessment could determine where and at what level hydraulic fracturing can be supported in a region, and identify sensitive areas where the technology should not be used. In addition, participants emphasized that First Nations need to be involved in environmental impact assessments, and should be involved in a regional assessment as well.

- ***Reconcile policies and establish water priorities.***

The Government of Alberta has many policies regarding natural resources. Some of these could be considered to be in conflict. For example, people noted that the government wishes to develop energy resources and allow hydraulic fracturing, which requires water. At the same time, the government wishes to protect water supplies.

Participants said these policies need to be reconciled. They suggested the Government of Alberta could do this by clearly establishing which uses for water take priority over other uses. This would help decision-makers determine how to read policies together and manage water resources. People said priorities for water should be established by the government as soon as possible, before competing demands for water increase further and before water supplies are depleted.

- ***Collaboration between the Alberta and federal governments is required.***

Individuals from First Nations noted that First Nations are governed by federal legislation. However, the Alberta government has jurisdiction for some matters that impact First Nations. Presently, there are gaps and conflicts between the policy and regulatory schemes of the federal government and the Alberta government. For example, there are questions about how Alberta's approach to hydraulic fracturing will relate to federal regulations regarding wastewater. In addition, Indian Oil and Gas Canada (IOGC) has a key role with respect to resources located under reserves. The views of IOGC need to be considered by the Alberta government when regulations about hydraulic fracturing operations are developed and enhanced.

Participants said that, from the perspective of First Nations, there appears to be a lack of collaboration between the Alberta and federal governments on these types of issues. When gaps and conflicts occur as a result, it is First Nations residents who are harmed. Participants stressed the need for the two governments to engage and collaborate for the health and well-being of First Nations.

- ***Better engagement about hydraulic fracturing is required.***

Participants asked that the Government of Alberta engage in one-on-one meetings with individual First Nations and Métis organizations to discuss hydraulic fracturing. There are many questions about these operations, including:

- How they operate;
- The impact on water tables;
- The chemicals being used in these operations;
- How chemicals and wastewater are handled;
- Potential risks to the traditional use areas and broader ecosystems; and
- What actions are being taken to address and mitigate these risks.

Each First Nation and Métis organization has unique perspectives and traditional use areas, and stands to be impacted by hydraulic fracturing operations in unique ways. The Government of Alberta needs to engage respectfully and ensure that the input of each First Nation and Métis organization helps inform policy and regulatory choices.

Drinking Water and Wastewater

- ***Action is needed to limit industrial impacts on drinking water.***

First Nations and Métis organizations are concerned that industrial activity is threatening numerous water sources that communities use for drinking water. Certain practices by the oil and gas industry, the forestry industry and the agriculture industry can result in pollutants and other runoff entering rivers and lakes. Individuals from First Nations and Métis organizations have the perception that the Government of Alberta is disinterested in regulating industry. Participants stressed that the Government of Alberta's job is to police and oversee industry, and safeguard the health and well-being of citizens, not big business. They urged the government to enforce regulations so that industry gets the message that it must play by the rules.

- ***Trust around drinking water and wastewater needs to be enhanced.***

Although technical improvements have been made to water systems in some First Nations and Métis Settlements, residents remain distrustful of the water's quality and drinkability. Much of this distrust stems from what people see and hear about what is happening in the watershed. There is an understanding that everything in the ecosystem is connected. If water is being polluted or treated badly in one area, that will have an impact on drinking water.

Participants suggested several actions the Government of Alberta should take to help restore people's trust in drinking water, particularly the following:

- Protect source water, including streams and tributaries that flow into major rivers and lakes;
- Enforce regulations and ensure industries do not pollute the water;
- Significantly enhance water monitoring in ways that are visible to First Nations residents;
- Protect and enhance the health of parts of the ecosystem that naturally assist with water quality, such as riparian areas and wetlands;
- Improve communication with First Nations and Métis organizations about the state of water sources, water monitoring and actions to enhance water quality;
- Ensure urban areas that are upstream of First Nations and Métis organizations are effectively treating their drinking water, as this has a downstream impact;
- Encourage Albertans to be mindful of what they discharge into water, and discourage the disposal of prescription drugs and other wastes into water; and
- Incorporate traditional knowledge, along with western science, into policies and monitoring actions around water.

- ***Regionalization would be welcome for some communities.***

Participants said the quality of drinking water in certain First Nations has degraded over time. For example, it was said that residents of Fort McKay do not drink their tap water and have not done so for a while. Consequently, there are many First Nations that would welcome a discussion about how to expand regionalization of water systems. By connecting First

Nations with the water systems of nearby municipalities, residents could have quality drinking water. Participants said that ensuring all residents of Alberta have access to clean drinking water should be a fundamental principle of the Government of Alberta. They encouraged the government to explore opportunities with municipalities to connect First Nations with municipal drinking water systems.

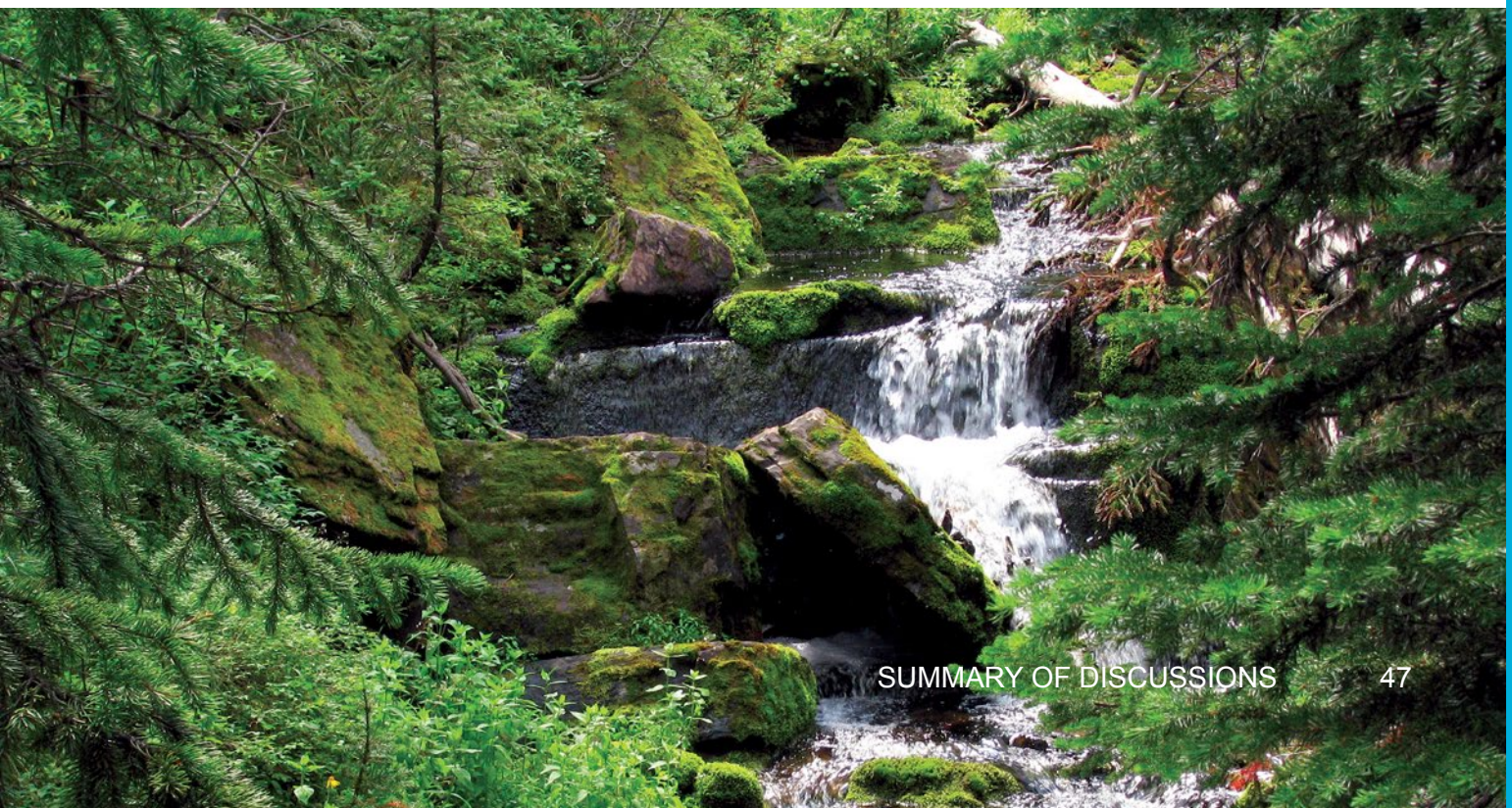
- ***Capacity and logistics are challenges for many communities.***

Ideally, First Nations would like to own and operate their own water systems. However, the level of funding provided by the federal government is not sufficient to do this effectively. Many First Nations have difficulty hiring and retaining operators for their water systems. They also lack the necessary capacity to maintain or upgrade the water systems when necessary.

Several participants expressed interest in the concept of regional management of water systems. However, they noted that past efforts to bring about regionalization have encountered logistical challenges. For example, some First Nations have worked with Indian and Northern Affairs Canada to pursue forms of regionalization, but personnel at the regional level were "stretched" to provide the necessary level of service. A key issue is the lack of all-weather roads in the north, making it difficult for regional managers to travel between First Nations. People suggested that more success might be found in central and southern parts of the province, where communities are closer to each other and benefit from all-weather roads.

If capacity and logistics challenges can be overcome, then several First Nations would likely be interested in exploring regionalization and regional management of water systems. It was said that making headway on this issue would be "one of the single best things that Alberta could do for First Nations."

Waterton Park - water fall
Credit: Arnold Janz, ESRD



- ***There are concerns the federal government will download responsibilities.***

Compounding the capacity challenges faced by First Nations, there are worries that the federal government will "download" responsibility for safe drinking water to First Nations. Several participants raised concerns about federal Bill S-8, the First Nations Safe Drinking Water Act, which Parliament has passed. Major concerns were that the legislation:

- Will establish legally binding expectations about First Nations drinking water without consideration for whether and how those expectations can be met;
- Has been developed without sufficient input from First Nations; and
- Will not provide any financial resources to First Nations to meet the expectations that are established.

People stressed that dialogue on the issues covered by Bill S-8 is required. If the legislation is enacted, First Nations in Alberta will be in a position where the federal government has given them responsibilities without the means to meet those responsibilities. This will have consequences for the province. Participants said the Government of Alberta should engage the federal government for discussion about the legislation and expectations around First Nations drinking water.

- ***Communities need to be consulted when nearby municipalities build facilities.***

Better engagement and dialogue is required between the Alberta government, municipal governments and First Nations and Métis organizations when municipal water systems are developed. Some participants relayed experiences where municipalities have constructed wastewater lagoons near First Nations or in traditional use areas without consulting First Nations. These kinds of facilities have downstream effects that impact uses and residents. First Nations cannot and should not be an afterthought when new municipal water systems are developed or existing systems are expanded. Participants said the Government of Alberta needs to work with municipal governments to ensure impacts on First Nations are considered and that consultation requirements are observed.

Water Management

- ***Developing reservoirs impacts First Nations.***

Water storage is often raised by people in discussions about water management, particularly the construction of dams and reservoirs. First Nations are concerned about the development of this infrastructure. Dams and reservoirs have had significant negative cultural impacts, since they alter water flows and the dynamics of the watershed generally. Participants said that First Nations have experienced these impacts firsthand, including:

- the loss of medicinal plants below reservoirs;
- impacts on wildlife habitat and resulting changes in wildlife migration patterns and population levels;

- more intensive use of the land around reservoirs, resulting in decay of the land and impacts on the water; and
- major impacts to northern ecosystems as a result of dams in British Columbia.

Participants said these impacts directly affect First Nations' way of life and traditional use, especially the activities of hunters, healers and medicine people. They suggested the Government of Alberta carefully examine the impacts of dams and reservoirs and look hard at other storage options. It was also said the Alberta government should take a tough stance with British Columbia's proposed "Site C" dam. Much has been learned about the negative impacts of dams in the years following the construction of existing dams. This knowledge should result in wiser choices today.

- ***Enhance monitoring and share the results.***

First Nations and Métis organizations feel there is currently an insufficient level of water monitoring. The quality of water impacts the First Nations and Métis way of life - from the drinking water residents rely upon, to the quality of vegetation they use, to the health of wildlife. It is critical that the Government of Alberta knows the condition of water resources and shares this data. First Nations and Métis also need to be able to have trust in the monitoring. For this reason, western science should be complemented with knowledge from trappers and hunters who can speak credibly to water conditions and the effects on the ecosystem.

- ***Changes to federal legislation may compromise monitoring.***

Many individuals from First Nations and Métis organizations raised concerns about the impact of federal legislation. It was said that Bill C-45, which has been passed by Parliament, stands to create gaps in environmental monitoring. Although the stated intent of the legislation is to eliminate unnecessary duplication, people remain worried about the possible effects. Participants said the Alberta government must have good dialogue with the federal government to understand the implications of Bill C-45, and take measures to fill any gaps in monitoring that the legislation might create.

- ***Consider linking polluting to water priority.***

It was suggested that water management could be enhanced by linking water users' behaviour to the priority of their water licences. If a licence holder pollutes the water or damages the watershed, consideration should be given to making that licence holder more "junior" in the water allocation system. While this would mean slightly modifying the "first in time, first in right" system, it would be a strong deterrent since users would not want to risk losing their access to water. Several people held the view that monetary penalties are insufficient, as these are simply seen by users as "a cost of doing business". Participants said the Government of Alberta's policy framework should place its focus on keeping water clean, including the kinds of enforcement tools used to ensure compliance with regulations.

- ***Address tailings ponds.***

Tailings ponds remain a concern to First Nations, especially those in the Lower Athabasca land-use region. The wastewater in these ponds poses a threat to birds and other wildlife. They are a particular risk during mating season, when many species of birds might try to use to the ponds as a gathering place. People also worry that pollutants might one day leak from the tailings ponds, contaminating the land and leeching into water bodies. Participants said that good water management requires that water be protected from contaminants, and that the Government of Alberta should take steps to have the tailings ponds reclaimed as soon as possible.

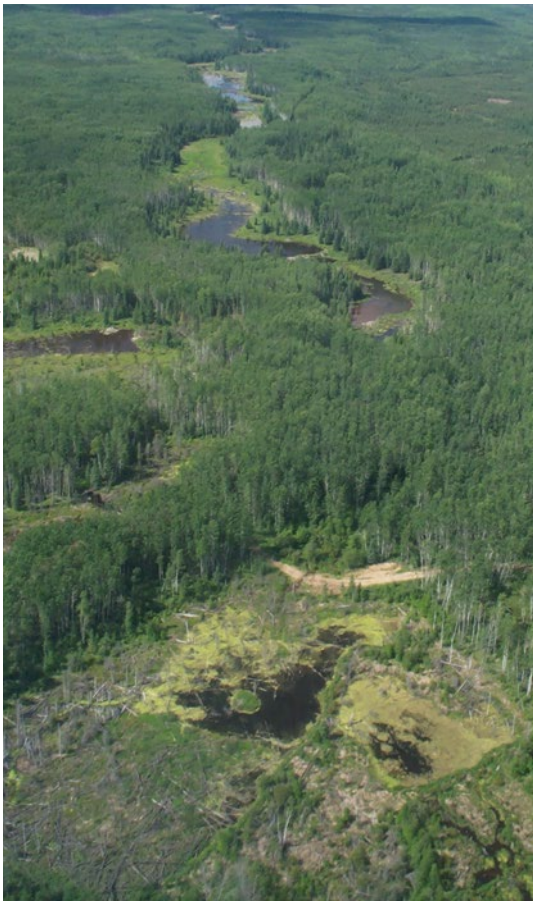
- ***Ensure decisions about water licences are integrated with planning.***

To achieve better water management, decisions about water licences will need to conform with regional plans, and the cumulative effects management philosophy that is part of these plans. If a new water licence will not fit within the water thresholds established by a regional plan, then it must not be approved. Participants noted that for cumulative effects management to be successful, the government needs to have a thorough understanding of ecological baselines and traditional land uses in each region.

Participants also emphasized that decisions about proposed water licences must consider whether the licence conflicts with the interests of First Nations, including traditional uses. If there is a potential conflict, there must be meaningful discussion with the First Nations affected.

- ***A wetland policy needs First Nations input.***

Wetlands near Tar River
Credit: Michael Seneka, ESRD



Although it is important that the Government of Alberta establish a wetland policy as soon as possible, First Nations have not had sufficient input into the development of this policy. Consequently, First Nations are worried the wetland policy will not have the necessary level of rigour required for northern Alberta. Participants expressed concern that the government has a perception that northern wetlands do not need as much protection as southern wetlands because they are more abundant. All wetlands in the province play crucial roles in ecosystems and are vital for the health of the Boreal forest, which provides many traditional use areas for First Nations. The draining of wetlands means an end to First Nations' way of life. Participants urged the government to engage First Nations about the wetland policy as soon as possible.

- ***First Nations water use should have priority above other users.***

Several individuals from First Nations discussed the relationship between First Nations and Alberta's water allocation system. If the system is based on the principle of "first in time, first in right", they said, then

First Nations should have the most senior priority of use. First Nations have a prior claim going back thousands of years, long before Alberta, the Alberta government and the current water allocation system existed. Despite this history, some First Nations are being told they must secure water licences and face the prospect of spending large sums of money to acquire water allocation from existing licence holders.

People noted that this issue has generated considerable friction between First Nations and the Government of Alberta. Some said there are outstanding debates among First Nations about who owns the water that flows through First Nations -- the federal government, the provincial government, or First Nations themselves. A number of First Nations residents are unsure about the provincial government's right to allocate water at all. These frustrations could become a serious source of conflict unless issues regarding First Nations' access to water are addressed.

One suggestion was that the concept of protected water could be used to address First Nations' water priority concerns. Protected water is at times interpreted to include water set aside for social, aesthetic and or cultural values. First Nations' uses and Treaty rights could be considered to fall within the definition of protected water, since these uses are not inconsistent. This approach would enable First Nations to have priority, since the Water Conservation Objectives established for protected water would have senior priority in the river basin. Participants encouraged the government to consider this approach and discuss it further with First Nations.

Participants also said the Government of Alberta should be willing to consider alternatives to the "first in time, first in right" principle, since the principle is part of a very old scheme from a different time. For example, it was suggested that Alberta adopt a "purpose-based" water priority system, similar to those used in other jurisdictions.

- ***Water management planning must be proactive and timely.***

It was noted that in too many cases, especially in the oil sands region, water management planning has been "trying to catch up rather than lead". For example, while much work has gone into developing the Athabasca River Phase 2 Water Management Framework, it has not yet been implemented. Similarly, a Muskeg River water management framework needs to be developed. These are in areas of the province that have seen and continue to see rapid development. Ideally, water management planning should be done in advance of development, so that informed decisions about water licences and developments can be guided by these plans.

To this end, one suggestion was for the Government of Alberta to reinstate a river basin planner in each major watershed to direct water management planning.

- ***Do not allow sharing of industrial water allocations in the oil sands region.***

Making it easier for small agricultural users to share their water allocations with other users may be appropriate. However, the government should be cautious about allowing industrial water users to share allocations, particularly in the oil sands region. It was noted that "legacy" water licences for some oil sands producers are currently exempt from water management frameworks. Allowing these licence holders to share their allocations with other users could enable those other users to sidestep established water conservation objectives. Instead, it was said, all legacy licence holders should be required to adhere to all water management plans. Until this happens, the government should prohibit industrial users in the oil sands region to share water licences.

CONVERSATIONS WITH YOUTH

As a means of ensuring that the voices of young Albertans were heard, members of the Youth Advisory Panel were asked for their input and perspectives.

Established in 2000, the Youth Advisory Panel provides feedback to the Alberta government on proposed strategies and legislation. It is also encouraged to provide recommendations on current initiatives and suggestions to improve the quality of services for youth and other Albertans. The Youth Advisory Panel is comprised of 15 to 22 year olds from around the province. Panel members represent urban and rural perspectives, and a variety of backgrounds and experiences, including members who are Aboriginal.

The Youth Advisory Panel met with the Minister of Environment and Sustainable Resource Development (ESRD), along with ESRD officials, for a conversation session in March 2013. At this session, panel members were invited to share concerns, values, ideas, and perspectives on the four major water topics. The conversation session followed a format similar to those used for the stakeholder and community conversations.

Members of the Youth Advisory Panel were invited to follow up on this dialogue through the use of a new online collaborative policy platform. Through the online collaborative policy platform, members of the Youth Advisory Panel could directly participate in crafting a submission to the water conversation. This platform included:

- a structured wiki;
- user profiles that allowed for peer-to-peer connections; revision controls that enabled users to collaborate, while providing transparency and accountability for revisions; and
- activity streams and comment threads that provided avenues for participation.

Notes from the March conversation session were transcribed and posted to the online platform. Panel members could use the platform to review the transcribed notes, validate and clarify statements, and make additional comments. Input and advice gathered through the platform was then reviewed by ESRD officials. Key themes were identified and presented to the Youth Advisory Panel at an in-person meeting, at which panel members provided further feedback.

As a follow-up to the online platform process, a series of online polls were conducted with panel members, enabling participants to rank the key themes by order of importance.

The key themes identified by panel members largely matched those emerging from other conversation sessions. The themes are ranked by number below and include some unique perspectives provided by the Youth Advisory Panel members.

Healthy Lakes

1. ***Prevent pollution of lakes and clean up degraded areas.***

   Given the vital roles that lakes play, the government should take action to prevent and limit the amount of pollution that enters lakes. This includes managing the amount of water-polluting activities that occur on the landscape, and working to prevent dumping in lakes. Educating lakefront property owners about the potential impacts they can have on lakes could also prevent polluting of lakes. The government should also take action, to clean up areas that are currently polluted and degraded.

2. ***Regulate lake activities.***

   Activities on lakes should be regulated. While some lakes can support a wide variety of activities, others may not be suitable for certain kinds of uses. For example, it could be helpful to establish specific lakes where motorized activities (such as boating) are permissible.

3. ***Limit water extraction from lakes.***

   The amount of water that is taken from lakes for industrial uses, irrigation and other uses should be limited. Alternative sources of water should instead be explored. One idea, for example, is for farmers to use filtered lagoon water to irrigate their fields.

4. ***Recognize and celebrate what lakes offer.***

   It is important that people understand the critical part that lakes play in the overall ecosystem, including providing habitat for animals. Lakes also offer many recreational opportunities and provide sources of water for rural communities, agriculture and other industries. If people have a full appreciation of what lakes offer, they will be more likely to care about them and treat them with respect.

Hydraulic Fracturing and Water

1. ***Monitor groundwater in areas where fracturing activity is occurring.***

   Farmers rely heavily on groundwater sources. It is important that hydraulic fracturing not interfere with or contaminate groundwater sources and farmers' wells. In areas where hydraulic fracturing operations are occurring, groundwater sources should be monitored to ensure contamination is not happening. Another idea is to be selective about where hydraulic fracturing operations are permitted. Perhaps until the technology is further proven and better understood, its use should be limited to "secluded" areas that will not place farmers' and communities' groundwater at risk.

2. ***Reduce the use of fresh water.***

   People are uncomfortable with the amount of fresh water used by industry for hydraulic fracturing operations. There is limited fresh water available. Reducing industry's use of fresh water would make more water available for other uses by citizens. Industry should be encouraged to reduce the amount of fresh water they use, and to increase water recycling. The government could explore the use of a tax or levy to create financial incentives for industry to reduce its fresh water use.

3. ***Increase awareness of impacts of hydraulic fracturing.***

   Albertans should be aware of the potential environmental impacts of hydraulic fracturing; right now, awareness levels seem to be low. They should have a better understanding of how the technology works, its advantages, its risks and the steps that can be taken to mitigate those risks.

Drinking Water and Wastewater

1. ***Ensure all Albertans have access to safe drinking water.***

   All Albertans should be able to access safe drinking water. There should be province-wide standards in place for drinking water, so that all people benefit from the same drinking water standard. One area requiring attention is work camps in the province. In these camps, well water is sometimes used and people often question its quality. To ensure all Albertans can access safe water, the government could explore subsidizing water rates for lower-income citizens. This could be paid for by charging extra money to others who consume more water than an established base amount.

2. ***Provide safe drinking water for Aboriginal communities.***

   Aboriginal communities in Alberta should benefit from safe drinking water supplies, as with all other Albertans. First Nations reserves, for instance, should have better access to water wells and other clean drinking water sources. The Alberta Water Council and the Government of Alberta should work collaboratively with First Nations and with Métis organizations to address drinking water issues.

3. ***Regulate industry use of fresh water.***

   Fresh water that is used by industry is water that could otherwise be used for clean and healthy drinking water supplies for Albertans. Industry should be encouraged to use other water sources for its needs, including recycling their existing water supplies. The Government of Alberta could take actions to encourage industry to reduce its fresh water use, including charging a levy on industry for the amount of fresh water used.

4. ***Explore eco-friendly, community-based options for providing drinking water.***

   In addition to investments in traditional municipal drinking water and wastewater systems, the Government of Alberta should also explore ways of fostering eco-friendly and community-based options for providing drinking water. The government could use policy and financial incentives to encourage the development of community-based options such as: free community water wells, community or neighbourhood level projects that draw on surrounding bodies of water, and rain collection and filtration.

Water Management

1. ***Promote watershed stewardship activities.***

   To manage water in better ways, Albertans need to be engaged in water stewardship. Promoting water stewardship activities can help individuals and industries make better choices about water use and waste disposal. (For example, encouraging citizens to avoid putting harmful materials down the drain or into water bodies.) The Government of Alberta should support delivery of more water stewardship activities.

2. ***Pursue education in classrooms on water related issues.***

   Better water management requires a culture change, similar to how recycling became second-nature to people. Making changes to the school curriculum can enable young Albertans to be educated at an early age about water, its importance and how to use it wisely. Teaching students about the world wide scarcity of fresh water and how to conserve water will create citizens who are more water-conscious.

3. ***Raise awareness about conservation and protection of water.***

   Much can be done to raise awareness generally among Albertans about how they can play roles in conserving and protecting water. Ideas generated by participants included:

   - Teaching simple conservation measures that can be implemented at home;
   - Adopting practices from other jurisdictions, such as the “4 minute shower challenge” that was used in England;
   - Giving out “shower timers” to encourage shorter showers;
   - Holding a ‘walk for water’ or other awareness event;
   - Developing awards that recognize and celebrate sustainable water use;
   - Hosting conferences that focus on local water issues; and
   - Working with municipalities to provide local water information on their websites.

4. ***Support youth-led water and environmental awareness initiatives.***

   Youth could be creatively engaged in leading water-related initiatives that enhance awareness about water conservation and environmental protection. One idea is to sponsor a series of small scholarships that enable youth to implement interesting proposals to address local and global water issues. Fun, youth-focused community awareness nights could also be held to educate youth about water conservation.

5. ***Limit use of bottled water in Alberta.***

The prolific use of bottled water is a concern. Use of bottled water encourages the bottled water industry, and the export of bottled water from Alberta. The Government of Alberta could instead pursue policies and strategies that encourage Albertans to limit the use of bottled water, such as:

- Limiting bottled water exports from Alberta;
- Enacting regulations to ensure public drinking fountains are available in public buildings (including arenas, movie theaters, shopping malls, etc.);
- Requiring restaurants to provide free tap water to patrons, rather than forcing them to purchase bottled water; and
- Encouraging sales of water whereby customers must bring and use their own reusable jug.

6. ***Promote technology.***

The Government of Alberta should use policies and funding to support the development and use of technologies that enable Albertans to conserve water. For example:

- Research funding to support new technology development for water conservation and protection;
- Using tax deductions and other mechanisms to encourage Albertans to install water saving fixtures in their homes and businesses;
- Requiring the use of certain technologies in public washrooms, such as low flush toilets and sensor-equipped sinks; and
- Using technology to share water updates and advisories.

7. ***Examine water pricing to encourage efficient water use.***

Cost is a powerful factor in driving the choices people make. The Government of Alberta could examine how water charges are assessed, to encourage people to use water more efficiently. One idea might be to assess a levy on water use that is allocated to a provincial Water Sustainability Fund to fund research on water conservation and water-related environmental protection.

THE CONVERSATION CONTINUES

The Government of Alberta wishes to thank all of those who participated in the Water Conversation.

It is clear that Albertans care deeply about their water resources. Albertans want these resources to be healthy, safe, and well managed so that they continue to meet today's needs as well as the needs of future generations of Albertans.

The rich input and ideas of participants will help the Government of Alberta determine the best course forward for enhancing our province's ability to safeguard and manage water resources.

This was the start of a renewed conversation about water. As further work is undertaken on the actions identified in this report, the Government of Alberta will continue the conversation. Stakeholders, First Nations, Métis, and all Albertans will have the opportunity to provide input on how we protect and manage water, and about their needs and priorities.

APPENDIX A

List of Participating Organizations

As part of the Water Conversation, a series of watershed stakeholder discussions were held across the province. The topics and format for these sessions mirrored the evening public sessions, with the added goal of deliberately inviting representatives from various segments of society with a significant interest or involvement in water use, management and conservation.

To ensure a balance of interests and perspectives at each discussion, the Minister of Environment and Sustainable Resource Development forwarded invitations to and through over 25 associations and networks with a range of interest in water (see list below). These associations and networks were asked to nominate local individuals and organizations to participate in a stakeholder discussion.

In total, approximately 250 individuals representing more than 140 organizations participated in 11 watershed stakeholder discussions. These groups included environmental organizations, various industries, local businesses, municipalities, conservation groups, local stewardship organizations, and those involved in water research.

The locations of the stakeholder discussions coincided with the boundaries of Alberta's 11 existing Watershed Planning and Advisory Councils (WPACs). Alberta WPACs also participated in these sessions and played an important part in their success. The councils are independent, non-profit organizations that are designated by Environment and Sustainable Resource Development to assess the condition of their watershed and prepare plans to address watershed issues.

Associations, organizations and networks that assisted in nominating local representatives for the watershed stakeholder discussions included:

AUMA – Alberta Urban Municipalities Association

AAMD&C - Alberta Association of Municipal Districts and Counties

ASVA - Association of Summer Villages of Alberta

CAPP - Canadian Association of Petroleum Producers

AEPA - Agri-Environmental Partnership Association

AIPA - Alberta Irrigation Project Association

AFPA - Alberta Forest Products Association

FIAA - Forest Industry Alliance of Alberta

ASGA - Alberta Sand and Gravel Association

IPPSA – Independent Power Producers Association

ARPA – Alberta Recreation and Parks Association

Alberta Chambers of Commerce

ALMS - Alberta Lake Management Society

Cows and Fish – AB Riparian Habitat Management Society

Land Stewardship Centre – Alberta Stewardship Network (Watershed Stewardship organizations)

AFGA - Alberta Fish and Game Association

TUC - Trout Unlimited Canada

DUC - Ducks Unlimited Canada

WPACs - Watershed Planning and Advisory Councils

AEN - Alberta Environmental Network

Synergy Alberta

Alberta Water and Wastewater Operators Association

Alberta Innovates – Alberta Water Research Institute

Alberta Water Council

Public Interest Alberta