LESSER SLAVE INTEGRATED WATERSHED MANAGEMENT PLAN

TERMS OF REFERENCE

ENDORSEMENT

The following individuals and organizations endorse the Terms of Reference for the Lesser Slave Integrated Watershed Management Plan. Endorsement indicates the support for the intent and the direction of the following Terms of Reference.

ORGANIZATION	NAME	DATE AND SIGNATURE
LSWC Board of Directors	Tammy Kaleta, Chair	
Big Lakes County		
MD of Lesser Slave River		
Town of High Prairie		
Town of Slave Lake		
Sucker Creek First Nation		
Swan River First Nation		
Driftpile First Nation		
Kapaweno First Nation		
Sawridge First Nation		
East Prairie Métis Settlement		
Peavine Métis Settlement		
West Fraser		
Tolko		
CNRL		
Pennwest		

EXECUTIVE SUMMARY

Since the 1970s, concerns over the sustainability of the Lesser Slave watershed have been increasing and have become forefront in the minds of stakeholders. To date, there has not been a plan that captures the concerns of all the stakeholders of the Lesser Slave watershed.

The Lesser Slave Watershed Council is one of eleven Watershed Planning and Advisory Councils appointed by Alberta Environment and Sustainable Resource Development under the Provincial *Water for Life* strategy. Watershed Planning and Advisory Councils have been established to report on the condition of their respective watersheds. Each Watershed Planning and Advisory Council leads watershed planning within their designated watershed, develops best management practices, reports on the state of the watershed, fosters stewardship activities, educates users and develops an Integrated Watershed Management Plan.

The Lesser Slave Watershed Council has initiated the development of their Integrated Watershed Management Plan (IWMP) for the Lesser Slave watershed. IWMP planning is a combined effort by multiple stakeholders to identify objectives, set goals and evaluation points to address issues and improve the watershed for all stakeholders. The purpose of the Lesser Slave IWMP is to take into account the whole picture; social, economic and environmental issues within the Lesser Slave watershed. The IWMP will assist all levels of government in making informed integrated resource management decisions that would potentially affect water quality, water quantity and healthy aquatic ecosystems within the Lesser Slave watershed.

The development of the IWMP will be guided by the *Guide to Watershed Management Planning in Alberta* (2014), *Water for Life* (2003), and the *Land-use Framework* (2008).

The following document is the draft Terms of Reference for the Lesser Slave IWMP. This Terms of Reference provides a roadmap of what the IWMP will focus on. This Terms of Reference was produced through multiple stakeholder engagement sessions and with the cooperation and input from the Lesser Slave Watershed Council Board of Directors. Members of the Lesser Slave Watershed Council include representatives from Towns, Municipalities, First Nations, Métis Settlements, industry, non-government organizations, residents and recreational groups located within the Lesser Slave watershed. All of the members share a common interest in managing and maintaining the health of the Lesser Slave watershed.

ACRONYMS

AWC: Alberta Water Council

ESRD: Alberta Environment and Sustainable Resource Development

IWMP: Integrated Watershed Management Plan

LSWC: Lesser Slave Watershed Council

LUF: Land-use Framework

M.D.: Municipal District

R.S.A: Revised Statutes of Alberta

SC: Steering Committee

SDM: Structured Decision Making

SOW: State of the Watershed Report

TAC: Technical Advisory Committee

UARP: Upper Athabasca Regional Plan

WPACS: Watershed Planning and Advisory Councils

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1 INTRODUCTION

1.1 LESSER SLAVE WATERSHED AND THE LESSER SLAVE WATERSHED COUNCIL

The Lesser Slave watershed includes the basins of Lesser Slave Lake and the Lesser Slave River and is further broken into six individual subbasins (Table 1, Figure 1). The total area of the watershed is approximately 20,100 km^2, and it is home to Alberta's third largest lake (Lesser Slave Lake). There are approximately 19,000 residents across the region, with the largest population centers in the Town of Slave Lake and the Town of High Prairie. There are three Métis settlements and five First Nation communities within the watershed and residential development has been concentrated on the south side of Lesser Slave Lake.

Other land uses within the watershed include agricultural (forage crops, seed crops and livestock grazing), oil and gas industry, forestry, provincial parks, wildland parks, provincial recreation areas, RV resorts and campgrounds, ecological reserves, natural areas and traditional land uses. In addition, a large portion of the watershed is within Alberta's Forested Reserve (Jamison, 2009).

Historically, Lesser Slave Lake has experienced fluctuations in the Lake water level that resulted in flooding of low-lying areas around the Lake. A fixed-crest weir was installed in the upper reach of Lesser Slave River in 1983 in an attempt to reduce the severity of flooding and stabilize the water level in the Lake. The weir was successful in stabilizing the Lake water level during high flow times, however during low flow periods, water ceased to flow over the weir and threatened the water supplies of downstream users and

Table 1. Subbasins of the Lesser Slave watershed.

SUBBASIN	AREA (KM^2)
Lesser Slave Lake North	1,324.11
Lesser Slave Lake	1,138.90
Driftpile River	1,428.90
Swan River	2,818.31
Lesser Slave River	6,507.03
South Heart River / East and West Prairie Rivers	6,886.75
Total Area	**20,100**

put the aquatic environment in jeopardy. Over the next two decades, Lesser Slave Lake and Lesser Slave River faced many challenges with the sustainability of the weir system.

In the spring of 2000 LSWC past Chairman George Keay initiated the formation of a lake sustainability group. The group was comprised of individuals and government representatives from around the region who shared concerns for the future of Lesser Slave Lake and its watershed. This group, originally called the Committee for the Sustainability of Lesser Slave Lake, met regularly and discussed lake and water management issues. In 2003 Alberta formalized the *Water for Life* strategy and in 2007 the Lesser Slave Watershed Council was formally designated as the Watershed Planning and Advisory Council for the Lesser Slave watershed.

As of 2015 the LSWC is comprised of a volunteer board of directors who work to report on the state of the watershed, educate and inform watershed residents about water and watershed related topics, identify areas of concern and work to engage stakeholders, governments, and the public in the process of developing and implementing an integrated watershed management plan.

The LSWC board of directors includes representatives from Towns, Municipalities, First Nations, Métis, agriculture, industry, tourism and recreation, trappers, non-government organizations as well as the provincial and federal government. All members share a common interest in managing and maintaining the health of the Lesser Slave Watershed.

1.1.1 LSWC Mission Statement

Lesser Slave Watershed Council is to be a proactive organization working towards the sustainability of the Lesser Slave watershed with regard to the environmental, social and economic health of the region and its citizens.

1.1.2 LSWC Vision Statement

The Lesser Slave watershed, including its lake and rivers, is a bond that brings communities together, is a part of each citizen's life, is a prime asset and renewable resource, and is a generator of economic development.

1.1.3 Guiding Principles

Guiding principles of the LSWC are to:

- Be accountable to all stakeholders and citizens within the watershed;
- Work with stakeholders and citizens to improve the health of the lake and its watershed through collaborative watershed planning; and
- Promote a better understanding of natural watershed

processes and the interactions between land, water, ecosystems and human activities.

The LSWC has taken these guiding principles further and has set strategic goals for 2015 - 2018 to:

- Establish an ongoing collaborative planning and management framework for the Lesser Slave watershed;
- Facilitate watershed research that addresses issues and enables management actions within the watershed;
- Promote watershed education, awareness and stewardship in the watershed; and
- Establish a strong operational model in which the LSWC is sustainable, has clear governance, capacity and funding.

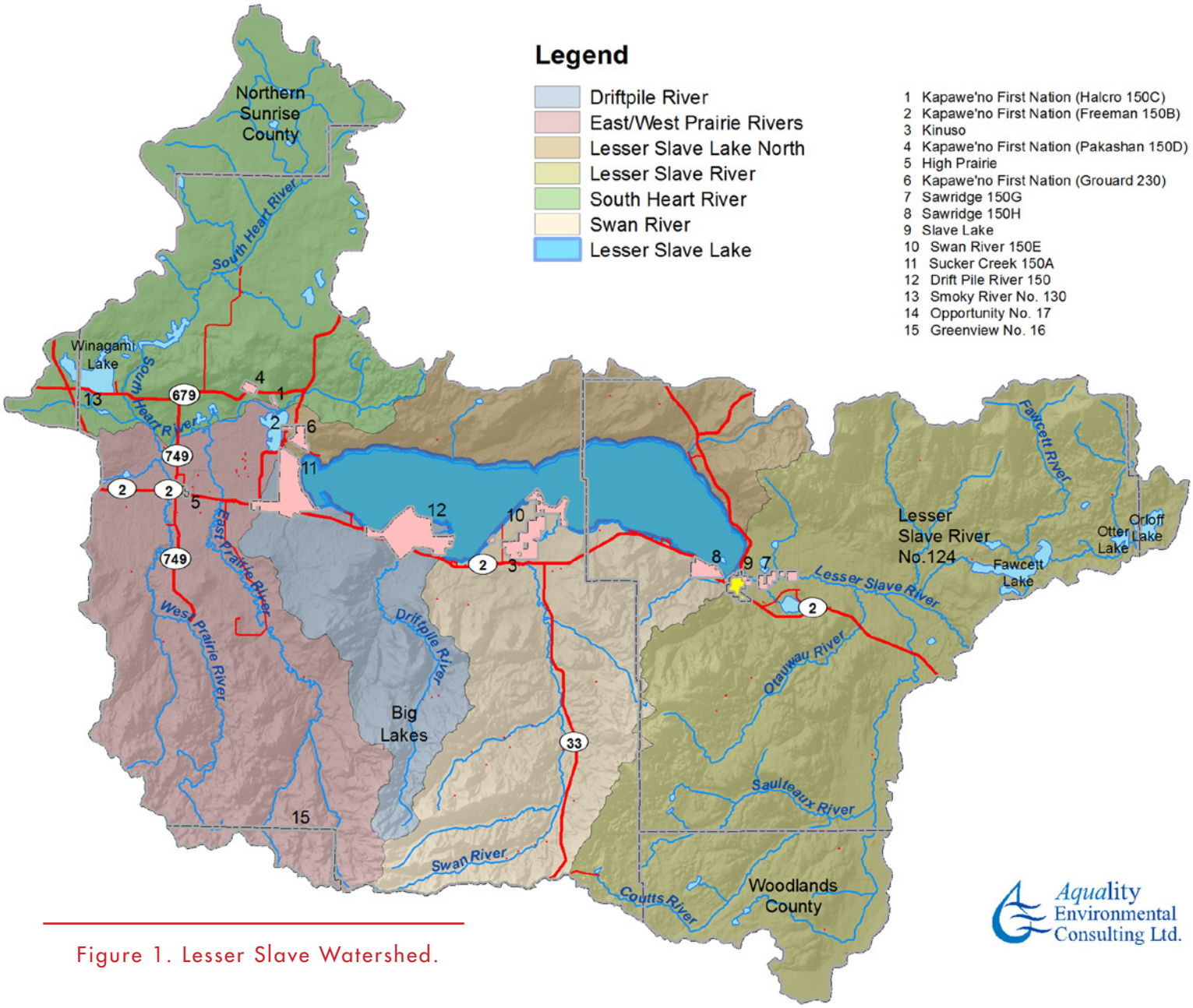


Figure 1. Lesser Slave Watershed.

1.2 WATERSHED MANAGEMENT PLANNING IN ALBERTA

In 2000, the Government of Alberta released the *Water Act* with a purpose to "promote the conservation and management of water, including the wise allocation and use of water…". The *Water Act* recognizes the importance of working collaboratively, the need for an integrated approach and the need to ensure a healthy environment for life in the present and the future. In support of the goals set out in the *Water Act*, ESRD released the *Framework for Water Management Planning* (Framework) to facilitate a collaborative effort from multiple stakeholders, including governments, to participate in the wise use and management of water in Alberta. The Framework was guided by public consultation and recognizes that no two locations are the same and that a unique approach will have to be applied to each situation. The Framework applies to all waterbodies including lakes, wetlands, rivers and streams in Alberta. Interestingly, the Framework also included an additional chapter entitled *Strategy for the Protection of the Aquatic Environment*. To further support the objectives set out in the *Water Act* and the Framework, a new provincial water strategy called *Water for Life: Alberta's Strategy for Sustainability* was released in 2003 that addressed quality, quantity and aquatic ecosystems. *Water for Life* recognizes that management and use of water involves economic, social and environmental pillars; therefore *Water for Life* has three goals:

1. Safe, secure drinking water supply
2. Healthy aquatic ecosystems
3. Reliable, quality water supplies for a sustainable economy

To achieve these goals, *Water for Life* relies on three partnership types:

1. Alberta Water Council (AWC) – province-wide scale
2. Watershed Planning and Advisory Councils (WPACS) – the Alberta watershed scale
3. Watershed Stewardship Groups (WSGs) – the local scale.

The Government of Alberta is responsible for implementing the *Water for Life* strategy, however it uses a shared governance approach (AWC, 2008b) and works with local stakeholders. Watershed Planning and Advisory Councils determine and assess the condition of each of their respective watersheds. Each WPAC leads watershed planning within their designated watershed, develops best management practices, reports on the state of the watershed, fosters stewardship activities and educates users. Watershed management plans address issues in

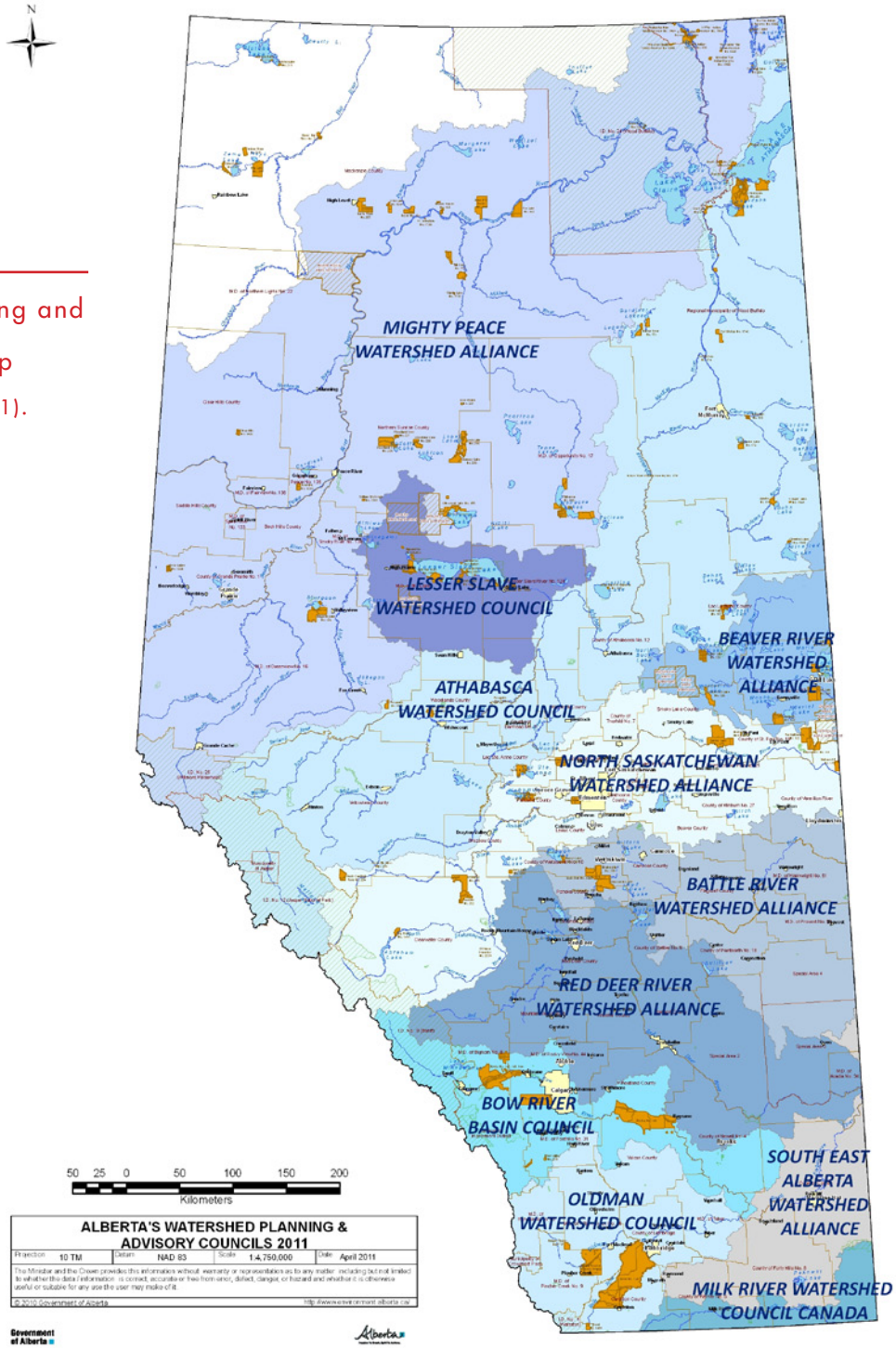


Figure 2. Watershed Planning and Advisory Councils Map (Government of Alberta, 2011).

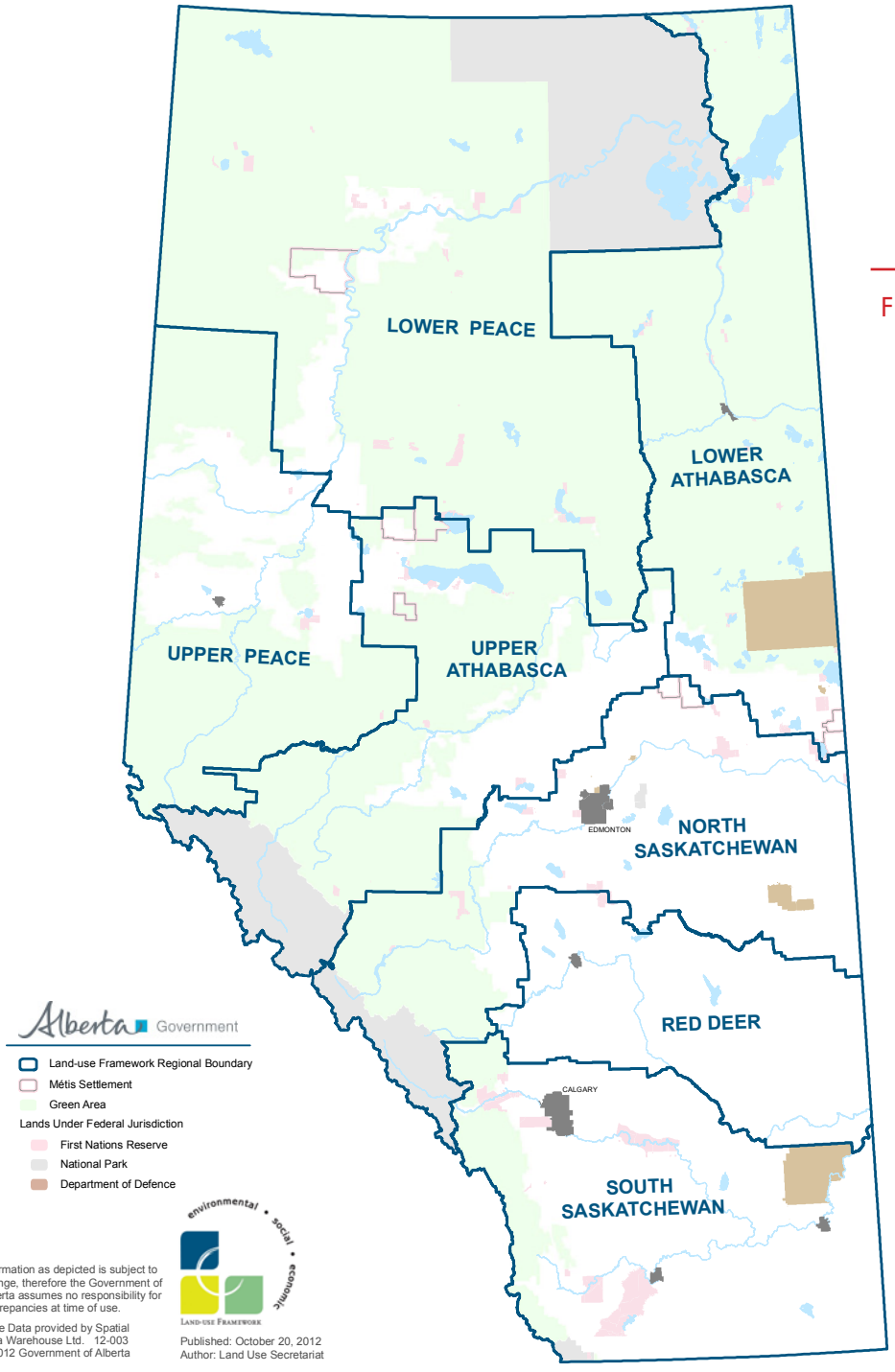


Figure 3. Land-use Framework Map

(Government of Alberta, 2012).

the watershed and engage residents and stakeholders to seek solutions to the identified issues. The Lesser Slave Watershed Council makes up one of the eleven WPACS in Alberta (Figure 2). The Government of Alberta retains legislative accountability and therefore approves Terms of References and final IWMPs.

Another planning tool in Alberta affecting water management decisions is Alberta's *Land-use Framework* (2008) (LUF). The purpose of the LUF is aimed at managing growth in the province by maintaining a growing economy while also addressing the cumulative pressures and effects that increasing land-use has on the environment. The LUF divides the province into seven regions, with each region responsible for developing its own plan to manage the impacts of development on land, water and air (Figure 3). The LUF contains seven strategies:

1. Develop seven regional land-use plans based on seven new land-use regions.

2. Create a land-use Secretariat and establish Regional Advisory Councils.

3. Cumulative effects management will be used at the regional level to manage the impacts of development on land, water and air.

4. Develop a strategy for conservation and stewardship on private and public lands.

5. Promote efficient use of land to reduce the footprint of human activities on Alberta's landscape.

6. Establish an information, monitoring and knowledge system to contribute to continuous improvement of land-use planning and decision-making.

7. Inclusion of aboriginal peoples in land-use planning.

The Lesser Slave watershed falls within the Upper Athabasca LUF Region. The Upper Athabasca Regional Plan (UARP) has not yet been started, however the LSWC will contribute to the UARP though collaboration with the Regional Advisory Council for the Upper Athabasca Region and having a Watershed Management Plan will assist in making land-use decisions within the Lesser Slave watershed. In 2014 the Government of Alberta released the *Guide to Watershed Management Planning in Alberta*. The Guide fulfills one key action identified in the Government of Alberta's *Water for Life Action Plan* (2009). Its guide was the Alberta Water Council 2008 report, *Recommendations for a Watershed Management Planning Framework for Alberta*.

1.3 NEED FOR A PLAN

Since the 1970s, concerns over the sustainability of the Lesser Slave watershed have been increasing. There has not yet been a plan that captures the concerns of all the stakeholders of the Lesser Slave watershed. Initiatives have been undertaken by the LSWC including a Water Management Plan (2009); however the plan focused on only a portion of the Lesser Slave watershed. There have been other initiatives that the LSWC has started but which only considered small portions or one specific issue of the watershed. There is an immediate need for an all-inclusive IWMP. As the LSWC moves forward with its planning initiatives, having an IWMP will align concerns and provide a focus for initiatives that will benefit all stakeholders.

1.3.1 Water Quality Monitoring

Since the 1960s, water quality has been monitored at various locations within the Lesser Slave watershed. Sampling locations have been variable from year to year and sampling parameters have been inconsistent. As such, the LSWC does not have a complete picture of water quality within the watershed and more information is required. Some of these gaps may be filled through the watershed management planning process.

1.3.2 2006, 2007 and 2010 Aerial Riparian Assessments

Riparian vegetation is a key component along any waterbody and aids in maintaining the health of the waterbody. Riparian vegetation is classified as part of the "riparian area" of a waterbody. The riparian area is located directly adjacent to a waterbody and is where vegetation and soils are strongly influenced by the presence of water and are the most productive and valuable landscape type in Alberta. Riparian areas across Alberta have declined in health by as much as 50% in past 100 years, and the AWC recently released a status report on riparian health in Alberta (Clare and Sass, 2012). In 2006, the LSWC conducted an aerial video assessment of the South Heart River and the West Prairie River (Johns and Hallett, 2006). In 2007, Lesser Slave River (Osokin and Hallett, 2007) was flown and in 2010 the Swan River and its tributaries were flown (Hallett, 2011). Northern Sunrise County has assessed riparian health on the North Heart River and tributaries in 2008 and again in 2013 (Aquality and Walker Environmental, 2008 and 2014). The aerial assessments provide valuable information on the state of riparian areas along the locations assessed, but do not provide enough information to ascertain an understanding of riparian health throughout the watershed.

1.3.3 Water Management Plan 2009

The Water Management Plan - Phase I for Lesser Slave Lake and Lesser Slave River Basins focused on the 1983 installation of the fixed-crest weir, although successful with stabilizing the Lake level, created other problems that required solutions. The Water Management Plan involved the completion of four technical tasks and made five recommendations to address the issue of low flows in the Lesser Slave River. In 2010, ESRD approved the recommendations and made a commitment to the LSWC to move forward on implementing them. While this was a great starting point for collaboration between ESRD and LSWC, the plan was focused on Lesser Slave River and did not encompass the entire watershed.

1.3.4 2009 State of the Watershed

To fulfill their mandate and support *Water for Life* goals, the LSWC released a State of the Watershed report (SOW) in 2009 (Jamison, 2009). The SOW reviewed previously collected data on water quality, water quantity, land use and biological indicators. The purpose of the report was to provide a snapshot in time of the "state" of the watershed and provide a general overall assessment of the watershed, but lacked a lot of information and identified many data gaps. LSWC has been working since 2009 to fill some of the data gaps and fulfill recommendations that were identified in the SOW, such as determining the in-stream flow needs for the Lesser Slave River, including surveying, 2-D modeling and creating a water quality model for the River. In addition, the LSWC is working with ESRD to update the SOW with current water quality data, paleolimnology of the east and west lake basin sediments, a nutrient budget and updated information on fisheries and fish populations. This updated information will be presented in a 2015 technical report and will provide additional information to the IWMP and assist in filling some of the previously identified data gaps.

1.3.5 Watershed Risk Assessment

In the winter of 2014 the LSWC's IWMP Steering Committee worked with CPP Environmental during a series of facilitated sessions to identify risks to Lesser Slave Lake and the watershed and assess them based on potential impact to the watershed and the likelihood of the risk occurring. The risks were identified based on issues and priorities previously brought forward and through the work of the Steering Committee. Five themes emerged from the list of risks:

1. Water quality

2. Water quantity

3. Biodiversity

4. Social and economic values

5. Riparian areas and wetlands

This exercise was used to shape the goals and objectives of this Terms of Reference and guide the IWMP process. The risk assessment is included in Appendix C on page 35.

2 PROCESS

2.1 STRUCTURED DECISION MAKING PROCESS

Making decisions about environmental management and resources can be challenging. Decisions that are made affect other users and must not be taken lightly. The LSWC has chosen the structured decision making (SDM) approach to making decisions as it focuses on engaging stakeholders, experts and decision makers. The SDM process has shown to be an effective tool for groups to work together to create solutions that are rigorous, inclusive, defensible and transparent. SDM has a dual focus which is the foundation for defensible decisions; values of affected people and scientific information concerning potential consequences of actions (Gregory *et al.*, 2012).

The SDM process follows six steps:

Step 1: Clarify the Decision Context: Defines what question or problem is being addressed and establishes the scope of the management decisions.

Step 2: Define Objectives: Defines "what matters" about the decision.

Step 3: Develop Alternatives: Develop creative alternatives that are responsive to the defined objectives.

Step 4: Estimate Consequences: Consequences of the alternatives on the performance measures are estimated.

Step 5: Evaluate Trade-offs: The goal is to choose an alternative that achieves an acceptable balance across multiple objectives.

Step 6: Implement, Monitor, and Learn: The SDM process should promote learning and build management capacity to make better decisions in the future. This learning may be related to technical understanding, human resources, or institutional capacity.

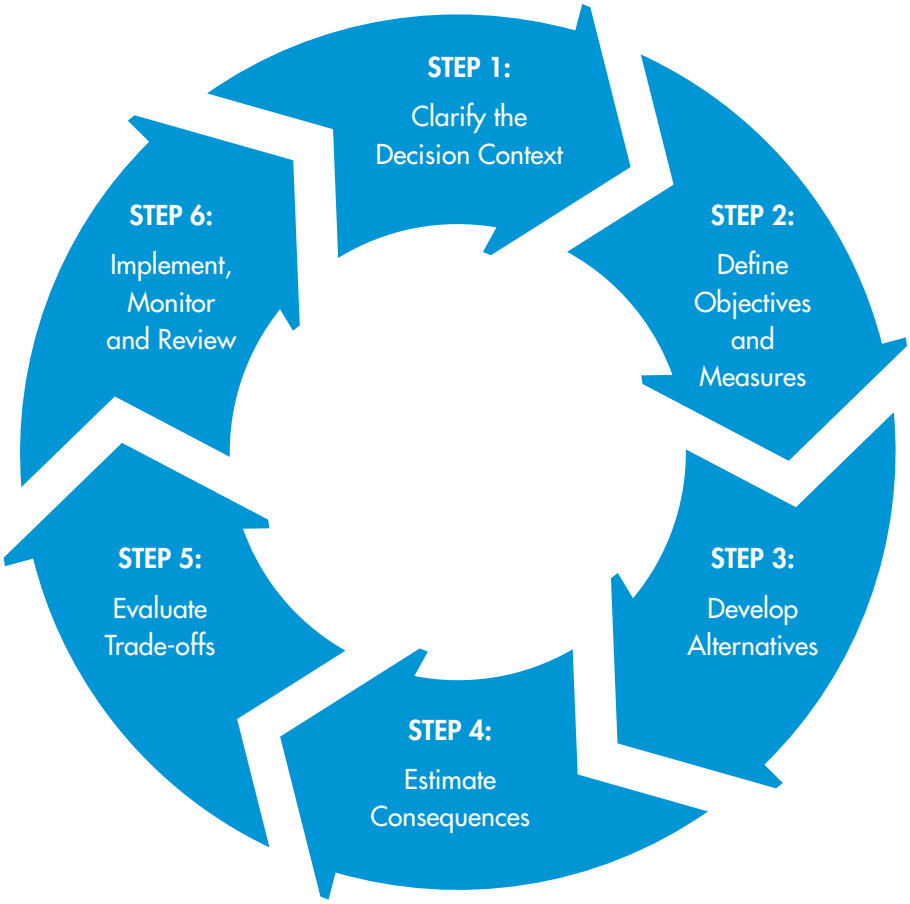


Figure 4.
Six steps in Structured Decision Making
(Gregory et al., 2012).

These six core steps (Figure 4) are used to structure and guide the decision making process. For each of the decision steps, different methods are used to collect data and describe information to assist in making comparisons among alternatives. These methods are designed to involve different ways of presenting information, finding links and building common understanding among participants. The LSWC and its stakeholders will work though the six steps of the SDM process and the consensus decision making process to deliver an IWMP that is transparent, defensible, rigorous and inclusive.

The SDM process is also used by other groups in Alberta such as the Wapiti River Steering Committee and the Upper Smoky River Committee on their joint Water Management Plan. In addition, the SDM process is endorsed by ESRD as being open and transparent.

3 SCOPE, INTENT, OUTCOMES AND OBJECTIVES

Integrated Watershed Management Plans recognize that all human activities use Alberta's water, either directly or indirectly, and that this impacts the quality and quantity of Alberta's water resources. The IWMP will encompass the entire watershed, address the needs of aquatic ecosystems and stakeholders and propose objectives that are in line with Water for Life objectives. The IWMP will identify outcomes, actions and performance measures taking into account ecological, economic, social and cultural values. Outcomes identified in the IWMP process will be S.M.A.R.T.: specific, measurable, achievable, realistic and timely (Alberta Water Council, 2008a).

An IWMP is a combined effort by multiple stakeholders to identify outcomes, set objectives and evaluation points to address issues and improve the watershed for all stakeholders. The purpose of the Lesser Slave IWMP is to take into account the whole picture and include social, economic and environmental issues within the Lesser Slave watershed. The IWMP will assist all levels of government and stakeholders with making informed decisions that would potentially affect water quality, water quantity and healthy aquatic ecosystems within the Lesser Slave watershed.

3.1 SCOPE

The Lesser Slave watershed IWMP will encompass the entire Lesser Slave watershed including all six subbasins (Table 1, Figure 1). To determine the scope of the IWMP, the LSWC engaged in multiple stakeholder consultations (Abells Henry, 2013 and Aquality, 2013). During this process, stakeholders identified three areas of concern; water quality, water quantity and healthy aquatic ecosystems. The IWMP will focus on these three areas.

3.2 INTENT

The Lesser Slave IWMP will be aligned with the *Guide to Watershed Management Planning in Alberta* (2014), the *Land-use Framework* (2008), and *Water for Life* (2003). The IWMP will identify the challenges facing water management in the Lesser Slave watershed and will provide guidance to stakeholders including monitoring, tracking and reporting as well as identifying those responsible

for implementing IWMP recommendations. It will include recommendations, an implementation plan and a schedule for implementation and review of the IWMP to ensure the plan stays current.

The IWMP will not gather new information to fill data gaps and it will not formulate legislation, policy, or regulations as it does not have the authority to do so.

3.3 OUTCOMES AND OBJECTIVES

Through the risk assessment and prioritization exercise that the project Steering Committee completed, five main themes emerged.

1. Water quality

2. Water quantity

3. Biodiversity

4. Social and economic values

5. Riparian areas and wetlands

Under each of these themes the LSWC will establish specific outcomes and objectives that will lead to the IWMP recommendations in the form of an action list that is necessary in achieving the broader watershed outcomes.

The outcomes of this IWMP support the provincial *Water for Life* outcomes of:

- Safe, secure, drinking water supply;

Healthy aquatic ecosystems; and,

Reliable, quality water supplies for a sustainable economy.

THEME	OUTCOME	OBJECTIVE
Water Quality	Water quality supports communities, aquatic ecosystems, recreation, wildlife and economic opportunities.	Maintain or improve water quality in Lesser Slave Lake and its tributaries.
Water Quantity	Surface and ground water are managed in a way that supports communities, aquatic ecosystems, recreation, wildlife and economic opportunities.	Recommend water conservation strategies that promote effective use of water.
Biodiversity	Sustainable land use practices take place in the watershed that maintain and support biodiversity.	Recommend best management practices for land use that will conserve and enhance biodiversity in the watershed.
Social and Economic Values	A healthy watershed that will provide recreational and economic opportunities.	Promote a stewardship ethic among watershed residents and users. Recommend the development of a lake management plan to guide sustainable development around LSL.
Riparian Areas and Wetlands	Healthy riparian areas stabilize banks and shorelines, improve water quality, reduce sedimentation, provide habitat and promote biodiversity.	Recommend strategies to conserve and enhance riparian areas in the watershed and identify priority areas for restoration.
	Wetlands are kept intact to provide flood and drought mitigation, improved water quality and habitat.	Recommend wetland conservation strategies that are in line with Alberta's wetland policy and promote wetland and riparian education and stewardship.

And the provincial *Land-use Framework* outcomes of:

Healthy economy supported by our land and natural resources;

Healthy ecosystems and environment; and,

People-friendly communities with ample recreation and cultural opportunities.

More information on the potential structure and content of the IWMP is provided in Appendix A.

4 COMMUNICATION AND ENGAGEMENT

The Lesser Slave Watershed Council is committed to the ongoing efforts required to engage members of the public throughout the IWMP process. With direction provided in Section 9(2)(f) of the *Water Act*, "The Director or other person developing a water management plan must engage in public consultation that the Minister considers appropriate during the development of the water management plan," the LSWC is responsible for the consultation and engagement activities that will support the development of an IWMP. In addition, the *Framework for Water Management Planning* states: "As outlined in the water management principals, public consultation is essential to the planning exercise. During water management planning, Albertans must have an opportunity to understand the current state of the resource and provide input. Therefore, the process by which public consultation will occur needs to be clearly identified to ensure that communication is open and information is shared."

Throughout 2014, the LSWC IWMP Steering Committee worked with CPP Environmental to develop a Communication and Engagement Strategy for the IWMP project. The strategy provides the details of how the LSWC will engage with the public, stakeholders, governments and First Nations throughout the IWMP project phases.

The LSWC has a website (www.lesserslavewatershedcouncil.ca) and has allocated a specific webpage to the IWMP process that contains all key project information, links to all documents, presentations and related project information including the Communication and Engagement Strategy.

The desired outcome of the IWMP is a shared vision for the watershed to be developed with the collaborative actions of stakeholders and individuals who have a role in the management of water resources within the Lesser Slave Watershed. By collaborating with all levels of government, key stakeholders and the public from the early stages, overall support for the development of the IWMP will increase, leading to a better understanding of the goals and objectives, and support for implementation of recommendations.

The overall objectives of the IWMP Communication and Engagement Strategy (CPP, 2014) are to:

- ensure that all those interested are given the knowledge base to understand the issues, and the recommendations being considered;
- provide a variety of opportunities to involve the public, stakeholders and local governments throughout the development of the IWMP;
- enable participants in planning process to have an active role in shaping the kind of engagement that is meaningful to them;
- consider the type of engagement needed to address the unique phases of the planning process; and
- consider all feedback from the public and stakeholders in the continued development of the IWMP.

Public consultation is essential to a successful planning process. People living within the watershed must have the opportunity to understand the current state of the watershed, provide input and be encouraged to become stewards of the Lake and watershed.

5 ROLES, RESPONSIBILITIES AND ACCOUNTABILITY

The LSWC Board of Directors will form an IWMP Steering Committee (SC) to manage the development of the IWMP. In addition, the IWMP SC will establish a Technical Advisory Committee (TAC) that will provide technical feedback and advice to the SC throughout the IWMP process. Figure 5 presents the IWMP governance structure.

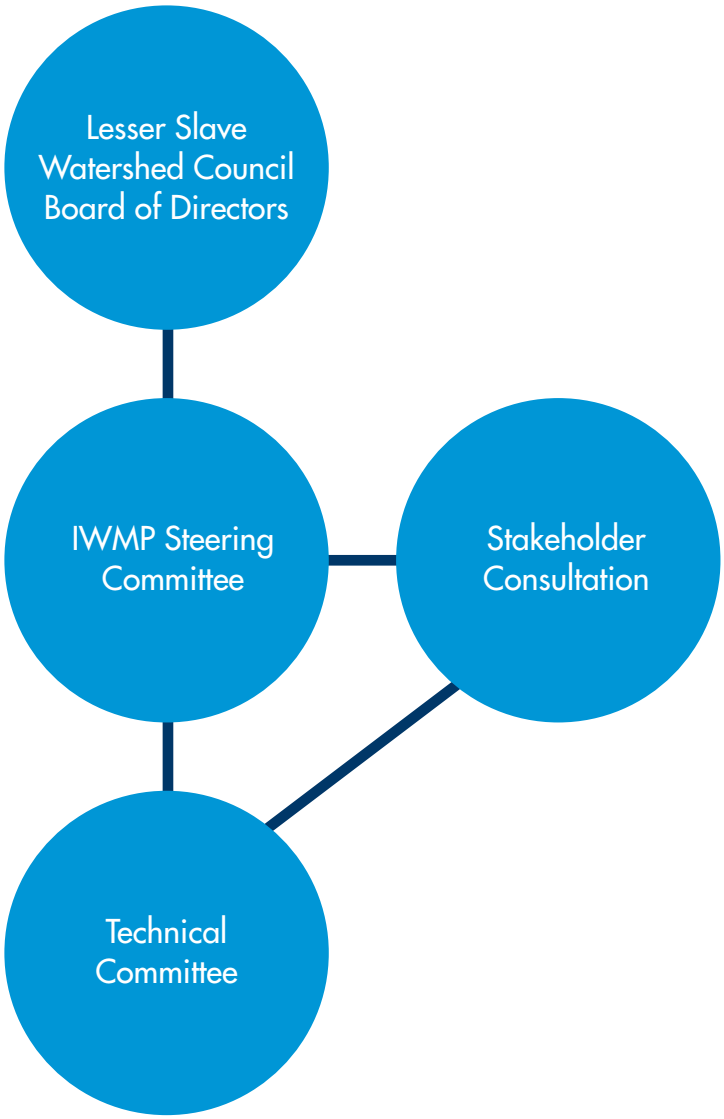


Figure 5. Governance Structure for the Lesser Slave IWMP.

5.1 LESSER SLAVE WATERSHED COUNCIL BOARD OF DIRECTORS

There are 18 members on the LSWC Board of Directors. They are elected or appointed from the LSWC membership as per the LSWC Society Bylaws. The Board of Directors is responsible for ensuring IWMP project phases are completed on time and are the final approval body for project deliverables. Sectors represented on the Board of Directors include:

- Department of Fisheries and Oceans Canada
- Alberta Environment and Sustainable Resource Development
- Town of High Prairie
- Town of Slave Lake
- M.D. of Lesser Slave River
- Big Lakes County
- First Nation Member at large
- Métis Member at large
- Forest and related industry
- Agricultural
- Oil and Gas industry
- Environmental non-government organizations
- Commercial Fisherman Association*
- Tourism and recreation
- Member at large
- Cottage and cabin owners
- Trappers

*At this time there is no commercial fishing taking place in the watershed

5.2 IWMP STEERING COMMITTEE

The IWMP Steering Committee was established in 2014 by the LSWC Board of Directors to oversee the completion of the IWMP Terms of Reference and all other associated project work. The SC will guide and oversee the IWMP project phases as outlined in the timeline included in Appendix B. The SC will be accountable for the IWMP project and will be accountable to the LSWC Board of Directors. The SC is governed by the LSWC's IWMP Steering Committee Terms of Reference (CPP, 2014).

The IWMP Steering Committee will be responsible for:

- Identifying desired outcomes;
- Identifying and reviewing deliverables;

- Approving, hiring and directing the Project Consultants;
- Reporting on progress to the Board of Directors via the Chair through preparation and dissemination of progress reports;
- Ensuring appropriate stakeholder and public input, as outlined in the Communication and Engagement Strategy;
- Monitoring project progress; and
- Recommending major project deliverables to the LSWC Board of Directors of approval.

The SC will include one person designated to represent the interests of:

- Alberta Environment and Sustainable Resource Development
- Big Lakes County
- M.D. of Lesser Slave River
- Town of High Prairie
- Town of Slave Lake
- First Nations
- Forestry
- Agriculture
- Oil and Gas industry
- NGOs
- LSWC Chair
- Lesser Slave Watershed Council Project Manager

In addition the IWMP Steering Committee will establish a Technical Advisory Committee (TAC) that will provide technical feedback and advice to the SC. Public and stakeholder consultations will be held to provide additional feedback to the SC. The SC Terms of Reference can be obtained at www.lswc.ca on the Watershed Planning page.

5.3 IMWP TECHNICAL ADVISORY COMMITTEE

Technical experts from government, academic, industry and private sector staff with knowledge in different aspects of water, land and resource management will make up the IWMP TAC. The TAC will be responsible for providing technical guidance to the SC where needed throughout the project. TAC members may be involved in supplementary project work based on their field of expertise to aid in the development of the IWMP.

6 POLICY AND LEGISLATIVE CONTEXT

Throughout the IWMP process, existing legislation, policies and plans will be reviewed to ensure linkages, alignment and agreement. The following sections outline Federal and Provincial legislation that the Terms of Reference and IWMP will adhere to.

6.1 FISHERIES ACT (1985)

The purpose of the *Fisheries Act* is to protect the productivity of recreational, commercial and Aboriginal fisheries. The *Fisheries Act* regulates and enforces on serious harm to fish or any permanent alteration to fish habitat. It applies to all Canadian waters (private and public) that provide habitat opportunities or support habitat opportunities at any life stage.

6.2 SPECIES AT RISK ACT (SARA) (2002)

"The purposes of the Act are to prevent Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, and encourage the management of other species to prevent them from becoming at risk." Destruction of the critical habitat of a SARA listed species is also prohibited under the *Species at Risk Act*.

6.3 MIGRATORY BIRDS CONVENTION ACT (1994)

"The purpose of this Act is to implement the Convention by protecting and conserving migratory birds — as populations and individual birds — and their nests." Some species may have more rigorously legislated requirements under the *Species at Risk Act*.

6.4 WATER ACT (R.S.A. 2000)

"The purpose of this Act is to support and promote the conservation and management of water, including the wise allocation and use of water, while recognizing:

- The need to manage and conserve water resources to sustain our environment and to ensure a healthy

environment and high quality of life in the present and the future;

- The need for Alberta's economic growth and prosperity;
- The need for an integrated approach and comprehensive; flexible administration and management systems based on sound planning, regulatory actions and market forces;
- The shared responsibility of all residents of Alberta for the conservation and wise use of water and their role in providing advice with respect to water management planning and decision-making;
- The importance of working co-operatively with the governments of other jurisdictions with respect to trans-boundary water management; and
- The important role of comprehensive and responsive action in administering this Act."

6.5 PUBLIC LANDS ACT (R.S.A. 2000)

The purpose of the *Public Lands Act* is to outline the administration of public lands within the province and the powers of the Alberta Government to manage this land. This land is referred to as Crown Land and does not include land occupied by private land owners, Provincial Parks, land held by the federal government, or First Nations Reserves. Crown Land includes the beds and shores of all permanent and naturally occurring bodies of water. It prohibits the disturbance of any public land in a manner that results or is likely to result in injury to the bed or shore of any river, stream, watercourse, lake or other body of water or land within the vicinity of that public land.

6.6 ALBERTA LAND STEWARDSHIP ACT (2009)

The *Alberta Land Stewardship Act* is the legal basis for all land-use planning in Alberta. "The purposes of this Act are:

- To provide a means by which the Government can give direction and provide leadership in identifying the objectives of the Province of Alberta, including economic, environmental and social objectives;
- To provide a means to plan for the future, recognizing the need to manage activity to meet the reasonably foreseeable needs of current and future generations of Albertans, including aboriginal peoples;
- To provide for the co-ordination of decisions by decision-makers concerning land, species, human settlement, natural resources and the environment; and
- To create legislation and policy that enable sustainable development by taking account of and responding to the cumulative effect of human endeavor and other events."

6.7 MUNICIPAL GOVERNMENT ACT (R.S.A. 2000)

"The *Municipal Government Act* (MGA) is the legislative framework in which all municipalities and municipal entities across the Province of Alberta operate. The MGA has three main areas of focus, governance, planning and development and assessment and taxation." The MGA provides municipalities the direction, control and management of the rivers, streams, watercourses, lakes and other natural bodies of water within the municipality, including the air space above and the ground below. It also provides municipalities with authority to regulate water on municipal lands, management of private land to control non-point sources, and authority to ensure that land use practices are compatible with the protection of aquatic environment. It enables a municipal government to take the entirety of ravines, floodplains or unstable ground as environmental reserve and establish a buffer zone around any body of water to allow access or prevent pollution.

6.8 ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT (EPEA) (R.S.A. 2000)

"The purpose of this Act is to support and promote the protection, enhancement and wise use of the environment." EPEA covers a wide range of activities including environmental assessments, reclamation, conservation easements, wastewater, storm drainage and substance releases.

6.9 ALBERTA WETLAND POLICY (2013)

"The goal (or purpose) of the *Alberta Wetland Policy* (2013) is to conserve, restore, protect and manage Alberta's wetlands to sustain the benefits they provide the environment, society, and economy." This policy will help to maintain wetland values in Alberta such that the ecological, social, and economic benefits that wetlands provide are maintained, thereby helping to ensure Albertans have healthy watersheds that provide safe and secure drinking water supplies, healthy aquatic ecosystems, and reliable, quality water supplies for a sustainable economy. In recognition of the high rate of wetland loss in some watersheds, this policy also encourages Albertans to be proactive in increasing wetland area.

6.10 FISHERIES (ALBERTA) ACT (R.S.A. 2000)

The *Fisheries (Alberta) Act* is responsible for the management of fisheries in Alberta. This includes licensing of fisheries, commercial harvesting, use of fish or other activities involving or affecting fisheries within Alberta. The act regulates fisheries through the regulation of fish buyers, processors, aquaculture operations, and fresh water fishing licenses. This act provides the legal framework to establish regulation pertaining to fishing season and catch restrictions.

6.11 SOIL CONSERVATION ACT (R.S.A. 2000)

The purpose of the *Alberta Soil Conservation Act and Regulations* is to impose a duty upon every landholder to take appropriate measures to prevent soil loss or deterioration or to mitigate the same where it has occurred. Where a breach of duty occurs, the landholder may be served with a notice to take remedial action. If the landholder fails to comply, the authorized authority may take remedial action at the landholder's expense. The legislation also provides appeal and dispute settlement mechanisms.

6.12 WATER FOR LIFE (2003)

The purpose of the *Water for Life* strategy is to recognize that Alberta's population and economic growth is changing, and the Government of Alberta needs to ensure three basic outcomes for all Albertans:

1. Safe, secure drinking water supply.
2. Healthy aquatic ecosystems.
3. Reliable, quality water supplies for a sustainable economy.

The goals of *Water for Life* will be met through knowledge and research, partnerships and water conservation.

6.13 GUIDE TO WATERSHED MANAGEMENT PLANNING IN ALBERTA (2014)

The *Guide to Watershed Management Planning in Alberta* (2014) both outline the process for watershed management planning and the components required for completing watershed management plans in the province. The document supersedes the *Framework for Water Management Planning*, an older water management planning guide published by Alberta Environment.

6.14 LAND-USE FRAMEWORK (2008)

Alberta's *Land-use Framework* (LUF) is aimed at managing growth in the province by maintaining a growing economy while also addressing the cumulative pressures and effects that increasing land use has on the environment. The LUF divides the province into seven regions, each region falling under its own regional plan to manage the impacts of development on land, water and air. The LUF contains seven strategies, two of which focus on watershed management.

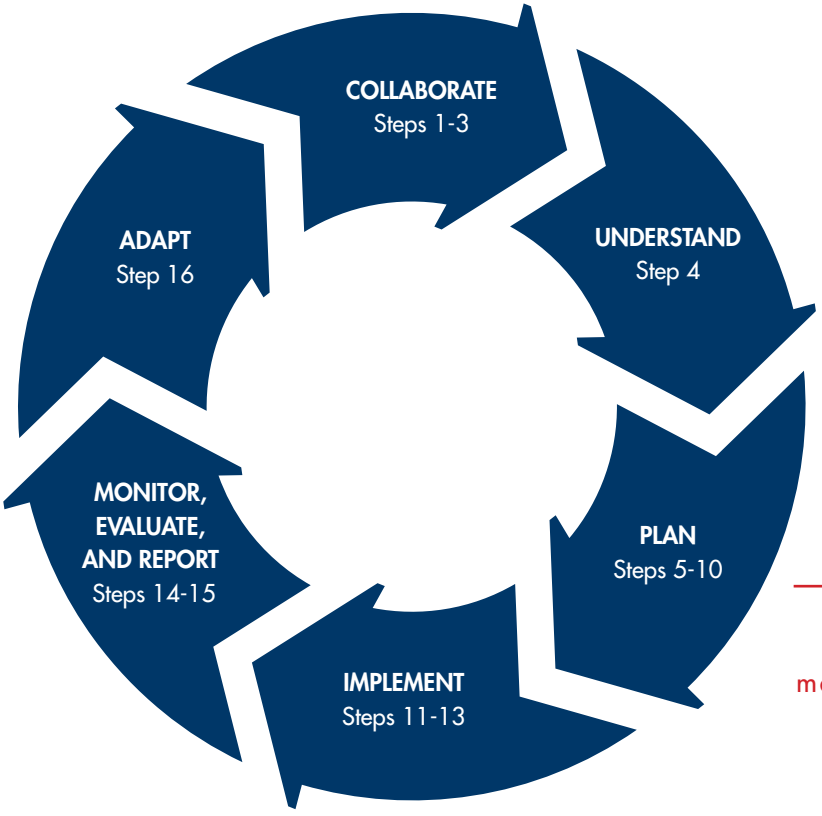
The *Land-use Framework* is a guidance document for provincial leadership in land-use decisions and is based on these seven strategies.

1. Develop seven regional land-use plans based on seven new land use regions.
2. Create a Land-use Secretariat and establish a Regional Advisory Council for each region.
3. Cumulative Effects Management will be used at the regional level to manage the impacts of development on land, water and air.
4. Develop a strategy for conservation and stewardship on private and public lands.
5. Promote efficient use of land to reduce the footprint of human activities on Alberta's landscape.
6. Establish an information, monitoring and knowledge system to contribute to continuous improvement of land-use planning and decision making.
7. Inclusion of aboriginal peoples in land-use planning.

Regional Plans will be produced for each of the seven regions in Alberta. The Lesser Slave watershed falls within the Upper Athabasca Region. To date the UARP process has yet to begin.

7 PLAN EVALUATION AND APPROVAL

The LSWC intends to follow the process outlined in the Guide to Watershed Planning in Alberta to ensure that the final IWMP meets the requirements of the Department by following a rigorous process.



STEP 1: Invite key stakeholders to participate in developing a watershed management plan.

STEP 2: Determine how participants will work together.

STEP 3: Establish the structure under which particpants will contribute.

STEP 4: Prepare a state of watershed report to understand the current condition of the watershed.

STEP 5: Identify priorities and the scope and scale of planning activities.

STEP 6: Prepare and confirm support for the terms of reference.

STEP 7: Develop a communications and engagement strategy.

STEP 8: Identify outcomes, objectives and indicators.

STEP 9: Develop, evaluate and select preferred management actions.

STEP 10: Draft and confirm support for the plan.

STEP 11: Build the foundation for successful implementation.

STEP 12: Establish an implementation committee.

STEP 13: Implement the plan.

STEP 14: Monitor implementation and outcomes.

STEP 15: Evaluate and report on implementation and outcomes.

STEP 16: Adapt the plan to new information.

Figure 6. Process for development of a watershed management plan taken from the *Guide to Watershed Management Planning in Alberta* (2014).

Proposed IWMP recommendations will undergo review and evaluation following the structured decision making process. This will ensure that potential consequences, tradeoffs and benefits are considered before putting forth final plan recommendations and actions. Upon finalization of the IWMP approval will be sought from the agencies, governments and stakeholder who have a role in its implementation. This includes the Government of Alberta and its various ministries, municipalities, agencies, companies, and landowners.

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APPENDIX A: POTENTIAL STRUCTURE OF THE IWMP

Information for the potential structure of the IWMP is outlined as per the Alberta Environment and Sustainable Resource Developments 2014 *Guide to Watershed Management Planning in Alberta.*

1. Introduction: why prepare the plan?
2. Description of the processes used to prepare the plan
3. General description of the watershed
4. Specific description of the water resource and linkages with other plans
5. Planning process: approach, scope, issues and challenges
6. Outcomes, actions and performance measures to address these issues
7. Implementation, monitoring review and renewal process
8. Sources, citations, references, and other appendices as needed

Based on feedback from the previous public consultations, the Lesser Slave IWMP should:

- Provide guidance on monitoring, tracking and reporting of water quality, water quantity and healthy aquatic ecosystems;
- Provide guidance and information to assist in the development of actions plans as it relates to water quality, water quantity and healthy aquatic ecosystems;
- Set achievable targets for water quality, water quantity and healthy aquatic ecosystems indicators;
- Undertake a review of best management practices (BMPs) and compile/provide recommendations of BMPs to be used within the watershed;
- Make recommendations for a Riparian Policy;
- Make recommendations to undertake a monitoring plan for point source and non-point source pollution;
- Improve the knowledge and awareness of the importance of aquatic health to the public and stakeholders;
- Make recommendations for monitoring strategies and future research possibilities;
- Make recommendations to undertake a nutrient budget for the Lake; and
- Set achievable targets for wildlife use in the watershed.

APPENDIX B: SCHEDULE OF WORK

As the LSWC work plan is dependent upon available funding each year, the following proposed Schedule of Work as presented below is outlined as if funds will be available to carry through with the IWMP project with no disruptions. Therefore, the following schedule is proposed and is subjected to change based on yearly available funds. Once approval and endorsement of this Terms of Reference has been has been received, LSWC will move forward with the IWMP Schedule of Work.

Terms of Reference - Completed Work

SHORT TERM	2014				2015			
Terms of Reference Development	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Preliminary Draft Terms of Reference								
Development of IWMP Communication & Engagement Strategy, info materials and SC TOR.								
SC Review and finalize Terms of Reference								
Final Terms of Reference								
LSWC Board of Directors Approval and Submission of Terms of Reference to ESRD and W4L Cross Ministry Team								
LSWC Board of Directors Approval and Submission of Terms of Reference to ESRD								

Q1= January - March. Q2= April - June. Q3= July - September. Q4= October - December.

IWMP Proposed Schedule of Work

	PROJECT PHASE	PROPOSED TASKS
Year 1 (2015)	**SETTING THE STAGE & EDUCATING**	TOR endorsement among public and stakeholders
		Facilitated sessions with SC to develop specific objectives for each of the 5 themes.
		Review and compilation of all current management actions in place.
		Facilitated Stakeholder sessions
		Prioritization of planning work.
Year 2	**PHASE 1 PLANNING**	Focus will be on top priority themes previously identified.
		Technical review of available information relating to phase 1 themes
		Develop indicators, metrics, for the outcomes identified for priority themes.
		Develop list of preliminary actions for review and discussion using the SDM process
Year 3		Finalization of Phase 1 plan and recommendations including public and stakeholder engagement.
	PHASE 1 IMPLEMENTATION	Endorsement of the plan with stakeholders and public
		Development of an implementation action plan. For the various stakeholders and governments
Years 4+	**PHASE 2 & 3**	Repeat process with the remaining themes taking into account work that has been done and learning's
	REVIEW & EVALUATION	Implementation review and evaluation.

Budget Considerations

The LSWC will be seeking ongoing support from the department of ESRD annually through the grant program to carry out IWMP related work. In addition to monetary expenses the LSWC Steering Committee and several ESRD staff members will be providing significant in kind contributions of their time to the project. Reviewing correspondence, providing feedback, travel time and time at meetings and workshops. Stakeholders will also be contributing in kind throughout the project by traveling to and participating in workshops, reading and responding to communications. The LSWC project manager will track in-kind contributions throughout the project for reporting purposes.

APPENDIX C: IWMP STEERING COMMITTEE RISK ASSESSMENT

In 2014 the LSWC IWMP Steering Committee worked with CPP Environmental. As part of the development of a communication and engagement strategy for the IWMP, a risk analysis was conducted with the IWMP Steering Committee to rank the importance of watershed management issues. This project was accomplished through facilitated discussions that occurred during three working sessions with the IWMP Steering Committee.

RISK STATEMENT	AVERAGE LIKELIHOOD	AVERAGE IMPACT SIGNIFICANCE	AVERAGE INHERENT RISK	RISK	INITIAL CONSULTING STAKEHOLDERS
Theme 1: SURFACE AND GROUND WATER QUALITY					
Lack of natural buffers on settled land (White zone) may result in accelerated run-off, erosion of river banks and increased deposition of sedimentation.	5	4	20	EXTREME	Canadian Association of Petroleum Producers (CAPP) ESRD Individual First Nations Lesser Slave Forest Education Society Big Lakes County MD of Greenview MD of Lesser Slave River MD of Smoky River Northern Sunrise County Town of High Prairie Town of Slave Lake PCBFA Upstream Oil and Gas
Lack of stream crossing inventory and enforcement may cause negative impacts to watershed quality.	5	4	20	EXTREME	
Increased access development will result in increased run-off and sedimentation (linear disturbance).	4	3	12	HIGH	
Increased agricultural production will result in more waste-related release to rivers and lakes. This will have implications to the continued health of the lakes and rivers and the overall watershed.	3	4	12	HIGH	
Fracking may cause fissures up to nearby aquifers allowing contaminants to enter the aquifer or water leaving the aquifer.	2	5	10	HIGH	
Significant population growth will result in more treated and untreated wastewater release to rivers and lakes. This will have implications to the continued health of the lakes and rivers and the overall watershed.	3	3	9	MODERATE	

RISK STATEMENT	AVERAGE LIKELIHOOD	AVERAGE IMPACT SIGNIFICANCE	AVERAGE INHERENT RISK	RISK	INITIAL CONSULTING STAKEHOLDERS
Lack of crossing enforcement may result in livestock crossing directly through wetlands and water courses causing damage to the streams and increased waste deposited to streams/ rivers.	3	3	9	MODERATE	
Increased forest removal (for other land uses) will increase open land base and may result in increased run-off and sedimentation.	3	3	9	MODERATE	
Due to inadequate regulations and enforcement regarding septic systems, unsafe levels of harmful bacteria may increase in the watershed.	3	2	6	MODERATE	
Due to inadequate regulations and enforcement regarding illegal dumping of wastewater (treated/untreated), unsafe levels of harmful bacteria may increase in the watershed.	3	2	6	MODERATE	
Increased recreation will result in more treated and untreated wastewater release to rivers and lakes. This will have implications to the continued health of the lakes and rivers and the overall watershed.	3	2	6	MODERATE	
As a result of the lack of data for the watershed, increased nutrient levels in the water may go undetected resulting in lower water quality for the watershed.	2	2	4	LOW	

RISK STATEMENT	AVERAGE LIKELIHOOD	AVERAGE IMPACT SIGNIFICANCE	AVERAGE INHERENT RISK	RISK	INITIAL CONSULTING STAKEHOLDERS
Due to inadequate regulations and incentives to encourage the collaborative discharge of treated wastewater, unsafe levels of harmful bacteria may increase in the watershed.	1	3	3	LOW	
The lack of enforcement for the timely reclamation of gravel pits may leave large parcels of the watershed barren expediting the flow of water and the sediment carried in the water.	3	1	3	LOW	
Lack of a Best Management Practices for water crossings for Agriculture may cause irreparable damage to the streams and increased waste deposited to streams/rivers.	1	2	2	LOW	
Theme 2: SURFACE AND GROUND WATER QUANTITY					
Lack of knowledge regarding up-to-date cumulative water withdrawal locations and volumes may result in over use.	4	4	16	HIGH	AER Alberta Geological Survey Big Lakes County ESRD MD of Greenview MD of Lesser Slave River MD of Smoky River Northern Sunrise County Town of High Prairie Town of Slave Lake
The use of fresh water for Industrial (fracking) may result in over use.	3	4	12	HIGH	
Lack of infrastructure to mitigate flooding during high flows.	3	3	9	MODERATE	
Lack of knowledge regarding ground water quantity and use may lead to over usage	2	2	4	LOW	
Lack of infrastructure in place may lead to water scarcity during droughts.	2	2	4	LOW	

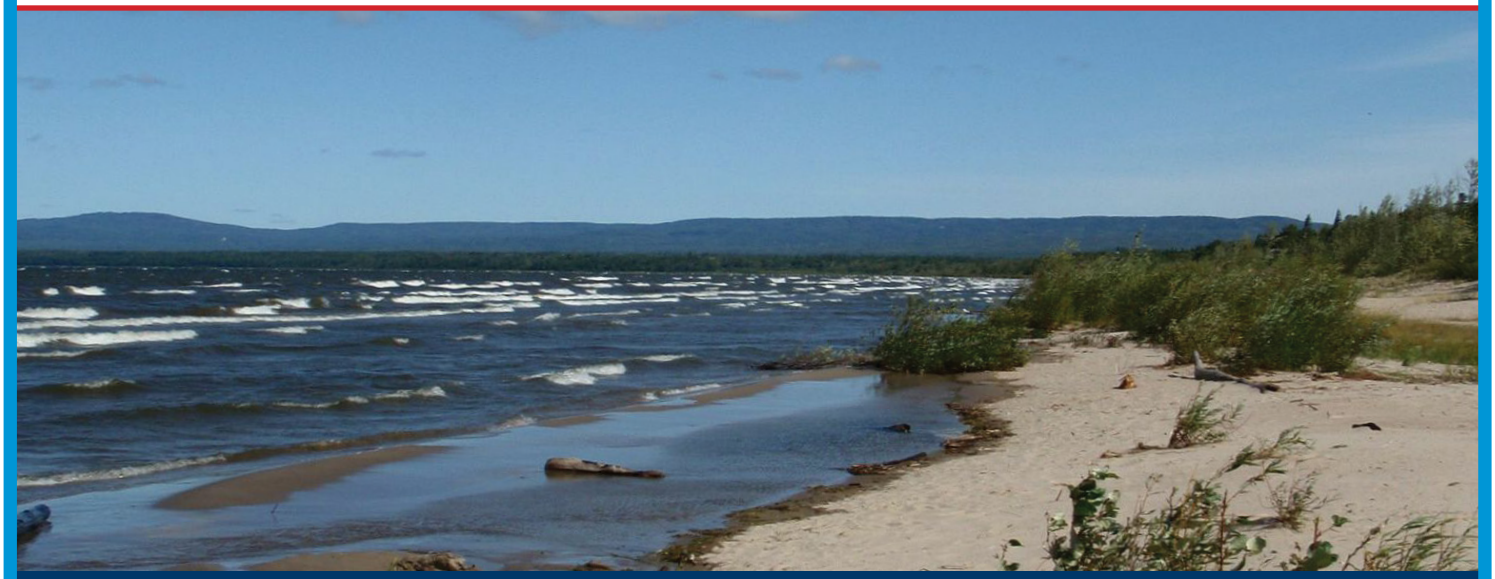
RISK STATEMENT	AVERAGE LIKELIHOOD	AVERAGE IMPACT SIGNIFICANCE	AVERAGE INHERENT RISK	RISK	INITIAL CONSULTING STAKEHOLDERS
Theme 3: BIODIVERSITY AND WILDLIFE					
Lack of stream crossing inventory and enforcement may cause negative impacts to fish movement and populations.	5	4	20	EXTREME	Alberta Trappers Association Boreal Center for Bird Conservation ESRD Jr. Forest Wardens in Slave Lake Big Lakes County MD of Greenview MD of Lesser Slave River MD of Smoky River Northern Sunrise County Town of High Prairie Town of Slave Lake REAC
Development through dry tributaries may diminish natural drainage and loss of wetlands resulting in habitat loss for many species at risk.	4	4	16	HIGH	
An unhealthy fish habitat may result in reduced fish diversity and negative impacts on the fishery.	4	4	13	HIGH	
Loss of riparian and wetland habitats may adversely affect biodiversity.	3	4	12	HIGH	
Loss of forested areas due to insect infestations may negatively impact the watershed.	3	3	9	MODERATE	
Lack of Adaptive Management Strategies to address climate change may result in the deterioration of the biodiversity of the watershed.	3	2	6	MODERATE	
Theme 4: HUMAN AND ANIMAL HEALTH					
An increase in blue green algae within lakes of the watershed will result in increased health risks to humans.	4	4	16	HIGH	(See next page)
An increase in blue green algae within lakes of the watershed will cause lower oxygen levels and cyano toxins in the water, resulting in increased health risks to wildlife and aquatic animals.	4	4	12	HIGH	

RISK STATEMENT	AVERAGE LIKELIHOOD	AVERAGE IMPACT SIGNIFICANCE	AVERAGE INHERENT RISK	RISK	INITIAL CONSULTING STAKEHOLDERS
An increase in blue green algae within lakes of the watershed will cause lower oxygen levels and cyano toxins in the water, resulting in increased health risks to livestock.	4	4	12	HIGH	AHS Big Lakes County ESRD MD of Greenview MD of Lesser Slave River MD of Smoky River Northern Sunrise County Town of High Prairie Town of Slave Lake
A higher level of nutrients in the water may cause increased algal blooms resulting in increased health risks to humans.	4	2	8	MODERATE	
As a result of the lack of data for the watershed, trace concentrations of pharmaceuticals may go undetected in the watershed thus posing potential human health risks from exposure to very low levels of pharmaceuticals in drinking-water.	4	2	8	MODERATE	
A higher level of nutrients in the water may cause increased algal blooms resulting in increased health risks to wildlife and aquatic animals.	3	2	6	MODERATE	
A higher level of nutrients in the water may cause increased algal blooms resulting in increased health risks to livestock.	3	2	6	MODERATE	
As a result of the lack of data, an increased level of harmful bacteria may go undetected, resulting in impacts to recreational users (human health).	2	2	4	LOW	

RISK STATEMENT	AVERAGE LIKELIHOOD	AVERAGE IMPACT SIGNIFICANCE	AVERAGE INHERENT RISK	RISK	INITIAL CONSULTING STAKEHOLDERS
Theme 5: SOCIAL AND ECONOMIC					
An increase in algae within lakes of the watershed will cause lower oxygen levels and higher nutrient levels in the water, resulting in increased costs associated with water treatment.	4	3	12	HIGH	LSLEA Big Lakes County ESRD MD of Greenview MD of Lesser Slave River MD of Smoky River Northern Sunrise County Town of High Prairie Town of Slave Lake Tourism Operators
An increase in blue green algae within lakes of the watershed will cause lower oxygen levels and cyano toxins in the water, resulting in lower recreational opportunities.	4	3	12	HIGH	
A higher level of nutrients in the water may cause increased algal blooms and aquatic weeds resulting in lower recreational opportunities.	3	4	12	HIGH	
Lack of a proper stewardship program will cause the watershed to stay the same or decrease in all aspects.	3	4	12	HIGH	
Lack of programming to educate stakeholders about water quantity may result in adverse effects on future development approvals.	3	4	12	HIGH	
Increased sedimentation may result in lower recreational activities and higher costs associated with frequent dredging around water intakes.	3	3	9	MODERATE	
An unhealthy fish habitat may decrease the capability of sustaining the Traditional Use of fisheries	2	4	8	MODERATE	
An unhealthy fish habitat will negatively impact recreation and commercial tourism.	2	4	8	MODERATE	

RISK STATEMENT	AVERAGE LIKELIHOOD	AVERAGE IMPACT SIGNIFICANCE	AVERAGE INHERENT RISK	RISK	INITIAL CONSULTING STAKEHOLDERS
Theme 6: RIPARIAN LANDS					
Lack of monitoring shoreline development may result in over-development and lower than optimal shoreline intactness.	5	4	20	EXTREME	(Same as theme 1) Canadian Association of Petroleum Producers (CAPP) ESRD Individual First Nations Lesser Slave Forest Education Society Big Lakes County MD of Greenview MD of Lesser Slave River MD of Smoky River Northern Sunrise County Town of High Prairie Town of Slave Lake PCBFA Upstream Oil and Gas
Alteration of shoreline aquatic vegetation removal and armoring for shoreline stabilization	5	4	18	HIGH	
Lack of Guidelines to manage shoreline development may result in over-development of surrounding shorelines.	4	4	16	HIGH	
Use of riparian areas and wetlands by livestock cause damage to riparian areas and aquatic systems.	4	4	16	HIGH	
Lack of enforceable standards around shoreline development	4	4	14	HIGH	
Elimination of riparian buffers along water courses	3	4	12	HIGH	

NOTES:



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