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Community Engagement • Facilitation • Communications

Lesser Slave Watershed Council

Integrated Watershed Management Plan: First Nations, Métis, and Stakeholder Engagement

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Executive Summary

As work begins on the IWMP, the LSWC needs to engage with stakeholders and make sure they understand the process so they can participate and provide input throughout the development of the IWMP. LSWC also needs to engage in relationship building with the First Nations and Métis Settlements in the watershed.

The objectives of this project are:

- To establish communications with the First Nations and Métis Settlements in the watershed and build a relationship that will lead to effective communications around watershed management.
- To execute two stakeholder sessions intended to clarify the watershed management planning process in Alberta, to discuss the roles and responsibilities of the various players, and to have preliminary conversations about how to address the identified problems and issues on the watershed.
- To capture the highlights of these engagements in a summary document for the IWMP Steering Committee and LSWC Board of Directors.

Based on previous public and stakeholder consultations, State of the Watershed Report, Risk Assessment, the Technical Update, and other Watershed Council documents, the Watershed Council identified 11 issues that need addressing in the watershed plan:

1. Increased phosphorus loading and associated algae growth in lakes
2. Increased land development causing erosion, run-off, and sedimentation, and loss of wetlands
3. Stream crossings in upper watershed fragment fish habitat, and cause erosion and sediment loading
4. Agricultural crop production contributes to sedimentation and nutrient loading, and chemical use degrades water quality and harms aquatic species
5. Increased freshwater use across all sectors
6. Unstable Lake levels
7. Impact of hydraulic fracturing on groundwater and the demand for freshwater
8. Degradation and loss of riparian area
9. Degradation and loss of wetlands
10. Unrestricted access to streams and riparian areas by livestock degrades riparian areas and water quality
11. Lack of knowledge on cumulative water withdrawal

Five First Nations, two Métis Settlements and one Métis organization were contacted and meetings took place with the Swan River First Nation, the Driftpile First Nation and Peavine Métis Settlement. Contact was made with the other Aboriginal groups and groundwork was laid down for future meetings.

As these are initial First Nations and Métis meetings, no agreements were reached on sharing of information. Until those agreements are established, no documentation will be published.

All the meetings were positive and there was a strong desire on the part of all parties at all meetings to meet again.

The specific objectives of the stakeholder workshops were to:

1. Clarify the roles and responsibilities of the various players
2. Ensure everyone understands what an integrated watershed management plan is, why it is important, and how they are contributing to it
3. Seek stakeholder advice and input on solutions to problems and issues in the watershed and who should implement them
4. Seek stakeholder input on how their agency or organization is already addressing issues in the watershed
5. Identify areas where stakeholders require more information
6. Provide opportunities for everyone to be heard
7. Evaluate the process so subsequent consultations can better meet participants' needs

Two day-long workshops were held. About 13 people participated in the High Prairie workshop on November 4, 2015 and 23 people attended the workshop in Slave Lake on November 5, 2015.

An online response form was created for stakeholders who:

- Were unable to attend the workshops
- Preferred to submit ideas in writing
- Wished to supplement the ideas they presented at the workshops

The over-arching questions in this consultation process were:

1. What are the solutions for each of the 11 problems or issues?
2. Who should implement them?
3. What is your organization/agency already doing to address these issues in the watershed?

Hence, the structure of the workshops was designed to “harvest” solutions that could be considered for addressing the problems (issues) in the watershed.

A summary table of solutions, both suggested and those that are already being implemented, was created and is presented in the report. The solutions are derived from the two workshops and the response form results.

It is now the job of the IWMP Steering Committee, with assistance from the Technical Advisory Committee and watershed planning and engagement specialists, to develop the goals and objectives and recommended management actions of the watershed plan.

Acknowledgements

Meghan Payne, Executive Director of the Lesser Slave Watershed Council, provided useful and productive guidance throughout this project. The IWMP Steering Committee gave important comments on the approach. A number of members of the committee and the board were active participants at the stakeholder workshops. Meghan Payne and Board Chair Tammy Kaleta were involved in the approach to the First Nations and Métis meetings and attended all the meetings. Rene Michalak looked after all the logistical and administrative matters for the workshops and was the note-taker. Last but not least, a special thanks to the participants of all the meetings, who took time out of their busy schedules, because they all share a passion for the health of the Lesser Slave watershed.

1.0 Introduction

Under Alberta's Water for Life Strategy, Lesser Slave Watershed Council (LSWC) is developing an Integrated Watershed management Plan (IWMP) for the Lesser Slave Watershed. LSWC's board signed off the Terms of Reference for the IWMP in April 2015.

There has been limited engagement with stakeholders and First Nations on watershed planning and how they might be involved in the process.

As work begins on the IWMP, the LSWC needs to engage with stakeholders and make sure they understand the process so they can participate and provide input throughout the development of the IWMP. LSWC also needs to engage in relationship building with the First Nations and Métis Settlements in the watershed.

2.0 Purpose

The objectives of this project are:

- To establish communications with the First Nations and Métis Settlements in the watershed and build a relationship that will lead to effective communications around watershed management.
- To execute two stakeholder sessions intended to clarify the watershed management planning process in Alberta, to discuss the roles and responsibilities of the various players, and to have preliminary conversations about how to address the identified problems and issues on the watershed.
- To capture the highlights of these engagements in a summary document for the IWMP Steering Committee and LSWC Board of Directors.

3.0 Background

Based on previous public and stakeholder consultations, State of the Watershed Report, Risk Assessment, the Technical Update, and other Watershed Council documents, the Watershed Council identified 11 issues that need addressing in the watershed plan:

1. Increased phosphorus loading and associated algae growth in lakes
2. Increased land development causing erosion, run-off, and sedimentation, and loss of wetlands
3. Stream crossings in upper watershed fragment fish habitat, and cause erosion and sediment loading
4. Agricultural crop production contributes to sedimentation and nutrient loading, and chemical use degrades water quality and harms aquatic species
5. Increased freshwater use across all sectors
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10. Unrestricted access to streams and riparian areas by livestock degrades riparian areas and water quality

11. Lack of knowledge on cumulative water withdrawal

4.0 Methods

4.1 First Nations/Métis engagement

Using contact information in the Watershed Council's database, Five First Nations, two Métis Settlements and one Métis organization were contacted by email and phone and conversations began around who would be the best person(s) to meet with and when.

The LSWC sent out an information package, which included the IWMP terms of reference and various background brochures, fact sheets and documents produced by the LSWC, as well as a cover letter to all the Aboriginal groups in mid-August.

The Five First Nations contacted have reserve land and traditional territories in the Lesser Slave Watershed:

1. Kapawe'no
2. Sucker Creek
3. Sawridge
4. Swan River
5. Driftpile

Three Métis organizations were contacted:

1. Peavine Métis Settlement
2. East Prairie Métis Settlement
3. Region 5 Métis – Slave Lake

4.2 Stakeholder workshops

4.2.1 Objectives

The stakeholder workshops were planned for High Prairie and Slave Lake in early November.

The proposed objectives of the meetings were to:

1. Clarify the roles and responsibilities of the various players
2. Ensure everyone understands what an integrated watershed management plan is, why it is important, and how they are contributing to it
3. Seek stakeholder advice and input on solutions to problems and issues in the watershed and who should implement them
4. Seek stakeholder input on how their agency or organization is already addressing issues in the watershed
5. Identify areas where stakeholders require more information
6. Provide opportunities for everyone to be heard
7. Evaluate the process so subsequent consultations can better meet participants' needs

The Watershed Council went into the stakeholder workshops with a fairly good understanding of the issues in the watershed. The next logical step in the watershed planning process was goals and objectives. However, the development of goals and objectives is a fairly technical process and the level of technical and professional skills and knowledge amongst many of the stakeholders was limited. So it was decided to go from issues (problems) to solutions, including those that were already being implemented by different stakeholders in the watershed. The setting of goals and objectives that provide the link between the problems and the solutions will be the next step in the watershed planning process.

4.2.2 Promotional

Additional stakeholders were identified and the Watershed Council's stakeholder database was expanded and set up online so the master database could be utilized by more than one person. During and after the workshops, updated and additional stakeholder contact information was added.

A series of stakeholder email invitations were created using online software service called Mailchimp. Invitations were sent out on October 7, 15, and 22, and November 2. Follow-up emails were sent on November 18 and 26.

The invitations were linked to an online registration service called Eventbrite.ca, where potential participants could register for the workshops and get more information.

Personal invitations by Watershed Council staff or board members were extended to key stakeholders encouraging them to attend.

A news story was prepared for the regional newspaper chain (Spotlight).

The IWMP pages of the Watershed Council website (<http://lesserslavewatershedcouncil.ca/watershed-planning/phase-1-iwmp/>) were updated with information on the workshop as well as background information on the IWMP process.

Regular posts were made to the Watershed Council's Facebook page at <https://www.facebook.com/LSWC2012> promoting the workshops and the online response form (see below).

Regular tweets were issued through the Watershed Council's Twitter feed.

4.2.3 Response form

A response form was created using an online software service called Survey Monkey. The response form was for stakeholders who:

- Were unable to attend the workshops
- Preferred to submit ideas in writing
- Wished to supplement the ideas they presented at the workshops

4.2.4 Informational

Background information was on the Watershed Council website and specific materials were made available at the workshops:

- Basic information on LSWC (standard display)
- Map of the watershed
- Fact sheets, IWMP brochure
- Background documents — State of the Watershed Report, Technical Update, etc. (single copies)

4.2.5 Workshop agenda

The proposed agenda for both workshops is presented in Appendix 7.1.

4.2.6 Workshop materials

On arrival at the workshops, participants picked up the following materials:

- Agenda
- List of eleven key issues in the watershed
- Meeting evaluation form (See below)

4.2.7 Meeting evaluation

A two-page meeting evaluation form was distributed with a combination of closed and open questions to solicit feedback on the meeting and the consultation process. (See Appendix 7.5).

4.2.8 Documentation

A note-taker documented all the meeting proceedings, comments and questions.

5.0 Results

5.1 First Nations / Métis engagement

The following meetings were successfully held:

Aboriginal Group	Date	Number of Participants
Swan River First Nation	November 2, 2015	3 + 3 from Watershed Council
Driftpile First Nation	November 3, 2015	4 + 3 from Watershed Council
Peavine Métis Settlement	November 10, 2015	6 + 2 from Watershed Council

As these are initial First Nations and Métis meetings, no agreements were reached on sharing of information. Until those agreements are established, no documentation will be published.

All the meetings were positive and there was a strong desire on the part of all parties at all meetings to meet again.

Contact was made with the other Aboriginal groups and groundwork was laid down for future meetings.

5.2 Stakeholder workshops

5.2.1 Overview

With further research, the stakeholder database grew from 72 to 117 people or organizations.

The news story was published on October 28, 2016 in the regional Spotlight newspaper, which is distributed in the South Peace News (High Prairie area), the Lakeside leader (Slave lake Area) and the Smokey River express (Falher, McLennan area).

Two workshops, titled Watershed Planning Workshops: Finding Solutions were held as follows:

Date	Time	Location	Venue
Wednesday November 4, 2015	9:30 am – 3:30 pm	High Prairie	Peavine Inn & Suites
Thursday November 5, 2015	9:30 am – 3:30 pm	Slave Lake	Slave Lake Inn & Conference Centre

A total of 13 people signed in at the High Prairie workshop and 23 signed-in at Slave Lake.

For the “raw” meeting notes of the workshops, see Appendices 7.4 and 7.5.

A total of 16 people responded using the online response form (See Appendix 8.0).

5.2.2 Summary of solutions

The over-arching questions in this consultation process were:

1. What are the solutions for each problem or issue?
2. Who should implement them?
3. What is your organization/agency already doing to address these issues in the watershed?

Hence, the structure of the workshops was designed to “harvest” solutions that could be considered for addressing the problems (issues) in the watershed.

A summary table of solutions, both suggested and those that are already being implemented, was created and is presented below. The solutions are derived from:

- Raw notes from the two workshops
- Response form results

The solutions are organized by the eleven issues; a few additional issues were added that came up in the consultation. Lots of ideas were repeated, although they may have been stated in different ways. No attempt was made to “weight” the different comments.

Only solutions are included, so if comments by participants were about the nature of the issue or contained background information, they were recorded in the Appendices but not included in the summary table of solutions. Sometimes it was not possible to formulate a solution based on what the participant said, or on how the note-taker interpreted what they said.

Summary table of solutions

Suggested at the workshops and in the online response form.

Issue/Problem	Solutions
<p>1. Increased phosphorus loading and associated algae growth in lakes</p>	<ul style="list-style-type: none"> a. Education and information provided to all users of the lake on what actions need to be taken to keep the lake healthy b. More diligence on the part of the agricultural sector. c. Less phosphate dumping d. Few things that can be done to deal with nutrient loading in the lake. This should be a lower priority for focusing work and resources. e. Technical update identified tributaries to the lake that are contributing high nutrient and sediment loads. Focus should be on the West and East Prairie, South Heart and Swan River sub-watersheds. Municipal and provincial governments and other regulators (e.g., AER) should focus land use approval and compliance audits to ensure that landowners and industrial stakeholders follow legislation, conditions of licence of occupation and use best management practices to minimize the impact. f. In the same watersheds, NGO (e.g., Cows and Fish, Peace Country Beef & Forage Association) and multi-stakeholder groups (e.g., Watershed Council, Riparian Action Team) should continue to or increase the focus on private landowner participation and education on the use of best management practices and restoration programs for degraded riparian, river and wetland habitats bordered or entrenched by private land. g. Use landscape level cumulative effects modeling to identify which activities are drivers in these watersheds for values that all parties (government/regulator/NGO) are concerned with improving (e.g., water quality, linear disturbance, riparian health, etc). Intension of the models is to pinpoint areas where resources should be spent (e.g., agricultural run off vs sewage treatment run off) to have the “best bang for buck.” This will also held determine what level of resourcing is required to act on these issues (e.g., don’t attack a large calibre problem with a small calibre answer). h. Focus on functional stewardship reporting; not general motherhood statements. Measure the impact of the activity not theoretical or social value. For example, use Chlorophyll a for measuring nutrient loading in water and how on the

Issue/Problem	Solutions
	<p>ground activities influence change.</p> <ul style="list-style-type: none"> i. Education and enforcement j. Don't allow cattle access to rivers and streams. Programs to encourage grain farmers to leave small creeks and riparian areas in their natural state. k. Limit ATV access to rivers and streams. l. Encourage the use of sewage holding tanks m. Farmers cannot farm on soft ground with heavy equipment n. Best Management Practices (BMPs) are being practised (e.g., vegetative buffer strips to capture sedimentation and nutrients, no-till farming, etc.) o. Livestock sector, e.g., CAFO (Concentrated Animal Feeding Operations) has a lot more restrictions / regulations (e.g., manure storage / spreading), grain producers not so much (i.e., voluntary compliance with BMPs) p. Green Acreages Guide is a useful tool to reduce phosphorus loading q. Lagoon systems are being used to treat municipal (High Prairie) wastewater, stormwater flows are untreated r. Untreated effluent is spread onto farmland (e.g., manure); timing of this application is key for it to be a safe practice <ul style="list-style-type: none"> • Spreading on farmland has a process around it – 24-hour period for the effluent to be turned into the soil • Soil testing required before and after s. Local governments should monitor/test for failed septic systems (complaint-driven at the moment) but it would need to have cost recovery because budgets of local governments are maxed out t. Numerous industries are active around the lake; need to take a cumulative effects management approach and act on impacts that aren't natural in origin u. Can oxygenation of the lake be considered a solution? v. Greatest contributions are south bank agriculture, and Swan River w. Proposed approach to mitigate P loading: reduce the amount of human-caused bare ground by using sector-specific best management practices x. Reduce direct application of phosphorus to land/water y. Information resources for residents - Living by Water program z. Agriculture watershed programs in Southern AB; with respect to fertilizing – do we think we're going to have much influence encouraging the agriculture sector to limit its P use? - it's a culture change we need to encourage people to think more long term; certain products and activities need to be identified as contributors to excessive P loading and habitat destruction

Issue/Problem	Solutions
	<ul style="list-style-type: none"> aa. Lake Management Project Team - via AB Water Council developing a Lake Management Framework bb. Provincial Fish Sustainability Index (FSI) program cc. World class sewage treatment centre (Canyon Creek) - e.g., phosphorus removal, membrane filtration system
<p>2. Increased land development causing erosion, run-off, and sedimentation, and loss of wetlands</p>	<ul style="list-style-type: none"> a. 1. e,f,g,h above b. Land use planning at all levels. Agriculture and Tourism seem to be the sectors that abuse the lake. They need to get on board re land use and keeping the lake healthy. Again, education and information forums and govt legislation. c. Municipalities need to take a closer look at land use, monitor and show restraint issuing permits in the near shore areas. d. Better stormwater management e. This is tough. It is a cumulative effect, so it is hard to address. The first few developments will be fine, but it is the last one or two, for example. It's not fair to burden these last few developers, when the first few also cause effects. I suppose it is an education piece for all developers as well as development and planning personnel for both municipal and provincial governments. I'm not sure what the solution is, but it is time to sit down and work out the details. f. Limit logging activities so what is cut is equivalent to what is replanted. If industry can't prove they have done this, then logging should be limited or stopped. g. Stop clear cutting of our forests. Leave windbreaks and water breaks h. Slope sloughing, planting deep-rooted vegetation (e.g., tree planting, bio-engineering) all reduce run-off and erosion i. Beaver habitat restoration to help slow and spread water velocity; see "Nature's Engineers - Natural Geographic; also see Cows and Fish resources mentioned above j. West Prairie dam development to slow down river flow (circa 1990) - was not received well k. Lesser Slave Forest Education Society does in-classroom outreach for all grades; lots of programs and campaigns l. Town of High Prairie is working with the Watershed Council on a presentation for Council re: West Prairie creeks and the related water issues, highlighting management practices that will address the issues m. Low Impact Development - application for reducing sedimentation / erosion

Issue/Problem	Solutions
	<ul style="list-style-type: none"> I. Use of established roads / seismic lines done as much as possible II. Tracking system exists for roads built for forestry / oil and gas use III. Includes crossing management IV. Inheriting roads from one company to the next is a challenge for management n. Alberta Conservation Association has inventoried creek crossings and culverts o. Access management plans - road design may be different depending on type of use/users p. Operating ground rules are approved every year for forestry industry by the province q. Alberta Energy Regulator deals with upland creek crossing regulations; e.g., non-compliant crossing structures - if water body is fish bearing, requires adequate crossing r. Wheels Out of Water - provincial campaign s. See South Saskatchewan Regional Plan - development of recreation plans and linear footprint plans; are there hotspots that warrant a focused management approach - craft IWMP recommendations around this t. See Clearwater County's "Welcome to Our Backyard" program u. Red Deer River Watershed Alliance has a Watershed Ambassador program v. Leave No Trace Program w. Grazing leases need inclusion of "no cattle in the creek" clauses x. First Nations have a siltation study(?) y. Engaging homeowners to adopt green / low impact landscape practices z. Parkland County has a guide on municipal planning for watershed management aa. Forestry - identifying wetlands and riparian areas via airplane (wet areas mapping - depth to waters model), cutblocks overlays and planning for road construction, forest management planning every ten years (following watershed and sub-watershed approach), setting up buffers along creeks to minimize erosion impacts, creek crossing monitoring program, contractor requirements (e.g., bridge installs, removed when job completed)

Issue/Problem	Solutions
<p>3. Stream crossings in upper watershed fragment fish habitat, and cause erosion and sediment loading</p>	<ul style="list-style-type: none"> a. Govt monitoring of popular stream crossings and limiting the areas that ATVs can use. Govt issued permits if they are going into restricted areas. b. Very difficult to manage ATVs without constraining legislation and expensive enforcement with resources that are not there. Public education may be the best solution. c. Bridges instead of culverts and larger buffer areas d. There are already tools to deal with this including legislation and policy for industrial activities, Codes of Practice for watercourse crossings, operating ground rules of forestry, sedimentation and erosion control guidelines for works around watercourses, the stream crossing inspection protocol and manual, and the stream crossing remediation directive. e. Public education and influence to support regulators can come through NGOs and stewardship groups. Focus of messaging and inquiries should be towards crossing owners on: making general public aware of the scope and importance of the issue, reporting mechanisms for problems, promoting habitat remediation, alignment with existing regulatory frameworks and BMPs and supporting industrial partners who are demonstrating good environmental stewardship. I would advise against campaigns that focus on perceptions of what regulators or industry are not doing unless research points to that. f. Inspections? And money for a program to remove or improve the crossings g. Need to get oil and gas industry to address crossings by following the same BMPs that the forest industry does h. Oldman Watershed Council - staff do long-weekend outreach to talk with people at staging areas (quad unloading points) to deliver tips and best practices i. Corporate education opportunity - staff training, daily protocol, take-home practices j. Connect with quad dealerships / manufacturers, and organizers of quad rallies to communicate with participants on stewardship; avoid sensitive times in the season (e.g., June frost melting) - incentive programs k. Provincial Watershed Restoration & Resiliency Funding Program

Issue/Problem	Solutions
	<ul style="list-style-type: none"> l. Stream crossing inventory program (ACA) m. Local Trapper Association - stream crossing construction and bank stabilization
<p>4. Agricultural crop production contributes to sedimentation and nutrient loading, and chemical use degrades water quality and harms aquatic species</p>	<ul style="list-style-type: none"> a. This would be up to the individual farmer and hopefully they are stewards of the land b. Public education program for the Agricultural sector. c. Better stormwater management d. Municipalities spray more harmful chemicals, often when not needed in ditches that have water flow through them in spring. Many of these chemicals are residual. Grain farmers are not willy-nilly spraying. If there is a sprayer in a field it is to protect the crop. I think the practice that needs to change is using the fencerow nozzle to get weeds along edges of riparian areas. Mowing is too expensive, but the weeds have to be controlled and a solution is needed for this practice. e. Develop fertilizers that are environment friendly
<p>5. Increased freshwater use across all sectors</p>	<ul style="list-style-type: none"> a. Govt issued permits that would control the amount of water by industry and for private consumption. b. Public education - starting in the schools. c. Develop alternatives and monitor volume used d. Increased focus on cumulative tracking on the allocation of and actual use of water resources. e. Institute a fee structure for the use and allocation of water by the various users. Other resources such as timber, land, and fish and wildlife all have measured costs associated with licencing, tracking, monitoring, reporting and using these resources. Water is just as important and should be valued accordingly. f. Adherence to existing and newly created regulatory processes for allocating water (e.g., desktop method, Fish and Wildlife thresholds for water quantity, water quality guidelines). g. Industry's net use of water cannot be more than the rainfall and snowfall for the year in the watershed. Industry has to bid to maintain crown land in a watershed area for the equivalent rainfall they are using for their work. h. Make mills recycle the water i. Need to know the amount of water used for the oil and gas industry (fracking, injection and flooding) both on an

Issue/Problem	Solutions
	<p>individual licence basis and on a watershed basis (oversight on Municipal water use seems to be more stringent)</p> <ul style="list-style-type: none"> j. Alberta Environment and Parks (AEP) developing water re-use and stormwater use guidelines, due for public release in late 2016, early 2017 k. Alberta Water Council - Conservation, Efficiency and Productivity (CEP) Planning project l. The International Codes Council (ICC) and the Canadian Standards Association (CSA) are working with Health Canada and other stakeholders on a Joint Rainwater Harvesting Standard - specific to water quality; open for public input until Nov 24, 2015
<p>6. Unstable Lake levels</p>	<ul style="list-style-type: none"> a. There needs to be an understanding that the lake is a dynamic environment subject to natural changes in water levels. b. Management of upland watershed level anthropogenic effects will help alleviate issues that groups and individuals have with the lake. c. Increased focus on planning for proposed new uses and access to the lake that respects that it is a dynamic environment subject to change. d. Resourcing for maintenance on existing infrastructure and uses tied to set short and long term monitoring and maintenance plans to reduce reactive responses and associated high costs. e. Maintain/update the existing weir f. We have messed up the lake so much from the east and west prairie dredging. It's a shallow water lake, it's going to be low in times of low rain fall. g. Close the channel going out of the lake and go back to the old riverbed that Mother Nature built h. Weir modification going on this fall - used as a dam to manage lake levels, owned by the Government of Alberta i. AEP is also creating a Source Water Protection Guide for municipalities (est. Nov / Dec) j. Not sure that this should be included in the IWMP - e.g., one year lake levels were very low, a few years later there was intense flooding; no matter what we do our effort will have little long-term impact k. AEMERA - Water levels, lake levels, and river flow data

Issue/Problem	Solutions
	available
7. Impact of hydraulic fracturing on groundwater and the demand for freshwater	<ul style="list-style-type: none"> a. I would ban it. b. There is already public pressure against fracturing - this will probably expand and increase. c. Don't allow it
8. Degradation and loss of riparian areas	<ul style="list-style-type: none"> a. 1. e,f,g,h above b. Land use plan and monitoring by government c. Probably public education in the schools d. Closer monitoring of any activities e. Incentives to encourage people to keep maintain riparian areas. It's either incentives or regulation that make people change. So pick the carrot or the stick f. Not disturbing the foliage on the beach not grooming beach g. Province not enforcing regulations for fencing watercourses in leased areas. Without weed control in the fenced area, weeds will invade the adjacent fields h. Green Acres workshop hosted by Watershed Council showed how properly maintained areas will allow natural /native plant ecology to control weed problem i. Work with Cows and Fish (Alberta Riparian Habitat Management Society) as they have lots of resources and programs to help address riparian issues j. Big trees are falling into the river and carrying a lot of sedimentation with them; in contrast willows and other similar native riparian plants have roots that bind up the soil and hold it in place and are less likely to be washed downstream with run-off k. Why can't the provincial government exert more pressure on livestock grazing in riparian areas if they are the "owners" of the riparian land? (edge and bed portion) l. Fisheries and Oceans (federal) should monitor riparian land that is federal (e.g, on reserve) m. Need provincial legislation exists to enforce riparian setback from development and industry activities. Do have guidelines: Stepping Back From the Water n. Clearwater County's Municipal Development Plan has worked setback guidelines into statutory planning documents o. How are riparian areas protected? What tools exist? (Cows and Fish) <ul style="list-style-type: none"> I. Riparian health inventory II. Protective notation (Crown Land)

Issue/Problem	Solutions
	<ul style="list-style-type: none"> III. Environmental (conservation) easement IV. Environmental reserve V. See Alberta Conservation Association and / or Land Stewardship Centre VI. Education and awareness events p. Delivering messages of direct benefit of protecting riparian areas to Agriculture producers q. In 2006 the AB Conservation flew the shore of Lesser Slave Lake and surrounding tributaries to assess riparian health (video available on the LSWC website)
<p>9. Degradation and loss of wetlands</p>	<ul style="list-style-type: none"> a. 1. e,f,g,h above b. Organizations such as Ducks Unlimited buy the wetlands c. Public education d. Better monitoring of activities e. New provincial wetlands policy being implemented (no net loss) in the "white" zones (developed areas, as opposed to "green zones" which are mostly forested) of the province; will be implemented in green areas soon f. Under the wetland policy, Qualified Wetland Aquatic Environmental Specialists (QWAES) are required to make accurate identification. QWAES is being formalized as a certification overseen by Alberta Environment & Parks and available to municipal staff and others g. Encouraged to use the Environmental Reporting Hotline 1-800-222-6514 to report environmental impact issues observed in the field any time by anyone h. Any person who wants electrical power service that requires impacting a wetland is placed low on the priority scale (if serviced at all) i. Alternative Land Use System (ALUS) program provides economic incentives to landowners (farmers) to maintain natural ecological conditions of their land (e.g., wetlands) - www.alus.ca
<p>10. Unrestricted access to streams and riparian areas by livestock degrades riparian areas and water quality</p>	<ul style="list-style-type: none"> j. 1. e,f,g,h above a. Assist and educate farmers to use alternate watering methods b. Increase restrictions in the grazing lease program, and with individual grazing leases. On privately owned land it will have to be dealt with voluntarily or with sanctions. c. Have buffer areas around them d. It should be regulated and prevented; it's 2015! These guys have been being asked to quit for years now!
<p>11. Lack of knowledge on</p>	<ul style="list-style-type: none"> a. Again, restricting water use through permits b. Public education

Issue/Problem	Solutions
cumulative water withdrawal	<ul style="list-style-type: none"> c. Better monitoring and licensing d. Increased focus on cumulative tracking on the allocation of and actual use of water resources. e. Institute a fee structure for the use and allocation of water by the various users. Other resources such as timber, land, and fish and wildlife all have measured costs associated with licencing, tracking, monitoring, reporting and using these resources. Water is just as important and should be valued accordingly. f. Adherence to existing and newly created regulatory processes for allocating water (e.g., desktop method, fish and wildlife thresholds for water quantity, water quality guidelines) g. 40 to 50 years of data exist on tributary flow into the Lake, outflow needs accurate measuring
12. Unrestricted access to streams and riparian areas by ATVs degrades riparian areas and water quality*	<ul style="list-style-type: none"> a. Sharing information through ATV organizations b. Bridge crossings on streams for all trail users. Warning signs to keep ATVs out of the beach areas. Designated/planned trails routed to limit ATV access to water. Bridge / corduroy muskeg stretches or go around them c. Culverts installed for water drainage/control on the trail system. Come up with a trail plan to supply effective water drainage with little erosion to the trail system
d. Climate change*	
e. Geoengineering+	
f. PCBs in lake sediments+	Need more water quality study looking for PCBs in the lake
g. Aquatic invasive species+	
h. Vehicle and other waste left on ice+	

* Additional issues raised at High Prairie workshop

+ Additional issues raised at Slave Lake workshop

5.2.3 Meeting evaluations

The results of the meeting evaluations are found in Appendices 7.5.1 and 7.5.2.

There were 10 completed evaluations for the High Prairie workshop. The response to the closed questions, which were statements about the workshop such as “The workshop met or exceeded my expectations.” or “I had lots of opportunities to bring my ideas forward.” were all neutral or positive (“agree” or “strongly agree”). The responses to the open-ended questions were also very positive, referring to the quality of the discussions

and what they learned at the meeting. One negative point brought up was that participants wished there were more people present, especially from sectors not represented.

There were 16 completed evaluations for the Slave Lake workshop. While most of the responses to the statements in the first part of the evaluation were positive, there were a small number of negative responses. Looking at the open-ended questions, there were positive responses to the nature of the discussions and quality of the conversations. There were also some comments, and some of these came out in the workshop itself, that a number of the more technically minded participants had some difficulty with following a structure that does not adhere to a standard planning process, and that how this plugged into future development of the plan was not clear.

6.0 Conclusions

The objectives of the First Nations and Métis meetings were mostly realized for two First Nations and one Métis group. Groundwork has been laid down for future meetings with most of the other groups. The meetings were a positive start on building relationships with Aboriginal peoples in the watershed. Further research is being conducted into other First Nations that may have traditional territories in the watershed and they will also be contacted.

The objectives of the stakeholder workshops (See Section 4.2.1) were met. We wanted to hear solutions and we wanted to hear what people or their agencies were doing, and we heard that. The Summary Table of Solutions (See Section 5.2.2) has an impressive range of options. There were missing pieces at each workshop because certain sectors were not well represented, but some of those gaps were filled by the response form results.

There was a range of technical and professional knowledge at the workshops. Many participants from the municipalities, who are key stakeholders, were elected officials and non-technical staff, both of whom sometimes have limited technical knowledge. Industry and agriculture representatives varied in their knowledge levels and provincial government staff had considerable technical and professional skills and knowledge. Hence, the approach of not getting bogged down in goals and objectives and technical planning processes and asking participants to provide both non-technical and technical solutions to the problems (issues) worked well.

It is now the job of the IWMP Steering Committee, with assistance from the Technical Advisory Committee and watershed planning and engagement specialists, to develop the goals and objectives and recommended management actions of the watershed plan.

7.0 Appendix: Stakeholder Workshops

7.1 Workshop agenda

Watershed Planning Workshops: Finding Solutions

High Prairie, Peavine Inn & Suites
Wednesday Nov 4, 2015

Slave Lake Inn & Conference Centre
Thursday Nov 5, 2015

9:30 am – 3:30 pm

Agenda

Time	Activity	Responsibility
9:00	Sign-in	
9:30	Welcome	Watershed Council
9:35	Introductions	Alan Dolan, Facilitator / All
9:45	Housekeeping, Role of Facilitator, Ground Rules	Alan
9:50	Objectives, Agenda Review	Alan
9:55	The Watershed Council and the integrated watershed management plan	Meghan Payne, Executive Director, Watershed Council
10:15	Issues and problems (see other side)	Alan/All
10:30	Discussion <ul style="list-style-type: none">• What are the solutions for each problem or issue?• Who should implement them?• What is your organization/agency already doing to address these issues in the watershed?	All
12:00	Lunch (provided)	All
1:00	Discussion (continued)	All
3:10	Next steps	All
3:25	Evaluation	All
3:30	Adjourn	All

7.2 High Prairie workshop “raw” notes

Watershed Planning Workshops: Finding Solutions

High Prairie, Peavine Inn & Suites

Wednesday Nov 4, 2015

9:30 am - 3:30 pm

Objectives

1. Clarify the roles and responsibilities of the various players
2. Ensure everyone understands what an integrated watershed management plan is, why it important, and how they are contributing to it
3. Seek stakeholder advice and input on solutions to problems and issues in the watershed and who should implement them
4. Seek stakeholder input on how their agency or organization is already addressing issues in the watershed
5. Identify areas where stakeholders require more information
6. Provide opportunities for everyone to be heard
7. Evaluate the process so subsequent consultations can better meet participants' needs

Agenda

Time	Activity	Responsibility
9:00	Sign-in	
9:30	Welcome	Tammy Kaleta Chair of the Board, Watershed Council
9:35	Introductions	Alan Dolan, Facilitator / All
9:45	Housekeeping, Role of Facilitator, Ground Rules	Alan
9:50	Objectives, Agenda Review	Alan
9:55	The Watershed Council and the integrated watershed management plan	Meghan Payne, Executive Director, Watershed Council
10:15	Issues and problems	Alan/All
10:30	Discussion <ul style="list-style-type: none"> • What are the solutions for each problem or issue? • Who should implement them? • What is your organization/agency already doing to address these issues in the watershed? 	All
12:00	Lunch (provided)	All

Time	Activity	Responsibility
1:00	Discussion (continued)	All
3:10	Next steps	All
3:25	Evaluation	All
3:30	Adjourn	All

Meghan’s Presentation – Watershed Council and watershed planning

Issues and problems

Presented to all participants: Based on previous public and stakeholder consultations, State of the Watershed Report, Risk Assessment, Technical Update, and other Watershed Council documents

1. Increased phosphorus loading and associated algae growth in lakes
2. Increased land development causing erosion, run-off, and sedimentation, and loss of wetlands
3. Stream crossings in upper watershed fragment fish habitat, and cause erosion and sediment loading
4. Agricultural crop production contributes to sedimentation and nutrient loading, and chemical use degrades water quality and harms aquatic species
5. Increased freshwater use across all sectors
6. Unstable Lake levels
7. Impact of hydraulic fracturing on groundwater and the demand for freshwater
8. Degradation and loss of riparian areas
9. Degradation and loss of wetlands
10. Unrestricted access to streams and riparian areas by livestock degrades riparian areas and water quality
11. Lack of knowledge on cumulative water withdrawal

Suggested in this workshop:

1. *Source Water Protection*
2. *Climate Change*

Discussion

- What are your solutions for each problem or issue?
- Who should implement them?
- What is your organization/agency already doing to address these issues in the watershed?

Data on these watershed issues and problems is available in information provided on the resources table and summarized on the back of the meeting agenda

As a farmer, nitrogen is very mobile in the soil, but phosphates are not; are fertilizer applications actually relevant?

- Yes, phosphorus itself isn't mobile but it attaches to soil particles/silt and moves that way
- It's due to excess precipitation, causing overland flow and erosion

Re: agricultural chemical application — spraying for weeds (7 times this year) — and recommendation for riparian setback; if we follow the instructions are we still contributing to the problem?

- Hard to determine nonpoint source contributions and expensive to test for pesticides in the water

As a developer re: required environmental reserves, setbacks, does this apply to agriculture as well?

- Farmers cannot farm on soft ground with heavy equipment
- Best Management Practices (BMPs) are being practised (e.g., vegetative buffer strips to capture sedimentation, nutrients, no-till farming, etc.)

Livestock sector, e.g., CAFO (Concentrated Animal Feeding Operations) has a lot more restrictions / regulations (e.g., manure storage / spreading), grain producers not so much (i.e., voluntary compliance with BMPs)

Filters on the streams are being removed through logging in years that climate / weather is not an issue, leaving areas vulnerable

Re: landscaping and loss of wetlands, what is being done to address these impacts?

- New provincial wetlands policy being implemented (no net loss) in the "white" zones (developed areas, as opposed to "green zones" which are mostly forested) of the province

Any person who wants electrical power service that requires impacting a wetland is being placed low on the priority scale (if serviced at all)

Encouraged to use the Environmental Reporting Hotline 1-800-222-6514 to report environmental impact issues observed in the field any time by anyone

What constitutes a wetland?

- Provincial wetland policy defines this; there are many different types of wetlands

Under the policy, Qualified Wetland Aquatic Environmental Specialists (QWAES) are required to make accurate identification

- QWAES is currently being formalized as a certification governed by Alberta Environment & Parks and available to municipal staff and others

Alternative Land Use System (ALUS) program exists to provide economic incentives to landowners (farmers) to maintain natural ecological conditions of their land (e.g., wetlands) - www.alus.ca

Concern over fencing of leased areas, such as along riparian areas of watercourses, and without weed control or replanting with native plants, the weeds invade the adjacent agricultural fields

- Regulation is not being done effectively by the Province
- Belief that you can't go chemical-free in operations in light of the economics of the industry (i.e., it takes many years to let the land heal and re-establish natural weed control function)

Green Acreages Workshop was hosted by the Watershed Council; properly maintained areas will allow natural / native plant ecology to control weed problems

Cows and Fish (Alberta Riparian Habitat Management Society) is a great organization to work with - www.cowsandfish.org

- See "Undercover Farmers" - <https://www.youtube.com/watch?v=nWXCLVCJWTU>
- Lots of beaver in the watershed - damming up the creeks, creating more riparian areas
- Cows and Fish have good resources on this: http://cowsandfish.org/publications/fact_sheets.html

Causes of flooding is being attributed to loss of wetlands and climate change

Watershed Resiliency and Restoration Program is providing funding through the Government of Alberta to help support watershed restoration projects: <http://esrd.alberta.ca/water/programs-and-services/watershed-resiliency-and-restoration-program/default.aspx>

Most of the time, the oil and gas industry does not put a proper river or stream crossing. In some cases they use culverts, which are very problematic for fish movements and migration, especially in larger watercourses.

On the other hand, the forestry industry follows very careful regulations and uses culverts only for the very small watercourses and bridges for the larger watercourses

- Maybe the reason that forestry standards are more sustainable is that forests are a renewable resource and long-term management is high priority
- In contrast, oil and gas is a short-term resource in Alberta

Need to get more involvement of watershed groups with oil and gas management practices

Green Acreages Guide is a great tool for phosphorus loading management; specifically, letting lawns to grow longer to absorb overland flow - <http://www.landstewardship.org/green-acreages-guide/>

Slope sloughing, plant deep-rooting vegetation (e.g., tree planting, bio-engineering)

GIS mapping can pinpoint slough points to identify key environmentally-sensitive areas (ESAs)

Beaver habitat restoration to help slow and spread water velocity; see "Nature's Engineers - Natural Geographic" <https://www.youtube.com/watch?v=Wv9VpSdy4Zg>

- Also see Cows and Fish resources mentioned above

Satellite imagery goes back to the 1980s

Talk of West Prairie dam development to slow down river flow (circa 1990) - was not received well

Big trees are falling into the river and carrying a lot of sedimentation with them; in contrast willows and other similar native riparian plants have roots that bind up the soil and hold it in place and are less likely to be washed downstream with run-off

Lagoon systems are being used to treat municipal (High Prairie) wastewater, stormwater flows are untreated

A lot of municipal sewer systems are septic fields of residents, required to be managed with vac truck removal, not released into the surrounding environment like they used to be

Failed systems (e.g., buried vehicles acting as a septic system) are an interesting case for learning

Untreated effluent is spread onto farmland (e.g., manure); timing of this application is key for it to be a safe practice

- Spreading on farmland has a process around it – specifically, 24-hour period for the effluent to be turned into the soil
- Soil testing required before and after

Rental properties are of higher concern re: observation / management of failed septic systems

Livestock grazing in riparian areas; cows, horses, etc. coming close to source water (e.g., Sucker Creek); difficult to work with some people unwilling to apply BMPs

- Community needs to exert some pressure
- Question on why the provincial government can't exert more pressure if they are the "owners" of the riparian land? (edge and bed portion)
- Political feasibility, used to be more accountability "back in the day" - non-compliance would end in a jail term for guilty parties

Sometimes it is federal land (First Nations reserve land) and who enforces problems there?

- There used to be a Department of Fisheries and Oceans office in Peace River; no longer, now deferred to Edmonton office
- Challenge understanding intergovernmental relationships with enforcing legislation

No provincial legislation exists to enforce riparian setback from development and industry activities

- Stepping Back From the Water (<http://environment.gov.ab.ca/info/library/8554.pdf>)
- See Clearwater County's Municipal Development Plan have worked setback guidelines into statutory planning documents

How are septic fields that are right on the shoreline (e.g., fill) handled?

- Bylaw system is complaint-driven

Canadian Water Network - Municipal Priorities Report (re: management of biosolids identified as one of four key priorities) - <http://www.cwn-rce.ca/focus-areas/blue-cities/canadian-municipal-water-priorities-report/>

Municipalities are tapped-out on costs associated with monitoring / enforcing non-compliance and fixing the problems

- Programs need to be established for municipal cost-recovery
- Discussion around carrot (incentives, awareness, education) versus stick (monitoring, enforcement)

Green movement in Canada is going to be supported by the new federal Liberal government - <http://ottawacitizen.com/news/local-news/ottawa-centre-mp-mckenna-earns-cabinet-post>

Education is key before enforcement is pursued; belief of, "my land, I can do what I want" is persistent - i.e., "develop up to the pin," farming right up to an ever-eroding riparian edge

Challenge that industry is rewarding (requiring) large equipment use which is causing damage to natural areas

There is a lot of regulation detailed in the Environmental Protection Act (AEPA), Public Lands Act, Water Act, etc. - we don't need to reinvent the wheel

Little Grassy area – people haying when lake water levels are low

- There are years when vegetation doesn't exist, further removal adds insult to injury
- Emergent riparian vegetation provides food supply and habitat for fish
- On the flip side, excess vegetation is adding nutrient loading to the lake

Upland areas; increased land development pressures

- Swan Hills, Grizzly Hills, oil and gas and forestry activity, Grizzly Ridge Provincial Park

West Fraser - recently acquired a family-owned mill

- Follows provincial regulations and more
- Want to be leaders in environmental issues (e.g., creek crossings)

- With GPS technology, can now monitor all creek crossings, see Alberta Plywood
- Cutblocks are buffered, large creeks are 60m buffer, smaller creeks are 30m buffers
- Mapping is a huge asset now to find details for laying road systems and log piles
- Crossing bridges are being replaced
- Vanderwell (Slave Lake) is operating as a smaller venture

Overland flood protection is now a rider on insurance policies for homeowners (re: climate change)

Water flows have increased in general (e.g., used to take a while for water to cycle through an ecosystem, now just a few days in some cases)

Boreal forest fires would greatly increase if humans just left the forests alone and did not harvest them

Climate change impacts on forest function and forestry impacts is unknown, logging practices aren't really changing as a result

There are no forestry companies practising with a short-term mindset or business model any more; but there is not enough education after they leave school to keep them up-to-date and informed

Lesser Slave Forest Education Society does in-classroom outreach for all grades, lots of programs and campaigns too but would like to do more
Agricultural education has also been implemented through the schools and needs to continue widely

Should also be inclusive of all industry sectors

Town of High Prairie is working with the Watershed Council on a presentation for Council re: West Prairie creeks and the related water issues, highlighting management practices that will address the issues

<LUNCH BREAK>

Oil and gas Beneficial Management Practices

- In the last ten years, lease / oil site developments are improving their process using consultations (w/ First Nations)
- Long-term detrimental effect to the land and conditions when the site is reclaimed (e.g., native ecosystem function)

Abandoned oil and gas wells are a challenge in Alberta

Fracking

- Fracking water being taken from Lesser Slave Lake and river by multiple users. A lot of water is involved – millions of barrels in all; increasing use of municipal effluent to change this (est. \$14/cubic metre – 6.2 barrels per cubic meter)
- Temporary Diversion Licenses (TDLs) being issued by Government of Alberta for Lesser Slave River; no public record of individual TDLs in the Slave Lake Watershed
- Salt water isn't a good carrier for getting fracking fluid/sand down the well; a gel needs to be added to it that has a yield point, H₂S can also be a concern
- Water from the pulp and paper mill and wastewater treatment stations is being purchased for fracking use, but from a watershed water balance, this means that water will not go back into the river/lake again

Instream Flow Needs are being impacted by use of surface water for oil and gas activities - e.g., using highway dugout water

Alberta Environment & Parks is developing water re-use and stormwater use guidelines, due for public release in late 2016, early 2017

Alberta Geologic Survey (via Alberta Energy Regulator) would have the most robust groundwater flow data including the Edmonton-Calgary Corridor (ECC) Provincial Groundwater Atlas - <http://www.ags.gov.ab.ca/groundwater/ecc-atlas.html>

Valleyview and Falher pump water out of the Little Smoky River - times are set for when they can and cannot draw; oversight on water servicing municipal users is more stringent than other sectors

Lake level monitoring informs appropriate management response(s)

- Follows the price of oil; oil goes up, water goes down

Alberta Water Council - Conservation, Efficiency and Productivity (CEP) Planning project -

<http://www.albertawatercouncil.ca/Projects/WaterConservationEfficiencyandProductivity/tabid/115/Default.aspx>

Water (conservation) bans have not been implemented to date in counties of the Lesser Slave Watershed

The International Codes Council (ICC) and the Canadian Standards Association (CSA) are working with Health Canada and other stakeholders on a Joint Rainwater Harvesting Standard - specific to water quality; open for public input until Nov 24, 2015 -

<http://us7.campaign-archive2.com/?u=4c1e17d1d0f1e88f9b86bb391&id=c36cf97b76&e=f52de9047c>

Weir modification - used as a dam to manage lake levels, owned by the Government of Alberta

Source Water Protection

- Alberta Environment and Parks (AEP) - <http://aep.alberta.ca/water/programs-and-services/drinking-water/protection/source-water-protection.aspx>
- AEP is also creating a Source Water Protection Guide for municipalities (est. Nov / Dec)
- North Saskatchewan Watershed Alliance has formed a Headwaters Alliance working group

Cumulative water withdrawal and return

Water cycle needs to be enabled to function to accommodate natural water storage, not removing it by putting it underground

Next Steps

Communicating the need to be involved in (i.e., use resources for) watershed planning is challenging

Updating Municipal Development Plans

Stay connected to the LSWC (e.g., newsletter)

<http://lesserslavewatershedcouncil.ca/contact/sign-up-news-and-updates/>

7.3 Slave Lake workshop “raw” notes

Watershed Planning Workshops: Finding Solutions

Slave Lake Inn & Conference Centre

Thursday Nov 5, 2015

9:30 am - 3:30 pm

Objectives

1. Clarify the roles and responsibilities of the various players
2. Ensure everyone understands what an integrated watershed management plan is, why it important, and how they are contributing to it
3. Seek stakeholder advice and input on solutions to problems and issues in the watershed and who should implement them
4. Seek stakeholder input on how their agency or organization is already addressing issues in the watershed
5. Identify areas where stakeholders require more information
6. Provide opportunities for everyone to be heard
7. Evaluate the process so subsequent consultations can better meet participants' needs

Agenda

Time	Activity	Responsibility
9:00	Sign-in	
9:30	Welcome	Todd Bailey, Board Member, Watershed Council
9:35	Introductions	Alan Dolan, Facilitator / All
9:45	Housekeeping, Role of Facilitator, Ground Rules	Alan
9:50	Objectives, Agenda Review	Alan
9:55	The Watershed Council and the integrated watershed management plan	Meghan Payne, Executive Director, Watershed Council
10:15	Issues and problems (see other side)	Alan/All
10:30	Discussion <ul style="list-style-type: none"> • What are the solutions for each problem or issue? • Who should implement them? • What is your organization/agency already doing to address these issues in the watershed? 	All
12:00	Lunch (provided)	All

Time	Activity	Responsibility
1:00	Discussion (continued)	All
3:10	Next steps	All
3:25	Evaluation	All
3:30	Adjourn	All

Meghan's Presentation - LSWC and IWMP

- Fact sheets available via LSWC
- Technical Report Update (20-page summary)
- How is the IWM Plan being developed?
 - Data has been collected, Steering Committee and Technical Committee are meeting to work out the goals / objectives / outcomes / tactics / etc.
 - Intend to be completed planning by spring 2016, then implementation
- Defining metrics (maintain, improve, etc.) - will this be addressed throughout today?
 - Scheduled to address this for the time between now and spring, 2016
- We have a lot of issues in the watershed due to working in silos, being disconnected; this is a great opportunity to hear from many stakeholders

Does the size of the lake and watershed amplify the conflicting interests of users?

How do we build consensus with opposing opinions/desires of conditions like water level or lake size?

This is the only Watershed Planning Advisory Council that is focused on a lake.

Will the Technical Committee be focusing on certain data?

- They will be helping identify key action areas and priorities

Want to talk about PCBs in the lake sediment

Issues and Problems

Made available to participants: Based on previous public and stakeholder consultations, State of the Watershed Report, Risk Assessment, Technical Update, and other Watershed Council documents

1. Increased phosphorus loading and associated algae growth in lakes
2. Increased land development causing erosion, run-off, and sedimentation, and loss of wetlands
3. Stream crossings in upper watershed fragment fish habitat, and cause erosion and sediment loading

4. Agricultural crop production contributes to sedimentation and nutrient loading, and chemical use degrades water quality and harms aquatic species
5. Increased freshwater use across all sectors
6. Unstable Lake levels
7. Impact of hydraulic fracturing on groundwater and the demand for freshwater
8. Degradation and loss of riparian areas
9. Degradation and loss of wetlands
10. Unrestricted access to streams and riparian areas by livestock degrades riparian areas and water quality
11. Lack of knowledge on cumulative water withdrawal

Additional suggestions from this workshop

1. Geoengineering - solar radiation / weather modification / air quality
2. PCBs in lake sediment
3. Aquatic Invasive species (i.e, zebra mussels)
4. Vehicle waste on ice (fishing shelters, vehicles, equipment, etc.)

Discussion frame

- What are your solutions for each problem or issue?
- Who should implement them?
- What is your organization/agency already doing to address these issues in the watershed?

Increased phosphorus (P) loading and associated algae growth in lakes

- A lot of phosphorus is going in, not much coming out
- There are numerous sources of P; not just agriculture which gets the most attention
- Any disturbance in the watershed can contribute to P loading
 - Canyon Creek and Slave Lake settling lagoons
- Contributing to cyanobacteria (blue-green algae blooms)
- Numerous industries are active around the lake; need to take a cumulative effects management approach and act on impacts that aren't natural in origin

Can oxygenation of the lake be considered a solution?

- Not practical for a large lake nor a sustainable solution; costs a lot of money and doesn't solve the problem ("a very expensive band-aid")

Where is the biggest bang for our buck with P management?

- Greatest contributions are south bank agriculture, and Swan River
- Proposed approach to mitigate P loading: "To reduce the amount of human-caused bare ground by using sector-specific best management practices"
- "Reduce direct application of phosphorus to land/water"

Increased land development causing erosion, run-off, and sedimentation, and loss of wetlands

Low Impact Development - application for reducing sedimentation / erosion

- Use of established roads / seismic lines done as much as possible
- Tracking system exists for roads built for forestry / oil and gas use
- Includes crossing management
- Inheriting roads from one company to the next is a challenge for management

Alberta Conservation Association has inventoried creek crossings and culverts

Access management plans - road design may be different depending on type of use/users

Operating ground rules are approved every year for forestry industry by the province

Alberta Energy Regulator deals with upland creek crossing regulations; e.g., non-compliant crossing structures

- If water body is fish bearing, requires adequate crossing

Why are we reducing sediment? Preventing blue-green algae blooms? etc. - guiding question(s) to enable / justify action (basin-specific)

Are we seeking regulations specific to each region in the watershed?

- Setting Water Quality Objectives (WQOs) will be a part of that

Lake lot neighborhoods - approx. 120 lots, 12 lots need to have super-green grass (lots of chemical fertilizer application) - public awareness of P sources needs to improve

- Information resources for residents - Living by Water program - <http://naturealberta.ca/programs/living-by-water>

Agriculture watershed programs in Southern AB; with respect to fertilizing – do we think we're going to have much influence encouraging the agriculture sector to limit its P use?

- It's a culture change we need to encourage people to think more long term; certain products and activities need to be identified as contributors to excessive P loading and habitat destruction - e.g., quad / OHV rallies

Stormwater loads need to be acknowledged for the level of P contribution they are making in contrast to agriculture P loading

The lake has changed so much as a result of development – members of the public can be educated to lessen their contribution to habitat destruction

Enforcement on public lands is very low; there are virtually no organizations or activists in the area either, no intention of provincial government to change this

Wheels Out of Water - provincial campaign -

<http://alberta.ca/release.cfm?xID=38367F1CEBCCC-F1F9-A28C-658EEF79938811C5>

See South Saskatchewan Regional Plan - development of recreation plans and linear footprint plans; are there hotspots that warrant a focused management approach - craft IWMP recommendations around this

Lake Management Project Team - via AB Water Council developing a Lake Management Framework -

<http://awchome.ca/Projects/CurrentProjects/LakeManagement/tabid/204/Default.aspx>

Fines are \$115 per item of litter; attitude seems to be that if you have enough money you can do whatever you like (i.e., enforcement / penalty is weak)

This IWMP project is an opportunity for a collective approach to speak in unison about the issues; include education program, improved enforcement

See Clearwater County's "Welcome to Our Backyard" program -

<http://www.clearwatercounty.ca/departments/section.jsp?sid=190>

Red Deer River Watershed Alliance has a Watershed Ambassador program -

<http://www.rdrwa.ca/node/60>

Leave No Trace Program - <http://www.leaveonotrace.ca/leave-no-trace>

Alternative Land Use Services (ALUS) - <http://www.alus.ca>

Grazing leases need inclusion of "no cattle in the creek" clauses

Oldman Watershed Council - staff do long-weekend outreach to talk with people at staging areas (quad unloading points) to deliver tips and best practices

Lesser Slave River - education opportunities exist (impacts from mountain biking, horseback riding)

Corporate education opportunity - staff training, daily protocol, take-home practices
Connect with quad dealerships / manufacturers, and organizers of quad rallies to communicate with participants on stewardship; avoid sensitive times in the season (e.g., June frost melting) - incentive programs

<LUNCH BREAK>

Unstable Lake levels

Daily evaporation rate from the Lake? An estimated evaporative loss figure has been established via AB Environment and Parks

Not sure that this should be included in the IWMP - e.g., one year lake levels were very low, a few years later there was intense flooding; no matter what we do our effort will have little long-term impact . . . but water quality is certainly valid and an influenced metric

Weir modification - used as a dam to manage lake levels, owned by the Government of Alberta

Historically, there have been lower levels in the lake (pre-weir)

Degradation and loss of riparian areas

How are riparian areas identified?

- <http://cowsandfish.org/riparian/riparian.html>

How are riparian areas protected? What tools exist?

- Protective notation (Crown Land)
- Environmental (conservation) easement
- Environmental reserve
- See Alberta Conservation Association and / or Land Stewardship Centre

It's important to deliver messages of direct benefit to ag producers of protecting riparian areas (e.g., improved livestock health)

LSWC is seeking more opportunities for riparian restoration work / projects

In 2006 the AB Conservation flew the shore of Lesser Slave Lake and surrounding tributaries to assess riparian health (video available on the LSWC website)

Lack of knowledge on cumulative water withdrawal

Approximately 1,300 cubic metres (~5 olympic swimming pools) of water has been sent underground from the Lesser Slave River over 20 years

Water allocation licences are issued based on how the water is used and / or returned - <http://aep.alberta.ca/lands-forests/land-industrial/programs-and-services/authorization-viewer.aspx>

Decreasing glaciers and erratic precipitation patterns - expect less water availability when it's needed

Water quality impacts from spraying of RoundUp (glyphosate) on forestry cutblocks

Water budgeting needs to be based on what is trying to be achieved

American pressures on water supply - closure on water allocations in the South Saskatchewan River Basin

40 to 50 years of data exist on tributary flow into the Lake, outflow needs accurate measuring

- e.g., weir gate - if left open for two days, the lake level will drop by 1 mm

First Nations have a siltation study(?)

Efforts are being made to connect with this community; WPAC structure is new

Sharing of existing initiatives by participants

Provincial Wetlands policy - being implemented in the white area in 2015-16, green area thereafter - <http://aep.alberta.ca/water/programs-and-services/wetlands/alberta-wetland-policy-implementation.aspx>

Watershed Restoration & Resiliency Funding Program - <http://esrd.alberta.ca/water/programs-and-services/watershed-resiliency-and-restoration-program/default.aspx>

Cows & Fish - Riparian Health Inventory - <http://cowsandfish.org/riparian/health.html>

Education and awareness events – presentations - <http://cowsandfish.org/about/workshops.html>

Fish Sustainability Index FSI - red, orange, yellow, green, black colour system - <http://esrd.alberta.ca/fish-wildlife/fisheries-management/fish-sustainability-index/default.aspx>

Stream crossing inventory program (ACA) - <http://www.ab-conservation.com/go/default/index.cfm/programs/program-reports/2011-2012/fish/stream-crossing-remediation/>

Local Trapper Association - stream crossing construction and bank stabilization

Woods and Waters Recreational Trails Association - building Trans Canada Trail through the area, proper water drainage infrastructure setting up

AEMERA - data collection - 2015-18 Business Plan posted on website - <http://aemera.org/homepage-feature/2015-2018-aemera-business-plan-focuses-on-science-open-timely-reporting-building-relationships-with-aboriginal-communities/>

Water levels, lake levels, and river flow data available

Engaging homeowners to adopt green / low impact landscape practices

Receive complaints, adoption of wetlands policy, infrastructure and transportation networks; applying best practices, land-use planning

Parkland County has a guide on municipal planning for watershed management - <http://www.parklandcounty.com/Residents/Environment/Water/Watersheds.htm?PageMode=Print>

World class sewage treatment centre (Canyon Creek) - e.g., phosphorus removal, membrane filtration system -

http://www.waymarking.com/waymarks/WM84RV_Southshore_Wastewater_Management_Water_Reclamation_Facility_Canyon_Creek_Alberta

Sustainability practices in forestry sector - new biodegradable products, commissioning and new anaerobic wastewater treatment system to produce biogas, reusing waste heat for processing (pulp mill right?)

Lesser Slave Lake Bird Observatory - tracking population trends, breeding habitat requirements (e.g., riparian), work for forest companies (song birds), nesting grebes study, bird biologists on staff able to help with gathering information

Waterbody identification / classification - mapping Environmentally Sensitive Areas (ESAs)

Getting kids to be in nature - observing natural phenomenon, "leave no trace" ethic

Supporting Watershed Planning and Advisory Councils - providing operating funds, Public Lands management in the LSWC watershed, approvals compliance program - continuous improvement (e.g., effluent management, disturbance), Regional Planning (Land Use Framework) for regional outcomes, implementation of Regional Plans - engaging stakeholders through hosting regional multi-stakeholder forums to advance specific goals in the regional plans

Off-grid, solar powered home, living lightly on the land (175 acres), observing conditions of change through decreasing biodiversity / habitat destruction, buying in bulk, producing one bag of trash per month

Regional Environmental Action Committee (lobby group) - solar installation at Northern Lakes College - funded by oil and gas companies, Swan Hills PCB treatment given extension for incineration deadline again, water quality study looking for PCBs in the lake; unplanned releases studied from Swan Hills Hazardous Waste Treatment Facility - pushing to stop incineration of PCBs and use more environmentally-sensitive methods, hosted five Pure Nature crews to clean up contaminated areas

Fish stocks in Lesser Slave Lake decreasing

Forestry - identifying wetlands and riparian areas via airplane (wet areas mapping - depth to waters model), cutblocks overlays and planning for road construction, forest management planning every ten years (following watershed and sub-watershed approach), setting up buffers along creeks to minimize erosion impacts, creek crossing monitoring program, contractor requirements (e.g., bridge installs, removed when job completed)

Education and outreach - partner on existing programs - Nature Alberta's Living by Water, Land Stewardship Centre's Green Acreages Guide, Respect Our Lakes, Respect Our Land, Aquatic Invasive Species info, newsletters and press releases stories,

Watershed 101 webinar produced with Lakeland College, riparian restoration projects on agricultural land, Watershed Education Outreach Coordinator hired, presentations to Counties and various groups (e.g., water conservation), selling rain barrels (185), partner with Lesser Slave Forest Education Society, grade school outreach with in-class presentations and field trips, Little Green Thumbs program (via Ag For Life funding) – in class garden growing kits

Next steps

IWMP Response form is online - <https://www.surveymonkey.com/r/YVTHJ6K>

7.4 Meeting evaluations

7.4.1 High Prairie meeting evaluation November 4, 2015

Rate the following statements from 1 (strongly agree) to 5 (strongly disagree)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
Overall, this was a very useful workshop.	5	5				
The workshop met or exceeded my expectations.	5	5				
My areas of concern were addressed.	5	4				1
I had lots of opportunities to bring my ideas forward.	7	3				
The introductory presentation by Meghan Payne was informative and useful.	8	1	1			
The discussions on issues and solutions were productive.	3	6	1			
The agenda was well structured for covering the topics we needed to address.	5	4				1
Overall, the facilitation was appropriate and effective.	6	4				
I have a clearer understanding of what the integrated watershed management plan will look like.	6	3	1			
This is the right group of people to be involved in this workshop.	6	3	1			
This is a good venue for holding this workshop.	8	2				
I enjoyed the lunch.	7	3				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable

What was the most useful or helpful thing about the workshop?

Discussion about oil and gas industry water usage and forestry environmental work in the bush
 Rejuvenating interest in overall program
 It's good
 Very open discussion
 Open discussion; learning from different stakeholders (i.e., oil and gas, forestry)
 Oil industry usage, education
 Understanding other stakeholders
 Discussion on upland areas, logging, farmland

What was the least helpful or useful thing?

It was all industry
n/a

What could be improved?

No suggestions
More people
n/a

How did you hear about this workshop? Can you suggest a better way we might reach people?

Email invitation - this is the best way to reach me
More input from each board member to increase participation
WPAC
Personal invitation
Email
Through my County representation

Other comments?

Good program
It takes money to improve the watershed (keep monitoring)
Be careful of too many regulations
Excellent
I would like to attend more seminars
Thank-you!

7.4.2 Slave Lake meeting evaluation November 5, 2015

Rate the following statements from 1 (strongly agree) to 5 (strongly disagree)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
Overall, this was a very useful workshop.	3	11	2			
The workshop met or exceeded my expectations.	1	11	4			
My areas of concern were addressed.	1	7	6			2
I had lots of opportunities to bring my ideas forward.	5	9	1			1
The introductory presentation by Meghan Payne was informative and useful.	4	9	2			1
The discussions on issues and solutions were productive.	3	10	2		1	
The agenda was well structured for covering the topics we needed to address.	2	7	5	2		
Overall, the facilitation was appropriate and effective.	3	6	6	1		
I have a clearer understanding of what the integrated watershed management plan will look like.	1	7	4	2	1	
This is the right group of people to be involved in this workshop.		10	4	1	1	
This is a good venue for holding this workshop.	6	8	1			
I enjoyed the lunch.	3	8	3			2
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable

What was the most useful or helpful thing about the workshop?

<p>Got an idea what various interests people had</p> <p>Addressing a dynamic situation to resolve long-term risks to our watershed</p> <p>Issues and problems</p> <p>It was good to have this many stakeholders in the same room</p> <p>Open discussion</p> <p>Listening to other people's concerns, issues, and solutions</p> <p>Learning what's being done</p> <p>Learning about cloud seeding</p> <p>Intelligent group of informed individuals</p>

Intimate group
Well-organized, moved along well
Hearing the different perspectives
Engagement package sent out ahead of time was good
Interesting to hear opinions of others
Broad base of presentation; very informative
Contacts with other users, businesses
Plenty of opportunities to talk, wide range of issues / concerns / topics were covered – great conversation
Interesting hearing from a broad range of stakeholders and their issues/concerns, and hear the expertise of the group (e.g., Kristy!)
Able to hear first-hand differing opinions

What was the least helpful or useful thing?

Some groups / perspectives are not included
PLB and quads
Off-topic conversations
Lack of final decision or solutions
It was all helpful, even the voices that had a specific agenda and topic to bring to the group
A bit disorganized
Such a broad scope – what information does ONR(?) bring to the table?
Negative users trying to ban others unless a law changes, not going away; let's work together to fix problems, not ban
Discussion format didn't work very well with this group – smaller groups may have worked better, room energy was low, dim lights didn't help
Finger-pointing without scientific back-up

What could be improved?

No one from oil and gas present
No one representing First Nations
More information on hydraulic fracturing
More structure and flip chart record of ideas to provide reference for discussion
More diversity within workshop (people, industry)
Needed well-defined goal for meeting
What were we trying to achieve and did we?
More oil and gas knowledge
Kind of left hanging - what have we accomplished? Where does this leave us in the big picture? Recommendations for future direction?
It was all good – hang in there
Scope issues, drill deeper into issues
Recognize all users, let's work together
Missing groups of stakeholders – First Nation and Metis, oil and gas, AER and other government departments
More input by First Nations, send invites via snail mail, bring some cultural understanding by all levels of provincial and federal government

Brief discussion on issues/background then directed process on potential solutions, new people to process did not necessarily understand technical background on issues so they could focus on solutions, we did it on phosphorus but then dropped that process
More about science

How did you hear about this workshop? Can you suggest a better way we might reach people?

Was invited personally by Meghan
LSWC Committee (Meghan)
Meghan wouldn't leave me alone... this is a good thing!
WPAC
Meghan - email; good
On the LSWC board
Email – but my replies were undeliverable
LSWC email
On the board, Meghan kept us in the loop
Member of club notified me of this meeting
Meghan sent email to my CAO, invite sent around agency and trickled down to me
Via email from friend
Email
Municipal District

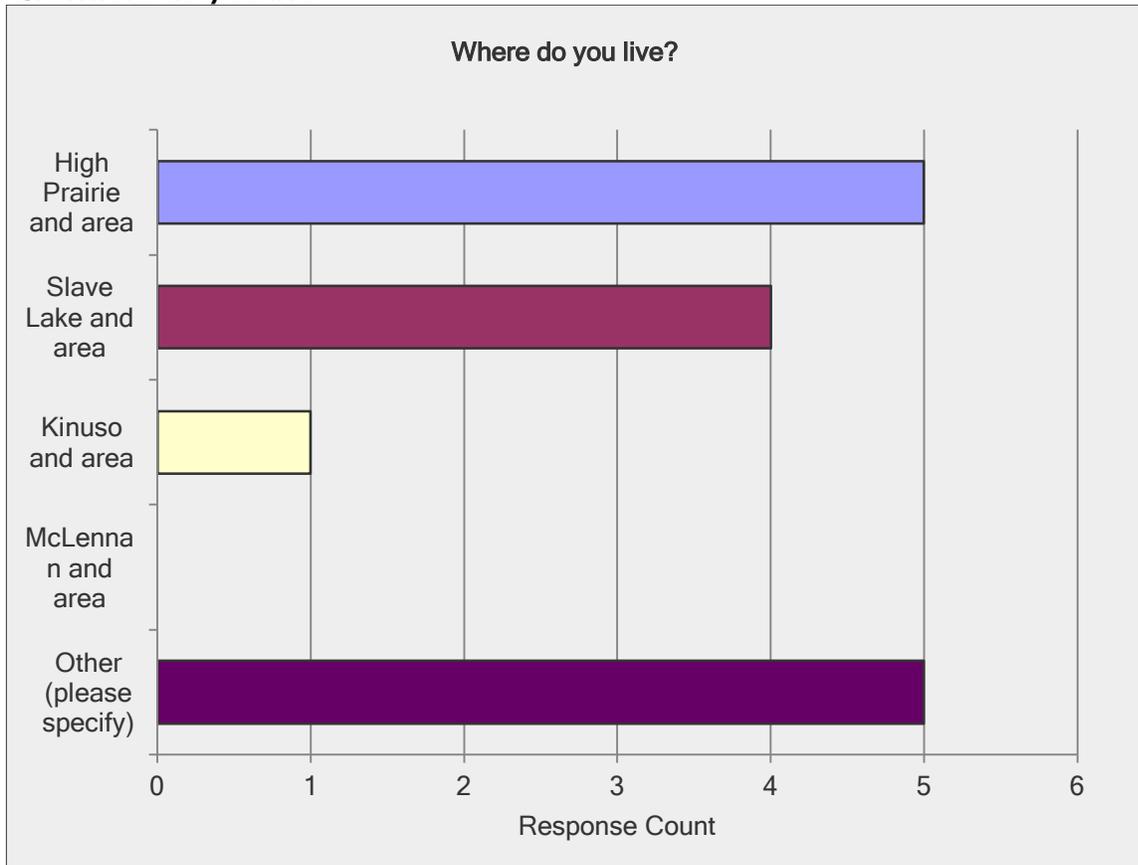
Other comments?

Must include local First Nations in order to have a more balanced perspective
Overall well done!!
Overall, it was good but the lack of structure did not give me the feel that all topics were discussed; this caused some parts to be rushed vs. running low on time
Tough to manage diverse and somewhat random group
Needed goals – how do we measure our success? Thank you
This is a great start; it is a long process but keep at it and keep building relationships
There were groups missing but as long as they were invited and given opportunity for input, it's a good process
Great start! I am excited to hear about future conversations on this subject
Maybe need time for scoping of issues; kept to outline but maybe needed additional structure
Riparian management – oil and gas, buffer zones from timber harvesting, agriculture
We need to measure (monitor and measure) successes of regulations and make recommendations wherever policy has failed
Great facilitation!
Look forward to hearing more about the plan and proposed solutions
Enjoyed the session, would be interested in attending more along this line with more equal representation from region industries

8.0 Appendix: Online response form results

Survey Monkey (29 Oct 2015 – 27 Nov 2015)

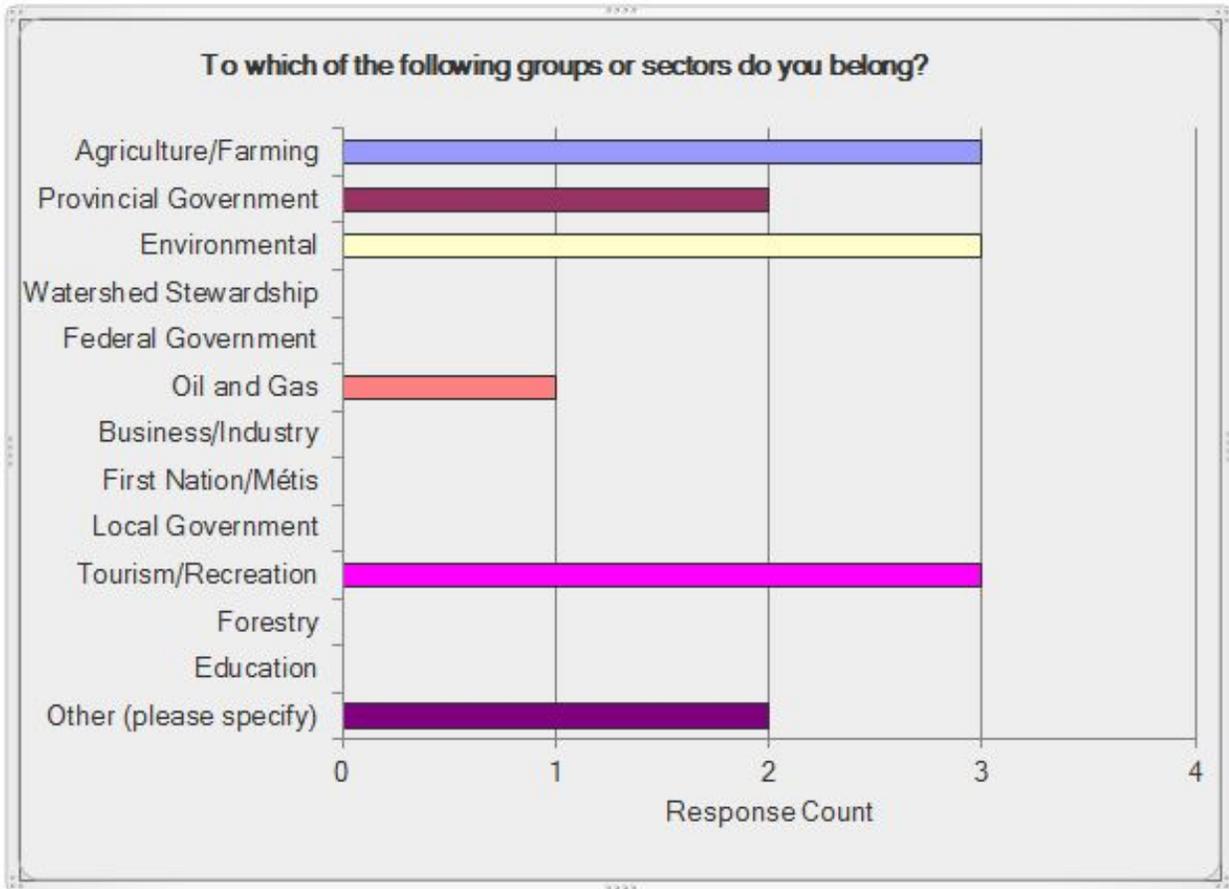
Q1: Where do you live?



Other (please specify)

- Shaws Point, private sector
- Edmonton (3)
- Peace River and area

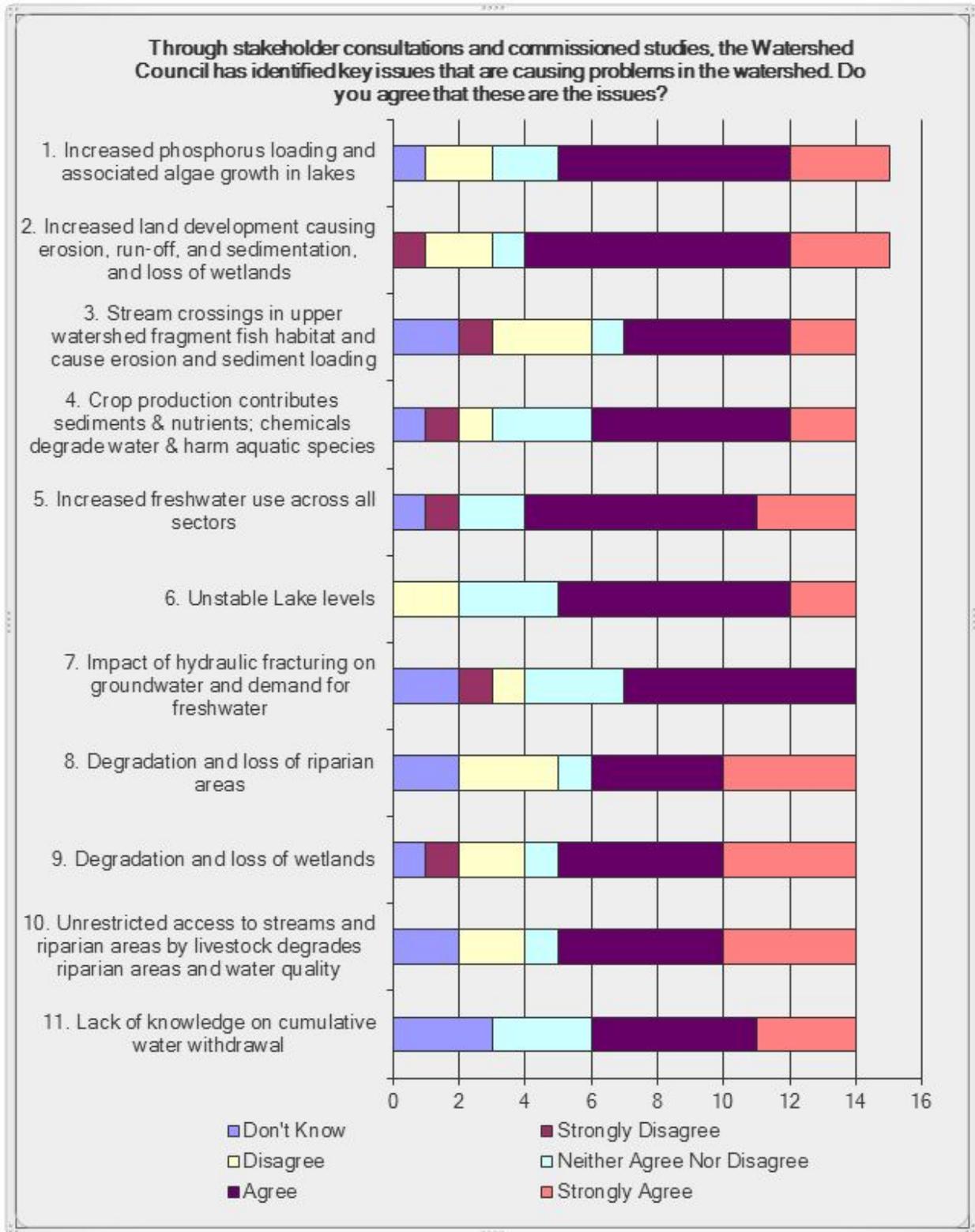
Q2: To which of the following groups or sectors do you belong?



Other (please specify)

- Cabin holder
- Utility & recreational club/user

Q3: Through stakeholder consultations and commissioned studies, the Watershed Council has identified key issues that are causing problems in the watershed. Do you agree that these are the issues?



Do you think there are other issues not included in the above list? (please specify)

- ATV impact
- Global warming possibly

Q4: What actions do you think need to be taken to address issues related to increased nutrients and algal growth in lakes?

- Education and information provided to all users of the lake on what actions need to be taken to keep the lake healthy.
- More diligence on the part of the agricultural sector.
- Less phosphate dumping
- There are a very few things that can be actioned with a high degree of confidence in success to deal with internal basin nutrient loading within the lake. I think this should be a lower priority for focusing work and resources.

The recent technical update for the LSWC on the state of the basin identified tributaries to LSL which are contributing high nutrient and sediment loads. Focus should be put on the West and East Prairie, South Heart and Swan River watersheds. These watersheds should be prioritized as a focus for municipal and provincial governments and other regulators (e.g., AER) to focus land use approval and compliance audits to ensure that land owners and industrial stakeholders are following all relevant legislation, conditions of licence or occupation and using best management practices to minimize the impact of approved activities. In the same watersheds, NGO (e.g., Cows and Fish, PCBFA) and multi-stakeholder groups (e.g., LSWC, Riparian Action Team) should continue to or increase the focus on private landowner participation and education on the use of best management practices and restoration programs for degraded riparian, river and wetland habitats bordered or entrenched by private land.

Landscape level cumulative effects modeling should occur to identify which activities are drivers within these watersheds for values that all parties (government/regulator/NGO) are concerned with improving (e.g., water quality, linear disturbance, riparian health, etc). Intension of the models is to pinpoint areas where resources should be spent (e.g., agricultural run off vs sewage treatment run off) to have the "best bang for buck." This will also help determine what level of resourcing is required to act on these issues (e.g., don't attack a large calibre problem with a small calibre answer).

Should be a focus on functional stewardship reporting; not general motherhood statements but relative to set points tied to scale for measuring a value (e.g., Chlorophyll a for nutrient loading in water) how have on the ground activities influence change. Measure the impact of the activity not theoretical or social value."

- Education and enforcement
- Cattle not allowed access to rivers and streams. Programs to encourage grain farmers to leave small creeks and riparian areas in their natural state. ATV access to rivers and streams limited.

Q5: What actions do you think need to be taken to address issues related to increased land development?

- Land use planning at all levels. Agriculture and Tourism seem to be the sectors that abuse the lake they need to get on board re land use and keeping the lake healthy. Again, education and information forums and govt legislation.
- The municipalities take a closer look at land use, monitor and show restraint with issuing permits in the near shore areas.
- Better stormwater management
- "There a very few things that can be actioned with a high degree of confidence in success to deal with internal basin nutrient loading within the lake. I think this should be a lower priority for focusing work and resources.

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- This is tough. It is a cumulative effect, so it is hard to address. The first few developments will be fine, but it is the last one or two, for example. It's not fair to burden these last few developers, when the first few also cause effects. I suppose it is an education piece for all developers as well as development and planning personnel for both municipal and provincial governments. I'm not sure what the solution is, but it is time to sit down and work out the details.
- "Limit logging activities to 100% recovery plan on what is used. What is cut and used must be equivalent to what is replanted and grown. If it takes 50 years to regrow, for

16 acres cut, the forestry industry needs 16 acres * 49 years of replanted trees. If the industry can't prove they have replenishment they are at a stand still or limited for logging activities.

- Same
- Not sure, I would like to see it prevented but since that is not possible I don't know.
- Stop clear cutting of our forests. Leave windbreaks and water breaks

Q6: What actions do you think need to be taken to address issues related to stream crossings in the upper watershed?

- Govt monitoring of popular stream crossings and limiting the areas that quads and other recreational vehicles can use. Govt issued permits if they are going into restricted areas.
- That one is more difficult. ATV's are probably the biggest abuser here, but it is very difficult to manage, without constraining legislation and expensive enforcement with resources that are not there. Public education may be the best solution here.
- Bridges instead of culverts and larger buffer areas
- "Regulatory processes and corrective measures rest with government and regulatory bodies. There are already tools that exist to deal with this including legislation and policy for industrial activities, Codes of Practice of watercourse crossings, operating ground rules of forestry, sedimentation and erosion control guidelines for works around watercourses, the stream crossing inspection protocol and manual and the stream crossing remediation directive.

Public education and influence to support regulators can come through NGO's and stewardship groups. Focus of messaging and inquiries should be towards crossing owners on: making general public aware of the scope and importance of the issue, reporting mechanisms for problems, promoting habitat remediation, alignment with existing regulatory frameworks and BMP's and supporting industrial partners who are demonstrating good environmental stewardship. I would advise against campaigns that focus on perceptions of what regulators or industry are not doing unless all the adequate facts have been amassed and can be simultaneously reported."

- Same
- Inspections? And money for a program to remove or improve the crossings

Q7: What actions do you think need to be taken to address issues related to agricultural crop production?

- I have no idea. This would be up to the individual farmer and hopefully they are stewards of the land.
- Public education program for the Agricultural sector.
- Better stormwater management.
- Unknown.
- Same
- I think you need to look at the municipality's they spray more harmful chemicals, often when not needed in ditches that have water flow through them in spring, many of these chemicals are residual. Grain farmers are not willy-nilly spraying. If there is a sprayer in a field it is to protect the crop. I think the practice that needs to change is using the fence row nozzle to get weeds along edges of riparian areas. Mowing is too expensive, but the weeds have to be controlled a solution is needed for this practice.

- Develop fertilizers that are environmentally friendly

Q8: What actions do you think need to be taken to address issues related to increased freshwater use?

- Govt issued permits that would control the amount of water industry and private consumption.
- Again public education - starting in the schools.
- Develop alternatives and monitor volume used
- "Increased focus on cumulative tracking on the allocation of and actual use of water resources.
- Institution of a fee structure for the use and allocation of water by the various users. Other resources such as timber, land, fish and wildlife all have measured costs associated with licencing, tracking, monitoring, reporting and usage of these resources for all stakeholders including members of the public (e.g., cost for hunting and fishing licences) and industry (e.g., cost paid for harvesting timber). Water is just as integral as these other resources and should be economically valued accordingly.
- Adherence to existing and newly created regulatory processes for allocating water (e.g., desktop method, Fish and Wildlife thresholds for water quantity, water quality guidelines)."
- "No company can consume greater use than the rainfall/snow fall for the year than what they can provide to the watershed. Industry has to bid to maintain crown land in a watershed area for the equivalent rainfall they are using for their work. To consume 1000 m cubed of water they need to purchase and maintain land that provides 1000 m cubed of water to the watershed with average yearly water and snowfall.
- Same
- Not sure
- Make mills recycle the water

Q9: What actions do you think need to be taken to address issues related to unstable lake levels?

- I really do not know.
- Much of this is mother nature, which we can't do anything about.
- Don't know
- "These are largely anthropogenic consequences tied to the current placement of infrastructure of public, private and municipal use the lake water and biotic resources.

There needs to be a fundamental understanding that the lake is now and has always been a dynamic environment subject to natural changes in water levels.

Management of upland watershed level anthropogenic effects will help alleviate issues groups and individuals have with the lake.

Increased focus on planning for proposed new uses and access to the lake which respects that it is a dynamic environment subject to change.

Resourcing for maintenance on existing infrastructure and uses tied to set short and long term monitoring and maintenance plans to reduce reactive responses and associated high costs."

- "Maintain/update the existing weir."
- Same
- Don't know and don't really care. We have messed up the lake so much from the east and west prairie dredging. It's a shallow water lake, it's going to be low in times of low rain fall. They should prevent the pulp mill from dumping their effluent into the slave river.
- Close the channel going out of the lake and go back to the old riverbed that Mother Nature built

Q10: What actions do you think need to be taken to address issues related to the impact of hydraulic fracturing?

- I would ban it.
- There is already public pressure against fracturing - this will probably expand and increase.
- Don't allow it
- Unknown
- Same
- Don't know

Q11: What actions do you think need to be taken in the watershed to address issues related to degradation and loss of riparian areas?

- Land use plan and monitoring by government.
- Probably public education in the schools.
- Closer monitoring of any activities
- "There a very few things that can be actioned with a high degree of confidence in success to deal with internal basin nutrient loading within the lake. I think this should be a lower priority for focusing work and resources.

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- Same
- Incentives put in place to encourage people to keep them. It's either incentives or regulation that make people change. So pick the carrot or the stick.

Q12: What actions do you think need to be taken to address issues related to degradation and loss of wetlands?

- Organizations such as ducks buy the wetlands,
- Public education
- Better monitoring of activities
- "There a very few things that can be actioned with a high degree of confidence in success to deal with internal basin nutrient loading within the lake. I think this should be a lower priority for focusing work and resources.

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Should be a focus on functional stewardship reporting; not general motherhood

statements but relative to set points tied to scale for measuring a value (e.g., Chlorophyll a for nutrient loading in water) how have on the ground activities influence change. Measure the impact of the activity not theoretical or social value."

- Same
- Same as above

Q13: What actions do you think need to be taken to address issues related to unrestricted access to streams and riparian areas by livestock?

- Assist and educate farmers to use alternate watering methods
- Restrictions should be increased in the grazing lease program, and with individual grazing leases. On privately owned land it will have to be dealt with voluntarily and possibly sanctions can be incorporated.
- Have buffer areas around them
- "There a very few things that can be actioned with a high degree of confidence in success to deal with internal basin nutrient loading within the lake. I think this should be a lower priority for focusing work and resources.

The recent technical update for the LSWC on the state of the basin identified tributaries to LSL which are contributing high nutrient and sediment loads. Focus should be put on the West and East Prairie, South Heart and Swan River watersheds. These watersheds should be prioritized as a focus for municipal and provincial governments and other regulators (e.g., AER) to focus land use approval and compliance audits to ensure that land owners and industrial stakeholders are following all relevant legislation, conditions of licence or occupation and using best management practices to minimize the impact of approved activities. In the same watersheds, NGO (e.g., Cows and Fish, PCBFA) and multi-stakeholder groups (e.g., LSWC, Riparian Action Team) should continue to or increase the focus on private landowner participation and education on the use of best management practices and restoration programs for degraded riparian, river and wetland habitats bordered or entrenched by private land.

Landscape level cumulative effects modeling should occur to identify which activities are drivers within these watersheds for values that all parties (government/regulator/NGO) are concerned with improving (e.g., water quality, linear disturbance, riparian health, etc). Intension of the models is to pinpoint areas where resources should be spent (e.g., agricultural run off vs sewage treatment run off) to have the "best bang for buck." This will also held determine what level of resourcing is required to act on these issues (e.g., don't attack a large calibre problem with a small calibre answer).

Should be a focus on functional stewardship reporting; not general motherhood statements but relative to set points tied to scale for measuring a value (e.g., Chlorophyll a for nutrient loading in water) how have on the ground activities influence change. Measure the impact of the activity not theoretical or social value."

- Same

- It should be regulated and prevented it's 2015! These guys have been being asked to quit for years now!

Q14: What actions do you think need to be taken to address issues related to lack of knowledge on cumulative water withdrawal?

- Again, restricting water use through permits
- Public education.
- Better monitoring and licensing
- "Increased focus on cumulative tracking on the allocation of and actual use of water resources.

Institution of a fee structure for the use and allocation of water by the various users. Other resources such as timber, land, fish and wildlife all have measured costs associated with licencing, tracking, monitoring, reporting and usage of these resources for all stakeholders including members of the public (e.g., cost for hunting and fishing licences) and industry (e.g., cost paid for harvesting timber). Water is just as integral as these other resources and should be economically valued accordingly.

Adherence to existing and newly created regulatory processes for allocating water (e.g., desktop method, Fish and Wildlife thresholds for water quantity, water quality guidelines)."

- Same

Q15: What actions is your organization taking to address issues in the watershed?

- Holding sewage tanks, not disturbing the foliage on the beach not grooming beach
- Essentially just sharing information. My organization represents extremely low or no impact recreational use of the watershed.
- None yet but will join
- Lots. See relevant GOA webpages for more details and resources associated with works. <http://esrd.alberta.ca/>
- Bridge crossings on streams for all trail users. Warning signs to keep ATVs out of the beach areas. Designated/planned trails routed to limit ATV access to water. Bridge / corduroy muskeg stretches or go around them.
- Culverts installed for water drainage/control on the trail system. Come up with a trail plan to supply effective water drainage with little erosion to the trail system.
- Same

Q16: Do you have any other comments?

- Good luck, good job
- Keep up the good work.
- Good luck