



Watershed Management Planning and Terms of Reference Workshop

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Overview of Presentation



- Watershed Management Planning Overview
- SDM Process
- Water Quality
- Water Quantity
- Healthy Aquatic Ecosystems



Water for Life



- In 2003, the Government of Alberta released *Water for Life: Alberta's Strategy for Sustainability*
- Strategy for **actively managing** Alberta's water resources





Water for Life Goals



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





Intent of the WFL Framework



- Formalizes water management planning in Alberta
- Outlines process and required components
- Provides general guidance
- Applies to all types of water bodies





Water for Life partnerships:



**Provincial-Scale
Policy
Advice**

**Alberta
Water
Council**

**Watershed
Planning
and Advisory
Councils**

**Watershed
Planning**

*Water
for Life*

**Watershed
Stewardship
Groups**

**Government
Of Alberta**

**Responsibility
and
Accountability**

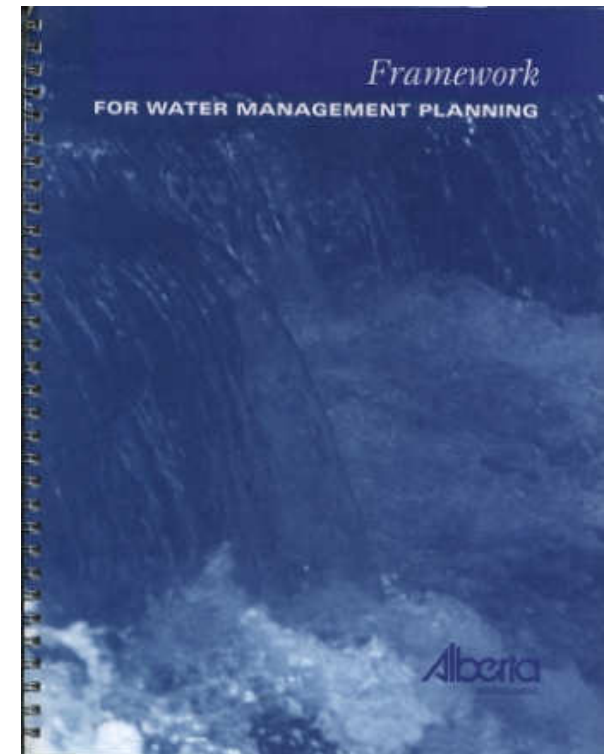
Local Projects



AESRD Responsibilities



- AESRD has the role of approval and adoption of WMPs and decisions under the *Water Act*.
- Plays a lead role by creating, coordinating, authorizing and approving water management plans
- For water management plans developed by non-government organizations or stakeholder groups, AESRD:
 - Approves Terms of Reference
 - Ensures public consultation
 - Approves water management plans (as specified under the *Water Act*)





Recommendations for a Watershed Management Planning Framework for Alberta (2008)



- Integrates shared governance and a watershed approach to planning
- Discusses integration with other land planning initiatives
- Watershed management planning should involve WPACs and WSGs and align with larger basin scale plans
- All plans must be in alignment with *Water for Life* and applicable legislation



ALBERTA WATER COUNCIL



DECEMBER 2008

Recommendations for a
Watershed Management
Planning Framework for Alberta

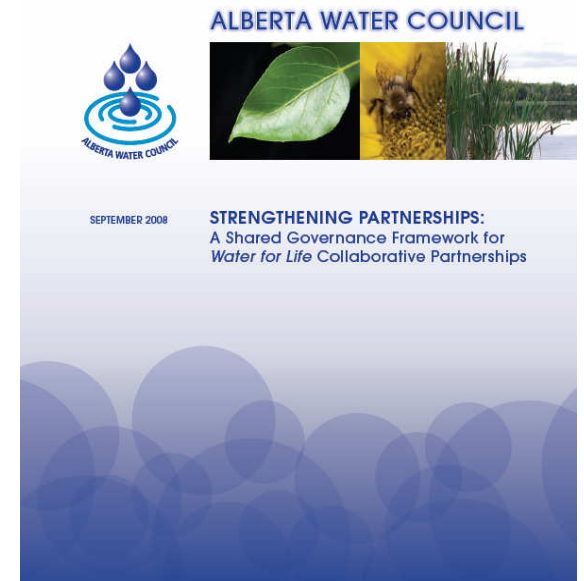




Shared Governance



- Refers to a governance structure where both government and other stakeholders share responsibility for the development and delivery of policy, planning, and programs or services
- The government retains legislative accountability
- Collaborative goal-setting and problem-solving process
- Includes Alberta Water Council, WPACs, WSG's, NGO's, government agencies





Watershed Planning and Advisory Councils (WPAC's)



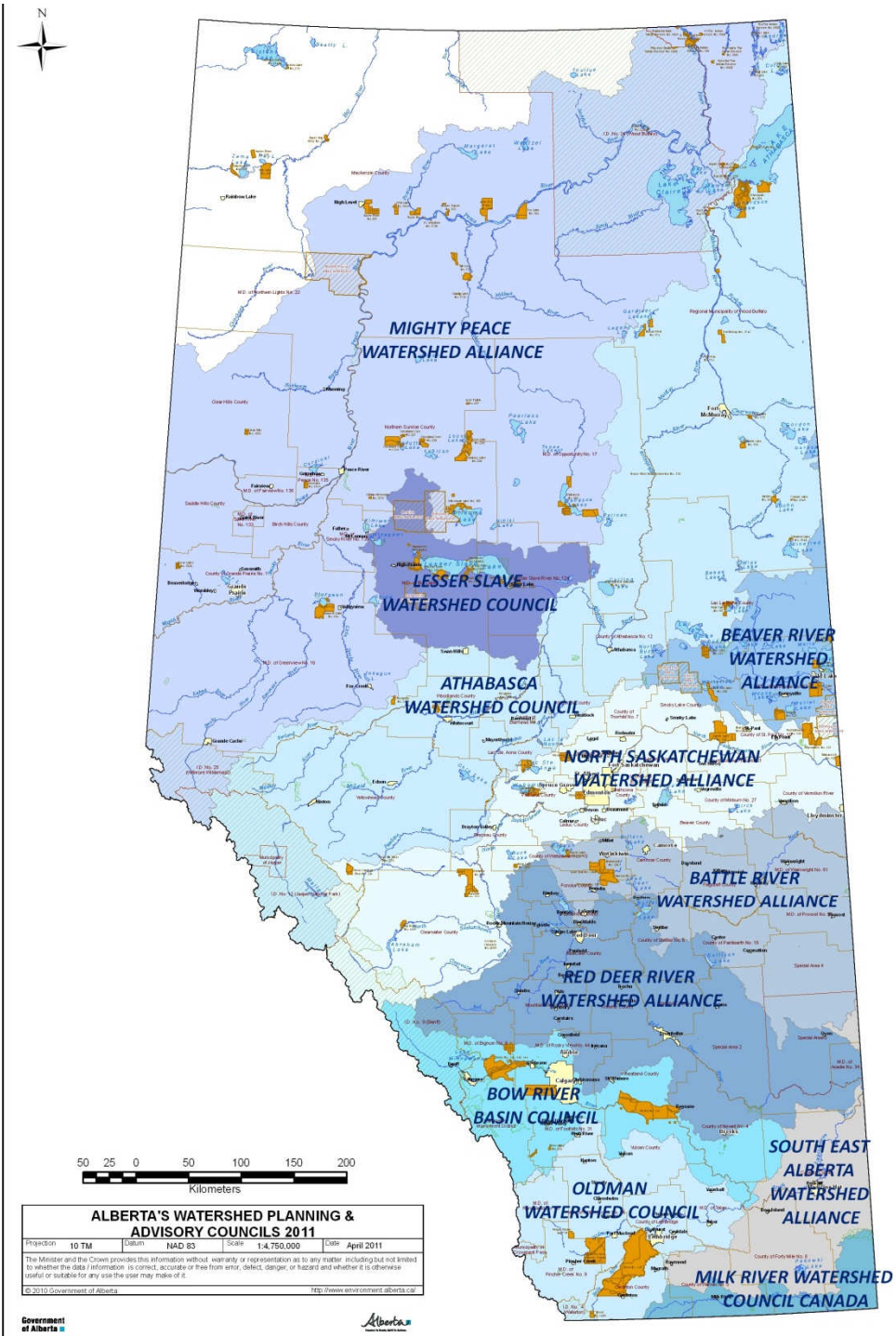
- Are multi-stakeholder councils established to oversee the implementation of *Water for Life*
- Non-profit organizations that investigate and report the conditions of their watershed and develop plans and activities to address watershed issues
- Do not report to the AWC
- Lead watershed planning, develop BMP's, report on the state of the watershed, foster stewardship activities and educate users





Eleven watersheds have organizations recognized as WPACs:

- Athabasca Watershed Council
- Battle River Watershed Alliance
- Beaver River Watershed Alliance
- Bow River Basin Council
- Lesser Slave Watershed Council
- Mighty Peace River Watershed Alliance
- Milk River Watershed Council Canada
- North Saskatchewan Watershed Alliance
- Oldman Watershed Council
- Red Deer River Watershed Alliance
- South East Alberta Watershed Alliance

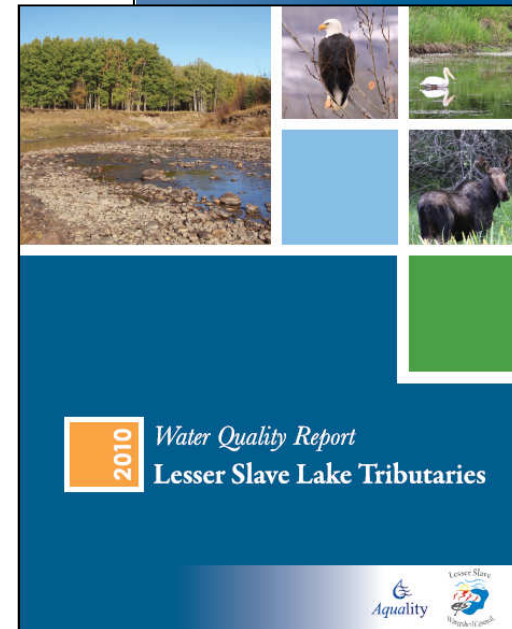
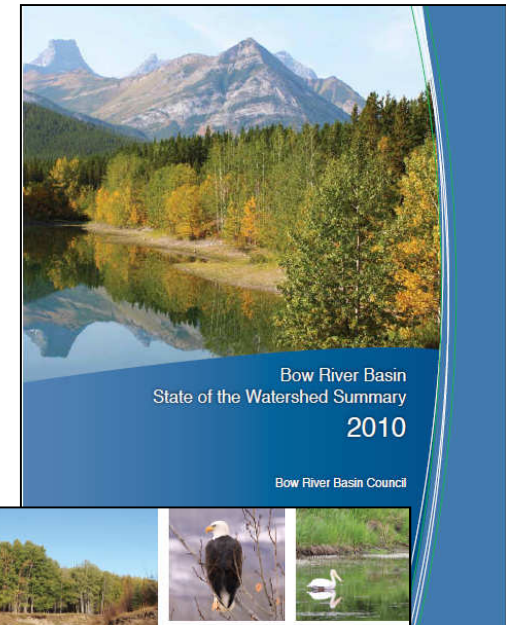




What WPAC'S Do



- Planning
- Smaller “nugget” projects and side ventures
- Influence local government
- Headwaters protection
- Raising awareness/ education/ outreach





Lesser Slave Watershed Council



Vision:

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



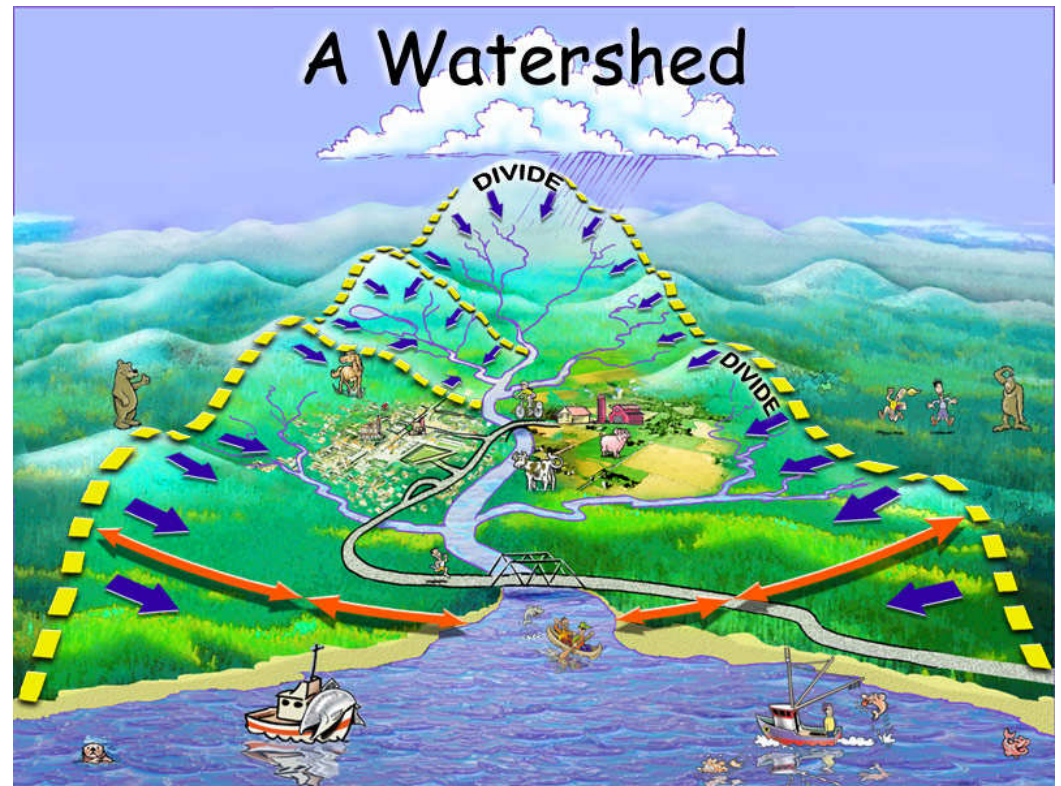


What is a Watershed?

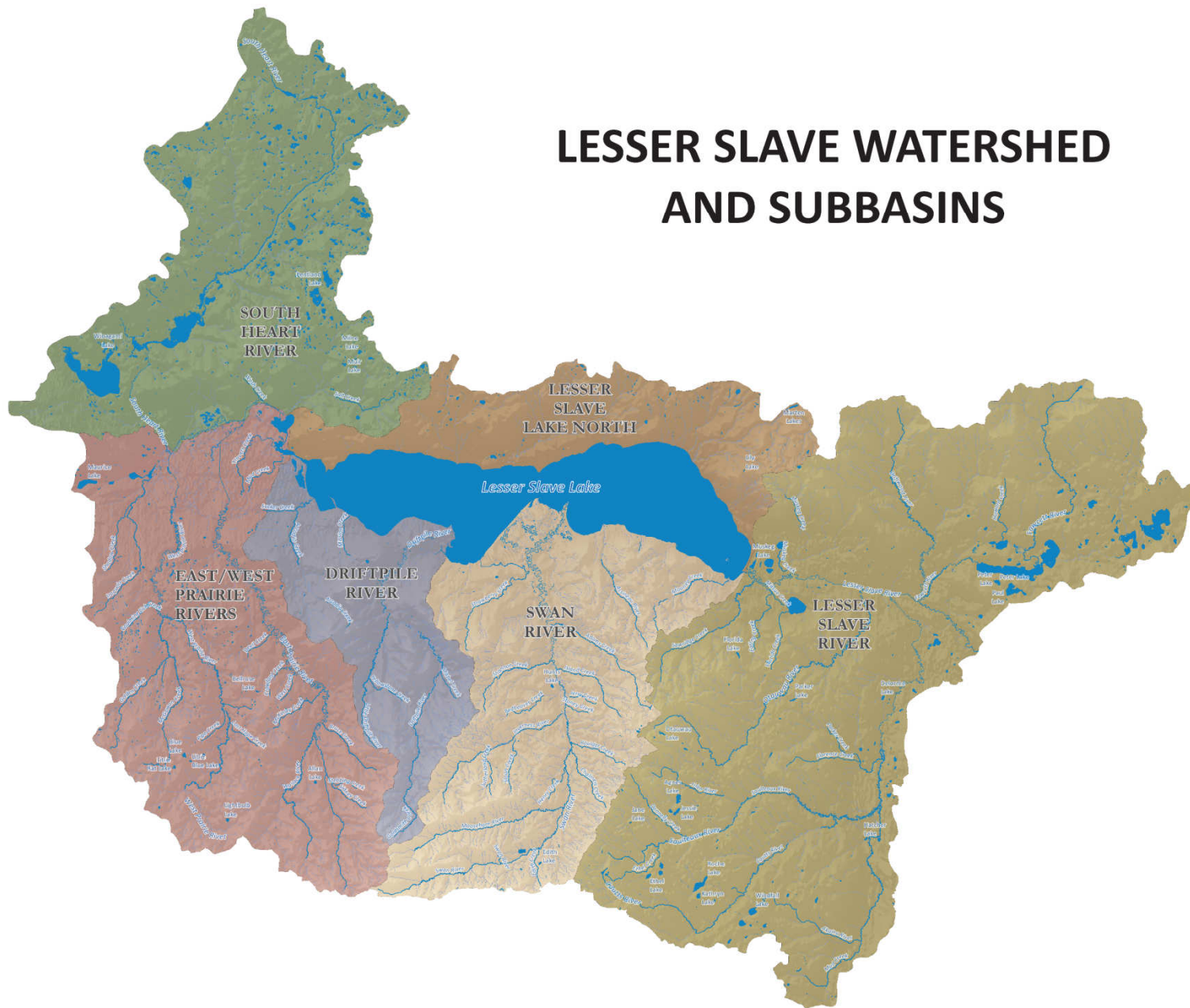


The area of land that catches precipitation and drains into a larger body of water such as a marsh, river, or lake

A watershed is often made up of a number of sub-watersheds that contribute to overall drainage



LESSER SLAVE WATERSHED AND SUBBASINS





What is a Watershed Management Plan?



- A tool used to ensure the long term sustainability and health of aquatic ecosystems within a watershed
- Describes the goals for the watershed and defines specific actions to achieve these goals
- Determines reporting and monitoring requirements to measure the success and progress of the plan





WMP Planning



Step 1 - Setting the Stage

- Plan goals, objectives, scope and deliverables are identified
- Organizational structure and managerial aspects of plan development are defined
- General information required to support the technical assessment anticipated is outlined
- Plan development is characterized
- Implementation strategy is set out
- Terms of Reference (ToR) is created





WMP Planning



Step 2 - Plan Preparation

- Data and information collection and evaluation
- Preparation of educational material
- Modeling to study alternative water management scenarios
- Evaluating alternatives
- Formation of recommendations





WMP Planning



Step 3 - Plan Formulation

- Develop basin water management goals and objectives
- Identify and evaluate solutions/alternatives
- Draft the watershed management plan
- Public review of the draft watershed management plan





WMP Planning



Step 4 - Plan Implementation, Evaluation and Monitoring

- Identifying roles, responsibilities, budget, funding, long-term monitoring needs and priorities
- Plan content will need to be evaluated and monitored for its success, performance and compliance with existing legislation, policy and standards
- Performance monitoring
- Schedule for review and amendment





Why you are Here



LSWC is taking a phased approach to the IWMP process:

- 1. Obtain public comments and concerns**
 - 2. Develop a draft Terms of Reference**
 - 3. Distribute the draft ToR to all stakeholders for comments**
 - 4. Finalize the ToR and provide it to ESRD for final approval**
 - 5. IWMP process can begin**
- A successful Watershed Management Plan is all about collaboration
 - We want your feed back and insight to help develop the best possible Watershed Management Plan



Structured Decision Making



- The LSWC has chosen the structured decision making (SDM) approach to making decisions as it focuses on engaging stakeholders, experts and decision makers. The SDM process has shown to be an effective tool for groups that can work together to create solutions that are rigorous, inclusive, defensible and transparent
- Also being used on other water management projects in the Province (Wapiti River Water Management Plan)



Structured Decision Making Process



- SDM is an organized approach to **identifying** and **evaluating** creative options and making choices in **complex decision situations**
- Helps reach decisions that are defensible, transparent and efficient





SDM Process – Step 1



Clarify the Problem

- What problem is being addressed and why
- Identify who needs to be involved and how
- Establish the scope for the decision
- Clarifying the roles of the decision making team





SDM Process – Step 2



Define the Objectives

- What are the things that matter?
- What are the objectives?
- Which of these objectives are most and least important?





SDM Process – Step 3



Develop Alternatives:

- Develop creative alternatives that are responsive to the defined objectives
- Usually complex sets of actions that need to be created
- The act of creation is what SDM is all about



SDM Process – Step 4



Estimate Consequences:

- Consequences of the alternatives on the performance measures are estimated
- This is a technical task that is typically undertaken by experts





SDM Process – Step 5



Evaluate Trade-offs:

- The goal is to choose an alternative that achieves an acceptable balance across multiple objectives
- SDM process delivers a win-win, but will involve trade-offs
- Allows participants to state their preferences for different alternatives

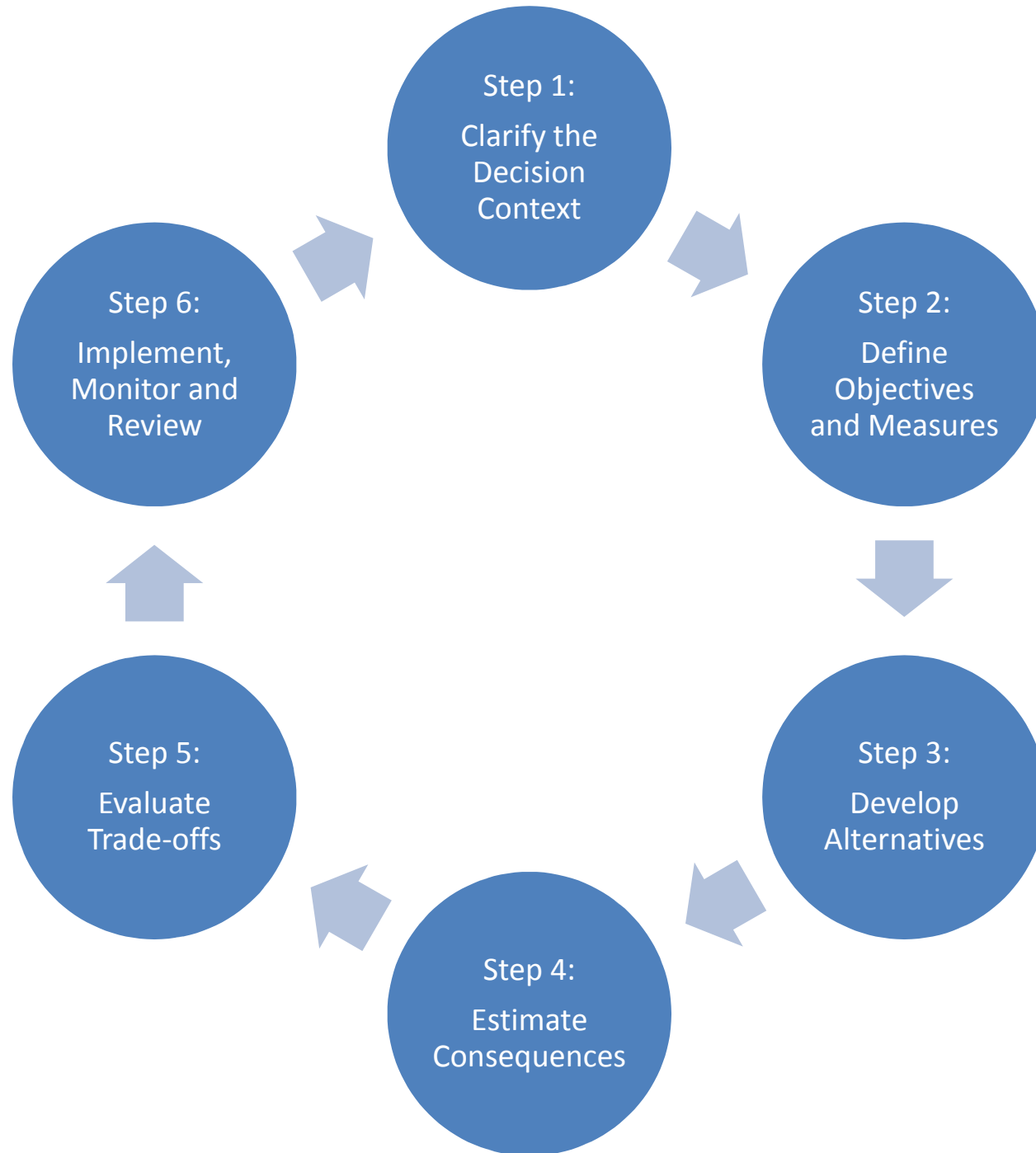


SDM Process – Step 6



Implement, Monitor, and Learn:

- The SDM process should promote learning and build management capacity to make better decisions in the future
- This learning may be related to technical understanding, human resources, or institutional capacity
- Its necessary to focus on the most important sources of uncertainties, those for which reductions would be of greatest value





Previous Consultations





Report: Issues and Priorities in the Lesser Slave Watershed



- LSWC contracted Abells Henry Public Affairs to consult with residents and stakeholders about the development and implementation of their IWMP
- Input from people living and working in the watershed to identify their interests, needs, issues and priorities
- Wanted to better understand perceived risks associated with managing growth and development in the watershed





Report: Issues and Priorities in the Lesser Slave Watershed



Issues identified included:

- Algal blooms
- Agricultural Impacts – cows, fertilizers, pesticides
- Land Clearing – loss of wetlands and riparian areas
- Health of the fishery
- Industrial activity – oil and gas and forestry





Report: Issues and Priorities in the Lesser Slave Watershed



- Development pressure
- Sewage treatment and pollution
- Surface and ground water levels
- Need for watershed planning and education





Report: Issues and Priorities in the Lesser Slave Watershed



Based on the information collected three main concerns were identified:

- Water Quality
- Water Quantity
- Healthy Aquatic Ecosystems





Water Quality



- Water quality is important not only to the surrounding environment and ecosystems, but for people as well
- In regards to water quality, **nitrogen**, **phosphorus** and **bacteria** are the main parameters of concern





Nitrogen and Phosphorus



- Essential nutrients for most aquatic plants
- Excess nutrients can lead to eutrophication
- Eutrophication can lead to reduced oxygen levels, which can negatively impact aquatic organisms, including fish
- Excessive growth of cyanobacteria (Blue green algae) can lead to the release of toxins into the water column, which are harmful to humans and other organisms



Nutrient Input



- Can occur naturally, but typically originate from indirect anthropogenic sources, including:
 - Improperly treated wastewater,
 - Residential and industrial use of fertilizers,
 - Industrial activity, and
 - Agricultural operations.





Bacteria



- Bacteria comes from a wide variety of sources in the aquatic environment:
 - Soil
 - Decomposing plants
 - Animal waste
 - Anthropogenic (human) sources such as raw sewage, manure runoff, and pet waste
- Many types of bacteria found in the aquatic environment are harmless, but some can be pathogenic and cause human health issues



Why do we Monitor Water Quality?



- Changes in water quality indicate a deterioration or improvement in the condition of the watershed
- Results from changes in land use or land management practices, landscape disturbance and natural events





Major Anthropogenic Impacts



The major anthropogenic impacts on water quality result from:

- Natural resource extraction and processing,
- Industrial and municipal wastes,
- Commercial, municipal, and household use
- Wetland drainage,
- Dredging,
- Dam construction,
- Agricultural runoff,
- Fertilizers,
- Land erosion,
- Road construction, and
- Land development.

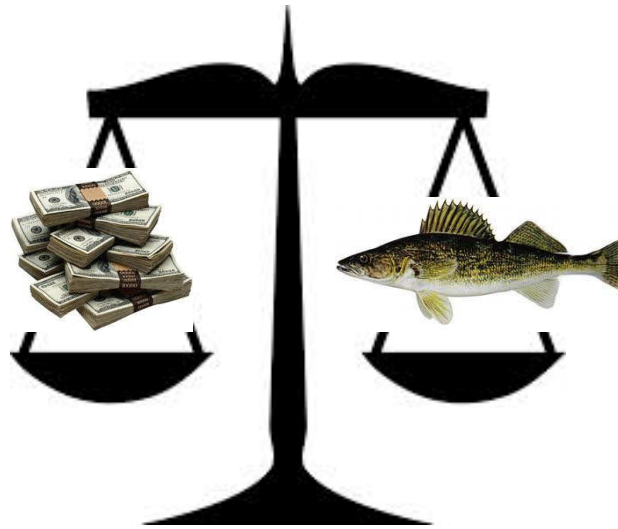




Message



We need a balance between socioeconomic growth and the sustainable management of aquatic ecosystems to ensure long-term health and enjoyment by future generations





Water Quantity



- Water quantity is the **amount of water available within a system**, such as a river or watershed
- Sources are replenished from snowmelt and rainfall
- In some areas water can become scarce during the summer months due to a limited water quantity in lakes and rivers
- During times of scarcity, water conservation is extremely important





Why is Water Quantity Important?



- Water quantity is vital for the maintenance of aquatic habitat
- Has functions related to water quality and it is essential for the production of drinking water





Why is Water Quantity Important?



- Irrigation, industry and livestock production are highly dependent on a minimum amount of available water
- In recent years many cottagers and recreational lake users have voiced concerns about the decreasing volumes of water seen across the province





Why is Water Quantity Important?



- Human activities frequently reduce available water quantities required to maintain healthy aquatic ecosystems
- As a result we need to think about water conservation strategies
- It is important to balance socioeconomic growth and the sustainable management

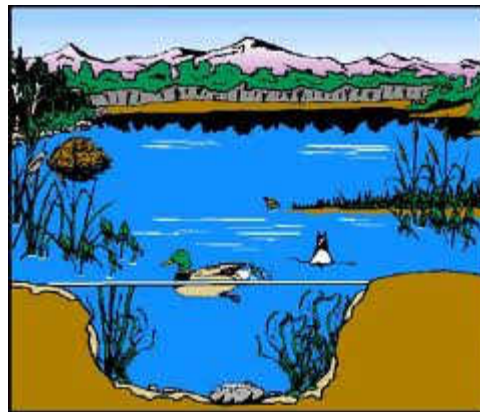




Healthy Aquatic Ecosystems



- Aquatic ecosystems include our rivers, lakes, streams, wetlands and the groundwater systems that connect them
- These ecosystems also encompass all of the plants, animals and biological processes that depend on the water within these systems





Why are Healthy Aquatic Ecosystems Important?



- The health of these ecosystems is imperative to all forms of life, including humans
 - We need water to live!
- Water is necessary for sustaining life
- We are dependent upon the health of our aquatic ecosystems to provide safe, secure, clean water





Healthy Aquatic Ecosystems



- Human caused disturbances have not inhibited the **natural function** of the ecosystem
- By maintaining a healthy aquatic ecosystem, the health of other surrounding ecosystems is also persevered
- The majority of the world's organisms **directly depend** on an aquatic ecosystem at some point in their lifecycle





What is a definition?



The Alberta Water Council defines a healthy ecosystem as:

“An aquatic environment that sustains its ecological structure, processes, functions, and resilience within its range of natural variability.”





SDM Workshop



- LSWC and Aquality held a stakeholder workshop on September 19, 2013, in High Prairie, AB
- The LSWC personally invited stakeholders
- A total of twelve stakeholders participated in the workshop





SDM Workshop



- Participants were divided into three groups and each of the three groups were asked the question “What does (water quality/water quantity/healthy aquatic ecosystems) mean to you?”
- Participants were encouraged to engage in the discussion and / or provide feedback in their workbook





SDM Workshop Results



There were a few items that were agreed upon across each theme:

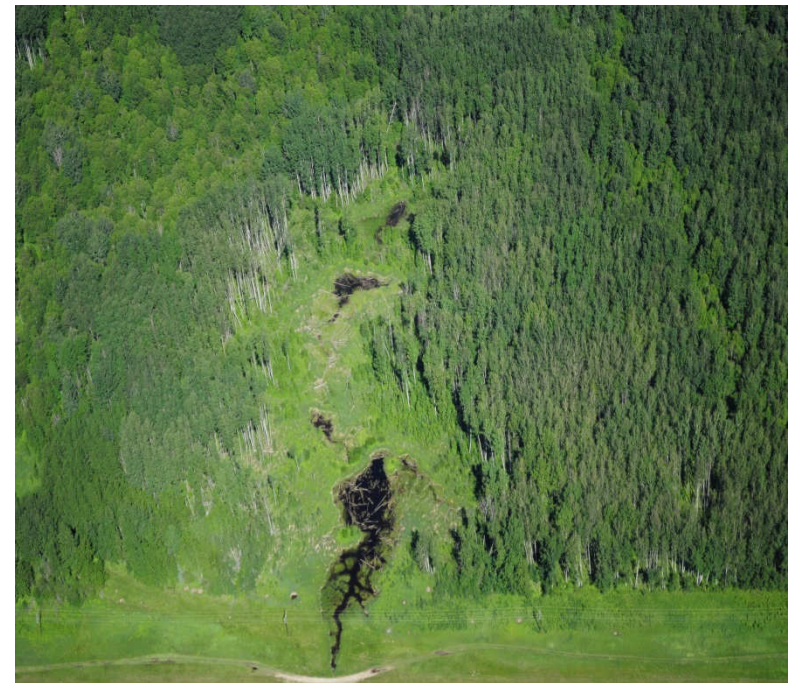
- Build Partnerships across all groups affected and involved in management and decisions,
- Increase monitoring, tracking and reporting,
- Educate the users of the watershed about the issues we are facing today and could face tomorrow,
- Need to determine surface and groundwater allocations so that it can be managed effectively



SDM Workshop Results Cont'd



- Improve riparian health,
- Proper management of sewage lagoons and residential septic systems and improve discharge quality,
- Wetland Inventory and increased conservation,
- Need to understand the impacts of fracking on the watershed,

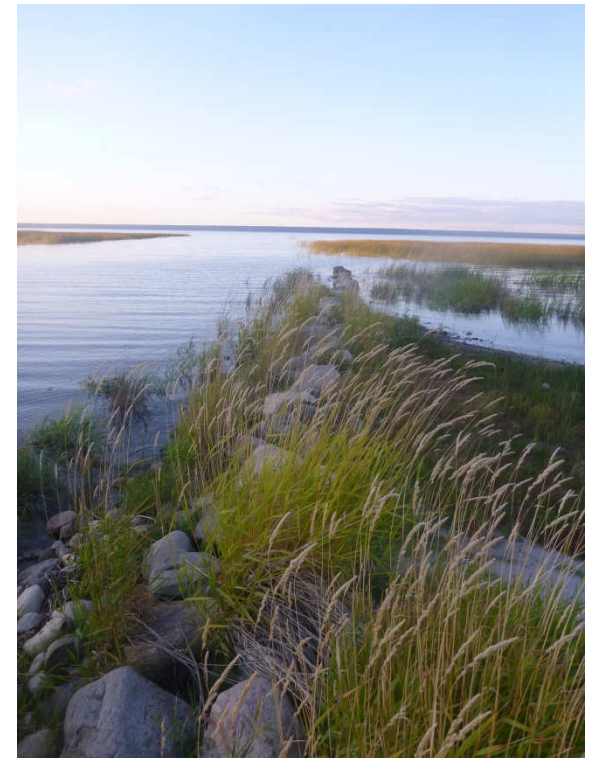




SDM Workshop



- Seasonal planning but also long term planning is required,
- Continued fisheries management,
- Increase enforcement and compliance on policies and bylaws, and
- Develop a sustainable plan for all types of development pressures within the watershed.





Moving Forward



- The planning process has moved on to Step 2 of the SDM process
- A preliminary draft ToR has been prepared. You are here to provide comments on the outcomes and objectives of the ToR
- A Final draft of the ToR will be released for the public review and comments
- Comments and feedback on the Final draft will be incorporated into the Final ToR, which will be provided to ESRD for approval (later date)



Preliminary Draft TOR



- The IWMP will encompass the entire watershed, address the needs of aquatic ecosystems and stakeholders and propose objectives that are in line with *Water for Life* objectives.



IWMP



The IWMP will identify:

- Outcomes, actions and performance measures
- Taking into account ecological, economic, social and cultural values.
- Outcomes identified in the IWMP process will be S.M.A.R.T.:
 - Specific,
 - Measurable,
 - Achievable,
 - Realistic and
 - Timely.



The IWMP will not gather new information to fill data gaps, or create legislation or policy at any level of government



Objectives of the IWMP



- To build partnerships with stakeholders and provide guidance and information to assist in the development of actions plans as it relates to water quality, water quantity and health aquatic ecosystems,
- Make recommendations for best management practice (BMP's), and
- Make recommendations for monitoring strategies and future research possibilities.



Objectives of the IWMP



- Set achievable targets for water quality, water quantity and healthy aquatic ecosystems indicators that include:
 - Surface and groundwater allocations,
 - Fish populations,
 - Water quality,
 - Riparian Health,
 - Land use,
 - Wetland inventory, and
 - Blue/green algae outbreaks (Lesser Slave Lake)



Expected Outcomes



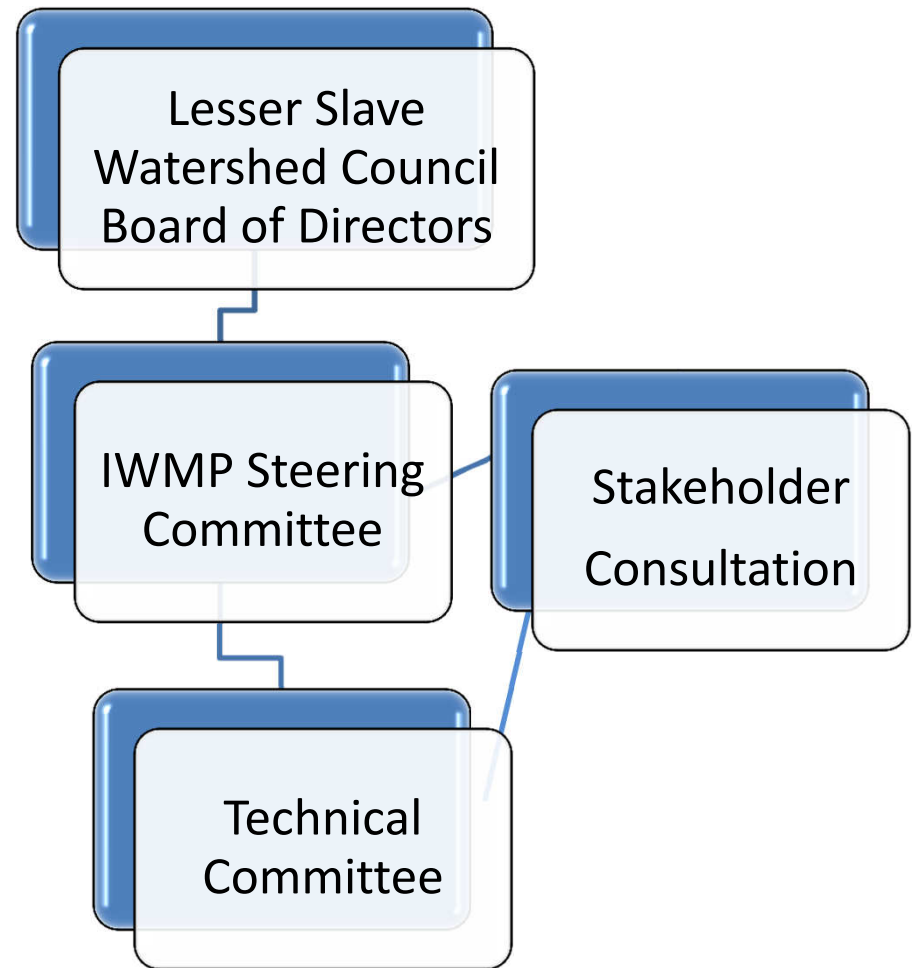
- To commit to the outcomes of the *Water for Life* strategy,
- Provide guidance and education to stakeholders on issues within the watershed,
- Create a multi-sectorial stakeholder agreement on planning within the watershed, and
- Provide guidance on monitoring, tracking and reporting of water quality, water quantity and healthy aquatic ecosystems.



Who is Responsible for the IWMP planning process?



- LSWC will form an IWMP Steering Committee to manage the development of the IWMP.
- IWMP SC will establish a Technical Advisory Committee that will provide technical feedback and advice to the Steering Committee.





- As scheduling of work is highly dependent on available funding each year the schedule of work is only proposed.

[illegible]



	2017											
Phase II - IWMP	J	F	M	A	M	J	J	A	S	O	N	D
Draft IWMP												
Draft Review												
Final Draft WMP												
Final Draft Review												
Final WMP												
WMP Approval												



Thank you for coming and participating!
Questions?

