



Integrated Watershed Management Plan for the North Saskatchewan River in Alberta



North Saskatchewan Watershed Alliance

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The North Saskatchewan Watershed Alliance (NSWA) is a non-profit society whose purpose is to protect and improve water quality and ecosystem functioning in the North Saskatchewan River watershed in Alberta. The organization is guided by a Board of Directors comprised of member organizations from within the watershed. It is the designated Watershed Planning and Advisory Council (WPAC) for the North Saskatchewan River under the Government of Alberta's *Water for Life Strategy*.

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Introduction

Watersheds sustain human life by providing the ecological systems, food systems and water supplies on which we depend.

In Canada, the principles of watershed management have long been known and advocated. The development of the Prairie Farm Rehabilitation Administration in the 1930s and creation of Conservation Authorities in Ontario in the late 1940s heralded the beginning of practical work to restore damaged watersheds through soil, water and forestry conservation practices, and the creation of local authorities to lead the work.

In Alberta we now have the opportunity to apply watershed management principles to our large river basins and build upon the long provincial history of water resources engineering and pollution control achievements. In time, watershed management will ensure the comprehensive protection of our water supplies through the integration of land conservation principles, across various sectors, with the current regulations and policies applied to water resources management.

We face a significant challenge in this work because of the geographic extent and diversity of our major drainage basins, the complexity of human activities and impacts, and the diversity of jurisdictions and interests involved. We also face different scales of work: river basin-scale, sub-watershed scale, local tributaries and lakes.

Whatever the scale and location, watershed management is the underlying principle we must implement. Strong local leadership, public awareness, provincial government direction, corporate responsibility and technical expertise are required for success.





The Purpose of this Plan

This Integrated Watershed Management Plan (IWMP) lays out recommendations and an approach to manage the North Saskatchewan River (NSR) Watershed, sustain water resources for the long-term and meet the three strategic goals of *Water for Life: Alberta's Strategy for Sustainability* (2003). This plan serves as advice to the Government of Alberta and all watershed stakeholders to guide future decision making in their respective areas of responsibility and interest. It identifies specific actions that should be implemented, describes the roles and responsibilities of the various players to do so, and presents an implementation strategy based on both voluntary and statutory activities.

The recommendations address issues identified by stakeholders and the public through the extensive engagement and discussion processes that the North Saskatchewan Watershed Alliance (NSWA) has conducted over the last six years. The NSWA believes that, to the extent possible, the recommendations in this plan are an accurate representation of the input received from stakeholders and their shared values concerning the future management of the NSR watershed.



Background

The North Saskatchewan Watershed Alliance is a multi-stakeholder organization led by an elected, volunteer Board of Directors (Appendix A). Its purpose is to contribute to the protection of water quality, water supplies, ecosystem function and improved watershed health through the collaborative efforts of all stakeholders and interested individuals. From the beginning, the NSWA has been pointed straight ahead at comprehensive, sensible management of the watershed.

The NSWA provides an open, public forum for sharing information about issues affecting the NSR watershed and initiates activities that positively impact the watershed. It has a diverse membership including individual citizens and representatives from numerous jurisdictions and organizations: municipal governments; utilities; the federal and provincial governments; industries; environmental and conservation groups; the agriculture sector; the recreation, culture and tourism sectors; and the education and research sectors. The NSWA became a registered, non-profit society in Alberta in 2000.

In 2005, Alberta Environment designated the NSWA as the Watershed Planning and Advisory Council (WPAC) for the North Saskatchewan River, under the *Water For Life Strategy*. The Strategy states: “Water Planning and Advisory Councils will lead in watershed planning, develop best management practices, foster stewardship activities within the watershed, report on the state of the watershed and educate users of the water resource.”

WPACs are the Government’s key regional partnerships of voluntary public and sector representatives. There now are 11 WPACs in Alberta, one designated for each of the major river basins ranging from the Milk River in the south to the Peace River in the north.

WPACs have three major responsibilities:

- To prepare “state of the watershed” reports
- To prepare watershed management plans
- To undertake ongoing information, education and consultation activities on watershed issues and management

The NSWA has taken a leadership role in documenting environmental conditions in the watershed and in promoting collaborative planning approaches. The NSWA produced a number of educational documents to foster public awareness about the watershed between 2002-05, and published the *State of the North Saskatchewan Watershed Report* in 2005. Since then, the NSWA has commissioned and prepared many technical reports and public information documents concerning the assessment of water quality, water quantity (supply and instream flow needs), groundwater, cumulative effects, climate change, economics and water use. **Appendix B** provides a full list of all NSWA’s reports and publications to date. Funding for technical projects was provided by: Alberta Environment and Sustainable Resource Development; Agriculture and Agri-Food



Canada; EPCOR Water; the City of Edmonton; and numerous other municipalities.

The NSWA initiated work on the *Integrated Watershed Management Plan* in January 2005 by establishing a Steering Committee to oversee preparation of the plan. The members of the IWMP Steering Committee were drawn from the membership of the NSWA Society. The Steering Committee represented a comprehensive cross-section of sectors and interests in the watershed, and reported to the NSWA Board of Directors.

Early in 2005, the NSWA developed and published the Terms of Reference for the Integrated Watershed Management Plan. Approved by Alberta Environment in May 2005, the Terms of Reference present a comprehensive outline of the goals and objectives of the planning process, background information and outcomes envisioned at the time. The Terms of Reference were updated in 2010 to reflect changes in planning priorities and capacities, although the overall intent of the work remained the same.

The Terms of Reference state: “The goal of the IWMP is to provide a plan that will guide the protection, maintenance and restoration of the North Saskatchewan watershed that balances environmental, social and economic needs particular to each of the sub-watershed regions and that follows the *Framework for Water Management Planning*”.

Beginning in 2005, the NSWA initiated an extensive stakeholder engagement and public consultation program to identify and discuss important water and watershed issues in order to support development of the IWMP. The NSWA held “Community Cafes”, made presentations to both urban and rural municipalities in the watershed, and met with other organizations. At its Annual General Meeting in June 2008 the NSWA held three special municipal panel debates to highlight watershed issues affecting municipalities and showcase how they are being addressed. This initiative led to a Rural Municipal Forum held in February 2009. It represented the formal launch of sector-based stakeholder engagement within the watershed, consistent with recent policy recommendations of the Alberta Water Council and Alberta Environment. A document entitled “*Engaging Rural Municipalities: Forum Final Report*” (2009) was published to chart the results of that forum. The report included a list of watershed management issues and concerns.

Throughout 2009 and 2010, the NSWA continued with a sector-based stakeholder engagement program for the IWMP. Ms. Susan Abells of Abells Henry Public Affairs provided strategic advice and assistance to the NSWA on the consultation and engagement process. The NSWA made presentations to 19 rural municipalities and numerous other organizations, and participated in technical and policy meetings. The NSWA also held six cross-sector public forums, two forums in each of the headwaters, central and downstream regions of the

watershed. Throughout this process, stakeholders and members of the public raised issues they believed were important and should be addressed.

During this period the Steering Committee continued to work on the development of recommendations for the IWMP. On August 9, 2010, the Steering Committee submitted its report with recommendations to the NSWA Board of Directors. That report formed the underpinnings on which this IWMP has been developed.

In January 2011, the NSWA reached a major milestone in the ongoing development of the IWMP and stakeholder engagement program by publishing a document entitled: *“Discussion Paper for the Development of an Integrated Watershed Management Plan for the North Saskatchewan River Watershed in Alberta”*. Readers are encouraged to refer to this *Discussion Paper* for a comprehensive summary of the planning process undertaken, the issues raised in the engagement process, the legislative and policy context for watershed management in Alberta, and the results of research and technical studies. It also presents 86 draft recommendations in the form of five Goals, 20 Watershed Management Directions and 61 specific Actions. Those draft recommendations were based on the recommendations in the IWMP Steering Committee’s report of August 2010.

At the same time, the NSWA released a second report entitled *“A Workbook to Share Your Views on Developing an Integrated Watershed Management Plan (IWMP) for the North Saskatchewan River Watershed”* (January 2011). It was a companion to the *Discussion Paper* and contained a survey questionnaire that formed the core of the engagement program during 2011 to assess support for the draft recommendations.

The NSWA was encouraged by the interest and constructive feedback provided by municipalities, the Capital Region Board, industries, the Governments of Alberta and Canada, non-government organizations, watershed professionals and individual citizens. Researchers at the University of Alberta undertook both a quantitative and qualitative analysis of the Workbook survey responses and provided advice to the NSWA on finalization of the IWMP. In essence, support for the draft recommendations was found to be strong, but concerns were expressed about implementation practicalities (priorities, roles and costs) by stakeholders. The results of the feedback analyses are published on NSWA’s website in a report (Appendix B) prepared by Dr. N. Krogman and Ms. C. Chenard of the Department of Resource Economics and Environmental Sociology, University of Alberta, and are summarized in a short NSWA Information Bulletin.



The NSWA reviewed carefully all the results of the Workbook analysis and all the comments, views, information and advice received throughout the planning process. It used all this information to reassess and revise the draft recommendations presented in the Discussion Paper and to prepare this IWMP.

The NSWA is involved in two other water/watershed planning initiatives currently underway in the NSR basin. In 2009, the NSWA initiated the first sub-watershed planning project for the NSR basin in collaboration with local municipalities and conservation groups. This work is underway for the Vermilion River in east-central Alberta and is being directed locally by the *Vermilion River Watershed Management Project Steering Committee* (VRWMP-SC). It is receiving technical support from the NSWA, the North American Waterfowl Management Plan Partners and other key stakeholders.

The VRWMP-SC has identified watershed issues, held public meetings and developed a report entitled: *Discussion Paper for the Development of a Watershed Management Plan for the Vermilion River Watershed in Alberta (October 2011)*. The *Discussion Paper* contains draft recommendations for which public and stakeholder feedback was obtained by survey questionnaire during the winter of 2012. The Steering Committee will complete a watershed management plan for the Vermilion River in the summer of 2012.

Since 2007, the NSWA has participated in another collaborative planning effort: the development of the *Water Management Framework for the Industrial Heartland and Capital Region*. This *Framework* is being led by Alberta Environment and involves key industrial and municipal stakeholders from the Capital Region. Water quality management recommendations for the mainstem of the NSR will form an important component of the *Framework* and must coincide with those developed for the IWMP. The NSWA has made a significant contribution to the *Framework* by developing water quality objectives for the overall river basin, by promoting the development of water quality models and by participating in the key committees. The objective of the *Framework* is to ensure the continuous improvement of water quality in the NSR in the Capital Region and downstream from Edmonton.

The recommendations that follow reflect the wide range of environmental issues and concerns that were identified during the planning and engagement processes. For some recommendations there are clear responsibilities and mechanisms available to facilitate further progress; those lead responsibilities are clearly indicated. For others, lead responsibilities will have to be determined during the implementation phase and new management tools and processes will have to be developed. NSWA will provide leadership and coordination with all stakeholders to develop implementation approaches that will address these recommendations.

Definitions

Goal:

An overall, long-term result the plan is intended to achieve.

Watershed Management Direction:

Planning objectives on technical and policy themes that quantify efforts toward the achievement of a desired goal.

Action:

A specific activity undertaken to implement the watershed management direction and contribute to achieving the goal.

Stakeholder:

Any individual or groups of individuals, organization, business or political entity with an interest in the outcome of decisions affecting the North Saskatchewan River watershed.





Goal 1:

Water quality in the
North Saskatchewan
River watershed is
maintained or
improved

Watershed Management Direction 1.1: Develop and implement site-specific Water Quality Objectives for the mainstem and tributaries of the NSR

Actions:

1.1.1

Government of Alberta to establish site-specific, Water Quality Objectives for each river reach on the mainstem of the NSR and for each major tributary at its point of confluence with the NSR.

1.1.2

Government of Alberta to utilize the NSWA's Water Quality Objectives (2010) in establishing the above site-specific objectives.

Watershed Management Direction 1.2: Manage total contaminant loads from all point and non-point-sources so that site-specific Water Quality Objectives are met

Actions:

1.2.1

Government of Alberta, in collaboration with NSWA and stakeholders, to identify sources and quantify significant loads of all pollutants for which Water Quality Objectives have been established.

1.2.2

Government of Alberta, in collaboration with NSWA and stakeholders, to set maximum load limits for all pollutants for which Water Quality Objectives have been established.

1.2.3

Government of Alberta, in consultation with NSWA and stakeholders, to establish a system to negotiate and allocate these load limits to each pollutant source.

Watershed Management Direction 1.3: Develop and implement a comprehensive, integrated monitoring and evaluation program for water quality of the mainstem and tributaries of the NSR, and for point and non-point pollution sources

Actions:

1.3.1

Government of Alberta, in collaboration with NSWA and stakeholders, to evaluate existing and future water quality monitoring needs.

1.3.2

Government of Alberta to implement a comprehensive long-term, water-quality monitoring program for the NSR, ensuring adequate funding arrangements are in place and providing a database readily accessible to all stakeholders.

Watershed Management Direction 1.4: Incorporate drinking water source protection plans into watershed management

Actions:

1.4.1

NSWA to develop a collaborative initiative to ensure the integration of recommendations in this report with drinking water source protection plans, and to promote comprehensive source protection planning.



Goal 2:

Instream flow
needs of the NSR
watershed are met

**Watershed Management Direction 2.1:
Evaluate existing and future risks to
surface water supply in the NSR
watershed**

Actions

2.1.1

Government of Alberta, in collaboration with NSWA and stakeholders, to develop and implement a water resources simulation model to manage water supply and use in the NSR watershed.

2.1.2

Government of Alberta, in collaboration with NSWA and stakeholders, to evaluate and report on risks to the supply of water in the mainstem of the NSR and its tributaries resulting from climate change, large-scale changes in land use and other factors.

**Watershed Management Direction 2.2:
Assess and develop Instream Flow Needs
for the NSR watershed**

Actions:

2.2.1

Evaluate Instream Flow Needs for the protection of a healthy aquatic ecosystem, water quality, fish habitat, riparian zones, channel maintenance and water-intake structures.

2.2.2

Government of Alberta, in collaboration with NSWA and stakeholders, to evaluate and report on the need to establish Water Conservation Objectives for the NSR.

**Watershed Management Direction 2.3:
Manage water quantity in the NSR
watershed to meet Instream Flow Needs**

Actions:

2.3.1

Government of Alberta to manage the water allocation, licencing and approval processes to meet Instream Flow Needs in the NSR watershed.

2.3.2

Government of Alberta to monitor, evaluate and report on whether the Instream Flow Needs are being met.



Goal 3:

Aquatic ecosystem health in the NSR watershed is maintained or improved

Watershed Management Direction 3.1: Develop aquatic ecosystem health objectives for all major waterbodies

Actions:

3.1.1
Develop aquatic ecosystem health objectives for the mainstem of the NSR and for priority waterbodies including major tributaries, lakes, wetlands and their associated riparian areas.

3.1.2
Regularly monitor and assess the current state of aquatic ecosystem health of the NSR mainstem and key waterbodies.

Watershed Management Direction 3.2: Maintain and restore wetlands considering their number, areal extent and function

Actions:

3.2.1
Government of Alberta to complete development and approval of the new Provincial Wetland Policy.

3.2.2
Government of Alberta and Municipalities to incorporate wetland mitigation, conservation and restoration guidelines, as currently administered through the Provincial Wetland Restoration/Compensation Guide (2007), into provincial regulations and municipal by-laws.

3.2.3
Complete and maintain an inventory of wetlands in the NSR watershed, including drained and altered wetlands.

3.2.4
Maintain and protect naturally-occurring wetlands with due consideration for social, economic and environmental factors.

3.2.5
Restore drained and altered wetlands in areas where historical losses of wetlands have occurred by using voluntary, incentive-based mechanisms.

3.2.6

Restore drained or altered wetlands, or create new wetlands, to compensate for current and future losses of wetlands. Restoration efforts should be implemented within the same watershed in which the losses occurred.

3.2.7

Develop incentive and support programs (financial and expertise) to enable and assist landowners to retain naturally-occurring wetlands, restore drained and altered wetlands and create new wetlands on their own land.

Watershed Management Direction 3.3: Maintain and restore riparian areas

Actions:

3.3.1
Complete an inventory and assess the condition of riparian areas in the NSR watershed.

3.3.2
Municipalities, in consultation with landowners groups and other stakeholders, are encouraged to develop riparian set-back guidelines which exceed provincial regulations.

3.3.3

Develop incentive and support programs (financial and expertise) to enable and assist landowners to retain naturally-occurring riparian areas, restore damaged riparian areas and replant riparian vegetation on their own land.

**Watershed Management Direction 3.4:
Minimize or reduce the impacts of the
resource, transportation and utilities
industries on aquatic ecosystem health**

Actions:

3.4.1

Reduce the density and impacts of linear developments (roads, seismic lines, power lines, pipelines, etc.) in the Green Area by:

- Developing, implementing and enforcing coordinated access management plans and joint-use agreements among stakeholders.
- Developing and coordinating road-density plans to minimize the creation of new roads on the landscape
- Reclaiming, restoring and reforesting roads and other linear developments no longer in use.

3.4.2

Reduce the footprint of active oil and gas well sites, and reclaim abandoned well sites or those identified as no longer in use.

3.4.3

Minimize the impact of resource development activities by:

- Improving integrated planning.
- Enhancing best management and reclamation practices.
- Enhancing road maintenance plans.
- Eliminating hanging culverts.
- Minimizing the construction of stream crossings.

**Watershed Management Direction 3.5:
Minimize or reduce the impacts of
municipal and industrial development on
aquatic ecosystem health**

Actions:

3.5.1

Implement best land-use planning and management practices in future development

- Increase densities of residential developments.
- Incorporate ecological corridors and low-impact designs.
- Ensure the timing and volume of post-development surface water runoff does not exceed that of pre-development conditions.
- Minimize linear disturbance in new developments.
- Coordinate urban land-use through adoption of inter-municipal development plans.
- Restrict new development within flood-prone areas.
- Minimize the size of the development footprint.

**Watershed Management Direction 3.6:
Maintain and restore forested land and
vegetation cover**

Actions:

3.6.1

Develop and implement policies to guide and minimize the conversion of forested land to other uses in the Green Area.

3.6.2

Minimize the loss of trees, shrubs and other natural vegetation in the White Area.

3.6.3

Develop policies and best management practices to encourage re-forestation in areas where forest and vegetation cover have been removed.

**Watershed Management Direction 3.7:
Develop and Implement Fish Management
Objectives for the North Saskatchewan
River mainstem, tributaries and lakes.**

Actions:

3.7.1

Government of Alberta, in collaboration with stakeholders, to review, update and implement Fish Management Objectives for the mainstem of the NSR and to develop and implement Fish Management Objectives for priority tributaries and lakes in the watershed.

3.7.2

Government of Alberta, to assess, prioritize and protect significant fish habitat and populations in the NSR watershed.

3.7.3

Restore significant fish habitat lost or destroyed.

3.7.4

Government of Alberta, in collaboration with stakeholders, to develop and implement a regular, long-term monitoring program of fisheries resources and aquatic habitat throughout the NSR watershed.

**Watershed Management Direction 3.8:
Minimize or reduce the impact on aquatic
ecosystems of random camping and other
recreational activities on public land**

Actions:

3.8.1

Government of Alberta and Municipalities to work with stakeholders and the recreation sector to assess the impact of random camping and widespread recreational activities, including the use of motorized recreational vehicles, on public land.

3.8.2

Government of Alberta and Municipalities to work with the recreation sector and other stakeholders to develop and implement access management plans or area structure plans that focus on managing recreational activities on public land and to improve enforcement under provincial legislation.

3.8.3

Develop and implement education and awareness programs that promote responsible recreation use, activities and practices on public land.

3.8.4

Government of Alberta and Municipalities, in consultation with stakeholders, to control and limit non-resource related motorized access to trails and seismic lines on public land through the use of signage, physical barriers, replanting and other means.

**Watershed Management Direction 3.9:
Improve knowledge and understanding of
the importance of healthy aquatic
ecosystems**

Actions:

3.9.1

NSWA, in collaboration with the Government of Alberta and all stakeholders, to undertake education and communications initiatives to promote understanding, active commitment and support for healthy aquatic ecosystems.



Goal 4:

The quality and quantity of non-saline groundwater are maintained and protected for human consumption and other uses

**Watershed Management Direction 4.1:
Improve knowledge and understanding of
non-saline groundwater quality and
quantity**

Actions:

4.1.1

Identify, prioritize and address gaps in knowledge about non-saline groundwater

- As identified in NSWA's Groundwater report "*Overview of Groundwater Conditions, Issues and Challenges*" (2009).
- By building on the *Edmonton-Calgary Corridor Groundwater Atlas* (2011) and in conjunction with the Provincial Groundwater Inventory Program.
- By mapping and characterizing aquifers, recharge areas and contribution to surface water in sub-watersheds.

4.1.2

Establish long-term monitoring wells for water quality and water level in aquifers to address gaps in knowledge identified through the above work.

4.1.3

Provide groundwater information and education documents to stakeholders and the general public who use or impact groundwater (e.g. the current Working Well Program).

**Watershed Management Direction 4.2:
Develop and implement strategies to
manage groundwater quality and quantity
sustainably including assessing and
minimizing the impacts of land and
resource uses on groundwater**

Actions:

4.2.1

Develop aquifer management plans that include features such as sustainable pumping rates, monitoring programs and comprehensive annual evaluations of groundwater use.

4.2.2

Incorporate the sustainable management of groundwater quality and quantity, including the protection of recharge areas, into land-use planning and resource management.

4.2.3

Minimize the use of non-saline groundwater for hydraulic fracturing and enhanced recovery of oil and natural gas.



Goal 5:

Watershed management is incorporated into land-use planning processes at all scales in accordance with the recommendations in this report

**Watershed Management Direction 5.1:
Improve cooperation and communication
about watershed management among
local and provincial planning initiatives**

Actions:

5.1.1

NSWA to work with other planning initiatives to assess opportunities and advocate for the incorporation of the recommendations in this report into land-use planning within the watershed.

5.1.2

NSWA to evaluate and report on the integration, alignment and implementation of watershed management into land-use planning.

**Watershed Management Direction 5.2
Develop watershed management plans to
address issues in sub-basins of the NSR
watershed**

5.2.1

NSWA to assist local watershed stewardship groups, municipalities or other stakeholders to undertake sub-basin watershed planning similar to that initiated for the Vermilion River watershed. This planning would include:

- Collaborative issue identification with stakeholders in each sub-basin.
- State of the Watershed analysis and reporting.
- Development of Water Quality Objectives and Instream Flow Needs.
- Analysing current management practices in relation to best management practices.
- Development of recommendations to improve management practices to minimize and reduce the impact of discharges from point sources and non-point sources.
- Working with counties, summer villages, recreational groups and sport fishing groups to determine priorities for developing lake management plans.



Implementation

Long-term collaboration will be required to achieve the goals of this IWMP and to implement the recommended actions. The NSWA will act as the bridging organization to bring people together to create the various implementation initiatives. Expert working groups will be formed to address priority tasks. The working groups will identify knowledge gaps and research needs, develop detailed work plans, review pertinent legislation and policy, identify best management practices and consult as required. To enable the work to proceed, each participant in a working group will be expected to bring to the table resources such as information, in-kind support and/or funding.

Implementation of certain recommendations will be achieved through the voluntary choices and actions of individual decision makers in government, industry, municipalities, non-government organizations and other stakeholders. The value of the plan will only be realized to the extent that stakeholders, individually and in collaboration, act on the recommendations as there is no specific statutory framework yet in place to require adoption and implementation of IWMPs. The plan will be adaptive in that the occurrence and timing of implementation initiatives by stakeholders will vary according to their own priorities, resources and capacities.

Although much scientific work has been initiated in the past few years, more work remains to be done so that stakeholders can come to agreement on the nature and scale of management actions required. More work also remains to develop effective assessment and modelling tools that can be used to support ongoing watershed planning activities.



Roles and Responsibilities

The NSWA invites all stakeholders and interested individuals in the watershed to participate in the future work. All parties are encouraged to learn more about watershed management practices and needs, to become engaged in NSWA activities and to share information. NSWA will continue to serve as a coordinating source of technical information and policy advice.

The NSWA recommends the following roles and responsibilities for the Government of Alberta and other key watershed stakeholders involved in implementing the recommendations in this plan:

Government of Alberta: as a leader in water resources management

Implementing this IWMP will require ongoing leadership by the Government of Alberta as described in the *Framework for Water Management Planning and the Strategy for the Protection of the Aquatic Environment*. The policies outlined in that Framework, enabled under the *Water Act*, confirm the Government of Alberta's commitment to "... maintaining, restoring or enhancing current conditions in the aquatic environment."

These policies also confirm the Government's commitment to conduct monitoring, evaluation and reporting programs that include continuous long-term data collection and assessments. This monitoring commitment requires future collaboration and partnerships with

watershed stakeholders. Improved communications and widespread access to information and data are needed so that watershed stakeholders and the public can better understand the health of aquatic ecosystems and the effects of watershed management actions being undertaken.

The Minister of Environment and Sustainable Resource Development is requested to:

- Consider these recommendations in statutory planning, policy development and regulatory decisions.
- Direct Ministry staff to participate in working groups or other initiatives established to address specific actions and tasks.
- Request other Ministries, with responsibilities related to the recommendations in this plan, to participate in initiatives established to address specific actions and to consider these recommendations in their own statutory planning, policy development and regulatory decisions.
- Consider this plan in the development of the North Saskatchewan Regional Plan under the Land Use Framework.



The Director responsible for water management under the *Water Act* is requested to:

- Consider these recommendations and decide whether to develop an Approved Water Management Plan for the NSR containing Water Conservation Objectives for water quality, water quantity (instream flow) and a healthy aquatic ecosystem.
- Utilize NSW's Water Quality Objectives (Appendix B) in the development of such an Approved Water Management Plan.

The NSW believes that both rural and urban municipalities, as leaders in local and regional land-use planning and development decision-making, have a critical role to play in implementing these recommendations.

Municipalities are requested to:

- Continue to participate in ongoing watershed planning activities.
- Use these recommendations to guide the preparation and implementation of their municipal development plans, land-use bylaws, area structure plans and best management practices.
- Work with the NSW, governments and other watershed stakeholders to communicate and implement best management practices.

Industry and landowners are requested to:

- Continue to participate in ongoing watershed planning activities.
- Continue to improve their water and land management practices.
- Work with the NSW, governments and other watershed stakeholders to communicate and implement best management practices.

Recreational and other users of private and public lands are requested to:

- Participate in NSW's ongoing watershed planning activities.
- Minimize and reduce individual impacts on the watershed (on the land and in water) by practicing and promoting responsible recreation in the North Saskatchewan River watershed.

The North Saskatchewan Watershed Alliance, as the WPAC, is committed to providing a leadership and coordination role to ensure technical and policy recommendations in this plan are implemented. This will require a new organizational approach for the NSW with the development of new governance protocols for the Board of Directors, new accountabilities for staff and the development of five new expert technical working groups, one for each of the five major Goals. These changes reflect the evolution and organizational learnings of the NSW since being appointed the WPAC in 2005 and are designed to

improve overall effectiveness. They are also reflective of the changing policy and planning environment in Alberta. A key organizational goal for NSWA going forward will be to strengthen its role as the central watershed planning forum for the NSR basin, and to ensure its sustainability.

Expert working groups will be formed to address the key actions under each of the five IWMP Goals: Water Quality Protection; Instream Flow Needs Protection; Ecosystem Health Protection; Groundwater Protection and Sub-Watershed/Regional Planning. Membership in expert working groups will be solicited from qualified stakeholders and individuals.

Each working group will be co-chaired by an NSWA representative and a technical expert from the greater community. These working groups will be developed in 2012 and will be assigned clear terms of reference by the Board on two tasks areas: development of comprehensive work plans to address each recommendation, and the subsequently delivery of the associated work products. They will propose annual work plans and will report annual progress to the NSWA Board formally through their co-chairs. The NSWA Board of Directors will determine the priority of implementation projects and work plans, based on the capacity and resources available at the time. The NSWA Board will also take a strong role in securing funding to enable the work to proceed.

Watershed management actions will be undertaken through an implementation period of 2012 to 2019 as identified in the *Water for Life Action Plan* (2009). The Action Plan presents Key Action 5.5:

- “Complete and implement watershed management plans for all major watersheds”
- “Assess the effectiveness of watershed management planning system achieving desired outcomes”

The NSWA is committed to monitoring and reporting at its Annual General Meeting on progress made toward implementing these IWMP recommendations. All individual recommendations will be reviewed and updated in 2015. The plan will be re-visited and re-evaluated completely at the end of Water for Life Implementation period in 2019. State of the Watershed reporting for the NSR will be a key component of overall progress assessment.

In summary, the NSWA will undertake an ongoing role to:

- Gather and disseminate technical and policy information.
- Evaluate the state of the watershed and sub-watersheds.
- Identify watershed issues and set priorities.
- Develop plans to address watershed issues.
- Provide information, advice and assistance to stakeholders to implement the recommendations in this plan.



Challenge

A large effort has been undertaken by the NSWA and its partners over the past decade to promote an understanding of watershed issues in this region of Alberta and to build interest and awareness across many sectors. The size of this watershed and the diversity of issues, participants and interests make for a formidable challenge going forward. Watershed planning and management represents a continuum of work, and ongoing efforts will be required.

We call on all parties to participate in the forthcoming phases of work with good will and prudent efforts to sustain the water resources and aquatic health of this region - and the prosperity of our future generations.



Appendix A: NSWA Board of Directors 2011 - 2012

Executive

President

Dr. Les Gammie (Utility)
EPCOR Water

Vice President

Pat Alexander (Municipal)
Reeve, Clearwater County

Secretary

Candace Vanin (Federal Government)
Regional Land-Use Analyst
Agriculture and Agri-Food Canada

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Andrew Schoepf (Provincial Government)
Senior Planner, Central Region
Alberta Environment and Sustainable
Resource Development

Liliana Malesevic (City of Edmonton)
Acting General Supervisor
Information Systems
Drainage Services, City of Edmonton

Dr. Laurie Danielson (Industry)
Executive Director,
Northeast Capital Industrial Association

Tracy Scott (NGO)
Head, Industry and Government Relations,
Alberta
Ducks Unlimited Canada

James Wuite (Provincial Government)
Head, Farm Water Supply Branch
Alberta Agriculture and Rural Development

Ted Bentley (NGO)
Member, Paddle Alberta

Dr. Naomi Krogman (Member at Large)
Environmental and Resource Sociologist
Department of Resource Economics and
Environmental Sociology
University of Alberta

Bill Fox (Agriculture)
Public Affairs,
Alberta Beef Producers

Bob Winship (Forestry)
Business Development Manager
Canadian Timberlands
Weyerhaeuser Company

Aaron Rognvaldson (Petroleum)
Environmental Specialist
Husky Energy
Rocky Mountain House, Alberta

Patrick Gordeyko (Municipal)
Councillor, County of Two Hills

Rod Kause (Utility)
Director, Environmental Services
TransAlta Generation Partnership

Vacancies

First Nations

Métis



IWMP Steering Committee Members 2010

Sharon Reedyk (Chair)
Agriculture and Agri-Food Canada
(Government of Canada)

Patrick Gordeyko
Councillor, County of Two Hills
(Municipal)

James Guthrie
TransAlta Generation Partnership
Utility

Enneke Lorberg
Alberta Council for Global Cooperation
(Community Awareness/Education)

Stephanie Neufeld
EPCOR Water Services Inc.
(Water/Wastewater Sector)

Dr. Lyndon Gyurek
City of Edmonton, Drainage Services
(Urban Municipal)

Denise Verreault
First Nations (Alberta)
Technical Services Advisory Group (First Nations)

Robert Kitching
Councillor, Brazeau County
(Agriculture)

Tracy Scott
Ducks Unlimited Canada
(NSWA Board of Directors)

Dave Mussell
Alberta Environment and Sustainable Resource Development
(Government of Alberta)

Andy Boyd
Alberta Fish & Game Association
(Non-Government Organization)

Dave Christiansen
Alberta Environment and Sustainable Resource Development
(Government of Alberta)

Industry representative - vacant

Métis representative – vacant

Past Steering Committee Members

The NSWA wishes to thank members who contributed to development of this IWMP from 2005 to 2010:

Annette Ozirny, Andy Lamb, Susan Kingston, Roger Drury, Ralph Leriger, Steven Stanley, Melanie Gray, Dave Onuczko, Laurie Danielson, Jeff Willson, Don Podlubny, Peter Apedaile, John Hodgson, Dan Majeau, John Diiwu, Marie Beliveau, Neil Barker, and Frank Vagi.

NSWA Staff 2012

Dave Trew, Executive Director

Tom Cottrell, IWMP Coordinator

Gord Thompson, Technical Program Coordinator

Billie Milholland, Communications Manager

Melissa Logan, Basin Planner

Graham Watt, Basin Planner

Meghann Matthews, Administrative Assistant



Appendix B: NSWA Publications

The following reports are available online at http://nswa.ab.ca/resources/nswa_publications:

| Title | Author | Year | Document Type |
|--|--|-------------|----------------------|
| Workbook Results: Integrated Watershed Management Plan for the North Saskatchewan River | Dr. N. Krogman and Ms. C. Chenard for NSWA | 2012 | Planning Document |
| Discussion Paper for the Development of an Integrated watershed Management Plan for the Vermilion River watershed in Alberta | VRWMP–SC for NSWA | 2011 | Planning Document |
| Mayatan Lake State of the Watershed Report | NSWA | 2011 | Technical Assessment |
| A Workbook to share your views on Developing an Integrated Watershed Management Plan (IWMP) for the North Saskatchewan River Watershed | NSWA | 2011 | Planning Document |
| Discussion Paper for the Development of an Integrated Watershed Management Plan for the North Saskatchewan River Watershed in Alberta | NSWA | 2011 | Planning Document |
| North Saskatchewan Watershed Alliance: Developing Collaborative Planning Partnerships - Final Report | Abells Henry Public Affairs | 2010 | Planning Document |
| Economic Activity and Ecosystem Services in the North Saskatchewan River Basin | Watrecon Consulting and Anielski Management Inc. | 2010 | Economic Assessment |
| North Saskatchewan River Basin: Socio-Economic Profile 2006 | Watrecon Consulting | 2010 | Economic Assessment |

| Title | Author | Year | Document Type |
|--|---------------------------------------|------|-------------------------------|
| North Saskatchewan River Integrated Water Quality Model: Runoff Sub model Implementation and Initial Calibration | Kessler Environmental | 2010 | Technical Assessment |
| Proposed Site-Specific Water Quality Objectives for the Mainstem of the North Saskatchewan River | North Saskatchewan Watershed Alliance | 2010 | Technical Assessment |
| Bulletins | North Saskatchewan Watershed Alliance | 2009 | General Information Documents |
| Hydrodynamic and Water Quality Model of the North Saskatchewan River | Tetrattech | 2009 | Technical Assessment |
| North Saskatchewan River Basin Overview of Groundwater Conditions, Issues and Challenges | WorleyParsons | 2009 | Technical Assessment |
| Vermilion River Water Supply & Demand Study | Golder Associates | 2009 | Technical Assessment |
| Cumulative Effects Assessment of the North Saskatchewan River Watershed using ALCES | North Saskatchewan Watershed Alliance | 2009 | Technical Assessment |
| February 9, 2009: Engaging Rural Municipalities: Forum Final Report | North Saskatchewan Watershed Alliance | 2009 | Planning Document |



| Title | Author | Year | Document Type |
|---|---------------------------------------|------|-----------------------------------|
| Water Supply Assessment for the North Saskatchewan River Basin | Golder Associates | 2008 | Technical Assessment |
| Assessment of climate change effects on water yield from the North Saskatchewan River Basin | Golder Associates | 2008 | Technical Assessment |
| Current and Future Water Use in the NSRB | AMEC | 2007 | Technical Assessment |
| Instream Flow Needs Scoping Study | Golder Associates | 2007 | Technical Assessment |
| Municipal Guide | North Saskatchewan Watershed Alliance | 2006 | Planning Document |
| Integrated Watershed Management Plan for the North Saskatchewan River Watershed in Alberta - Terms of Reference | AMEC and NSWA | 2005 | Planning Document |
| State of the North Saskatchewan Watershed | Aquality Environmental | 2005 | Technical Assessment |
| Heritage River Background Study | Billie Milholland | 2005 | Planning Document |
| Watershed Tool Kit | North Saskatchewan Watershed Alliance | 2003 | Planning Information Document |
| River Guide | Billie Milholland | 2002 | Technical and Historical Document |



Notes



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