INTRODUCTION

The North Saskatchewan Watershed Alliance (NSWA) is a multi-stakeholder watershed planning and advisory partnership formed in 1997 and incorporated as a non-profit society in 2000. The NSWA provides a forum to recognize and address issues affecting the North Saskatchewan River (NSR) watershed in Alberta. It also initiates and supports activities that impact the watershed positively. The NSWA became a Registered Charity in March 2016.

NSWA membership incorporates individual citizens and organizations. Organizational membership categories include: federal, provincial, and municipal governments; industry; utilities; agricultural producer groups; environmental and conservation groups; recreational, cultural and tourism groups; educational and research institutions; Aboriginal First Nations and Métis.

In 2005, the NSWA was appointed by the Government of Alberta to serve as the Watershed Planning and Advisory Council (WPAC) for the North Saskatchewan River basin in Alberta. As a partner in *Water for Life: Alberta’s Strategy for Sustainability* (2003), the NSWA was given a mandate by the government to report on the State of the Watershed (completed in 2005) and to prepare an Integrated Watershed Management Plan (IWMP – completed in 2012).

The IWMP provides watershed management advice to address the wide range of issues raised by stakeholders and through its implementation NSWA strives to address the three goals of *Water for Life*:
- Safe secure drinking water supply
- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy

NSWA’S VISION

*People working together for a healthy and functioning North Saskatchewan River watershed – today and tomorrow.*

NSWA’S MISSION

- To educate and increase the public’s understanding of watershed protection and its importance by developing and providing programs on the protection and improvement of water quality, water quantity and the health of the North Saskatchewan Watershed
- To conduct research related to the protection of the North Saskatchewan River Watershed and to disseminate the results of such research
NSWA MEMBERSHIP

The NSWA collaborates with many stakeholder groups and encourages all sectors, user groups and interested citizens from across the watershed to become involved in watershed management. During 2016-17 the NSWA continued to engage individuals, municipal jurisdictions and other stakeholders in NSWA projects and activities (see complete listing in this report). Board members are elected at the Annual General Meeting and commit to two years of service from the date of the AGM. The following individuals served on the NSWA Board during 2016-17. We acknowledge and appreciate their dedicated efforts to support watershed planning and management in Alberta.

NSWA BOARD OF DIRECTORS 2016-17

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<th>Position</th>
<th>Name</th>
<th>Sector Representation</th>
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<td>President</td>
<td>Pat Alexander</td>
<td>Municipal</td>
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<td>Vice-President</td>
<td>Ken Crutchfield</td>
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<td>Treasurer</td>
<td>Dr. Stephen Craik</td>
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<td>Secretary</td>
<td>Candace Vanin</td>
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NSWA STAFF

The NSWA employed up to ten full or part-time staff during 2016-17: David Trew, B.Sc. (Executive Director); Billie Milholland, B.A. (Communications Manager); Gordon Thompson, P. Eng. (Technical Program Coordinator); Melissa Logan, P. Biol., Mary Ellen Shain, M.Sc., Breda Muldoon, M.Sc. (Watershed Planning and Management Coordinators); Elisa Brose, B.Sc. B.Ed. (Office Coordinator); Meghann Wendell, BBA, (Finance Coordinator); Mara Erickson, M.Sc. (Vermilion Stewardship Coordinator); Dr. Cristina Buendia (Technical Advisor); Jennifer Regier, B.Sc. (Watershed Planning Intern); and Brittany Jackson, B.Sc. (Summer Intern).

Staff photo taken at the NSWA AGM in June 2016

(Back L-R) Dave Trew, Billie Milholland, Meghann Wendell, Elisa Brose, Gord Thompson
(Front L-R) Melissa Logan, Brittany Jackson, Mara Erickson, Mary Ellen Shain
Missing: Jennifer Regier, Breda Muldoon, Cristina Buendia
FUNDING OVERVIEW

The NSWA acknowledges the many partners that provide operational and project funding in support of watershed management activities in the NSR basin. Full details are presented in the 2016-17 financial statement prepared by Lim and Associates, Certified General Accountants, Edmonton.

We thank Alberta Environment and Parks (AEP) for a generous operating grant in 2016-17 under Water for Life: Alberta’s Strategy for Sustainability and for recent commitments from Environment Minister Shannon Phillips to sustain WPAC funding until March 31, 2020.

We also thank 38 Rural and Urban Municipalities for per capita contributions to NSWA operations during 2016-2017. These municipalities included: Cities of Edmonton/EPCOR, Fort Saskatchewan, and St. Albert; Strathcona County and the Counties of Beaver, Brazeau, Clearwater, Lac Ste Anne, Lamont, Leduc, Minburn, Parkland, St Paul, Sturgeon, Two Hills, and Vermilion River; the Towns of Bruderheim, Calmar, Devon, Drayton Valley, Gibbons, Onoway, Rocky Mountain House, St. Paul, Tofield, Vegreville and Vermilion; the Villages of Holden, Innisfree and Wabamun; and the Summer Villages of Sandy Beach, Seba Beach, Silver Sands, South View, Spring Lake, Sunset Point, Sunrise Beach, and West Cove.

We thank the Jackfish Lake Management Association (JLMA) for a direct cash contribution in 2016-17. We also thank three charitable donors for their support of the work of the NSWA. Sales of the publication “Living in the Shed” generated $10,615 in 2016-17.

Significant in-kind contributions were provided by: members of the NSWA Board of Directors; EPCOR; the City of Edmonton; the Vermilion River Watershed Alliance; the Sturgeon River Watershed Alliance Steering and Technical Advisory Committees; the Headwaters Alliance Steering and Technical Committees; Wabamun Watershed Management Council (WWMC); and the Mayatan Lake Management Association (MLMA). The NSWA gratefully acknowledges the contributions of these individuals, and their respective organizations, in terms of their time, expertise and travel costs. NSWA also appreciates the continued commitment from volunteers who support our work.

The NSWA seeks out grants to support our various technical studies and restoration projects, primarily in support of our municipal watershed partnerships (page 6). The primary sources have been the Government of Canada (Environmental Damages Fund (EDF), National Wetland Conservation Fund (NWCF) and EcoAction) and the Government of Alberta (Watershed Resiliency and Restoration Program (WRRP), and the Alberta Community Partnership Program (ACP).
OPERATIONAL AND PROJECT FUNDING SOURCES (2016-17)

NSWA Funding Sources 2016-2017

- Municipal Partnership Revenue (held by municipalities)
  - ACP Sturgeon-SRWA 2016-2019 $300,000
  - ACP Whitemud/Blackmud 2016-2018 $350,000

- Project grants
  - Living in the Shed Sales $10,600

- Annual Operating Funds 2016-2017
  - Government of Alberta $425,000
  - Municipal $332,500
  - EPCOR $80,000
  - WPACs WSGs $10,000
  - Charitable Donations $13,150

  - WRPP 2015-2019 $1,445,000
  - NWCF 2015-2018 $34,254
  - Eco-Action 2015-2018 $100,000
  - WRPP Sturgeon/Vermillion 2017-2019 $75,000

  - EDF 1 2015-2017 $57,558 (completed)
  - EDF 2 2016-2018 $147,000
  - WRPP-Modeste 2016-2018 $100,000
  - WRPP-Strawberry 2017-2019 $65,000

EDF - Environmental Damages Fund
WRPP - Watershed Resiliency and Restoration Program
NWCF - National Wetland Conservation Fund
EcoAction - EcoAction Community Fund
ACP - Alberta Community Partnership

WPAC - Watershed Planning and Advisory Council
WSG - Watershed Stewardship Group
SUMMARY OF KEY PROJECTS AND ACTIVITIES

The Sturgeon River Watershed Alliance (SWRA) continued to develop technical and advocacy work plans, and successfully sought out new funding opportunities in 2016-17.

- The hydrologic studies conducted on the Sturgeon River, funded under the Environmental Damages Fund (Environment Canada), were completed. Two technical reports were finalized.
- A second Environmental Damages Fund grant application was approved in 2016-17 to support basin-wide riparian health and fish habitat assessments. Both projects are being initiated in 2017.
- A basin-wide water quality survey was initiated in 2016-17, commencing with a winter dissolved oxygen survey; this will be followed by an intensive water quality sampling program to be implemented during the open water season of 2017. This project is funded by the Alberta Community Partnership grant to SRWA municipalities.
- A new WRRP grant was received in late 2016-17 to support a cumulative effects assessment project for the Sturgeon and Vermilion River basins. The ALCES Group will work with NSWA staff and SRWA/VRWA members to identify key watershed areas for restoration and conservation.
- A promotional brochure describing the Goals and Vision of the SRWA was prepared and distributed in 2016-17.
- A detailed Information Bulletin describing the influence of climate, landscape change and licensed water removal on flows in the Sturgeon River was completed in 2016-17.

The Vermilion River Watershed Alliance (VRWA) was incorporated as a non-profit society in 2015, and held its first AGM in 2016, at which its first Board of Directors was elected.

- The VRWA Board held a strategic planning session in winter 2017 to review the Goals and Directions of the Vermilion River Watershed Management Plan (VRWMP), and to assess implementation progress since its publication in 2012.
- The Vermilion River Watershed Alliance (VRWA) continued to implement the VRWMP, with an emphasis on riparian zone and wetland restoration and enhancement projects. These projects were supported by three Environment Canada grants- WRRP, EcoAction, NWCF) obtained by NSWA for the 2015-19 period.
- A selection committee approved 14 projects proposed by landowners, nine of which were completed in 2016-17 (6 riparian, 3 wetland) and five deferred until 2017. Over 20 new projects have been approved for 2017-18. Two technical reports were also completed in 2016-17.
SUMMARY OF KEY PROJECTS AND ACTIVITIES

In 2016-17 the Headwaters Alliance continued to address environmental information and policy needs to support the development of watershed management capacity.

- A two-day Headwaters Tour was hosted by NSWA in co-operation with Clearwater County to introduce elected and public officials to the unique watershed management challenges of the region.
- A new WRRP grant was received to support a Riparian Health Assessment of the Modeste sub-watershed. This project incorporates the innovative use of spatial data remote sensing information and will be completed in 2017.
- A second WRRP grant was received to extend the riparian health assessment into the Strawberry sub-watershed. This project will be completed in 2018.
- The Headwaters Alliance held a facilitated strategic planning workshop to explore inter-municipal policy alignment opportunities in support of riparian area management.
- The Headwaters Alliance is developing a project concept with ALUS Canada to assess the value of headwaters natural capital in terms of its benefits in relation to local and downstream communities.

Abraham Lake—Images Alberta

NSWA staff supported many lake stewardship groups and lake municipalities in 2016-17. A significant effort was made in producing the following information and guidance documents.

- A State of Watershed Report was completed for the Jackfish Lake Management Association and presented at their AGM in May 2016.
- A Watershed Management Plan for Mayatan Lake was completed and presented to the Mayatan Lake Management Association in June 2016.
- A State of Watershed Report for Isle Lake and Lac Ste Anne was completed and presented at LILSA meetings in spring 2017.
- NSWA participated on the Steering Committee with Parkland County, AEP, Stantec and the WWMC to finalize the Wabamun Lake Subwatershed Land Use Plan.
- Staff supported the Baptiste and Island lakes Stewardship Society, and the Athabasca Watershed Council, in the initial stages of their watershed management planning project.
The NSWA supported key water management activities in the Capital Region in 2016-17.

- NSWA participated in the Implementation Advisory Committee for the Water Management Framework for the Industrial Heartland and Capital Region.
- NSWA facilitated an inter-municipal project team assembled to conduct a Watershed Drainage Study for Whitemud and Blackmud Creeks.

The NSWA continued to promote watershed educational and outreach activities in 2016-17.

- Three Educational Forums were planned and delivered: an NGO Forum was held in April 2016, a Water Supply Forum was held in October 2016 and a Water Quality Forum was held in April 2017.
- An InStream Newsletter was completed for members and new content was posted regularly on the NSWA website.
- Social media was utilized to promote NSWA events and information, and information was shared from many other sources.
- NSWA collaborated regularly with other Water for Life partnerships (AEP, WPACs, AWC, WSGs).
- The publication Living in the Shed has been distributed to a wide variety of watershed residents. EPCOR generously donated a copy to each school in the Edmonton area. Books have been sold at community events, Forums, book signings, teacher’s conventions, etc.
- Staff participated directly in numerous briefings, partnership and municipal meetings, educational events, workshops and public events to promote watershed awareness and garner support for NSWA’s ongoing work.

Above and left:
Some participants at NGO Forum—April 2016
STRATEGIC AND OPERATIONAL PLANNING

The NSWA Board of Directors and staff held a facilitated Strategic Planning Workshop in February 2016 to review the Vision, Mission, Goals and Strategic Directions of the organization. This led to the development of the 2016-17 Operating Plan and Budget. The four major Goal statements for the North Saskatchewan Watershed Alliance for the period 2016-2017 were defined as follows:

- Collaborative planning and management initiatives are in place for the basin
- Provide leadership in watershed planning at all scales
- Watershed knowledge supports management actions in the basin
- The NSWA is functional and sustainable

The NSWA’s primary initiative for 2016-17 was the ongoing implementation of the *Integrated Watershed Management Plan (IWMP) for the North Saskatchewan River*, published in 2012. Work continued to develop the long-term collaboration required to achieve the goals of the IWMP and to implement the recommended actions. The NSWA has continued its role as a bridging organization, bringing other organizations and sectors together to discuss and develop specific watershed initiatives.

The NSWA strategically supported the ongoing development of Municipal Watershed Partnerships during 2016-17 to address regional and local watershed issues. The partnerships include the Vermilion River Watershed Alliance, the Sturgeon River Watershed Alliance and the Headwaters Alliance. All municipal partnerships are supported by both elected officials and staff, and provide the local leadership necessary to guide IWMP implementation. The NSWA is providing technical, administrative and project funding development support to each municipal partnership.

Yellow Lady Slipper—Wagner Bog
Carol Rusinek - Images Alberta
**STRATEGIC GOAL 1: COLLABORATIVE PLANNING AND MANAGEMENT INITIATIVES ARE IN PLACE FOR THE BASIN**

**GOVERNMENT OF ALBERTA**

The NSWA actively contributed to discussions regarding watershed planning mandates and capacities in Alberta, and has contributed significantly to regional planning activities under the North Saskatchewan Regional Plan (Land Use Framework). NSWA actively supported AEP’s work on the Water Management Framework for the Capital Region and Industrial Heartland, and AEP’s recommended evaluation of future stormwater discharge to Whitemud and Blackmud Creeks.

The NSWA continued to work with the other key partnerships established under *Water for Life: Alberta’s Strategy for Sustainability*. Extensive engagement of Watershed Stewardship Groups was achieved through lake management projects. The Executive Directors of all WPACs continued to meet quarterly to discuss mutual progress, operational concerns and organize the Annual WPAC Summit. NSWA staff and Board members attended the WPAC Summit hosted by the Bow River Basin Council in October 2016.

**ALBERTA WATER COUNCIL WATER FOR LIFE IMPLEMENTATION REVIEW**

The Alberta Water Council regularly reviews the progress of “Water for Life” and then recommends to the Government of Alberta how implementation could be enhanced. NSWA has been actively involved in the work of the Review Committee as the representative of the WPAC Sector. A report entitled *The Review of Water for Life Implementation Progress* was released in May 2017. It highlights the strengths and weaknesses of the strategy and recommends opportunities for improvement.

**WATERSHED PARTNERSHIPS**

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<th>Headwaters Alliance</th>
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<td>Wetaskiwin County</td>
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<td>Leduc County</td>
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<td>Parkland County</td>
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<td>Town of Drayton Valley</td>
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<td>Town of Rocky Mountain House</td>
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<td>Town of Devon</td>
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<td>Town of Thorsby</td>
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<td>Alberta Environment and Parks</td>
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<th>Sturgeon River Watershed Alliance</th>
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<td>Sturgeon County</td>
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<td>Lac Ste Anne County</td>
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<td>City of Edmonton</td>
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<td>City of St. Albert</td>
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<td>Town of Morinville</td>
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<td>Town of Onoway</td>
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<td>Summer Villages of Lac Ste Anne County East</td>
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<td>Big Lake Environmental Support Society</td>
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<td>County of Vermilion River</td>
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<td>County of St. Paul</td>
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<td>Holden Drainage District</td>
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<td>Alberta Drainage Council</td>
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<td>Vermilion River Operations Advisory Committee</td>
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<td>Agriculture and Agri-Food Canada</td>
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<td>North American Waterfowl Management Plan</td>
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<td>Alternative Land Use Services Canada</td>
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<td>Parkland County</td>
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<td>Mayatan Lake Management Association</td>
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<td>Lake Isle Lac Ste Anne Stewardship Association</td>
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<td>Jackfish Lake Management Association</td>
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<td>Wabamun Watershed Management Council</td>
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<td>Antler Lake Stewardship Committee</td>
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<td>Baptiste and Island Lakes Stewardship Society</td>
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The NSWA is helping to restore and enhance wetlands and riparian areas in the Vermilion River watershed in partnership with the Vermilion River Watershed Alliance (VRWA). With funding from the Watershed Resiliency and Restoration Program (WRRP), as well as two grants from Environment & Climate Change Canada, restoration/enhancement activities are collectively managed by the NSWA to implement key recommendations of the Vermilion River Watershed Management Plan (2012). During the 2016 pilot season, six riparian and three wetland enhancement projects were implemented across the watershed. These nine projects resulted in 7.1 km of riparian areas and 22 ha of wetlands protected/enhanced. As most of our project participants implemented exclusion fencing and alternative watering systems to either prevent or sustainably manage livestock access to natural waterbodies, these projects will mitigate the negative effects of over 1170 head of cattle on wetlands and riparian areas in the Vermilion River Watershed.

In preparation for another season of restoration projects, the NSWA and VRWA hosted an open house in Vermilion in February 2017 which was attended by over 50 landowners and received local media coverage. The VRWREP funding opportunity was promoted and staff premiered both the new VRWA website (vrwa.ab.ca) as well as the Stewardship in the VRW film, which introduced the VRWA and highlighted landowner projects.

In spring 2017, eighteen landowners applied for over 20 different restoration and enhancement projects throughout the watershed. Applications are currently under review and accepted projects will start in early June. An additional component of wetland restoration work will be conducted in partnership with Ducks Unlimited Canada. Two new technical reports were competed in 2016-17: A Survey of Aquatic Species and Habitat in the Vermilion River (CPP Environmental) and Vermilion River and Stretton Creek Water Quality at Low Flow (A.M. Anderson).
The Sturgeon River Watershed Alliance (SRWA), which consists of 9 active member municipalities and 2 NGOs, has continued to assess policy and technical information needs. A facilitated joint meeting of the Steering Committee and Technical Committee was held in January 2016 to help focus the Vision and long-term work plan of the SRWA, and to emphasize the importance of incorporating watershed planning into daily municipal work. A Watershed Management Plan for the Sturgeon River will be completed in 2018-19.

In 2016-17 the NSWA completed an Environmental Damages Fund project (Environment Canada), which produced two consultant reports (Sal Figliuzzi and Associates): Assessment of Existing Water Supply and Demand Data for the Sturgeon River Basin (2016) and Isle Lake and Lac Ste Anne Water Balance Assessment (2017). Further analyses on the hydro-climatic conditions of the Sturgeon River were completed in-house, culminating in two Technical Bulletins: River Flows, Lake levels, Groundwater Levels and Climate Patterns in the Sturgeon River Watershed (2016) and Influence of Climate, Landscape Change and Licenced Water Removal on Flows in the Sturgeon River Basin (2017).

A second Environmental Damages Fund grant was received in 2016-17 and will be used to complete a riparian health assessment and fish habitat survey on the Sturgeon River. A portion of the funding was used to complete a winter dissolved oxygen study, which will aid in identifying winter refugia for fish. Field work for the fish habitat assessment will be conducted in summer 2017 and we anticipate completion by October. The riparian health assessment methodology is under development, and the Sturgeon River assessment is expected by winter 2018.

A joint grant application with the VRWA and the ALCES Group was submitted to the Watershed Restoration and Resiliency Program in 2016-17. This application was approved, and the new project will identify strategic priorities for conservation and restoration in the Sturgeon and Vermilion River basins to enhance the watershed’s resiliency to flood and drought.
HEADWATERS ALLIANCE

The Headwaters Alliance had an exciting year in 2016-17, moving forward on its first major project and hosting a two-day tour for elected officials in the beautiful headwaters region.

After finalizing its Project Plan in 2015-16 the Headwaters Alliance successfully secured a WRRP grant and then moved forward on the top priority project: a riparian health assessment of the Modeste sub-watershed. Riparian health is a keystone of watershed health because of the numerous ecological goods and services provided such as nutrient filtering, flood and drought mitigation, and biodiversity habitat. With the skilled assistance of Fiera Biological Inc., the Headwaters Alliance is developing an innovative riparian health assessment tool that can be implemented rapidly, using freely available spatial data. In addition, the tool will incorporate sophisticated geotechnical data to assess the risks posed by land-use practices in upland areas. The Province is supporting this project through the WRRP grant ($100K). In addition, the Headwaters Alliance received a second WRRP grant ($65K) to complete this assessment for riparian areas in the Strawberry Subwatershed.

The completion of riparian health assessments will help the team identify the areas of priority concern which in turn can be restored through their respective municipal environmental programs (e.g. ALUS, and LandCare). The data will also help the Headwaters Alliance understand how best to conserve intact areas through zoning, bylaws and through partnerships with other conservation groups (e.g. land trusts, Cows & Fish, AWES).

The Headwaters Alliance members posing after their first strategic planning session on intermunicipal opportunities to improve riparian health
A fantastic time was had by all on a two-day (August 9 & 10, 2016) exploration of the North Saskatchewan River Basin's most important source-water region. Day One (the Tour by Water) included a guided expedition for invited politicians and public servants down the North Saskatchewan River from Horburg to Rocky Mountain House Historic Site. Politicians got their feet wet as they paddled voyageur canoes and learned about the challenges of watershed planning for this region and the solutions needed at the provincial, municipal and local stewardship level. The canoe guides from the Rocky Canoe Club and the Edmonton Ceyana Canoe Club generously donated their time and use of canoes. Twenty-four people made the trip.

Day Two (the Tour by Land) took participants from Rocky Mountain House to beautiful Nordegg and the Bighorn Dam. During many stops along the way, speakers provided insights on land-use challenges faced in this region. This portion of the tour was attended by 55 people including politicians, civil servants and general public, several of whom had never been to the headwaters region before.
MAYATAN LAKE WATERSHED MANAGEMENT PLAN

The Mayatan Lake Watershed Management Plan was finalized by NSWA in July 2016. The Plan 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 NSWA is currently working with the Mayatan Lake Management Association (MLMA), local residents and jurisdictions to begin Plan implementation. A Terms of Reference has been drafted to guide the implementation process and an Implementation Committee will be formed in summer of 2017.

BLACKMUD/WHITEMUD CREEKS SURFACE WATER MANAGEMENT STUDY

NSWA has been facilitating an inter-municipal group examining storm water management in the Blackmud and Whitemud Creek watersheds. Alberta Environment and Parks prompted formation of the Group to address the cumulative effects on Blackmud and Whitemud Creeks of extensive growth and development in this watershed. The municipalities involved are Leduc County, Strathcona County, Town of Beaumont, and the Cities of Edmonton and Leduc. Terms of Reference for the Group were prepared for a Surface Water Management Study and subsequent Municipal Drainage Plan(s). An Alberta Community Partnership grant of $350,000 was successfully obtained with remaining costs shared proportionately between the five municipalities.

Through a structured pre-qualification and request for proposal process Associated Engineering was chosen by the Group to undertake the Study. Their work included extensive information collection and field survey, environmental and morphological assessment, and hydrologic and hydraulic characterization and modelling. From this a conceptual drainage plan was prepared for the development area of the watershed as identified in the Capital Region Growth Management Plan. The Group was informed of work that was completed and provided input through several workshops and progress meetings. The final report will be prepared in 2017-18.

The Group has worked together very well and achieved consensus on all aspects of the study. This initiative is another model of watershed management based on multi-jurisdictional cumulative effects studies.
INDUSTRIAL HEARTLAND AND CAPITAL REGION WATER MANAGEMENT FRAMEWORK

NSWA participates in AEP’s Implementation Advisory Committee for this Framework. The Committee’s scope includes cumulative effects management using a maximum allowable load approach, monitoring and evaluating achievement of framework objectives, communicating actions, improving knowledge and considering emerging issues. Current initiatives include improving characterization of industrial wastewater effluent discharges, updating information on NSR water quality and aquatic ecosystem health, and maintaining and managing water quality modeling capability. This continues to be a valuable opportunity to work with AEP and Capital Region municipalities and industries on the management of water quality in the North Saskatchewan River.

WABAMUN LAKE WATERSHED MANAGEMENT PLAN

Parkland County finalized the Wabamun Lake Sub-Watershed Land Use Plan in 2016. As part of the Plan, they recommended that an Integrated Watershed Management Plan be developed to maintain and protect the health of Wabamun Lake and its watershed. The Wabamun Watershed Management Council (WWMC) approached the NSWA in 2016 to assist in the development of the Watershed Management Plan. The NSWA, with the WWMC and AEP, drafted a Terms of Reference for the Plan and will be forming a Steering Committee in spring 2017 to initiate the planning process.
GOAL 2: PROVIDE LEADERSHIP IN WATERSHED PLANNING AT ALL SCALES

INTEGRATED WATERSHED MANAGEMENT PLAN (IWMP)

In 2012, the NSWA finalized and published the Integrated Watershed Management Plan for the North Saskatchewan River in Alberta (IWMP). Distribution of the final IWMP report was completed. Since 2012 the objective has been to implement the plan by gaining broad support and having it guide the protection, management and restoration of the watershed. The plan serves as the guiding document for sub-watershed planning initiatives within the basin. Many potential lines of work are embedded in the IWMP recommendations and are being delivered through Municipal Watershed Partnerships and Watershed Stewardship Groups, Educational Forums and other outreach tools, technical assessments and restoration projects. In winter 2017 the NSWA Board of Directors undertook a detailed review of IWMP implementation progress.

EDUCATIONAL FORUMS AND EVENTS

In 2016-17, the NSWA participated in various events including teachers conventions, community events and watershed stewardship group activities. The NSWA also participated as a partner in the Caring for our Watersheds contest for students in our watershed, in cooperation with the Battle River Watershed Alliance. As well, the NSWA staff gave several school presentations on watershed themes.

Educational Forums are an important part of the NSWA’s communication activities to support the IWMP and to encourage exchange of watershed management knowledge. Three Forums were organized during 2016-17 and received excellent feedback from participants. On April 28, 2016 an NGO Forum was held at the Agora Room, Strathcona Community Center in Sherwood Park. We thank Strathcona County for their donation of use of the Agora Room for these forums. The Forum was well attended with over 80 participants, including two MLAs, representatives from the agricultural sector, NGOs, AEP, municipal governments and others. There were a variety of presentations on the work and projects of various NGOs working in the watershed including: Edmonton and Area Land Trust (EALT), Alberta Lake Management Society (ALMS), DUCKS Unlimited, Cows and Fish, Land Stewardship Center, Alberta Conservation Association, Beaver Hills Initiative, Alberta Fish and Game, Canadian Parks and Wilderness Society (CPAWS), Wildlife Society, ALUS program, RiverWatch and the First Nations Technical Advisory Group.
On Oct. 4, 2016 a Water Supply Forum was held and over 130 participants heard from a variety of expert speakers on topics ranging from long-term trends in prairie hydrology, modeling the effects of climate change on water resources, the security of our drinking water supply and many other related topics. Participants appreciated the current information and thought provoking sessions. The NSWA values its many partners and collaborators. PDFs of speakers’ PowerPoints are posted on the NSWA website.

A Water Quality Forum was organized in winter 2017 and held on April 6, 2017. Approximately 135 attendees heard from a variety of experts on topics ranging from drinking water protection, headwaters forestry management, agriculture, monitoring and industrial wastewater management.

STAKEHOLDER COMMUNICATION AND OUTREACH

NSWA staff members continued to use social media in 2016-17 to raise awareness about the organization’s events and projects. The NSWA Twitter feed was started in May 2010, and by March 31, 2017 the organization had accumulated 2,135 followers including environmental organizations, news media, non-profit groups, individuals and other WPACs. The NSWA Facebook page was started in 2011 and as of March 31, 2017 had 627 followers. The NSWA newsletter InStream is published to keep NSWA members informed about issues, events, and activities. The NSWA website (www.nswa.ab.ca) is continually updated with new content and to promote events.

NSWA staff devote a considerable amount of time in direct discussions, meetings and briefings with key watershed partners. This infographic depicts the scope of these activities in 2016-17.

Watch for a new NSWA website and updated logo in the summer of 2017!
**LIVING IN THE SHED PROJECT**

The *Living in the SHED* publication is aimed at the general reader, designed to encourage an appreciation for the land mass that makes up the NSR watershed and the importance of managing the watershed. The book includes an overview of historical human impacts at the subwatershed scale as well as insights into geographic, geologic, hydrologic, historical, cultural, land use, fisheries and other natural attributes. It is sold ($25.00) from the NSWA office, online, through regional retail stores on consignment, at various community events and by groups and organizations in the NSR watershed. *Living in the SHED* appeared in the Edmonton Journal best sellers list for Non-fiction for 5 weeks in 2016.

Promotional events for the book during the past year include: book sale and signing at Audrey’s Books and Coles Books - Southgate Mall; a booth at North Central Teacher’s Convention, participation at the Ukrainian Village Summer Festival, Elk Point Trade Fair, Fort George/Buckingham House event, Edmonton Heritage Council River Float, Redwater Seniors Group, Pioneer Cabin Seniors event and many others.

*Living in the Shed* cover
Bill Trout - Images Alberta
EPCOR generously donated 120 copies of *Living in the Shed* to each school library in the Edmonton area. To celebrate this event, EPCOR and NSWA made a presentation to 60 science students at Queen Elizabeth School in Edmonton.

Copies of *Living in the Shed* were also delivered to urban and rural municipal libraries and schools throughout the watershed. A Teacher Guide, connecting Alberta Education curriculum in science to *Living in the SHED*, the NSR IWMP, the Vermilion River IWMP and the NSR Atlas was drafted and presented at the NSWA display at the North Central Alberta Teacher’s Convention. The book was promoted with the Teacher Guide at the Edmonton Teacher’s Convention.
STRATEGIC GOAL 3: WATERSHED KNOWLEDGE SUPPORTS MANAGEMENT ACTIONS IN THE BASIN

JACKFISH LAKE STATE OF THE WATERSHED REPORT
In 2015 the Jackfish Lake Management Association (JLMA) approached NSWA to complete a State of the Watershed Report. Staff researched and prepared the content through 2016-16, and the final report was presented at the JLMA AGM in June 2016. Background information and GIS mapping data for the project were gathered and a new water balance was prepared. A recreational use survey and a riparian zone health assessment were also completed. The report consolidated environmental information on a wide range of topics for Jackfish Lake and its watershed in an effort to support future planning and management discussions. The report was provided as advice to the JLMA, Alberta Environment and Parks (AEP) and Parkland County.

LAKE ISLE AND LAC STE ANNE STATE OF WATERSHED REPORT
The Lake Isle and Lac Ste Anne Water Quality Management Society (LILSA) approached the NSWA to complete a State of the Watershed Report for both lakes in late 2014. The results indicated that the watersheds have undergone changes in land use and regional climate patterns, which have been accompanied by changes in water quantity and quality in the lakes. A new water balance and phosphorus budget were also completed. The report consolidates environmental information on the Lake Isle and Lac Ste. Anne watersheds to support future planning and management discussions. The final report was completed by May 2017.

LAKES OF PARKLAND COUNTY HYDROLOGIC ‘FINGER PRINTING’ STUDY
The NSWA has supported this collaborative study between Dr. Duane Froese, University of Alberta, Department of Earth Science and the Lakes of Parkland County group. Community volunteers at six lakes took weekly lake and well samples over the summer and fall of 2016. These samples were analysed by students at the U of A with isotope hydrology testing to help determine the groundwater contribution to the water balance of the lakes, and to help resolve the questions about declining lake levels in several lakes.

ANTLER LAKE
The Antler Lake Stewardship Committee approached the NSWA to complete a State of the Watershed Report in 2016. The NSWA attended an Open House hosted by the Antler Lake Stewardship Committee in April 2017 to gather local information about the lake and its watershed. A State of the Watershed Report for Antler Lake has been initiated by the NSWA and a draft report will be completed in 2018.

ASSESSMENT OF THE RIPARIAN HEALTH OF THE VERMILION RIVER
Golder Associates were contracted by the NSWA to survey the riparian areas of the Vermilion River, and produced a report "Aerial Assessment of the Vermilion River, Alberta and its Major Tributaries". This study delineated the lotic riparian areas and floodplains of the Vermilion River and assessed the condition of the riparian areas in the Vermilion River watershed. The results indicated areas of the watershed suitable for conservation and/or protection, and identified areas for restoration. The report was finalized in 2016.
VERMILION RIVER AQUATIC ECOSYSTEM ASSESSMENT
The NSWA is responsible for assessing and reporting on the state of aquatic ecosystems in the NSR watershed. In September 2015, CPP Environmental was contracted to complete an aquatic survey of seven reaches of the Vermilion River. This survey characterized the state of this ecosystem through examination of habitat quality, aquatic vegetation, macroinvertebrates, and fish. A report entitled *Survey of Aquatic Species and Habitat in the Vermilion River, AB* was finalized in 2016.

TECHNICAL REPORTS AND PUBLICATIONS
The NSWA has published a large number of technical studies on the NSR watershed, covering a diverse range of topics including hydrology, water quality, ecosystem health, economics, watershed policy, etc. These studies have been conducted to support watershed planning at the basin and sub-basin scale, and include the mainstem, tributaries and lakes. The following reports have been prepared by NSWA staff and by consultants working under NSWA direction. Most reports are available on the NSWA website.

**NSWA PUBLICATION LIST (2002-2017)**

- Vermilion River and Stretton Creek Water Quality at Low Flow (2017)
- Isle Lake and Lac Ste Anne Water Balance Assessment (2016)
- Mayatan Lake Watershed Management Plan (2016)
- Aquatic Ecosystem Health Assessment – Vermilion River (2016)
- Aerial Assessment of Riparian Areas of the Vermilion River AB, and its Major Tributaries (2016)
- Assessment of Existing Water Supply and Demand Data for the Sturgeon River Basin (2016)
- Living in the Shed (2015)
- Towards Science-Based Lake Management Planning Approaches for Alberta (2015)
- A Compilation of Stream Nutrient Data for Alberta (2015)
- Riparian Health Assessment of Wabamun Lake (2015)
- Preliminary Steps for the Assessment of Instream Flow Needs in the NSR Basin (2014)
- Lac Ste Cyr Water Quality Assessment (2013)

(continued)
PUBLICATION LIST CONTINUED

- A Workbook to share your views on Developing an Integrated Watershed Management Plan (IWMP) for the North Saskatchewan River Watershed (2011)
- North Saskatchewan Watershed Alliance: Developing Collaborative Planning Partnerships (2010)
- Economic Activity and Ecosystem Services in the North Saskatchewan River Basin (2010)
- Proposed Site-Specific Water Quality Objectives for the Mainstem of the NSR (2010)
- Vermilion River Water Supply & Demand Study (2009)
- Cumulative Effects Assessment of the North Saskatchewan River Watershed using ALCES (2009)
- Water Supply Assessment for the North Saskatchewan River Basin (2008)
- Assessment of Climate Change Effects on Water Yield from the NSR Basin (2008)
- Current and Future Water Use in the NSRB (2007)
- Instream Flow Needs Scoping Study (2007)
- State of the North Saskatchewan Watershed (2005)
- The Story of this River is the Story of the West – CHRS Background Study (2005)
- Watershed Tool Kit (2003)
STRATEGIC GOAL 4: NSWA IS FUNCTIONAL AND SUSTAINABLE

NSWA GOVERNANCE

The NSWA Board of Directors established a sub-committee in 2012 to review organizational governance and improve future operations of the NSWA Society. The sub-committee recommended new organizational approaches for the NSWA, with the development of new governance protocols for the Board of Directors and revised accountabilities for staff. These changes reflect the evolution and organizational learnings of the NSWA 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 is to strengthen its role as the primary watershed planning forum for the NSR basin.

OPERATIONAL PLAN 2016-17

The NSWA Board of Directors and staff worked together in 2016-17 to develop an improved organizational planning document that combines elements of the three-year Strategic Plan, an annual work plan and proposed annual budget. This annual “Operational Plan and Budget” is detailed and identifies the priority activities of the organization for the ensuing year. It will be used at the end of each work cycle to assess organizational performance.

NSWA’s NEW OFFICE LOCATION

On January 29, 2016 the NSWA staff moved into a new office at 202 9440 49 Street in Edmonton. We now have room for 10 staff. You are always welcome to visit us!
On March 22, 2016, Shannon Phillips, Minister of Environment and Parks, announced that Alberta’s 11 Watershed Planning and Advisory Councils will share $3.2 million per year for the next three years to assess watershed health and plan for watershed management.

“World Water Day challenges us to think about how we protect this extraordinary economic and environmental resource. We are taking steps to protect Alberta’s water through partnerships and collaboration.”

Shannon Phillips, Minister of Environment and Parks, Minister Responsible for the Climate Change Office.

The NSWA would like to acknowledge the generous support of Alberta Environment and Parks for an annual operating grant and other grant funding.

The NSWA also appreciates the generous support of the City of Edmonton and EPCOR and many other municipal partners.

Grant funding also provided by:
In the spirit of celebrating Canada’s 150th birthday, this photo shows the North Saskatchewan River in Edmonton circa 1913. Note the paddle wheeler in the foreground, construction of the High Level Bridge in the background, and mid-river piers for the future Walterdale Bridge in between.

(Photo credit: Provincial Archives of Alberta, A-10,320)
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