

Knowledge in Know-vember

Speaker Series



Knowledge in Know-vember

- *Please do not use video and keep microphone muted*
- *If you would like to ask a question please use the chat feature*
- *Questions will be addressed at the end of each presentation*
- *Presentations will be posted on nswa.ab.ca*
- *Polling Questions*



Fun Polling Question

- How many *Knowledge in Know-vember* sessions have you attended this month?



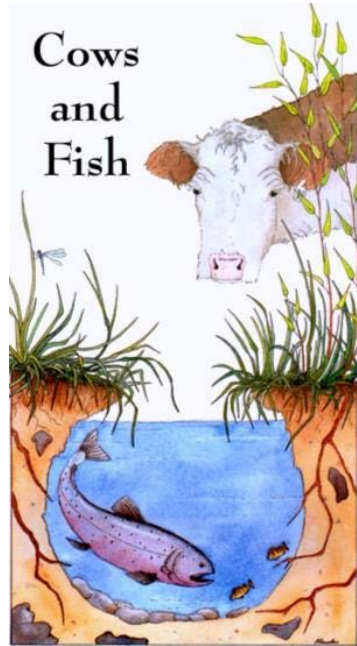
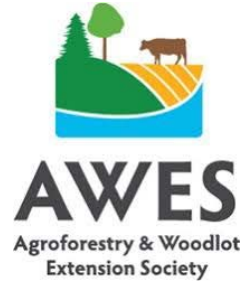
20 Years of Partnerships in Watershed Planning



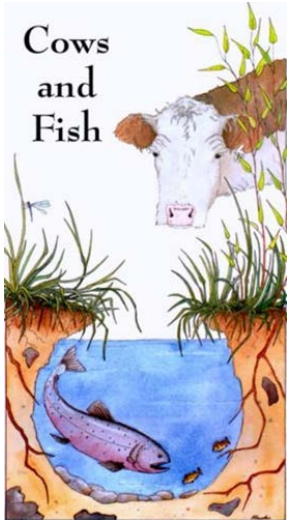
NSWA
NORTH SASKATCHEWAN
WATERSHED ALLIANCE



NGO Partners



NGO Partners



***Beavers – friends or foe?
How can we live with ‘em and
why should we?***

***NSWA – What is keeping
us busy these days?***



NSWA
NORTH SASKATCHEWAN
WATERSHED ALLIANCE



Fun Polling Question

- Who are you? What group best describes you?



What is keeping NSWA busy these days?



Goal 1: *The NSWA supports Collaborative Watershed Planning*

Goal 2: *The NSWA provides Leadership in Watershed Management*

Goal 3: *The NSWA promotes Watershed Knowledge Sharing*

Goal 4: *The NSWA remains a Functional and Sustainable Organization*



Goal 1

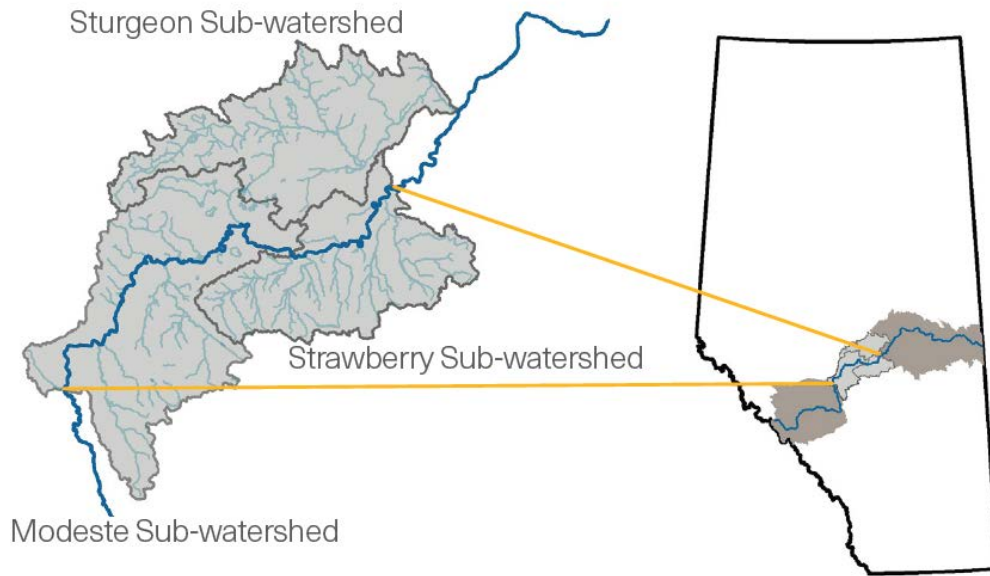
Collaborative Partnerships

HEADWATERS ALLIANCE	STURGEON RIVER WATERSHED ALLIANCE	VERMILION RIVER WATERSHED ALLIANCE	LAKE PARTNERSHIPS
<ul style="list-style-type: none"> • Brazeau County • Clearwater County • Leduc County • Parkland County • Wetaskiwin County • Town of Devon • Town of Drayton Valley • Town of Rocky Mountain House • EPCOR 	<ul style="list-style-type: none"> • Lac Ste Anne County • Parkland County • Sturgeon County • City of Edmonton • City of St. Albert • City of Spruce Grove • Town of Gibbons • Town of Morinville • Town of Onoway • Town of Stony Plain • Village of Alberta Beach • Summer Villages of Lac Ste Anne & County East • Alexander First Nation • Alexis Nakota Sioux Nation • Metis Nation of Alberta • Big Lake Environmental Support Society • Alberta Conservation Association • Wagner Natural Area Society • Alberta Environment and Parks 	<ul style="list-style-type: none"> • Beaver County • Lamont County • County of Minburn • County of Two Hills • County of Vermilion River • Town of Two Hills • Town of Vegreville • Town of Vermilion • Village of Holden • Village of Marwayne • Agriculture and Agri-Food Canada • Alberta Environment and Parks • Alberta Drainage Council • Alternative Land Use Services Canada • Ducks Unlimited Canada • Holden Drainage District • Lakeland College 	<ul style="list-style-type: none"> • Parkland County • Strathcona County • Antler Lake Stewardship Committee • Hubbles Lake Stewardship Society • Jackfish Lake Management Association • Lake Isle Lac Ste Anne Stewardship Association • Mayatan Lake Management Association • Wabamun Watershed Management Council • Wizard Lake Watershed and Lake Stewardship Organization • Lakes of Parkland County Group • Alberta Lake Management Society (ALMS) • Alberta Environment and Parks

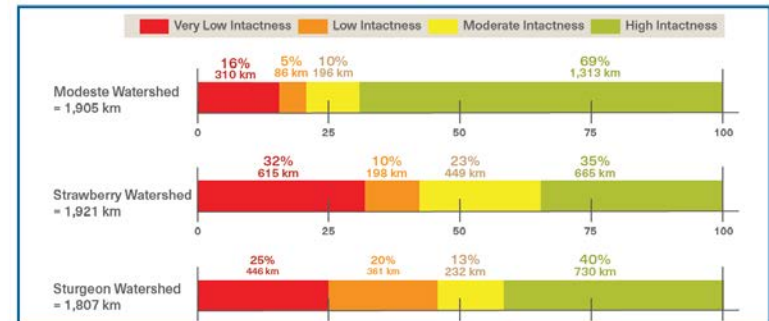


Headwaters Alliance

PILOT PROJECT AREA



Close-up of intactness satellite data



Riparian Health Action Plan

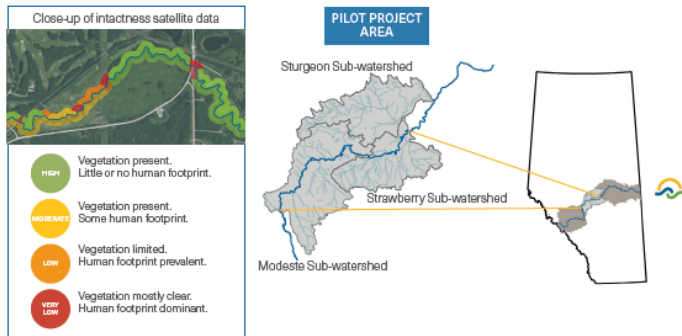
PHASE 1: COLLECTING AND ASSESSING THE DATA

THE 3 TYPES OF DATA COLLECTED WERE:

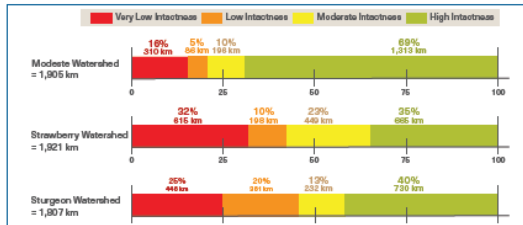
- A **Intactness** of the existing riparian areas
- B **Pressure** on riparian health from adjacent upland areas (human or natural)
- C The combined **Intactness x Pressure** scores = **Conservation or Restoration** priorities

A RIPARIAN INTACTNESS SCORES

Intactness refers to the extent to which natural riparian habitat has been altered by human activity. Using satellite imagery, the assessment focused on how much natural and woody vegetation remain along shorelines of creeks and lakes.



In 2016, The NSWA piloted a project in which a new watershed-scale assessment method was developed by a consultant. This method uses high-resolution satellite data to evaluate condition. This method has now been evaluated by the Government of Alberta.



Many project partners and stakeholders helped fund the data collection:

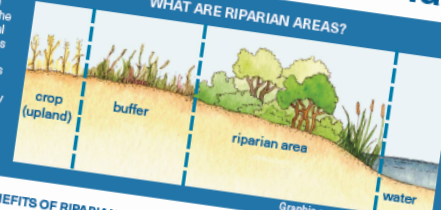


Riparian Health Action Plan



Riparian areas are the transitional green zones between waterbodies and their uplands. They are home to unique soils, plants and animals.

WHAT ARE RIPARIAN AREAS?



BENEFITS OF RIPARIAN AREAS

- Improve water quality** by trapping sediments, filtering nutrients and pollutants, reducing enrichment that leads to increased aquatic plant and algal growth
- Improve biodiversity** by providing fish and wildlife habitat and cooling water temperatures
- Provide aesthetically pleasing areas** for recreation or cultural activities
- Add economic value** by increasing property values or providing areas for nature viewing.
- Mitigate floods and droughts** by storing and slowing the release of water and reducing erosion

Why has the NSWA taken action on riparian areas?

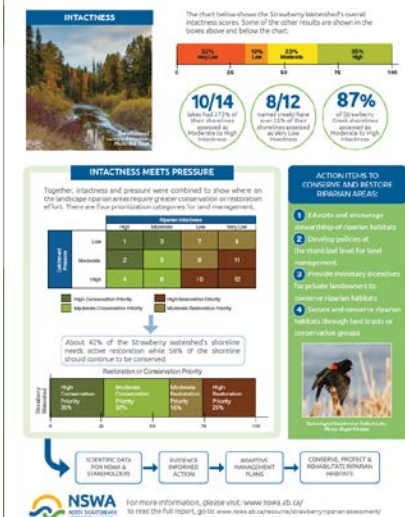
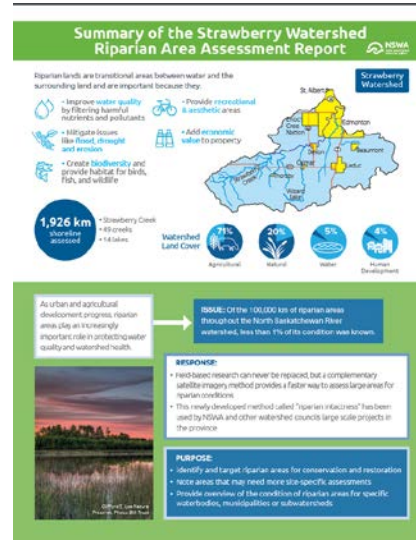
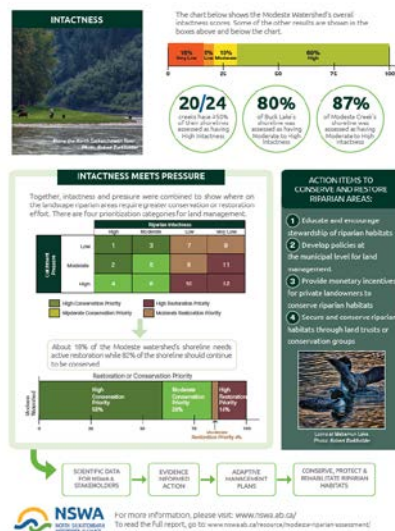
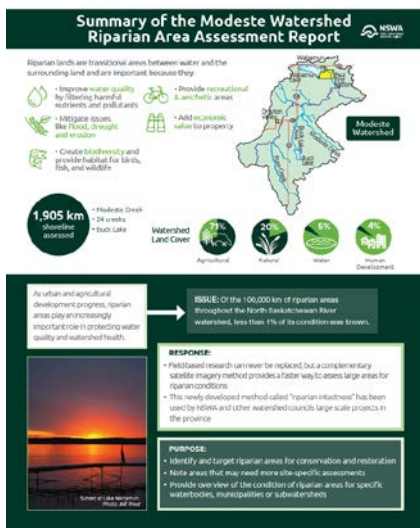
- As urban and agricultural development progress, riparian areas play an increasingly important role in protecting water quality and watershed health.
- While "boots-on-the-ground" field research is critical and can never be replaced, the group recognized the usefulness of remotely-sensed data for large-scale riparian area assessment. These two methods are complementary.

THE ISSUE: Of the 100,000 km of riparian areas throughout the North Saskatchewan River watershed, less than 1% of its condition was known.

CREATING THE RIPARIAN HEALTH ACTION PLAN

- Phase 1** Create an inventory using satellite imagery to create maintain and restore riparian conditions.
- Phase 2** Collaborate with local municipalities and landowners to develop riparian bylaws and guidelines that complement provincial regulations.
- Phase 3** Support programs that enable and assist landowners to retain, restore and replant riparian vegetation on their own land.



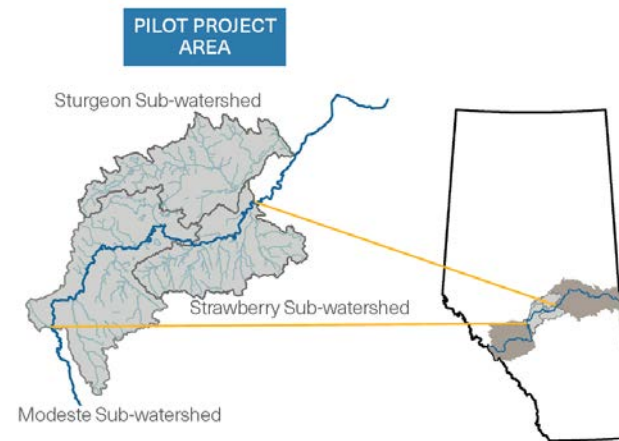


Sub-watershed Report Cards

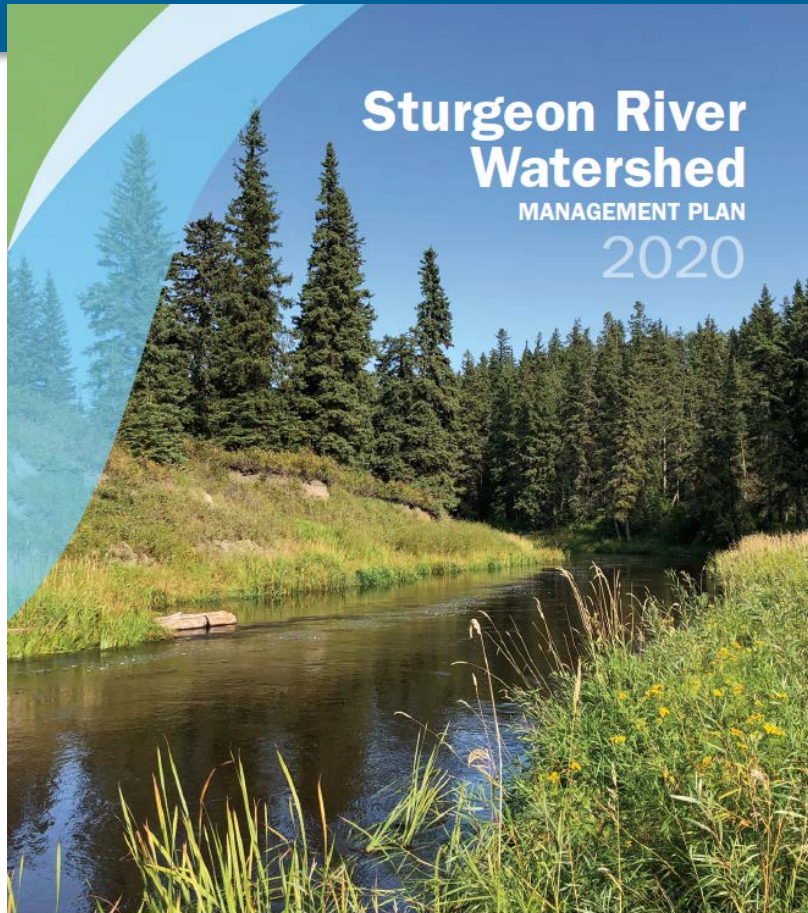


Next Steps

1. Landowner Type Assessment
2. Set-back Calculator
3. Riparian Health Targets
4. Riparian Literature Review
5. Riparian Strategy



Sturgeon River Watershed Alliance



Outcomes

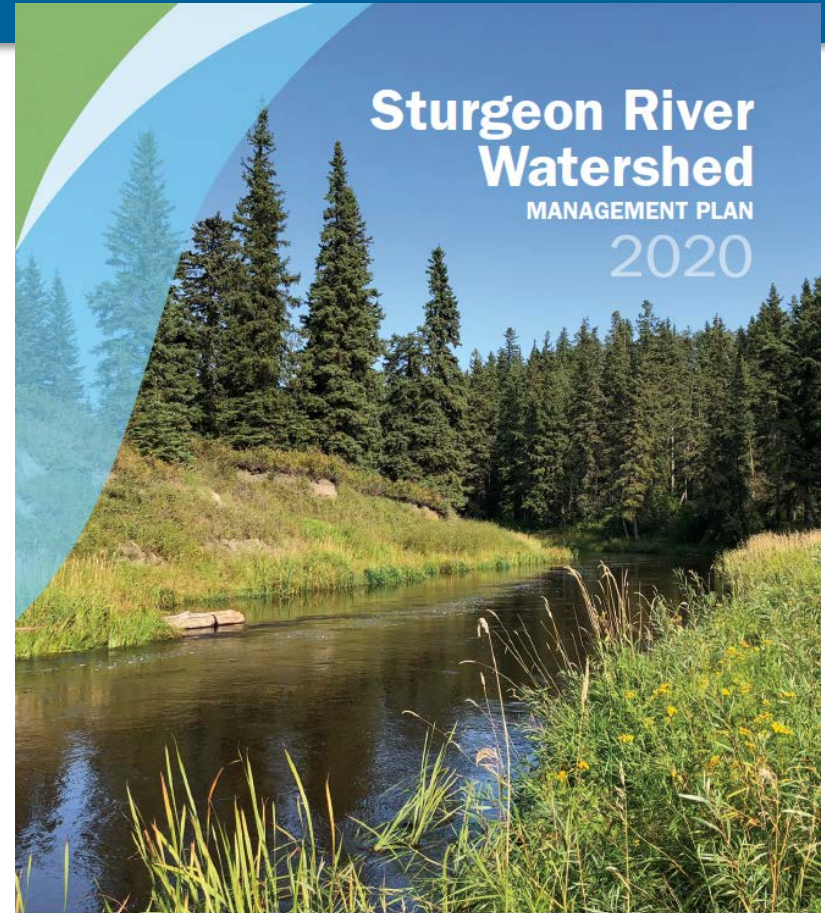
1. Aligned Policies and Plans
2. Safe, Secure Drinking Water Supplies
3. Healthy Aquatic Ecosystems
4. Reliable Water Supplies
5. Wise Land Use
6. Local and Regional Initiatives



Sturgeon River Watershed Alliance

Priorities 2020- 2023

- Riparian and Wetland Conservation and Restoration Strategies
- Water Quality Monitoring Program
- Watershed Planning Alignment and Tools (flood risk areas, riparian setbacks, environmentally sensitive areas, overlay maps)
- Communications and Engagement (Educational forums, workshops, information resources)



Vermilion Watershed Alliance



Vermilion River
WATERSHED ALLIANCE

STRATEGIC PLAN, OPERATING PLAN,
AND BUDGET 2020 – 2023

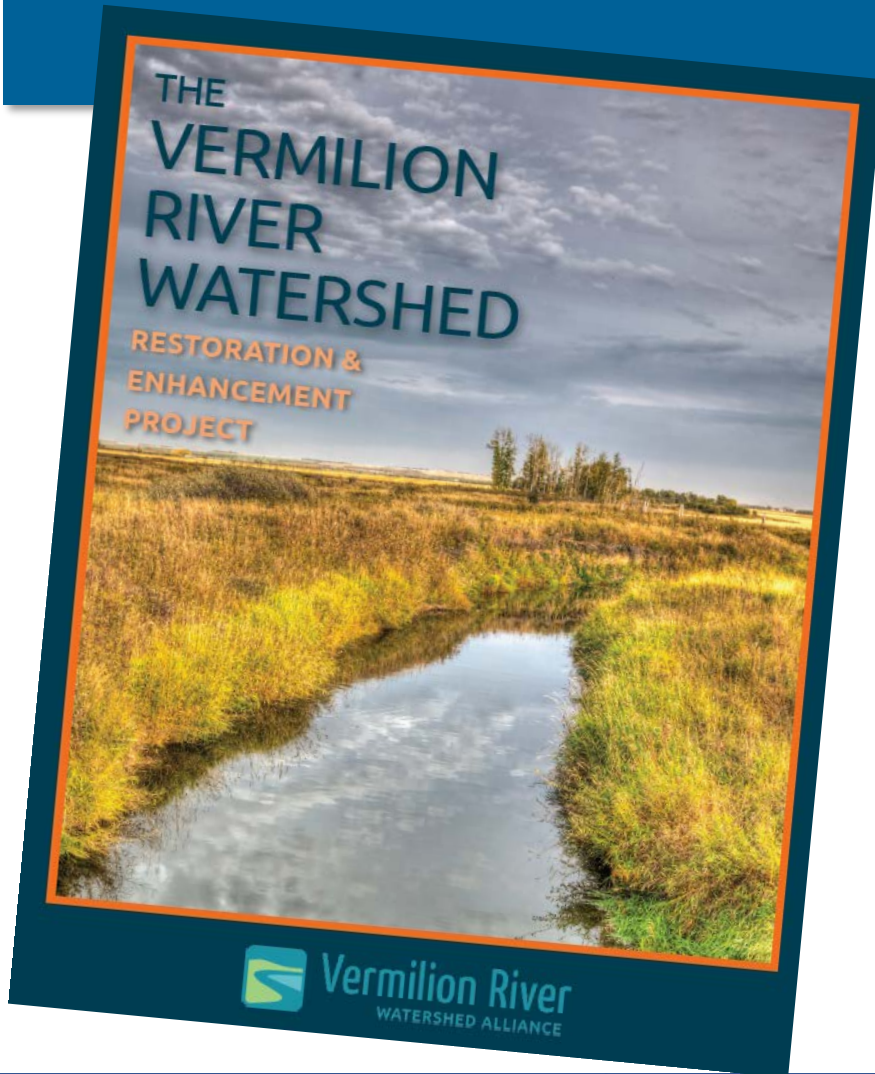



October 2020

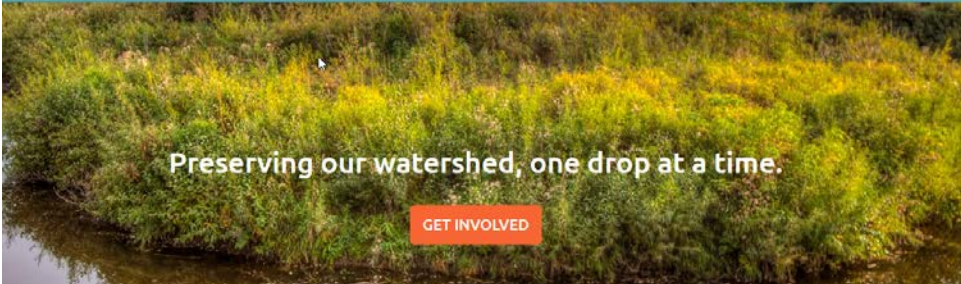
- 1) Develop capacity and knowledge in the watershed*
- 2) Improve reliability of surface water supply*
- 3) Improve and maintain surface water quality*
- 4) Improve and maintain water ecosystem health*
- 5) Protect and sustain groundwater quality and supply*



Vermilion Watershed Alliance




[The Watershed](#) [The Alliance](#) [Projects + Reports](#) [Contact](#) [Blog](#)



Preserving our watershed, one drop at a time.

[GET INVOLVED](#)

Latest Posts




Morecambe Structure and the Two Hills Floodplain: Its History and Operation

November 12, 2020

Above: Map of the Two Hills Floodplain: The Vermilion River moves north from Vegreville before passing through a chain of 8 interconnected lakes, known as the Vermilion Lakes. (Watt Lake to northwest is not shown.) Image adapted from: [googlemaps.ca](#) TWO HILLS FLOODPLAIN: FLAT + ALTERED = FLOODING Low, flat topography of floodplain and shallow depth [...]

[Read More »](#)




Watershed Resilience: What Strategies Work Best?

October 19, 2020

VRWA partnered with ALCES to get a better understanding of which conservation or restoration strategies would have the greatest effect on the Vermilion River watershed's resilience. The ALCES report is summarized in the pages below:

[Read More »](#)



Living with Beavers: How to Co-exist with Nature's Eco Engineer

September 16, 2020

An evolving relationship with a national emblem By the early 1900s, beavers were nearly wiped out in Canada due to the fur trade. As beavers made a comeback in the 1920s and 1930s, their dams spread over the prairie landscape, often creating unwanted flooding for landowners and farmers. It's a complicated relationship with our national [...]

[Read More »](#)



Lake Stewardship Groups

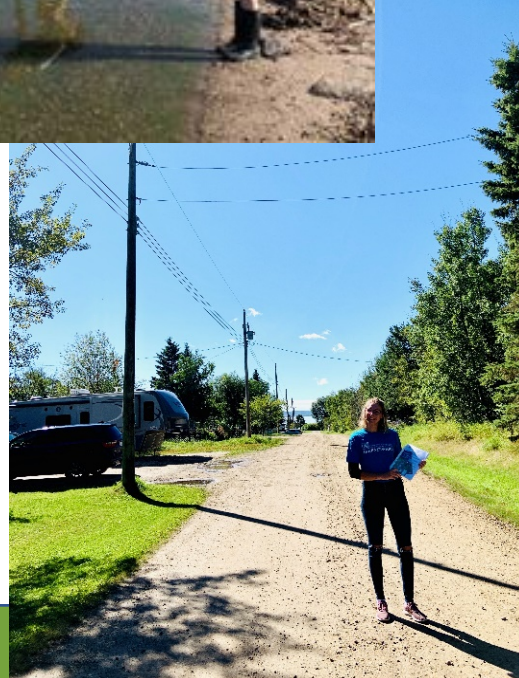


WABAMUN LAKE

DRAFT Watershed Management Plan

Prepared by:
Wabamun Lake Watershed Management Plan
Steering Committee

Draft– June 30, 2020



Lake Stewardship Groups

Isle Lake and Lac Ste. Anne State of the Watershed Report



Purpose and Scope of Report:

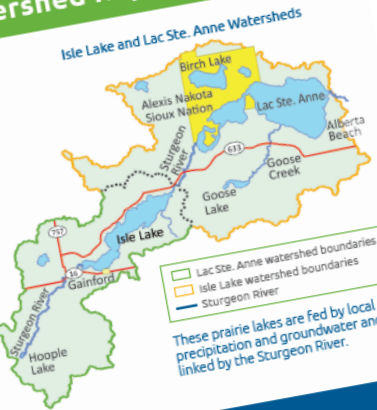
To characterize the environmental state of the lakes based on available information in order to support future watershed planning and initiatives. This included:

- Local history
- Provincial and municipal government policies
- Technical information
- Environmental trends
- Existing data gaps
- Watershed management recommendations

North Saskatchewan Watershed Alliance
Isle Lake and Lac Ste. Anne
State of the Watershed Report



May 2017



Lake Health Metrics

Areas of High Concern for Both Lakes

Watershed Factors



Land Cover altered 25-75% from its natural state

Water Quality



High nutrients = lack of oxygen and algae blooms

Shoreline Factors



Shoreline is 25-75% developed

Areas of Moderate Concern for Both Lakes

Water Quality



Fish kills due to low oxygen levels

Watershed Factors



Water quality of lake tributaries

Areas of High Concern for Isle Lake only

Water Quality



High phosphorus levels

Shape, Size & Hydrology



Shallow water levels



If you see Flowering Rush, don't pull or dig. Report it to: 1-855-336-BOAT (2628) or use EDDMaps Alberta

Invasive Species: Flowering Rush

Flowering Rush is an invasive plant that grows in shallow water

- Spreads rapidly by root fragments and bulbils
- Displaces native vegetation like cattails, sedges and rushes
- Lowers water quality and removes oxygen from the lake, which reduces habitat for fish, waterfowl and aquatic life
- Impedes water flow, interferes with boat propellers and swimming

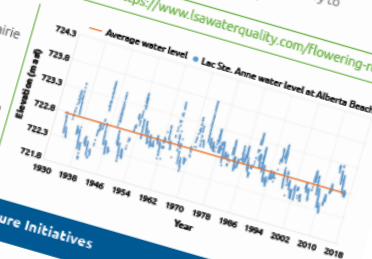
What you can do to stop Flowering Rush from spreading:

- Learn to identify & report it
- Avoid use of chemical fertilizers on lakeside properties
- Clean your boat
- Do not disturb or try to remove it

To learn more, go to: <https://www.isawaterquality.com/flowering-rush>

Lake Levels: Prone to fluctuations

- Both Isle Lake and Lac Ste. Anne are shallow prairie lakes with mean depths of 4 – 5 metres
- Water levels naturally fluctuate between 1.5 to 2.0 metres depending on annual precipitation
- This can create significant shoreline variations from year to year
- Conserving riparian areas along shorelines is critical to reduce erosion and maintain water quality



Suggested Future Initiatives



Educate public about lake issues & stewardship



Encourage participation in stewardship programs



Monitor lake levels in real-time



Monitor lake water quality



Update septic systems to prevent contamination



Evaluate & manage road salt use



Encourage shoreline naturalization



Monitor for invasive mussels & Flowering Rush



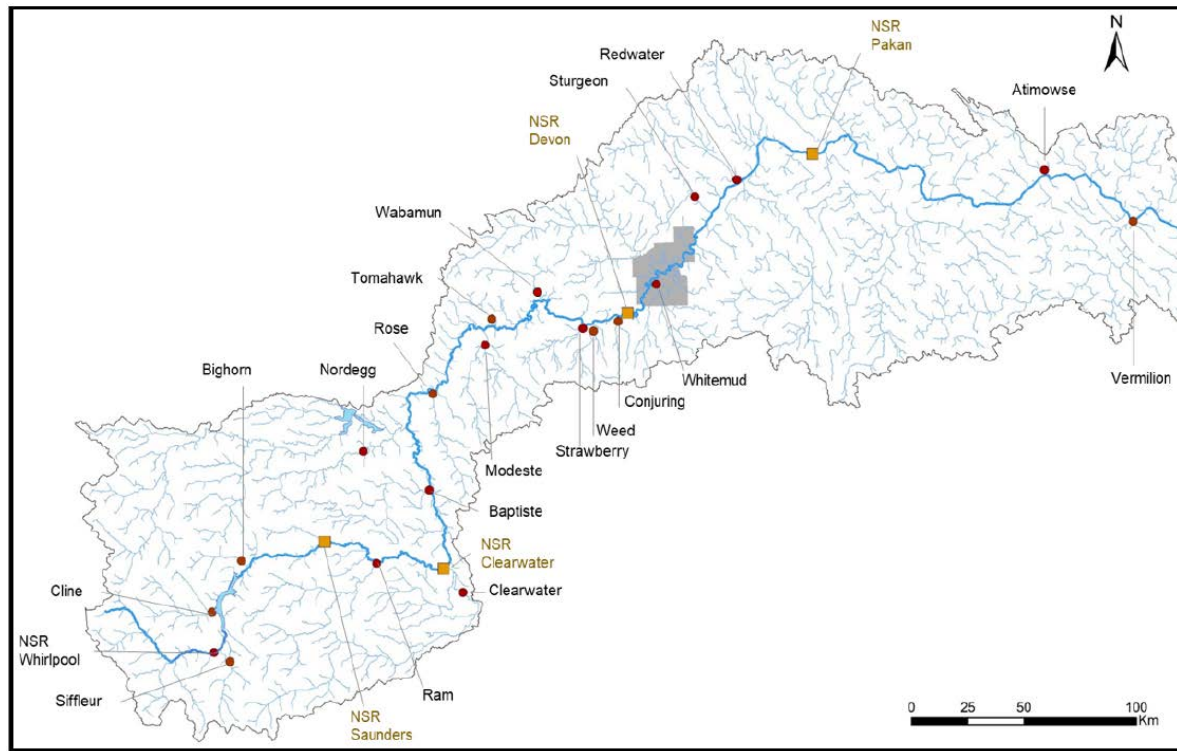
For more information, please visit: www.nswa.ab.ca/
To read the full report, go to: www.nswa.ab.ca/wp-content/uploads/2017/09/LLSA_SOW_May2017_FINAL.pdf



Goal 2

Leadership in Watershed Management

WaterSHED Water Quality Monitoring Project



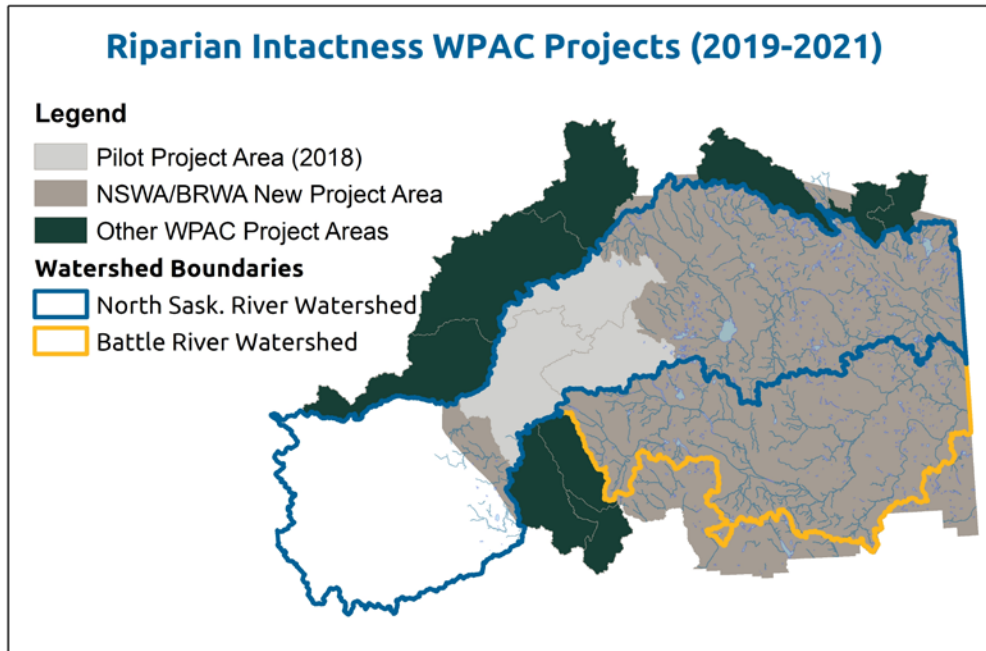
- Four-year program sponsored by EPCOR
- Alberta Environment and Parks, EPCOR and NSWA
- 19 new or upgraded monitoring stations



Goal 2

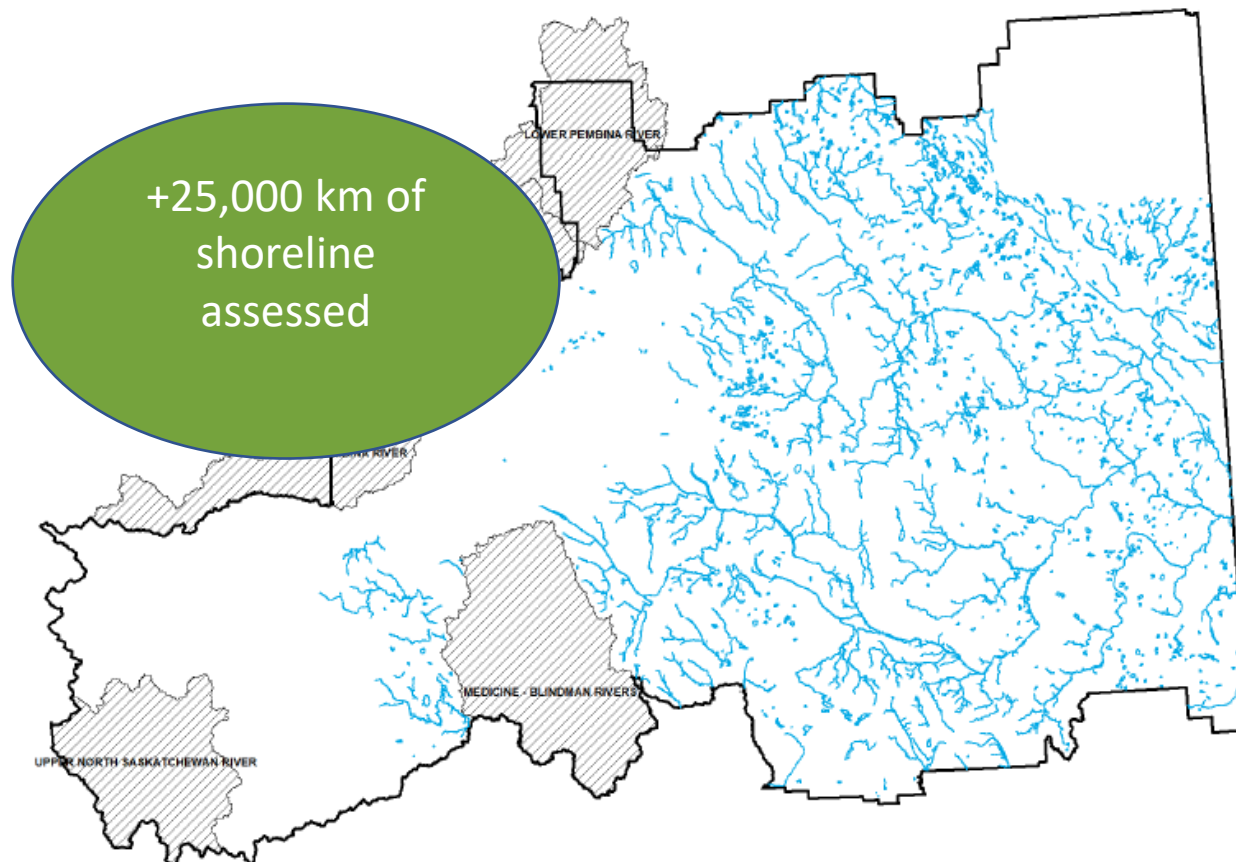
Leadership in Watershed Management

Expanded Riparian Assessment Project



- Five additional subwatersheds
- \$500,000 CAP grant
- \$130,000 WRRP
- Partnership with BRWA
- Three other WPACs using technique

NSWA + BRWA Project



Web-portal



Three key purposes:

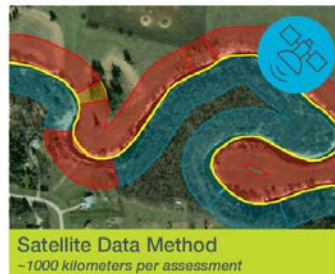
- Riparian data access
- Resources for users
- Projects on the ground



Riparian Web-portal Resources



	Field Based	Aerial Videography	Satellite Data
Assessment Categories	1. Healthy, 2. Healthy but with Problems 3. Unhealthy	1. Good/Healthy, 2. Fair/Moderately Impaired, 3. Poor/Impaired	1. High intactness 2. Moderate intactness 3. Low intactness 4. Very low intactness
Assessed from height of	Eye level	30-80 meters above ground	Low earth orbit
Assessment Width vs Length			
Area Length Covered Per Assessment	Small (up to 1 KM)	Moderate (10-100 KM)	Large (100-10,000+ KM)
Area Width Covered	Actual riparian width (variable)	Fixed width (often 30 meters)	Fixed width (currently 50 m)
Level of detail	Very high	Medium	Medium
Water bodies Covered per assessment	Portion of single water body, entirety if small wetland	Entirety of single water body	Multiple water bodies covered
Assessment personnel	Technical experts; or trained landowners	Technical experts	Technical experts
Recommended Use	Local or property-scale action; combined community-scale action	Community-scale action (e.g. lake stewardship activities)	Municipal, regional, or watershed scale action
Strengths	Ability to observe plant species (including invasive species) and physical features up close; ability to see under tree canopy; ability to combine with landowner engagement & advice	Continuous assessment of a whole lake; provides partial observation under tree canopy; ability to combine with local stewardship group activities	Ability to assess large areas continuously and rapidly; consistency in assessment over large areas and over time if technology remains the same ; ability to combine with watershed health assessment for planning and restoration/conservation prioritization
Limitations	Discontinuous assessment based on landowner participation	Requires access to drone or helicopter; in the case of drone, limited to navigable water bodies; inability to identify plants by species (including invasive species)	Inability to assess under tree canopy; inability to identify plants by species (including invasive species); requires access to satellite data
Cost Estimate*	~\$2,500 per 1 KM	~\$40,000 per 100+ KM	~\$70,000 per 1000+ KM



Assessment area increases
Cost per kilometer decreases



Ability to observe detail (resolution) increases
Ability to engage landowners increases



Goal 3

Watershed Knowledge Sharing










JIM DUNCAN
Councillor, Clearwater County



Goal 3


Watershed Knowledge Sharing





Celebrating 20 Years of Watershed Management

IN STREAM Newsletter
OCTOBER 2020



WHERE in the Watershed is this?

One bridge in the watershed...but where? The first person to correctly identify where in the watershed this photo was taken will win a copy of *Living in the Shed* - send your guesses to water@nswa.ab.ca

WE NEED YOUR INPUT!

NSWA 2019 - 2020

- 4,000+ visitors virtual media
- 2 Summer Stables
- 28 events
- 17 communities
- 7 Subwatersheds
- 3 Subwatershed Alliances
- 33 Municipalities
- 11 Non-Governmental Groups
- 5 Government Agencies
- 2 Educational Forums attended by 200+ people
- Meetings with Watershed Leaders
- 70+ hours of education, training, seminars, field trips, meetings, etc.
- Over 50 watershed reports available on NSWA website
- 100+ newsletter subscribers
- 100+ monthly media club

Fill out our short NSWA Communications Survey about ways we share information with you and how we can improve. Thanks for taking the time to help us out!

SURVEY



Fun Polling Question

- Did you learn something new about NSW from our *Knowledge in Know-vember session*?



Knowledge in Know-vement

What's Going On



CITIZEN SCIENCE AND VOLUNTEERISM

NEWS



OCT 2020 NEWSLETTER

Newsletter



RIPARIAN PLANT WORKSHOP NOV 18

Event



KNOW-VENTER SPEAKER SERIES

Event and Forum

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Knowledge in Know-vement



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**WATERSHED
MANAGEMENT PLANS**



STUDIES/ REPORTS



PRESENTATIONS



NEWSLETTERS



Knowledge in Know-vement

Thank you for joining us!

nswa.ab.ca

