



Carrot - Saskatchewan River

Integrated Watershed Management Plan

A Summary of Watershed Values



INTRODUCTION

The purpose of the Carrot-Saskatchewan River Integrated Watershed Management Plan (IWMP) is to positively influence land and water management, with a focus on protecting water, aquatic ecosystems and drinking water sources in the Carrot-Saskatchewan River Watershed.

The IWMP was developed as a partnership between Kelsey Conservation District, Manitoba Sustainable Development, Indigenous communities, local government, community stakeholders and watershed residents. Together these groups established watershed values and key recommendations for the Carrot-Saskatchewan River IWMP. This IWMP was completed in 2015 and includes watershed goals and actions for the next 10 years.

Cranberry Portage

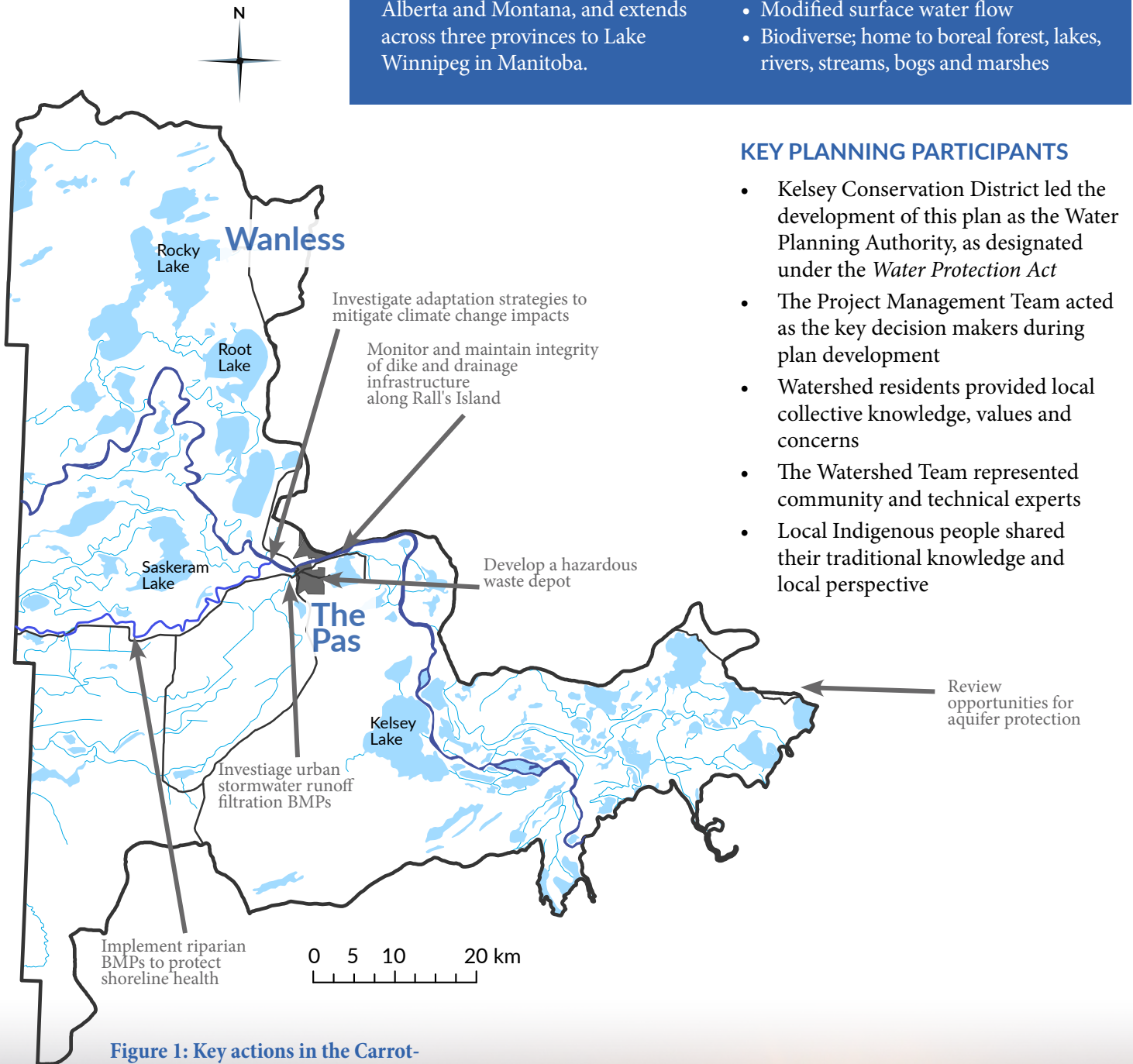


Provide signage and information on aquatic invasive species

FEATURES OF THE CARROT-SASKATCHEWAN RIVER WATERSHED

The Carrot - Saskatchewan River Watershed is comprised of the Manitoba portion of the larger Saskatchewan River Basin, which begins in the Rocky Mountains of Alberta and Montana, and extends across three provinces to Lake Winnipeg in Manitoba.

- 4,821 km² in size
- Home to 11,000 people
- Very flat topography
- Surface water quality rated as “good” and occasionally “fair”
- Modified surface water flow
- Biodiverse; home to boreal forest, lakes, rivers, streams, bogs and marshes



KEY PLANNING PARTICIPANTS

- Kelsey Conservation District led the development of this plan as the Water Planning Authority, as designated under the *Water Protection Act*
- The Project Management Team acted as the key decision makers during plan development
- Watershed residents provided local collective knowledge, values and concerns
- The Watershed Team represented community and technical experts
- Local Indigenous people shared their traditional knowledge and local perspective

Figure 1: Key actions in the Carrot-Saskatchewan River Watershed



UPSTREAM E.B. Campbell Hydroelectric Station



FEATURES OF THE WATERSHED

The Carrot-Saskatchewan River Watershed has been modified internally by a system of intensive diking and pumping which has changed local flow regime. Outside of the watershed, there are two large hydroelectric power dams that impact water levels and flow within the Carrot-Saskatchewan River Watershed.

SASKATCHEWAN RIVER DELTA

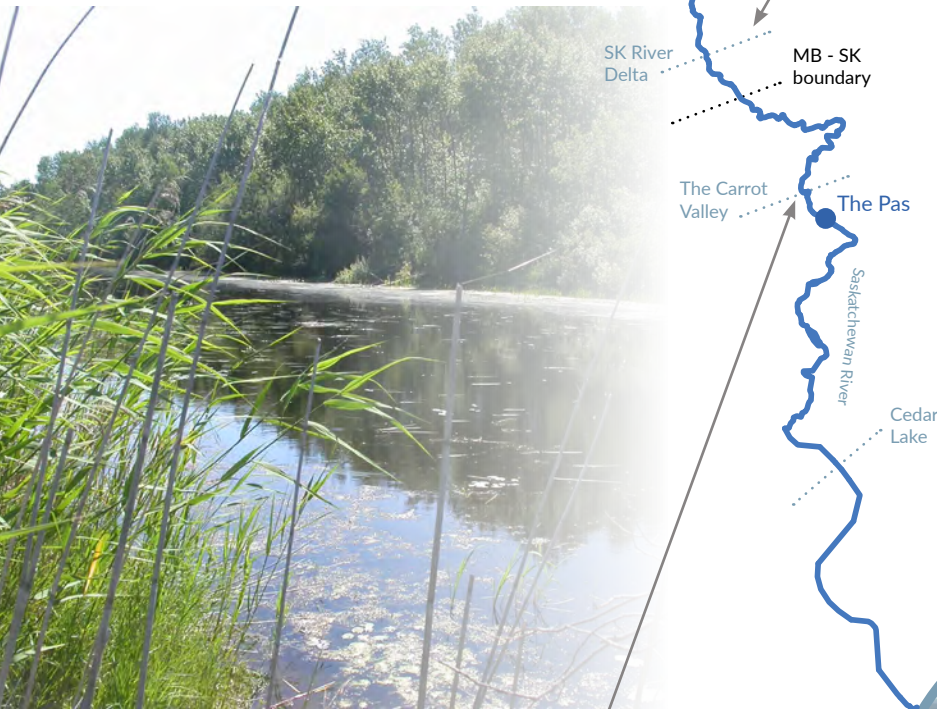
The Carrot - Saskatchewan River Watershed is home to the Saskatchewan River Delta, one of the largest freshwater deltas in North America. The delta is:

- Located along the Saskatchewan River near The Pas
- Very biologically diverse
- Recognized as a Canadian Important Bird Area

SURFACE WATER QUALITY

The Water Quality Index (WQI) incorporates 25 variables to summarize water quality data into categories of excellent, good, fair, marginal and poor. WQI analysis from 2003 to 2011 categorizes the Saskatchewan River as typically 'good' and occasionally 'fair'.

DOWNSTREAM Grand Rapids Generating Station



AGRICULTURE IN THE WATERSHED

- Most northern extent of annual cropland and livestock pasture in Manitoba
- Dependent on a modified surface water regime using diking and pumping for agricultural flood protection
- Extended growing season compared to southern Manitoba, with an additional 10 growing days due to longer summer days

DEFINING WATERSHED VALUES

To clearly identify values and concerns of the watershed, the project management team met with stakeholder groups to identify and prioritize local land and water issues of importance to them. Individual concerns, traditional knowledge, and technical submissions have shaped development of three watershed values for this plan.

3 Watershed Values

- Surface Water Fluctuations
- Water Quality
- Ecosystem Health

WATERSHED VALUE STATEMENTS

Surface Water Fluctuations	Water Quality	Ecosystem Health
We value the management of surface water and its associated infrastructure for flood and drought protection and successful agriculture locally.	We value clean water for drinking water needs and recreational purposes. Clean water sustains healthy communities and our natural ecosystem.	We value natural habitat sustainability and biodiverse areas. We recognize the need for strong programming to protect the integrity of natural areas and mitigate against impacts from development and industry.

KEY CHALLENGES

Surface Water Fluctuations	Water Quality	Ecosystem Health
<ul style="list-style-type: none"> • The watershed is highly modified and certain areas are dependent on the operation of water control structures for flood protection • Poor drainage due to very little slope, causing flooding of residential and agricultural areas • Jurisdictional differences in the management of water flows between provincial boundaries 	<ul style="list-style-type: none"> • Balancing recreational use of lakes, wetlands and waterways with drinking water and ecosystem needs • Land use activities, including industry, development and agricultural activities may impact surface water quality 	<ul style="list-style-type: none"> • Surface water flows in the Saskatchewan River Delta have been altered by water control structures, impacting aquatic health • Movement of aquatic invasive species into the watershed

KEY ACTIONS

Surface Water Fluctuations	Water Quality	Ecosystem Health
<ul style="list-style-type: none"> • Improve inter-provincial communication and cooperation between the non-profit watershed associations in MB and SK • Encourage improved coordination of water level and flow projections between MB and SK during critical periods, specifically at times of flooding • Investigate adaptation strategies to mitigate potential climate change impacts, including more extreme weather events, increased flows, agricultural impacts and infrastructure considerations 	<ul style="list-style-type: none"> • Seal abandoned wells within the watershed • Review opportunities for aquifer protection for Moose Lake and Opaskwayak Cree Nation • Develop a hazardous waste depot within the watershed • Assess urban storm water runoff concerns in the Town of The Pas and prepare storm water filtration options, including rain gardens and urban wetlands • Seed severely saline areas to provide cover on these sensitive sites 	<ul style="list-style-type: none"> • Recommend a boat wash station at the junctions of highway 6 and 60, and 10 and 60 • Support the Lake Sturgeon Management Board in long-term recovery planning for sturgeon in the Saskatchewan River • Implement and promote a composting program • Promote and encourage sustainable eco-tourism activities within the watershed



INDIGENOUS COMMUNITIES

Indigenous people throughout the watershed believe that an integrated watershed management plan is important to engage and fully inform those with an interest in the Carrot and Saskatchewan Rivers, and their tributaries. Integrated approaches foster information sharing, informed decision making and offer opportunity for the sustainable management of all land and water resources within the watershed, including reserve lands and traditional territories.

Local Indigenous people from Opaskwayak Cree Nation, Mosakahiken Cree Nation and the Northern Affairs community of Moose Lake have been involved throughout development of this IWMP. Traditional knowledge and valuable insight supported key action development of this plan, including aquifer protection targets, climate change adaptation considerations and Traditional Knowledge incorporation into development planning for future sustainable development efforts.

A TRADITIONAL VIEW OF THE WATERSHED

The Saskatchewan River is one of the main waterways for Aboriginal people in this area and as such holds an important place in their traditional way of life. Aboriginal people of the watershed value water as it provides the source of all life and is critical for continuing local traditional practices. Historical knowledge passed down through Elders emphasizes the need to protect water quality as a source for clean drinking water, plentiful fishing resources, and other cultural and traditional uses.

Aboriginal people have fished and travelled the Saskatchewan River and its tributaries for many years. Elders cite concerns today of decreased natural flows due to dam development holding water and diminishing recharge, specifically in the Saskeram area. Disrupted natural flows can accelerate erosion and sedimentation, impacting fish habitat and spawning opportunities. Concerns are that fish populations may be further impacted if measures are not taken to maintain appropriate aquatic habitat in these areas.

Elders have fond memories of growing up along the Saskatchewan River; here they caught many species of fish, and drank water directly from local springs and the river. They remember using the ice beneath the muskeg into the late summer months as natural refrigerators. The Saskatchewan River and surrounding area is part of their traditional territory and they wish to preserve it for their children and future generations.



SOURCE WATER PROTECTION PLAN

The Carrot - Saskatchewan River IWMP includes a source water protection plan to protect drinking water sources in the watershed. Four provincially-regulated municipal drinking water systems and two federally-regulated drinking water systems were assessed separately, and full assessments and recommendations are listed in the IWMP.

Key recommendations include:

- Sealing abandoned wells
- Protecting wellhead sites for groundwater sources
- Educating residents regarding proper maintenance of septic system holding tanks
- Conducting source water assessments for the Opaskwayak Cree Nation and Mosakahiken Cree Nation public drinking water sources



SURFACE WATER MANAGEMENT PLAN

The Carrot - Saskatchewan River IWMP includes a surface water management plan that strives to:





- Reduce or prevent flooding
- Consider aquatic health and water quality
- Realize potential climate change impacts
- Identify recreational opportunities

To address the various local challenges and landscape features, four surface water management zones were designated for the watershed.

Source Water Protection Zones

-  Groundwater source water protection zone
-  Surface source water protection zone

Surface Water Management Zones

-  Cranberry Portage
-  Summerberry / Lower Saskatchewan River Delta
-  Wanless / Saskeram
-  Carrot Valley

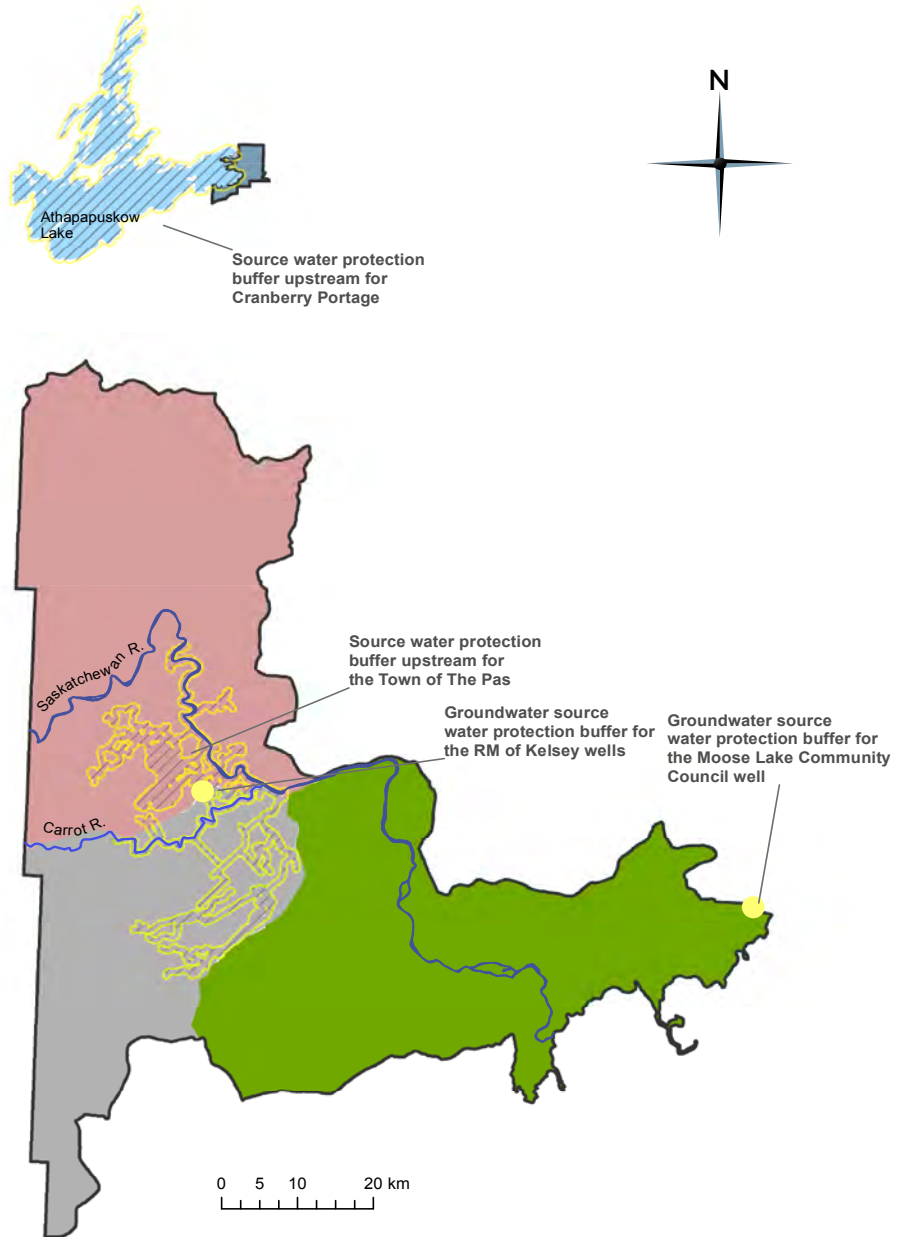


Figure 3: Surface Water Management and Source Water Protection Zones of the Carrot-Saskatchewan River Watershed



The Kelsey Conservation District is a non-profit organization governed by a local board and funded through a provincial-municipal partnership. The district has a mandate to address watershed issues and offers incentive-based programming to improve soil and water quality, aquatic and riparian health, and provide educational programming.

Please contact the Kelsey Conservation District if you would like more information or to get a copy of the Carrot-Saskatchewan River Integrated Watershed Plan.

Kelsey Conservation District

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