

A collage of five diamond-shaped images: a river valley, a cow, a bird in a nest, a fence, and a Lacombe County sign. The text "STATE OF THE ENVIRONMENT" is in a large, bold, dark grey sans-serif font, with "2020-2025" in a smaller, blue sans-serif font inside a light blue rounded rectangle, and "REPORT" in a large, bold, dark grey sans-serif font.

STATE OF THE ENVIRONMENT 2020-2025 REPORT

5-YEAR SUMMARY REPORT

2020 TO 2025

State of the Environment Report



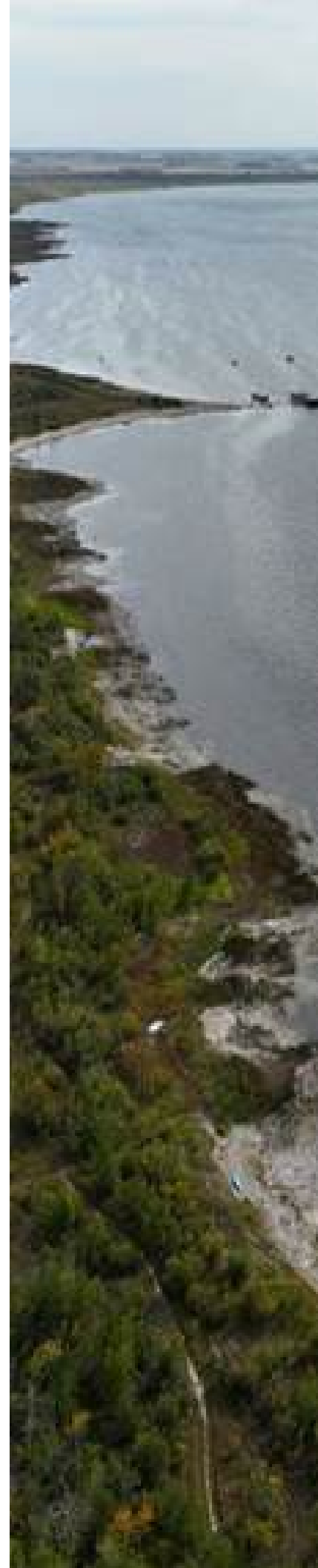
Lacombe County would like to acknowledge the contributions of the following people in preparing this report on the state of the environment:

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- Alberta Biodiversity Monitoring Institute (ABMI)
- Alberta Environment and Protected Areas (EPA)
- CreekWatch
- Medicine River Watershed Society (MRWS)



TABLE OF Contents

Introduction.....	6
Municipal Operations.....	7
Community Services.....	7
Environmental Services.....	7
Environmental Management Plan Priority Areas.....	7
Municipal Policies and Bylaws.....	11
Environmental Policy (Policy AD(32)).....	11
Environmental Community Engagement (Policy AD(33)).....	11
Use and Management of County Reserve Lands.....	14
Environmental Legislation.....	15
Agriculture Services.....	17
Weed Control.....	17
Sea Buckthorn Control Program.....	18
Agricultural Plastics Recycling.....	18
River Weed Inspection.....	18
Operations.....	19
Crooker Wetland.....	19
Lake Access.....	20
Environmental Mitigations.....	21
Planning Services.....	22
Municipal Development Plan and Land Use Bylaw.....	22
Burns Nature Park.....	25
Long Range Planning.....	26
Our Environment.....	28
Lacombe County Initiatives.....	28
Solar Production.....	28
Biodiversity and Wildlife Monitoring.....	29
Chronolog Time-Lapse Photography.....	30
Lacombe County Environmental Photo Contest.....	31
Climate Adaptation and Mitigation.....	32
Regional Environmental Indicators.....	33
Alberta Biodiversity Monitoring Institute.....	33
Ecosystem Health Program.....	33
Human Footprint.....	37
Riparian Health.....	38
Our Lakes.....	39
Buffalo Lake.....	40
Gull Lake.....	41
Lacombe Lake.....	43
Sylvan Lake.....	44
Riparian Intactness – Named Lakes: Lacombe County.....	46
Our Rivers.....	47
Blindman River.....	49
Medicine River.....	52
Red Deer River.....	56
Glossary.....	60
Works Cited.....	61



TABLES & Figures

Tables

• Table 1: Environmental Legislation Relevant to Municipal Operations.....	15
• Table 2: Species captured on Remote Cameras Deployed within Lacombe County by the ABMI.....	34
• Table 3: Species Presence within Lacombe County Recorded and Collected by the AMBI.....	35

Figures

• Figure 1: Outcome Hierarchy for Evaluation of Environmental Management.....	9
• Figure 2: Solar Power Produced by Lacombe County Facilities (2016- mid-2025).....	28
• Figure 3: Riparian area extent adjacent to a body of water. Credit: Cows & Fish.....	38
• Figure 4: Riparian Intactness within Lacombe County (RWP c2020)	38
• Figure 5: Water levels, measured in metres above sea level, of Buffalo Lake from 1965 to 2024 (GoC 2025)	40
• Figure 6: Water levels, measured in metres above sea level, of Gull Lake from 1924 to 2024 (GoC 2025)	42
• Figure 7: Water levels, measured in metres above sea level, of Sylvan Lake from 1918 to 2024 (GoC 2025).....	44
• Figure 8: Riparian Intactness of Named Lakes within Lacombe County (RWP 2021).....	46
• Figure 9: Proportions of Riparian Intactness by Named Lakes, within Lacombe County (RWP 2021).....	47
• Figure 10: Map showing the extent of the Blindman Riparian Assessment (Fiera Biological Consulting Ltd. 2018).....	49
• Figure 11: Proportion of bank assigned to each riparian intactness category, summarized by municipality (Fiera Biological Consulting Ltd. 2018).....	50
• Figure 12: Fecal coliforms detected during water sampling events from 2013 to 2025. Greatest detection occurred on June 20, 2023, with 1400 coliforms detected in 100 mL of sampled water. Water quality guidelines for the protection of agricultural water uses have a set criterion of 100 coliforms/100 mL (shown in red above), which has been exceeded within the Blindman River (GoA c2018).....	50
• Figure 13: Total recoverable arsenic concentrations detected during water sampling events from 2016 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 5 µg/L (shown in red above), which is exceeded on occasion within the Blindman River (GoA c2018).....	51
• Figure 14: Dissolved oxygen concentrations recorded during water sampling events from 2013 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 6.5 mg/L shown in red above) (GoA c2018). Dissolved oxygen concentrations dip below the set criterion seasonally, with the most common occurrences during the winter months.....	51
• Figure 15: Riparian Intactness of the Medicine River across all municipalities..... (Fiera Biological Consulting Ltd. 2020).	52
• Figure 16: Riparian Intactness of the Medicine River within Lacombe County..... (Fiera Biological Consulting Ltd. 2020).	52
• Figure 17: Medicine River Riparian Intactness from South of Highway 53 to North of Highway 11 (RWP c2020).....	53
• Figure 18: Relationship between temperature and dissolved oxygen concentrations within the Medicine River (RiverWatch c2025). Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 6.5 mg/L shown in red above) (GoA c2018). In general, higher water temperatures resulting in lower dissolved oxygen concentrations.....	54

TABLES & Figures

Figures (continued)

- **Figure 19:** Fecal coliforms detected during water sampling events from 2016 to 2025. A sampling event from May 27, 2013, greatly skewed the dataset with 2900 coliforms detected in 100 mL of sampled water. As a result, data presented within the chart above was reduced to 2016-2025 sampling events. Water quality guidelines for the protection of agricultural water uses have a set criterion of 100 coliforms/100 mL (shown in red above), which has been exceeded within the Medicine River (GoA c2018)..... 55
- **Figure 20:** Total recoverable arsenic concentrations detected during water sampling events from 2016 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 5 µg/L (shown in red above), which is rarely exceeded on within the Medicine River (GoA c2018)..... 55
- **Figure 21:** Mean Annual Water Yield (%) of the Red Deer River Watershed (O2 Planning + Design Inc. 2013)..... 56
- **Figure 22:** Red Deer River watershed management zones (RDRWA 2025)..... 57
- **Figure 23:** Fecal coliforms detected during water sampling events from 2013 to 2025. A sampling event from May 8, 2017, had the largest detection with 136 fecal coliforms in 100 mL of sampled water. Water quality guidelines for the protection of agricultural water uses have a set criterion of 100 coliforms/100 mL (shown in red above), which has been exceeded within the Medicine River (GoA c2018)..... 58
- **Figure 24:** Total recoverable arsenic concentrations detected during water sampling events from 2013 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 5 µg/L (shown in red above), which is rarely exceeded within the Red Deer River (GoA c2018)..... 58
- **Figure 25:** Dissolved oxygen concentrations recorded during water sampling events from 2014 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 6.5 mg/L shown in red above) (GoA c2018). Dissolved oxygen concentrations within the Red Deer River remain stable year-round..... 59



Introduction

The State of the Environment (SOE) report is an important tool for Lacombe County, which provides a summary of the current environmental conditions and stressors within the community. The report serves to examine and summarize the state of the environment within Lacombe County through both scientific and socio-economic lenses. An annual SOE commenced in the winter of 2013, which served as a comprehensive summary of all internal and external data sets. Subsequent annual reports followed from 2014 through 2018.

The second iteration of Lacombe County's Environmental Management Plan (EMP) was released in 2021. This EMP serves to shape and guide Lacombe County's functions, including strategic planning. The EMP provides guidance related to environmental management and ensures Lacombe County's activities and operations take environmental management into consideration. The EMP highlights five priorities, which include the following:

1. Energy Efficiency
2. Waste Creation and Disposal
3. Land Use in the Built and Natural Environment
4. Water Quality and Security
5. Climate Change Adaptation and Mitigation

These priorities were selected with the objective of improving Lacombe County's internal performance within each respective category, with the goal of maintaining high standards for environmental stewardship.

The EMP specifies the revised reporting schedule of the SOE reports, with a comprehensive report to be published every five years. This reporting frequency was selected to allow for a comprehensive summary of all environmental policies and bylaws, and environmental activities and initiatives. The SOE report serves to evaluate and reflect on the five priorities identified within the EMP. As a result, the EMP and the collective SOE report demonstrate Lacombe County's continued commitment to a sustainable and vibrant environment.



The Environmental Management Plan and the collective State of the Environment report demonstrate Lacombe County's continued commitment to a sustainable and vibrant environment.



MUNICIPAL Operations

Community Services

Lacombe County's Community Services Department provides our community with various critical municipal services aimed at improving the quality of life of residents, both directly and indirectly.

Environmental Services

Environmental Services facilitates environmental initiatives with the goal of promoting sustainability, environmental stewardship, and environmental awareness within the broader community. It also oversees environmental compliance within all Lacombe County activities and operations.

The goal of Environmental Services is to ensure that Lacombe County continues to advance as an environmentally conscious and responsible organization.

Environmental Management Plan Priority Areas

Lacombe County's Environmental Management Plan (EMP) is the cornerstone document that guides environmental stewardship and sustainable development within Lacombe County. The 2021–2026 EMP reflects the County's commitment to dynamic, actionable, and adaptive management practices that address environmental challenges and integrate sustainability into municipal operations. It is aligned with Lacombe County's Strategic Plan, supporting sustainable development, environmental stewardship, and advancing a proactive approach to addressing key environmental challenges. The EMP builds on the County's mission of fostering a vibrant community through leadership and innovation.

The EMP identifies five key environmental management priorities, each with specific goals and targets for ongoing improvement. **These five key environmental management priorities are:**

**1. ENERGY
EFFICIENCY**



**2. WASTE CREATION
& DISPOSAL**



**3. LAND USE IN THE
BUILT & NATURAL
ENVIRONMENT**



**4. WATER QUALITY
& SECURITY**



**5. CLIMATE CHANGE
ADAPTATION &
MITIGATION**



The State of the Environment reporting is mandated within the EMP, which exemplifies Lacombe County's commitment to environmental management through intentional and long-term changes enacted through meaningful policies and/or initiatives. Lacombe County's environmental management is evaluated through an "outcome hierarchy" detailing the needs, activities, immediate outcomes, intermediate outcomes, and ultimate outcomes of each priority area. This approach ensures that Lacombe County will remain a leader among rural municipalities, offering transparency on the progress of environmental management to elected officials, residents, and the general public.

Outcome Hierarchy

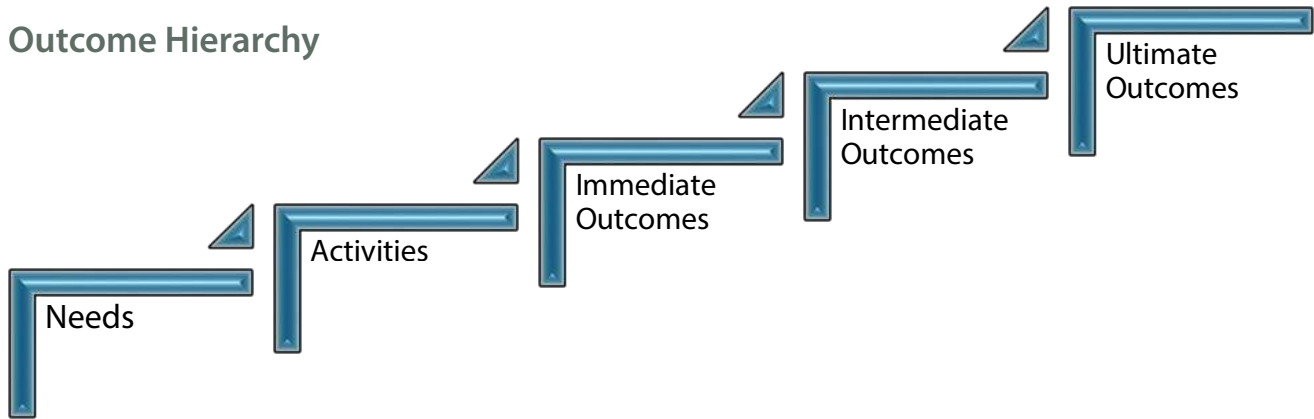


Figure 1: Outcome Hierarchy for Evaluation of Environmental Management

Projects and initiatives undertaken between 2020 and 2025 are outlined below.

Energy Efficiency

- Installed of a 115 kilowatt-peak solar array on the County Shop roof.
- Conducted a energy audit of the Lacombe County Office.
- Replaced of overhead door seals and Metal Halide exterior lighting with LED lighting.
- Expanded solar arrays on the Tees and Rainy Creek Shops to completely offset the annual electricity consumption of both facilities.

Waste Creation and Disposal

- Completed a guide to aid procurement of sustainable items.
- Set up ongoing collection of organic waste for composting in a 3-season outdoor composting unit.
- Eliminated single-use water bottles in the County Office and provided staff with the opportunity to purchase County-branded reusable water bottles.
- Further reduced single-use products in municipal operations and events, through the purchase of reusable plates and cutlery.

Land Use in the Built and Natural Environment

- Planted native trees, shrubs, and grasses at the Crooker constructed wetland.
- Planted trees at Burbank Campground and at various reserve parcels.
- Planted native grasses and wildflowers at Ray's Pond.
- Established an annual Environmental Stewardship Award to recognize a Lacombe County resident or local stewardship organization.
- Established and monitored 10 nest boxes, and placed two bat houses.
- Implemented the Resident Environmental Sustainability Program to cost-share purchases with sustainability in mind.
- Created the Abma Pit Reclamation Community Engagement and Concept Plan.

Water Quality and Security

- Performed wetland assessments adjacent to Lacombe County road construction projects to mitigate where possible and off-set impacts.
- Enhanced and monitored the Crooker constructed wetland.
- Developed the Lacombe County Drought Management Plan.
- Investigated the potential for rain water capture and use at Lacombe County facilities.
- Develoed a biobed herbicide rinsate treatment system to filter and break down pesticide rinsate.
- Hosted "The Wonderful World of Wetlands" to educate youth about the function of wetlands.
- Monitored, maintained, and enhanced reserve lands, with a focus of environmental reserves adjacent to major waterbodies.

Climate Change Adaptation and Mitigation

- Completed a Lacombe County energy profile and trend analysis as part of the Municipal Energy Champion Program.
- Established system to Track and report carbon footprint of Lacombe County's fuel consumption.
- Completed natural asset inventory.
- Enrolled two staff members in Climate Resiliency and Adaptation Training.

The projects and initiatives outlined on the previous page illustrate Lacombe County's commitment to the key environmental management priority areas outlined within the Environmental Management Plan. The perceived impact of these projects and initiatives is summarized below within an outcome hierarchy.

Needs

- Promote sustainable waste, land, and water management while protecting ecosystems, mitigating climate risks, and addressing resource challenges, ensuring long-term resilience for current and future generations.

Activities

- Advance sustainability in Lacombe County by reducing energy use and waste, protecting wetlands and other natural assets, and fostering environmental stewardship through County operations, staff education, community collaboration, and climate action initiatives.

Immediate Outcomes

- Lacombe County is advancing meaningful environmental management by implementing renewable energy projects such as solar PV installations, engaging staff in energy-saving and waste-reduction practices, and replacing disposable items with reusable alternatives.
- The County has also supported the redirection of organic materials from landfills, water-saving initiatives through rain capture, and the planting of native trees and shrubs.
- Efforts to protect and restore ecosystems include habitat enhancements, planting native species, and undertaking strategic tree planting to improve biodiversity, create habitat, and strengthen carbon sequestration.
- These initiatives reduce municipal carbon emissions, conserve natural resources, and build a more sustainable and resilient future for Lacombe County.

Intermediate Outcomes

- Lacombe County is strengthening its environmental management by improving energy efficiency in facilities, reducing fuel use in the fleet, adopting better waste and herbicide disposal practices, and advancing water conservation and land enhancement projects.
- At the same time, residents are encouraged to support these efforts by adopting reusable alternatives, participating in water-saving initiatives, and engaging in educational programs on various topics including wetland education and environmental stewardship.
- Together, staff and residents are helping to protect natural systems and ensure the long-term health of the County's land and water resources.

Ultimate Outcomes

- Lacombe County strives to be a leader in environmental management by implementing sustainable practices across its operations, including reducing energy consumption, minimizing waste, conserving water, and enhancing ecosystem services that support riparian areas, wetlands, and wildlife habitat.
- By setting this high standard, the County fosters a culture of environmental stewardship, promoting long-term resource conservation, and demonstrating how proactive management can protect and strengthen local ecosystems for current and future generations.

Municipal Policies and Bylaws

Lacombe County has policies and bylaws guiding Environmental Services priorities and obligations. Lacombe County's policies and bylaws collectively strive to preserve and enhance our local environment and provide residents with the opportunity to become or be recognized as stewards of the land. Lacombe County strives to preserve our most valued green spaces for generations to come, dedicating additional time and resources to the management of County-owned lands.

Environmental Policy (Policy AD(32))

Lacombe County is committed to protecting and enhancing the environment for current and future generations by integrating environmental, social, and economic considerations into all decisions. The Environmental Policy outlines the County's commitment to demonstrate leadership through example, financial investment, education, and preparation for evolving environmental policies. Lacombe County departments are expected to comply with environmental legislation, apply best management practices, and continually monitor and improve environmental performance.

Environmental Community Engagement (Policy AD(33))

The Environmental Community Engagement policy mandates Environmental Services' delivery of the Resident Environmental Sustainability Program, the Environmental Stewardship Award, and Environmental Outreach.

Since 2021, this policy has provided our residents with cost-shared sustainable-goods-related purchases, recognized four residents exemplifying environmental stewardship within Lacombe County with a \$1,500 one-time cash award, and offered educational opportunities to the residents of Lacombe County.



Resident Environmental Sustainability Program

The Resident Environmental Sustainability Program is an initiative that subsidizes eco-friendly purchases. Goods made available for purchase through the cost-sharing program have included the following:

- Rain barrels;
- Trees and shrubs; and
- FoodCycler™ units

In total, Lacombe County has delivered nearly **200** rain barrels, **over 300** trees, and **100** FoodCycler™ units to Lacombe County residents.



200



300



100

Environmental Stewardship Award

Lacombe County is proud to recognize individuals and not-for-profit environmental organizations within our community for their outstanding commitment and contributions to advancing environmental stewardship in Lacombe County.

There is a summary of each winner of the Environmental Stewardship Award on the following pages.

Environmental Stewardship Award

2021 – Sharon and Rick Wiebe

Sharon and Rick Wiebe were nominated and selected as the winners of the 2021 Environmental Stewardship Award. The Wiebe's have completed several projects on their property, including:

- Created an organic community garden (10-12 participants).
- Set up rainwater collection for the community garden.
- Dedicated composting of organic waste.
- Established an off-site watering system to isolate cattle from the sensitive riparian zone.
- Planted 150 trees to replenish areas where trees have reached end of life and/or were windblown.
- Created bird and bat habitats throughout their property.
- Strategically planted perennials for the benefit of pollinators.



2022 – Joan Olafson

Joan Olafson was nominated and selected as the winner of the 2022 Environmental Stewardship Award. Joan was recognized for carrying on her father's legacy of being a steward over their home quarter. The quarter, which includes 80 acres of retained wetlands, forest, and spring-fed streams surrounding 74 acres of interspersed agricultural lands. Joan and her predecessors have been recognized for the preservation of habitat and natural areas by both Lacombe Fish & Game and the Red Deer River Naturalists.

2023 – Ward Nelson

Ward Nelson was nominated and selected as the winner of the 2023 Environmental Stewardship Award. His property borders the Medicine River, spanning approximately 1.4 km of riverbank.

Over the years, Ward has completed and participated in the following:

- Installed a solar-powered livestock watering system to keep the cattle and horses off the riverbanks.
- Planted over 2,000 seedlings along the riverbanks to restore vegetation.
- Worked collaboratively with Lacombe County to employ thistle weevils as a biological control measure for Canada Thistle.
- Active member of the Medicine River Watershed Society.



Environmental Stewardship Award



2024 – Nick Harper

Nick Harper was nominated and selected as the winner of the 2024 Environmental Stewardship Award. Nick, a restoration ecologist with a background in land conservation, has carried out projects to restore and preserve natural systems on his parents' property within Lacombe County. Nick has carried out the following initiatives, which exemplify his commitment to environmental stewardship:

- Planted over 150 native trees, including trembling aspen, white spruce, white birch, and lodgepole pine, to enhance biodiversity and restore natural habitat.
- Restored a small pond by excluding cattle and planting willows within the riparian zone.
- Installed a trough watering system to provide alternate watering for livestock.
- Implemented sustainable grazing practices, such as rotational grazing, chemical-free weed management, and pasture overseeding.



2025 – Medicine River Watershed Society

The Medicine River Watershed Society (MRWS) was nominated and selected as the winner of the 2025 Environmental Stewardship Award. The MRWS continues to raise awareness on the importance of watershed health. This dedicated group of volunteers meet regularly and spend countless hours diligently working on watershed health activities and events throughout the year.

From 2024 through 2025, the MRWS conducted the following activities:

- Monitored the health of the watershed through water sampling, analysis, and subsequent reporting.
- Advocated community concerns around water quantity and quality to government and industry.
- Educated through social media presence, brochures, community engagement events, and a school-based presentation/workshop.

Environmental Outreach

Lacombe County has hosted several workshops and education sessions to support residents in making environmentally conscious decisions on their properties and to strengthen environmental awareness within the community. Hosted workshops and sessions include:

- Septic Sense
- Working Well
- Chickens 101
- Tree Planting for Wildlife Habitat
- Growing Native Plants
- Wild About Bees program
- Wonderful World of Wetlands
- Radon Awareness
- Solar Open House
- Environmental Farm Plan

Use and Management of County Reserve Lands

Lacombe County remains deeply committed to the responsible use and management of environmental reserve (ER) and municipal reserve (MR) lands. Management of these lands ensures their long-term ecological, recreational, and community value. By prioritizing the natural integrity of Lacombe County's ER lands, the County safeguards wetlands, riparian zones, and wildlife corridors. This ensures the retention of ecosystem functions adjacent to recreational hubs and residential developments while offering public enjoyment through passive recreation.

Through proactive stewardship, Lacombe County balances the recreational load our reserve lands experience with the preservation of ecosystem health and function of areas kept in a natural state. Lacombe County's approach allows for the preservation and enjoyment of these parcels not just for today, but for generations to come.

Lacombe County's dedication to the management of reserve lands is demonstrated through the creation and amendment of *Policy RC(8) Use and Management of County Reserve Lands* and Council's passing of *Bylaw 1398/23 Parks and Reserve Management Bylaw*. In addition, Lacombe County continues to educate members of the public who use reserve lands, inspects reserve parcels on an ongoing basis, and strategically uses bylaw measures to encourage the appropriate use of these public assets.



Red Deer River



Reserve land in Lacombe County



Shore of Sylvan Lake

Environmental Legislation

Municipalities must adhere to environmental regulations and ensure operations remain compliant with both Provincial and Federal statutes. Lacombe County's commitment to environmental compliance is reiterated in its Environmental Policy, which outlines the need for all departments to comply with environmental legislation, apply best management practices, and continually monitor and improve the County's environmental performance. The table below details environmental legislation or policies that must be considered during usual operations. The table is not exhaustive, as unique circumstances, conditions, or projects may require greater consideration of other statutes not typically encountered. The "County's Obligations" column details Lacombe County's considerations as part of our operations. For complex projects involving multiple regulatory requirements, Lacombe County initiates project planning years in advance to ensure compliance with all applicable environmental legislation.

Table 1: Environmental Legislation Relevant to Municipal Operations

Legislation or Policy	Responsible Authority	Purpose or Intent	County Obligations
FEDERAL LEGISLATION			
<i>Fisheries Act</i>	Fisheries and Oceans Canada	To prevent the harmful alteration, degradation or destruction of fish or fish habitat	Assess impacts to fish and fish habitat, and mitigate adequately for culvert and bridge works
<i>Migratory Birds Convention Act</i>	Environment and Climate Change Canada	The protection and conservation of migratory bird individuals and populations, their nests, and habitats	Avoid clearing vegetation during the breeding bird season or adequately mitigate to prevent impacts
<i>Species At Risk Act</i>	Environment and Climate Change Canada	To prevent the extirpation or extinction of wildlife species and provide for the recovery of species currently at risk, and to prevent species of special concern from becoming at risk	Protection of species at risk, their residences, and critical habitat from disturbance or damage during County operations
<i>Canadian Navigable Waters Act</i>	Transport Canada	Ensures waters remain navigable by regulating and evaluating infrastructure and other works in any navigable waterway	Avoid the obstruction of watercourses used by vessels during bridge works
PROVINCIAL LEGISLATION			
<i>Code of Practice for Watercourse Crossings</i>	Alberta Environment and Protected Areas	To prevent temporary or permanent damage to aquatic habitats, and fish habitat during construction of watercourse crossings	Assess the aquatic environment and adequately mitigate to avoid impacts. Notification of culvert and bridge works must be filed
<i>Water Act</i>	Alberta Environment and Protected Areas	To promote the conservation and management of water in Alberta, including wetlands	Approval is required for wetland and waterbody impacts

Legislation or Policy	Responsible Authority	Purpose or Intent	County Obligations
PROVINCIAL LEGISLATION (CONTINUED)			
<i>Alberta Wetland Policy</i>	Alberta Environment and Protected Areas	To conserve, protect, and restore Alberta's wetlands to sustain the ecosystem services and benefits associated.	Requirement for the assessment and valuing of wetlands and payment of wetland compensation fees to the Government of Alberta for wetland impacts occurring as a result of County operations
<i>Environment Protection and Enhancement Act</i>	Alberta Environment and Protected Areas	To support and promote the protection, enhancement, and use of the environment	Ensure releases of contaminants to land, water or air do not occur, and to reclaim disturbance to the previous land condition
<i>Public Lands Act</i>	Alberta Forestry and Parks	To manage and protect Crown-owned land for sustainable use, including the bed and shores of waterbodies	Receive adequate authorization and approvals to carry out County operations on Crown-owned lands
<i>Wildlife Act</i>	Alberta Environment and Protected Areas	Protection of plants and wildlife species in the province, including harvest or hunting, and management of species at risk	Avoid the disturbance and destruction of prescribed wildlife and wildlife features
<i>Historical Resources Act</i>	Alberta Arts, Culture and Status of Women	Protection of historic, archeological, and paleontological resources across the province	Review of historic resources potentially impacted by County operations with potential need for Clearance under the Act
<i>Soil Conservation Act</i>	Alberta Agriculture and Irrigation	Protection and conservation of topsoil (quantity and quality)	Protection of soil quantity and quality during County operations
<i>Weed Control Act</i>	Alberta Agriculture and Irrigation	Prevention of the spread of Noxious and Prohibited Noxious Weeds listed under the Act	Identification of existing infestation areas and coordinated weed management on County-owned lands and managed areas
<i>Agricultural Pests Act</i>	Alberta Agriculture and Irrigation	Declares any wildlife or plant disease as a pest to be controlled or a nuisance may be controlled	Avoid the transmission of agricultural pests and nuisances during County operations

Agriculture Services

Lacombe County's mission is to engage, support and enhance the agriculture community and rural entrepreneurs, all while enhancing rural life in Lacombe County. We will contribute to and support agriculture by developing and implementing responsive and progressive municipal policies and programs that benefit the agricultural community.

Weed Control

The *Weed Control Act* regulates the control of Noxious and Prohibited Noxious weed species within the province. The Act identifies that landowners and occupants are responsible for controlling regulated weed species on their lands. Municipalities are authorized to enforce the Act. Lacombe County conducts hundreds of weed inspections annually to identify and control weed infestations and assist landowners with the control of noxious and prohibited noxious weeds on their property.

Additionally, Lacombe County also controls invasive weed species within municipal road allowances and County-owned lands. Common weeds found within Lacombe County include:

- Scentless Chamomile
- Canada Thistle
- Yellow Toadflax
- Leafy Spurge
- White Cockle
- Common Tansy



Scentless Chamomile



Canada Thistle



Yellow Toadflax



Leafy Spurge



White Cockle



Common Tansy

Sea Buckthorn Control Program

In 2019, Lacombe County designated Sea Buckthorn as a noxious weed through the passing of *Bylaw 1299/19*. This invasive shrub was found invading and overtaking native species along the shores of Gull Lake and various other locations within Lacombe County. Lacombe County began controlling Sea Buckthorn in 2019 and, since then, has controlled approximately 30 hectares of Sea Buckthorn in the Gull Lake watershed. The Sea Buckthorn control program is also supported in part by financial contributions from the Alberta Department of Public Lands.

Originating from Eurasia, Sea Buckthorn is a non-native species to North America. It is highly invasive in riparian areas and displaces native vegetation and wildlife species through the formation of thorny impenetrable stands. Typically used as an orchard or shelterbelt species, Sea Buckthorn berries can be harvested by hand and are a high source of Vitamin C, adding to the Sea Buckthorn's proliferation by both humans and wildlife. As an allelopathic plant, Sea Buckthorn releases growth inhibitors into the soil, preventing the establishment of other plant species near the area.



(Above) Images of Sea Buckthorn found in locations around Gull Lake

River Weed Inspection

Beginning in 1999, Lacombe County, in partnership with the Alberta Department of Public Lands, has performed weed control along the shores of the major rivers and creeks within Lacombe County. The River Weed Inspection program involves floating the rivers and creeks within the County in a canoe during July and August, and hand-picking and disposing of noxious weeds found along the shoreline. The overriding goal of this program is to control the noxious weeds found in these environmentally sensitive areas.

Initially, this program focused on Scentless Chamomile control on the Blindman and Red Deer Rivers. However, over the years, this program has grown to include controlling weeds found along the Medicine River, Wolf Creek, and Parlby Creek. Additionally, as Scentless Chamomile infestations began to decrease, the program now includes controlling other weeds, most notably, Common Tansy.

Agricultural Plastics Recycling

Lacombe County, in partnership with Red Deer and Ponoka Counties, operates an agricultural plastics recycling program. Kicking off in 2019, the Agricultural Plastics Recycling program collects used grain bags from producers in the three partner municipalities and used twine from local Lacombe Regional Waste Services Commission transfer stations for recycling. This program is supported by CleanFarms and the Alberta Ag-Plastics: Recycle It! Program.

Since the program's inception, 154,740 kg of used grain bags and 13,455 kg of used twine have been collected and sent for recycling.

Operations

The Operations Department plays a key role in managing and maintaining Lacombe County's physical infrastructure and public lands. Through activities such as road and bridge construction and maintenance, snow removal, dust control, vegetation management, and the operation of recreation areas and public works facilities, the department helps support safe transportation networks, public access to outdoor spaces, and the responsible stewardship of County-owned assets.

Crooker Wetland

Lacombe County's Crooker Wetland, formerly an aggregate pit, is located within NW 4-41-27 W4M and is approximately 8 km northeast of the City of Lacombe. Aggregate extraction began on the site around 1966. Following the depletion of gravel deposits, Lacombe County retained a consultant in 2013 for the reclamation of the pit. The consultant proposed a wetland creation concept plan which Lacombe County proceeded with.

Grading and contouring of the pit commenced in 2014 creating transitional zones seen in natural wetlands. Amendments, such as gravel beaches and islands were developed to create shorebird and waterfowl nesting habitat. In 2015, 16,000 cubic metres of topsoil was distributed across the site. In 2016, seeding of low prairie wetland and upland seed mixes occurred and 45 trembling aspen (*Populus tremuloides*) and 10 white spruce (*Picea glauca*) were planted. The result was the formation of 9.2 hectares of wetland area, which was valued by Alberta Environment and Parks (AEP), at the time, as a D value or 1:1 ratio for wetland compensation. The created feature provided direct offsets of future wetland compensation requirements typically incurred during Lacombe County's annual local roads program.



Crooker Pit before reclamation



Crooker Pit after reclamation

As part of AEPs requirements, Lacombe County was obligated to monitor the created feature and document the features transition to a functioning wetland. Annually, Lacombe County was required to collect field data including the vegetation species present and the wet meadow zone width. This data was used to calculate metrics, including the Index of Biological Integrity (IBI) and the normalized Floristic Quality Index (FQI). Monitoring years included 2017, 2018, 2020, and 2021. During this time, Lacombe County continued efforts to further naturalize the area. In 2018, 450 sedges (*Carex sp.*) were planted. Additional plantings of 30 acute willow (*Salix acutifolia*) and pussy willow (*Salix discolor*) occurred in 2022 and the planting of 30 Bebb's willow (*Salix bebbiana*), 30 Canadian buffaloberry (*Shepherdia canadensis*), 30 tamarack larch (*Larix laricina*), and 30 white spruce occurred in 2023.

A final verification report was completed by an external consultant in 2023. The findings stated that Crooker Wetland progressed satisfactorily as shown through the indices measured and that monitoring data appeared sensitive to precipitation levels experienced. Lacombe County continues to enhance Crooker Wetland through targeted plantings of wetland vegetation, trees, and shrubs.

Lake Access

Lacombe County's Operations Department carries out and supports essential works to keep amenities related to lake access accessible and safe for the public. In total, three recent initiatives related to lake access have taken place:

- The dredging of the Sandy Point Boat Launch and associated channel (2024)
- The repair and enhancement of the Sunbreaker Cove Boat Launch (2025)
- Cable fence and additional signage on Range Road 2-3 near the Kuusamo Krest subdivision (2025)



(Above) Sunbreaker Boat Launch Repairs and Enhancements. The boat launch initiatives tackled issues related to the usability of lake access points due to deterioration in structures and lowered lake levels, while barriers and signage addressed concerns related to environmental damages and misuse of a lake access point.



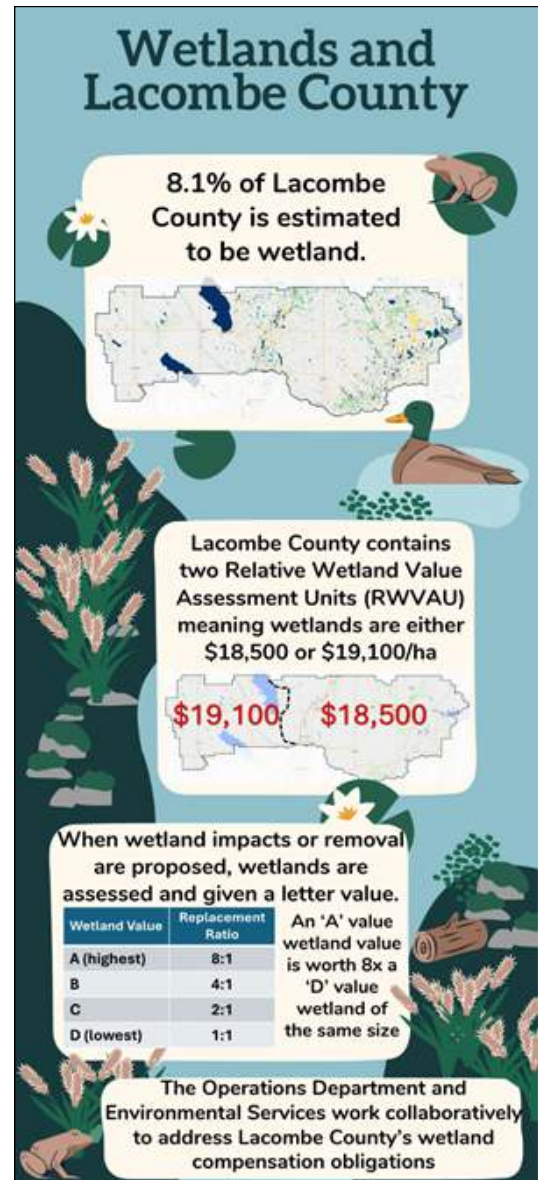
(Above) Signage placed in areas damaged by off-highway vehicle use.

Environmental Mitigations

All projects completed by Lacombe County must consider environmental management, mitigation, and permitting. The Operations Department is responsible for maintaining and improving critical infrastructure, including but not limited to, roads and bridges. Each project has the potential to impact the environment, so environmental features are assessed, and approvals are pursued should requirements exist. During a project, mitigations are implemented to ensure that impacts are confined to what was forecasted and no further deleterious effects occur. Two commonly encountered environmental sensitivities are wetland areas and wildlife.

The Operations Department, with support from Environmental Services and external consultants, evaluates potential environmental impacts. For wetlands, the Alberta Wetland Policy requires wetland areas to be assessed, detailing wetland type, vegetation communities, and soil conditions. The Wetland Policy requires wetland mitigation to be considered on a mitigation hierarchy. This hierarchy requires proponents to first consider avoiding, then minimizing, and then replacing wetland areas impacted. Wetlands assessed are valued using the Alberta Wetland Rapid Evaluation Tool – Actual (ABWRET-A).

Lacombe County is required to provide wetland compensation under the Alberta Wetland Policy for any unavoidable wetland impacts. Lacombe County opts to provide in-lieu fee payments to compensate for any wetland areas to be impacted. Over the course of 2020 to 2025, Lacombe County has provided \$341,798.57 through in-lieu fee payments to the Government of Alberta for wetland-related impacts.



(Above) Nestling chipping sparrows found during a nest search.

Wildlife is often encountered during the construction season, especially within the breeding bird season (April to the end of August). To mitigate impacts to wildlife and their features, such as nests, Lacombe County conducts nest searches and wildlife sweeps to identify and adequately mitigate against potential disturbance or destruction.

Planning Services

The Planning Services Department helps shape how land is developed and used throughout Lacombe County, supporting growth that is safe, sustainable, and aligned with community priorities. Through land use planning, subdivision review, development approval processes, long-range planning, and the implementation of planning policies, the department guides decisions that affect natural areas, agricultural lands, water resources, and the overall environmental footprint of future development. By balancing environmental, social, and economic considerations, Planning Services contributes to the long-term sustainability and resilience of the County's landscapes and communities.

Municipal Development Plan and Land Use Bylaw

The *Municipal Development Plan* is the guiding, overarching, and fundamental planning document in Lacombe County. Through extensive community consultations, the *Municipal Development Plan* sets a vision for future growth and development in Lacombe County. It strives to take a proactive approach to land use planning by identifying strategic parts of the County for various forms of development while conserving all other lands for agricultural use.

The *Land Use Bylaw* is the direct product and implementation tool of the *Municipal Development Plan*. It divides the County into land use districts and outlines the specific uses that can be considered in each district and the regulations that would apply to such uses.



In 2017, Lacombe County updated the *Municipal Development Plan* and the *Land Use Bylaw* through significant public consultation. The six guiding principles of the *Municipal Development Plan* that were directly created by the community feedback received during consultation are:

1. *Promote and encourage the County's strong agricultural community*
2. *Demonstrated responsible stewardship of the County's natural environment and provide a variety of recreational opportunities*
3. *Diversify and support economic growth*
4. *Ensure compatible and responsible development of the County's built environment*
5. *Support innovative and efficient infrastructure and technologies*
6. *Foster strong municipal leadership*

While the entire Municipal Development Plan is not necessarily agriculture- or environment-focused, section four directly addresses the natural environment and recreation. **The guiding object of this section states:**

“Demonstrate responsible stewardship of the County’s natural environment and provide a variety of recreational opportunities

- 1. Protect the rural landscape and natural environment*
- 2. Demonstrate responsible and accountable use of the County’s natural capital*
- 3. Maintain and enhance community appeal by supporting recreational amenities*
- 4. Promote recreational amenities that incorporate the natural environment*
- 5. Encourage environmental stewardship among the community”*

The *Municipal Development Plan* includes a requirement that the County annually review the plan. This is done to ensure that the County's *Municipal Development Plan* and *Land Use Bylaw* are up to date with upcoming trends in land use planning, development pressures in the area, and the needs and desires of the local community. Lacombe County believes that it is necessary for the *Municipal Development Plan* and *Land Use Bylaw* to be 'living documents' and continually reviewed. This also allows the County to address any issues resulting from the policies that have been flagged by County residents, staff, and Council.

The County's annual review process is unique in Alberta and has been provincially recognized by the Alberta Professional Planners Institute (APPI) Award of Merit in Implementation Success and the Minister's Award of Municipal Excellence in Red Tape Reduction.



Below is a summary of Section 4.0 Our Natural Environment & Recreation and results from the annual reviews.

Overview

The aim of this section is to protect and enhance the County's natural capital and continue to provide for ecosystem services such as parks, recreation and other community services, building upon the County's green infrastructure that enhances the quality of life for County residents. Several policies ensure that the County continues to protect its community from any potential hazards which may arise within a development or as result of a development. Ensuring the safe disposal of wastewater, safeguarding groundwater and the proper retention and filtration of stormwater are all fundamental to the responsible stewardship of the County's natural environment. The County has adopted several programs to inform the public and increase awareness and protection of the County's natural capital. Allowing the public to access natural recreational areas encourages environmental stewardship, and the County continues to accept donated lands to create passive recreation amenities that embrace natural areas.

Municipal Reserve is an important tool for providing public amenities, as it allows the County to ensure that a developer of a subdivision provides lands for public use, thereby enhancing the quality of a development by providing public space and buffer areas. Further, this tool is flexible, allowing the County to decide when and where to take the reserve/cash in lieu based on the overall value it will add to the community. Cash-in-lieu of reserve land is typically required when it is determined that land is not required at present or in the future, and the funds are placed in a bank account for future reserve lands or amenities. Reserves may also be deferred to the remainder lands to provide for a larger public amenity area in a future subdivision application.

One integral way of protecting the County's waterbodies and watercourses is through the incorporation of Environmental Reserve. As part of any subdivision adjacent to a waterbody or watercourse, the County requires an Environmental Reserve dedication or Environmental Reserve Easement, depending on the location or type of waterbody or watercourse. This ensures that environmentally sensitive riparian areas remain protected. In multi-lot developments where an environmental reserve is required, a municipal reserve is also required adjacent to it so that the County can incorporate trails along the water body or water feature.

Key natural environment statistics from 2020-2024:

- \$242,994.72 cash-in-lieu taken from conditional subdivision approvals, which will be invested into natural areas and park space in Lacombe County.
- 9.91 hectares (24.5 acres) of Environmental Reserve (ER) dedication included in conditionally approved applications.
- 77.30 hectares (191.0 acres) of Environmental Reserve Easement (ERE) dedication included in conditionally approved applications.
- 7.7 hectares (19.03 acres) of land donated to the County to create publicly accessible natural areas, for a total of 206.1 hectares (509.03 acres) of donated land to date.
- 0 subdivision applications relaxed Environmental Reserve (ER) and/or Environmental Reserve Easement (ERE) requirements.
- Technical studies required:
 - 5 applications required a geotechnical report/study;
 - 4 applications required a biophysical assessment;
 - 1 application required flood mapping.
- 1 development incorporated Dark Sky principles.
- 8 km of new trails in park spaces and regional trail networks, for a total of 46 km of County trails.
- 15 new environmental education signs installed in park spaces, for a total of 36 educational signs in the County.



(Above) The lakeshore is a prime example of Environmental Reserve land in Lacombe County.

Key Natural Environment Actions Completed

Key natural environment actions completed as a result of reviews between 2020-2024:

- Inserted Policy ENV&REC 4.4.7 in the *Municipal Development Plan* to provide policy direction for municipal subdivisions.
- In the Agricultural 'A' District and Recreation 'PR' District of the *Land Use Bylaw*, inserted policy where a property line has been adjusted due to a change in a natural boundary, the setback shall be applied from the original property boundary, and any development must be contained within the development area of the original boundary.
- Updated all references 'supporting the Alternative Land Use Services (ALUS) program' to 'supporting general conservation projects' in Section 4.6 of the *Municipal Development Plan*.
- Inserted Policy ENV&REC 4.7.4 which allows the County to consider subdivisions to support non-profit community use facilities.
- The *Municipal Development Plan* now refers to the updated *Parks and Reserves Management Bylaw* for all matters relating to the use and management of County reserves and other park areas.

Burns Nature Park

In September 2023, Lacombe County celebrated the grand opening of Burns Nature Park. Burns Nature Park is a 20-acre nature sanctuary nestled on the shores of Sylvan Lake, one of Central Alberta's most iconic and cherished water bodies. The land was graciously donated to Lacombe County by the James and Patricia Burns, whose goal was to provide a space where Sylvan Lake's iconic ecosystem can be celebrated by the greater community.

Burns Nature Park includes a majestic forest, wetland area, and stunning shoreline that provides many ecosystem services to the area around Sylvan Lake. The land is now proudly stewarded by Lacombe County to ensure it remains in its natural state while providing opportunities for the public to appreciate the natural beauty of the site. The County has constructed trails at the Park that includes educational signage and a bench area.



(Above) A birds-eye view of the shoreline near Burns Nature Park.

Burns Nature Park was graciously donated to Lacombe County by James and Patricia Burns, longtime and active members of our community, and was officially opened to the public in September 2023.

The Burns family realized the immense environmental value of their family property and decided to make it available for public enjoyment while conserving its natural features for the benefit of future generations. The Park is now owned and stewarded by Lacombe County and features hiking trails, a breathtaking view of Sylvan Lake, interpretive signage, and bench areas.

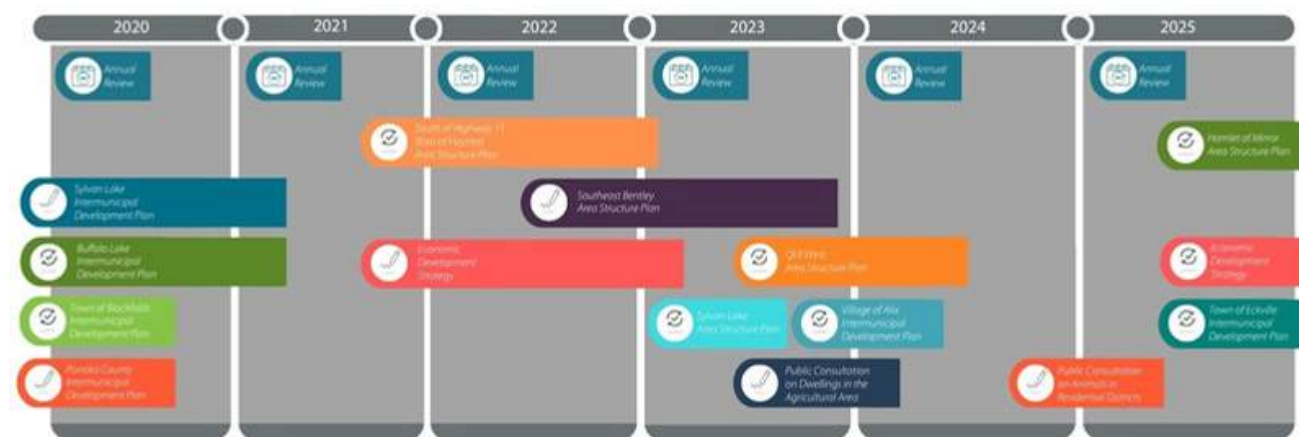
Long Range Planning

Every year, the County updates its Long Range Planning Program to provide the public with information on when other planning documents will be up for review, or to inform the public about new documents that are being created. These documents could include:

- **Intermunicipal development plans** – plans developed with neighbouring municipalities to coordinate collaborative land use planning and foster cooperation with our neighbours for joint success; or
- **Area structure plans** – specific, honed-in land use planning documents for specific areas in the County

Since adopting the updated *Municipal Development Plan* and *Land Use Bylaw* in 2017, a number of our older plans require updates to ensure that the County's planning policies are consistent and in line with the community's vision for their local area. In recent years there have been changes to the province's *Municipal Government Act* as well, which required a number of new plans to be created.

Lacombe County Planning Services 2020 – 2025 Long Range Planning Program



Sylvan Lake Intermunicipal Development Plan

The largest new plan created that relates to the natural environment is the *Sylvan Lake Intermunicipal Development Plan*, a new document adopted in 2021.

Sylvan Lake is one of the largest and most iconic water bodies in Central Alberta, and is an important amenity for the region, providing year-round recreational opportunities. Sylvan Lake offers publicly accessible shorelands, valuable natural landscapes, healthy and sustainable fish and wildlife populations, and “lakeside” living opportunities. Sylvan Lake is important not only for its recreational amenities but also for its biodiversity and extensive wildlife habitat. All eight partner municipalities agreed that it was essential to create an Intermunicipal Development Plan to protect the watershed’s sensitive ecology while providing sensible development opportunities aligned with the community’s vision.

As Sylvan Lake’s popularity, development, and use continue to grow, special care must be taken to protect the character and environment of the area. Successful management of expanding development and use must be done in a manner that supports the ongoing sustainability of Sylvan Lake while enhancing the aesthetic qualities of the Lake and the surrounding area, which are highly valued by users and residents.

The *Sylvan Lake Intermunicipal Development Plan* represents a significant achievement for municipal collaboration, as it is adopted by all eight municipalities surrounding the lake. Lacombe County was the project manager for the adoption of this plan. The plan provides high-level policy that ensures development and growth are undertaken in a sustainable and responsible manner. It provides all partnering municipalities with a comprehensive, mutually beneficial land-use plan and development framework, while reducing potential conflict.

The vision of the plan is: To create a fair, equitable and transparent Plan that protects the environmental assets, ensures development supports the region, and honours the diversity and uniqueness of the five summer villages, two counties and one town.

Prior to adoption of the *Sylvan Lake Intermunicipal Development Plan*, no regional Intermunicipal Development Plan existed between all partnering municipalities. Adopting a regional Intermunicipal Development Plan was a proactive and comprehensive approach to dealing with growth challenges that lie ahead and important opportunity to confirm the shared vision for the plan area and harmonize development expectations.

The *Sylvan Lake Intermunicipal Development Plan* has been provincially recognized as an exemplary project in regional planning through the Alberta Professional Planner Institute (APPI) 2022 Award of Planning Merit in the Comprehensive and Policy Plan category.

Development areas around Sylvan Lake



Burns Nature Park



Eagle's Quay



Summer Villiage of Jarvis Bay



Summer Villiage of Norglenwold



The Shores



Kuusamo Krest

OUR Environment

Lacombe County Initiatives

Solar Production

Lacombe County has installed solar arrays on three County facilities. The first installations occurred in 2016 on the Tees and Rainy Creek Shops with two 10.2 kWp arrays. A third 115.2 kWp array was installed on the Lacombe County Public Works Shop in 2021, offsetting a third of the shop's annual power consumption.

In the summer of 2025, the systems on the Tees and Rainy Creek Shops were expanded from 10.2 kWp to 38 kWp and 34.6 kWp, respectively. The expansions enabled these facilities to offset 100% of their annual electricity consumption with solar power. Cumulatively, all three solar arrays have produced over 750 MWh of electricity, saving 352.5 tonnes of carbon emissions and producing enough electricity to power 104 Alberta homes for one year.

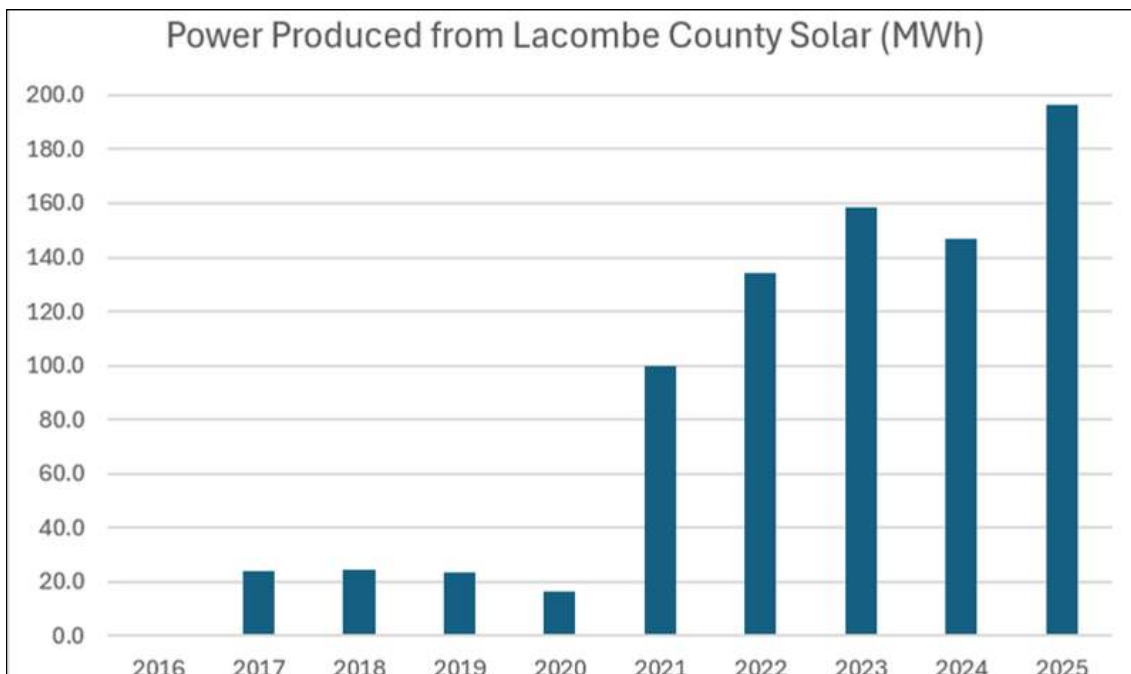
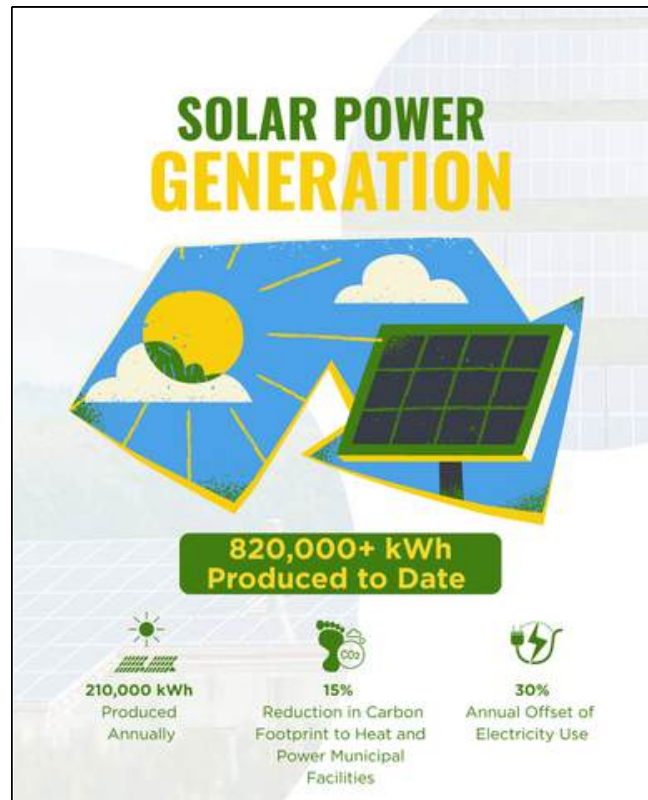
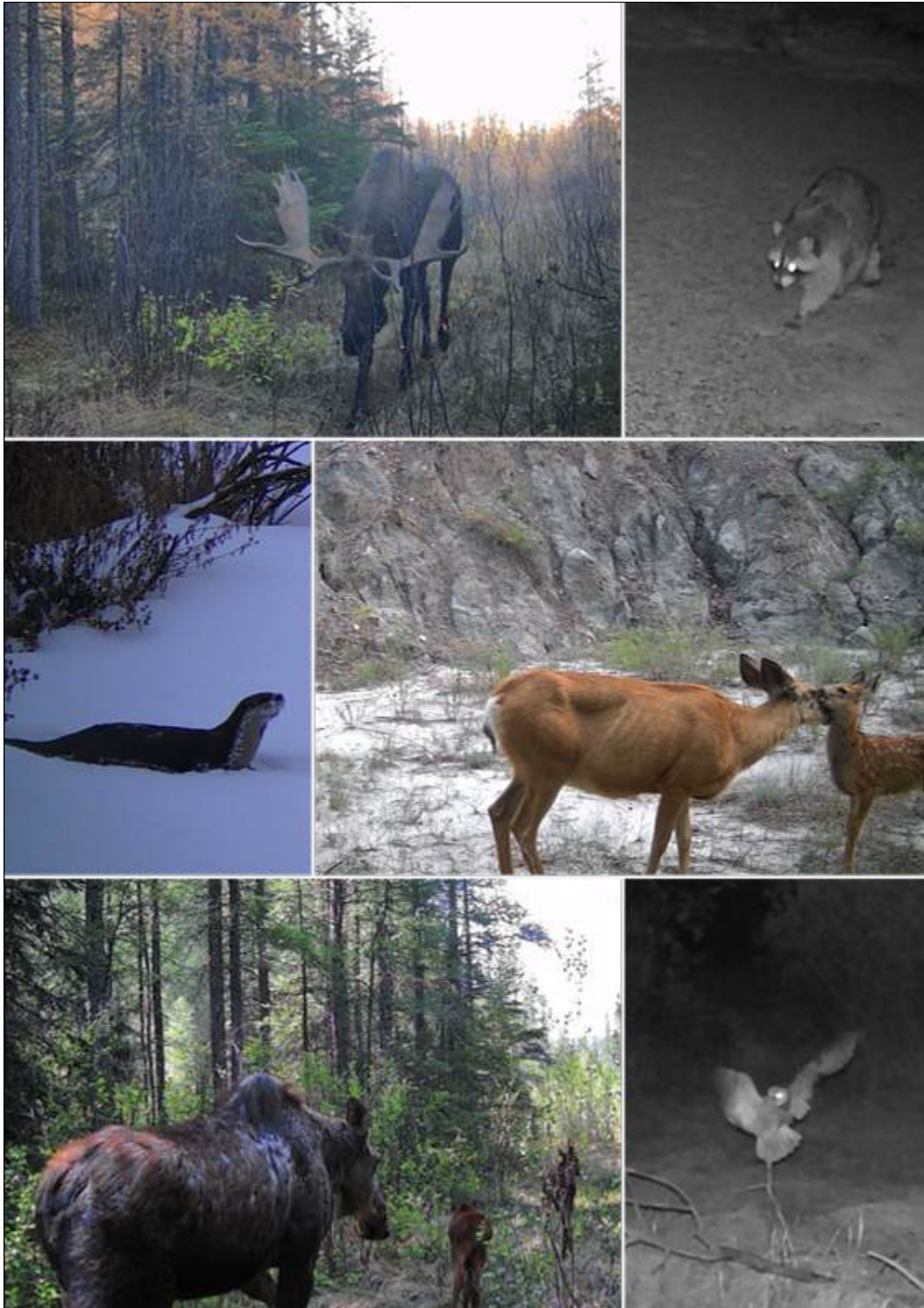


Figure 2: Solar Power Produced by Lacombe County Facilities (2016- mid-2025) (MWh)

Biodiversity & Wildlife Monitoring

Wildlife Biodiversity

Lacombe County began environmental monitoring of wildlife biodiversity in 2023. The ongoing initiative includes the monitoring of 10 nest boxes located at Sandy Point on Gull Lake and the passive monitoring of species through remote camera trap (trail camera) captures. At any given time, two cameras are active within Lacombe County. To date, Lacombe County has placed trail cameras within the Chain Lakes Reserve, the Red Deer River Reserve, Kuhnén Natural Area, and the County's Drader Gravel Pit.



Nest Boxes

The nest boxes monitored have hosted three species: blacked-capped chickadee, house wren, and tree swallow. Typically, eight of the 10 nest boxes present are occupied in any given nesting season. Additionally, between all species observed, 30 to 40 nestlings leave the nest boxes on an annual basis.



Chronolog Time-Lapse Photography

Through the 2025 Environmental Action Plan, Lacombe County initiated a fixed photo point monitoring project. The project resulted in the installation of three photo points in the following locations:

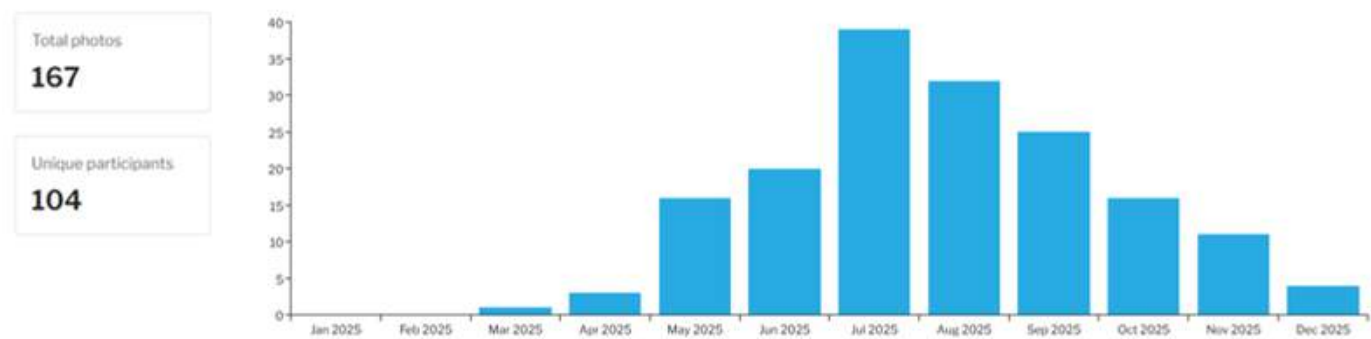
- **Lacombe Lake** – located on the boardwalk of the TransCanada Trail
- **Sylvan Lake** – located within Burns Nature Park
- **Gull Lake** – located within Sandy Point beside the lighthouse



(Above) Examples of the Chronolog photo stations in Lacombe County, including the bracket used to hold a cell phone static while taking the photo.

These photo points endeavour to create a visual time-lapse using a publicly captured repository of photos. The time-lapse images will add a visual dataset related to lake levels and environmental conditions. Usership was greatest within the warmest months (July and August). However, public uptake of the project resulted in the collection of 157 photos from 97 unique participants.

Chronolog Visitor Activity

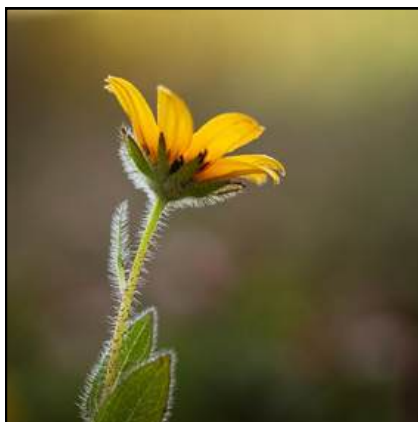


Lacombe County Environmental Photo Contest

Lacombe County ran photo contests in 2018, 2022, and 2025. The contests invite residents and visitors to submit the photographs they capture of the environment in and around the County. Winners selected in 2022 and 2025 are highlighted below.



Landscape Winner 2022
Sheri Skocdopole



Plants Winner 2022
Bonnie Hoskin



Wildlife Winner 2022
Kade Damant



First Place 2025
Kade Damant



Second Place 2025
June Rivers



Third Place 2025
Chole Berger

Climate Adaptation & Mitigation

Climatic variation will continue to affect Lacombe County, with observable changes in temperature, precipitation, and extreme weather events over the last century. Climate models typically present two scenarios, with one being more drastic than the other. It is projected that Lacombe County will still see changes regardless of the scenario.

Changes projected from the less drastic scenario include:

- A change in the number of +30°C days annually from 3.9 observed between 1976 and 2005 to an estimated 10.4 between 2021-2050, which is an increase of 6.6 days.
- A change in the average warmest maximum temperature from 31.2°C observed between 1976 to 2005 to an estimated 33.3°C between 2021-2050, which is an increase of 2.1°C.

In 2018, Lacombe County was selected and participated in the Climate Resilience Express project to create a Climate Resilience Action Plan. Lacombe County received financial support from the Municipal Climate Change Action Centre, the Calgary Foundation, Natural Resources Canada, All One Sky Foundation, and Alberta Ecotrust.

Workshop participants included employees from the Community Services, Operations, and Planning departments, a Lacombe County Councillor, individuals representing local watershed groups, industry, and employees from the Government of Alberta.

The Plan identified four risks and one opportunity:



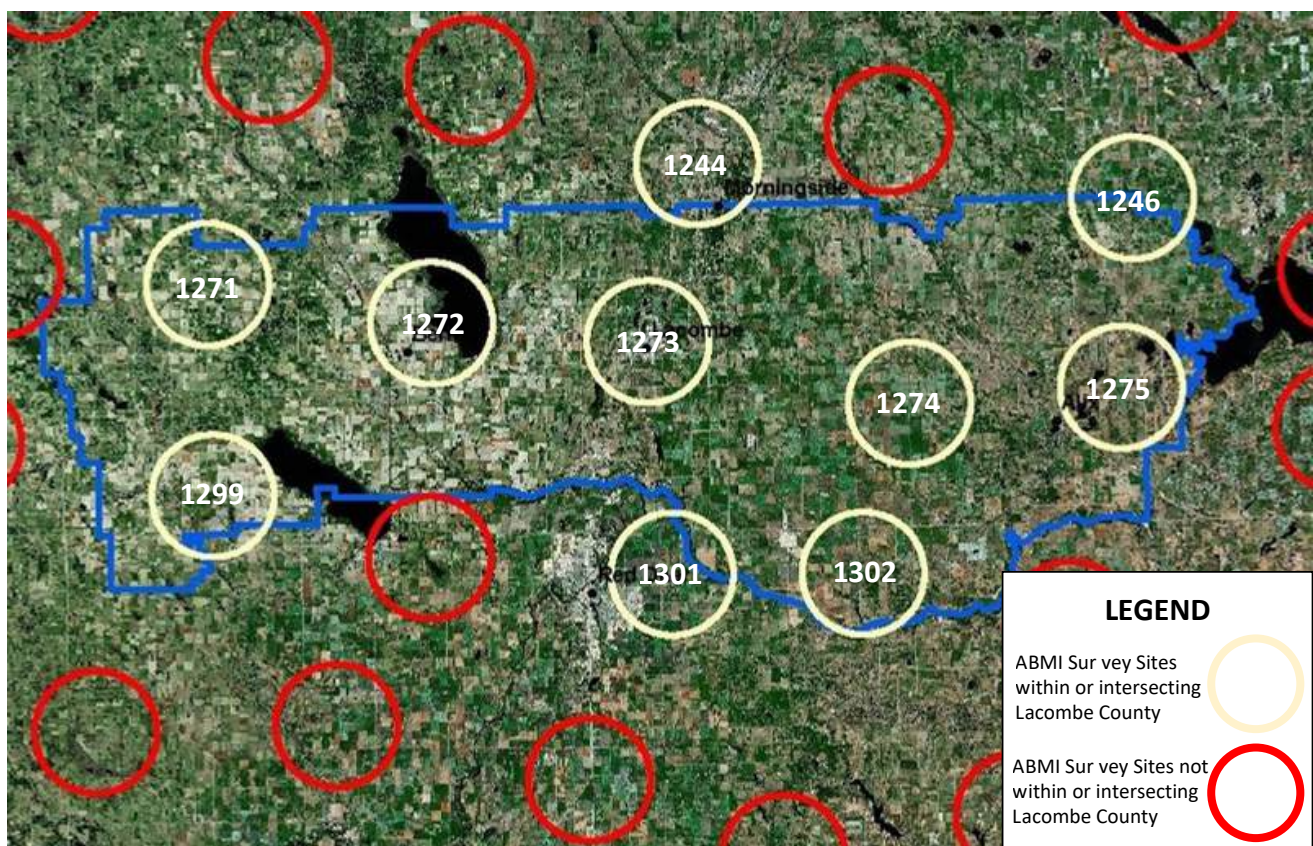
Regional Environmental Initiatives

Alberta Biodiversity Monitoring Institute

The Alberta Biodiversity Monitoring Institute (ABMI) is a not-for-profit scientific organization. The ABMI monitors and reports on the status and trends of Alberta's species, habitat, and human footprint. The efforts provide critical and relevant scientific information on the state of Alberta's environment to support natural resource and land use decision-making.

Ecosystem Health Program

The ABMI actively surveys sites across Alberta, which are randomly selected based on a grid. Lacombe County has 10 survey sites located within the municipal boundaries (Site #'s 1244, 1246, 1271-1275, 1299, 1301, and 1302). Of these survey sites, only 1246, 1271, and 1299 have not been surveyed.



Through the Ecosystem Health Program, ABMI collects multiple indicators, including vascular plants, lichens, bryophytes, birds, mammals, and soil mites. Data collected is publicly available through the ABMI. Occurrences of mammals are recorded through winter track surveys and the use of remote camera traps. Bird presence is primarily documented using autonomous recording units (ARUs), which record vocalizations. Through the analysis of collected recordings species identification is possible and can include birds, amphibians, and some mammal species such as coyotes and wolves.

Remote camera traps have recorded thirteen species in Lacombe County. These includes the following:

Table 2: Species captured on Remote Cameras Deployed within Lacombe County by the ABMI

Common Name	Scientific Name
Common Raccoon	<i>Procyon lotor</i>
Common Raven	<i>Corvus corax</i>
Coyote	<i>Canis latrans</i>
American Crow	<i>Corvus brachyrhynchos</i>
Black-billed Magpie	<i>Pica hudsonia</i>
Moose	<i>Alces alces</i>
Mule Deer	<i>Odocoileus hemionus</i>
North American Porcupine	<i>Erethizon dorsatum</i>
Red Fox	<i>Vulpes vulpes</i>
Snowshoe Hare	<i>Lepus americanus</i>
Striped Skunk	<i>Mephitis mephitis</i>
White-tailed Deer	<i>Odocoileus virginianus</i>
White-tailed Jack Rabbit	<i>Lepus townsendii</i>

ARUs deployed have recorded 68 species, including two amphibian species and one mammal species.

Table 3: Species Presence within Lacombe County Recorded and Collected by the AMBI

Common Name	Scientific Name	Common Name	Scientific Name
American Coot	<i>Fulica americana</i>	House Wren	<i>Troglodytes aedon</i>
American Crow	<i>Corvus brachyrhynchos</i>	Killdeer	<i>Charadrius vociferus</i>
American Goldfinch	<i>Spinus tristis</i>	Le Conte's Sparrow	<i>Ammospiza leconteii</i>
American Redstart	<i>Setophaga ruticilla</i>	Least Flycatcher	<i>Empidonax minimus</i>
American Robin	<i>Turdus migratorius</i>	Lesser Yellowlegs	<i>Tringa flavipes</i>
American Wigeon	<i>Mareca americana</i>	Lincoln's Sparrow	<i>Melospiza lincolni</i>
Baltimore Oriole	<i>Icterus galbula</i>	Magnolia Warbler	<i>Setophaga magnolia</i>
Barn Swallow	<i>Hirundo rustica</i>	Mallard	<i>Anas platyrhynchos</i>
Black-billed Magpie	<i>Pica hudsonia</i>	Northern Flicker	<i>Colaptes auratus</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>	Pine Siskin	<i>Spinus pinus</i>
Blue Jay	<i>Cyanocitta cristata</i>	Purple Finch	<i>Haemorhous purpureus</i>
Boreal Chorus Frog	<i>Pseudacris maculata</i>	Red-breasted Nuthatch	<i>Sitta canadensis</i>
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	Red-tailed Hawk	<i>Buteo jamaicensis</i>
Brown-headed Cowbird	<i>Molothrus ater</i>	Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Canada Goose	<i>Branta canadensis</i>	Ruby-crowned Kinglet	<i>Corthylio calendula</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Rusty Blackbird	<i>Euphagus carolinus</i>
Chipping Sparrow	<i>Spizella passerina</i>	Savannah Sparrow	<i>Passerculus sandwichensis</i>
Clay-colored Sparrow	<i>Spizella pallida</i>	Snow Bunting	<i>Plectrophenax nivalis</i>
Common Grackle	<i>Quiscalus quiscula</i>	Solitary Sandpiper	<i>Tringa solitaria</i>
Common Loon	<i>Gavia immer</i>	Song Sparrow	<i>Melospiza melodia</i>
Common Raven	<i>Corvus corax</i>	Sora	<i>Porzana carolina</i>

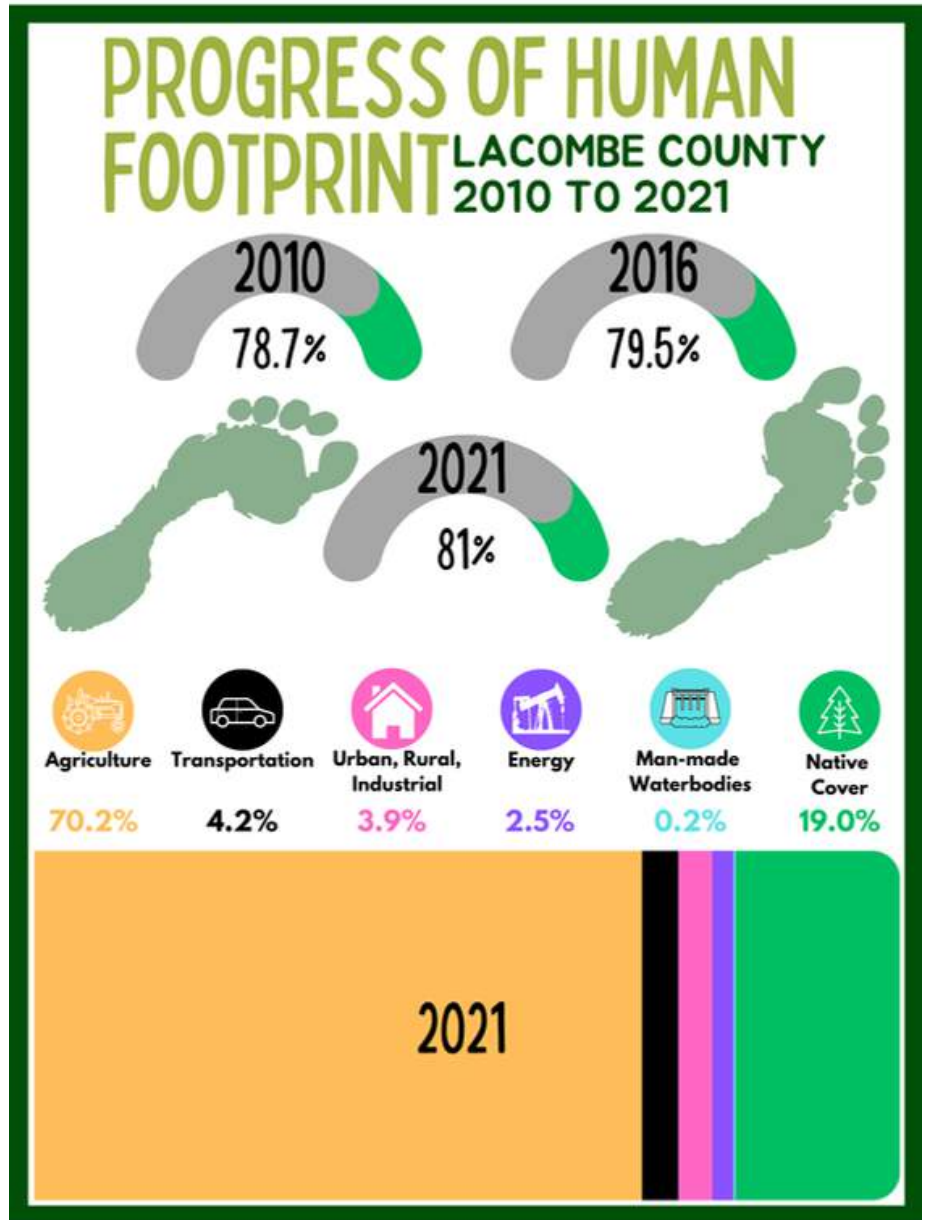
Table 3 (continued): Species Presence within Lacombe County Recorded and Collected by the AMBI

Common Name	Scientific Name	Common Name	Scientific Name
Common Yellowthroat	<i>Geothlypis trichas</i>	Swainson's Thrush	<i>Catharus ustulatus</i>
Coyote	<i>Canis latrans</i>	Tree Swallow	<i>Tachycineta bicolor</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Vesper Sparrow	<i>Pooecetes gramineus</i>
European Starling	<i>Sturnus vulgaris</i>	Warbling Vireo	<i>Vireo gilvus</i>
Gray Catbird	<i>Dumetella carolinensis</i>	Western Meadowlark	<i>Sturnella neglecta</i>
Gray Jay	<i>Perisoreus canadensis</i>	Western Tanager	<i>Piranga ludoviciana</i>
Gray Partridge	<i>Perdix perdix</i>	Western Wood-Pewee	<i>Contopus sordidulus</i>
Great Horned Owl	<i>Bubo virginianus</i>	White-throated Sparrow	<i>Zonotrichia albicollis</i>
Green-winged Teal	<i>Anas crecca</i>	Wilson's Snipe	<i>Gallinago delicata</i>
Hairy Woodpecker	<i>Dryobates villosus</i>	Wood Frog	<i>Lithobates sylvaticus</i>
Hermit Thrush	<i>Catharus guttatus</i>	Yellow Warbler	<i>Setophaga petechia</i>
Horned Lark	<i>Eremophila alpestris</i>	Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>
House Sparrow	<i>Passer domesticus</i>	Yellow-rumped Warbler	<i>Setophaga coronata</i>



Human Footprint

The ABMI assesses human footprint using satellite imagery at two spatial scales. Analysis and interpretation of this imagery produce an inventory of the various land uses present on the landscape. Analysis of human footprint was completed in 2010, 2016, and most recently in 2021. In general, Lacombe County continues to see a small reduction in native cover over the years. In 2021, agriculture had the largest portion of our human footprint within the County at 70.2%. The second largest portion of the human footprint was transportation (i.e., roads, bridges, railways, etc.) at 4.2%.



Riparian Health

Lacombe County is home to many lakes, rivers, streams, and wetlands. **Riparian** areas are transition zones between aquatic and terrestrial lands. This zone is situated between the edge of the water and the upland area.

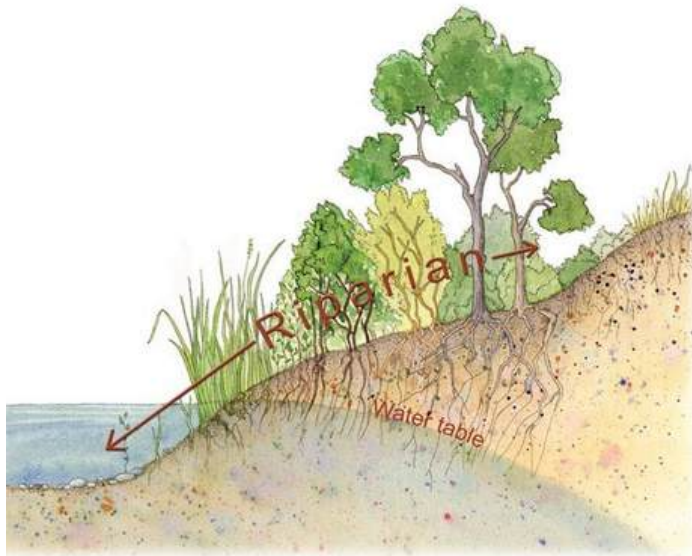


Figure 3: Riparian area extent adjacent to a body of water.
Credit: Cows & Fish.

The Riparian Web Portal, a collaborative project between the North Saskatchewan Watershed Alliance, the Battle River Watershed Alliance, and Blue Geosimulation, provides riparian intactness summaries across Alberta. A GIS-based methodology and dataset was created to provide a condition analysis of riparian intactness. Intactness, a measure of the degree of human alteration or impairment, was assessed up to the 50 m mark from the waters edge. Within Lacombe County, 1218 km of shoreline was assessed with 24.2% having high intactness, 29.0% moderate intactness, 11.9% low intactness, and 34.8% very low intactness (RWP c2020).

Analysis of individual watercourses and lakes are included within the Our Lakes and Our Rivers section of this report.

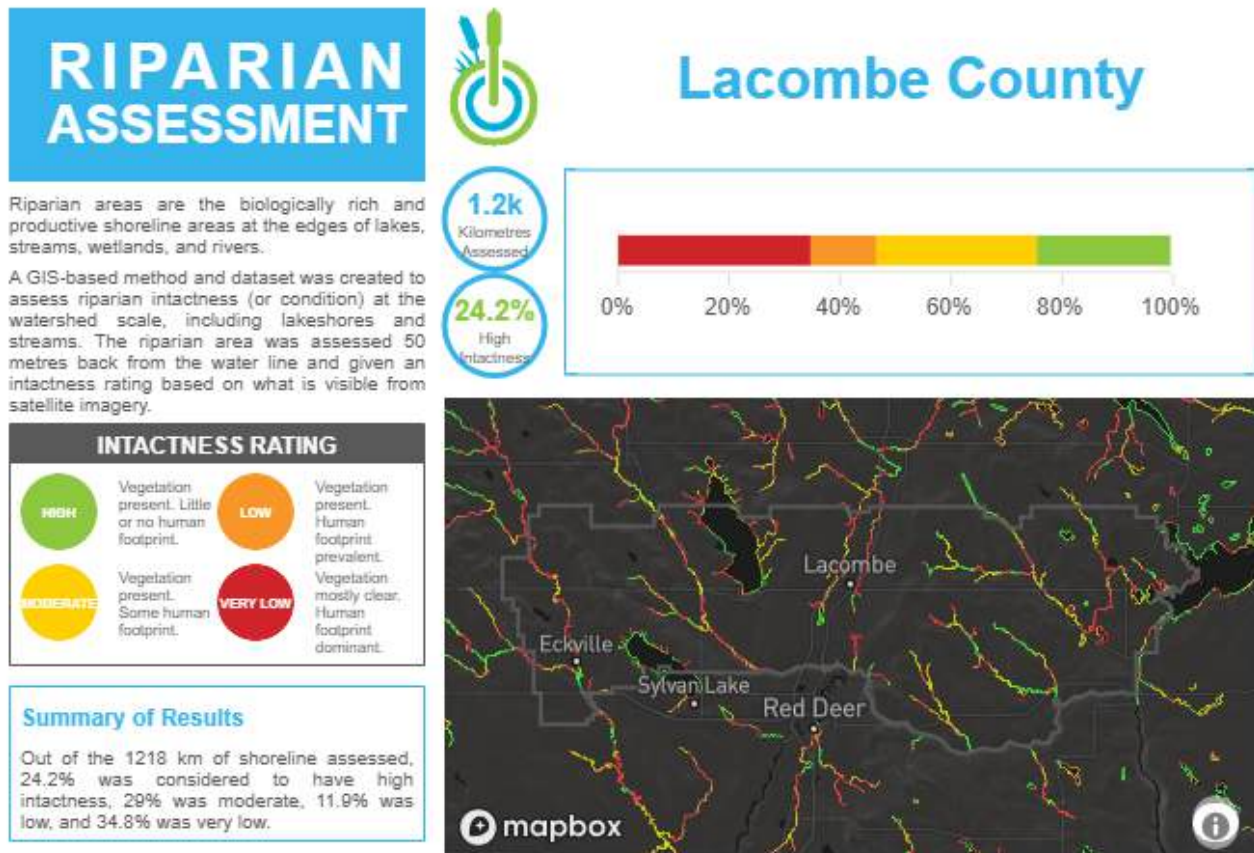


Figure 4: Riparian Intactness within Lacombe County (RWP c2020)

Our Lakes

Lacombe County partially encompasses three major recreational lakes—Buffalo Lake, Gull Lake, and Sylvan Lake. In addition, smaller recreational lakes, such as Lacombe Lake, are frequented by paddlers. These waterbodies are seen as recreational hubs in Central Alberta for locals and non-locals alike.

These waterbodies face similar challenges with water quantity and quality, and routinely see natural fluctuations in water levels. Pumping projects, designed to stabilize water levels, were commissioned in 1976 for Gull Lake and in 1994 for Buffalo Lake. Water from the Blindman River is used to stabilize Gull Lake, and water from the Red Deer River is used to stabilize Buffalo Lake.

Since the discovery of Prussian carp (*Carassius gibelio*) near the project's pump houses, Alberta Environment and Protected Areas suspended the diversion of water in 2018, citing the transfer of Prussian carp into the lakes as a significant risk. Coupled with the 2018 pumping moratorium, all central Alberta lakes, including Buffalo and Gull Lake, have been affected by drought, resulting in lower lake levels. Heat waves, a lack of precipitation, and human pressure on the lakes can lead to events such as fish kills and algal blooms.

The **Alberta Lake Management Society (ALMS)** is a non-profit dedicated to building awareness and understanding of Alberta's lakes. The vision of ALMS is "Healthy Lakes for Alberta's Future". ALMS coordinates a series of programs, including LakeWatch, which is a volunteer-based water quality monitoring program. ALMS technicians assist individuals and communities in the testing of various parameters, which are summarized in LakeWatch Reports. In addition, the Government of Canada has hydrometric monitoring stations within Buffalo Lake, Gull Lake, and Sylvan Lake, providing decades worth of data to document fluctuating water levels.



(Above) The shoreline of Sandy Point Beach (left) and a closeup of a Prussian carp that have been impacting local waterways and lakes (right).

Buffalo Lake

Buffalo Lake is a large and relatively shallow lake within the counties of Camrose, Lacombe, and Stettler located approximately 40 km northeast of the City of Red Deer. Buffalo Lake is approximately 93.5 km² in size with a maximum depth of 6.5 m and has a watershed area of 1,440 km² (ALMS 2023a). Historical water level fluctuations are well documented, with Secondary Bay on the west end of the lake being so dry that wagons were able to cross it in the 1930s (Mitchell and Prepas 1990). A hydrometric station, situated on Buffalo Lake near Erskine, has collected water level data since 1965. The graph below illustrates variation in water levels from 1965 to 2024.

Buffalo Lake Water Levels (1965-2024)

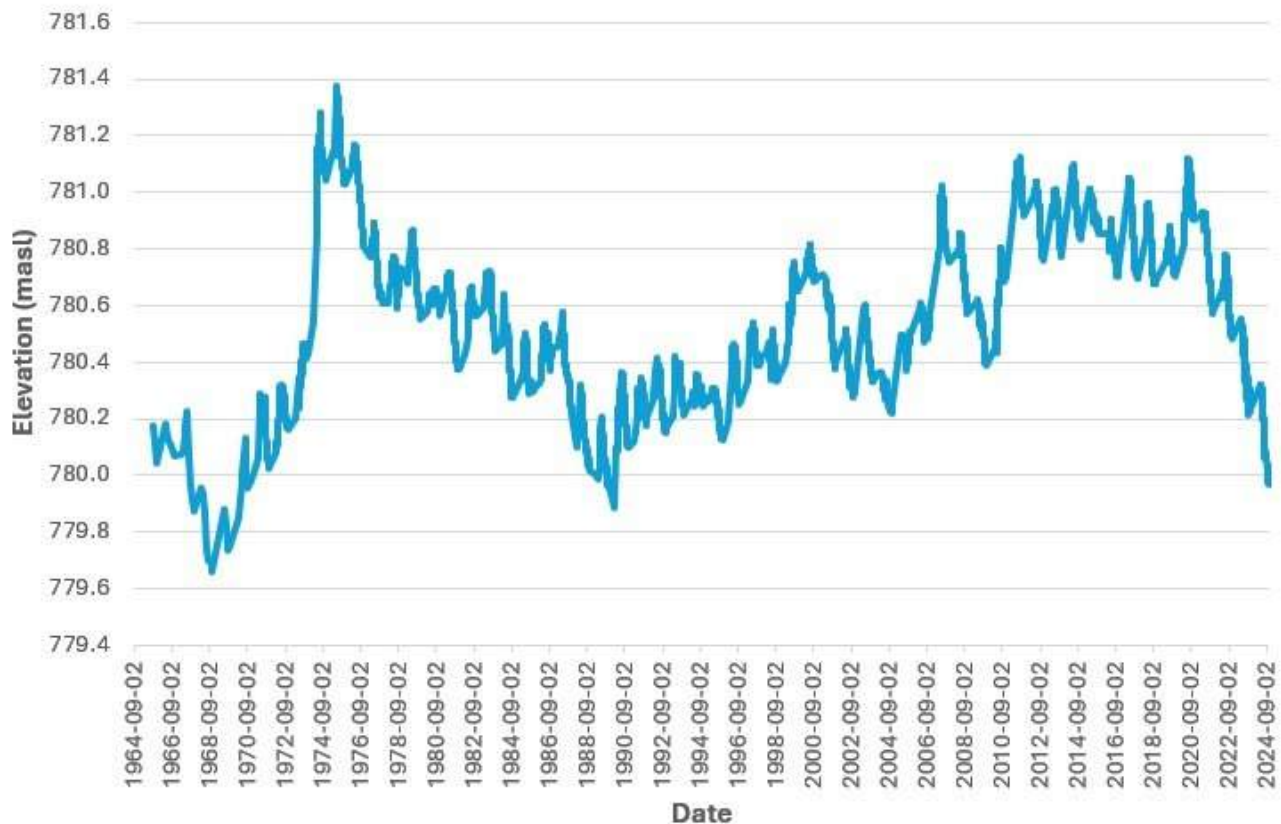


Figure 5: Water levels, measured in metres above sea level, of Buffalo Lake from 1965 to 2024 (GoC 2025).

The Parlby Creek-Buffalo Lake Management Project has set parameters for pumping, with a lake level of 780.60 metres above sea level (masl) being the trigger elevation to begin pumping water from the Red Deer River and 780.85 masl being the target elevation where pumping is suspended. In adherence with these parameters, the last time water from the Red Deer River was diverted to Buffalo Lake was 2010. Water level data shows that lake levels recorded in October of 2024, which is the most recent data publicly available, haven't been observed since 1989. To date, Prussian carp have not been detected within Buffalo Lake through net sampling efforts and environmental DNA (eDNA) analysis. At the time of this report, pumping remains suspended.



**(Above) A kayaker on Buffalo Lake
(Photo credit V.Heidt)**

The latest ALMS LakeWatch report available for Buffalo Lake contains data collected in 2022 (ALMS 2023a). During the 2022 sampling events, Buffalo Lake was found to have:

- An average chlorophyll-a concentration of 11.0 µg/L, which falls into the **eutrophic** or highly productive trophic classification.
- An average total phosphorus (TP) concentration of 41.0 µg/L, which falls into the **eutrophic** or highly productive trophic classification.
- An average Total Kjeldahl Nitrogen (TKN) of 2.7 mg/L.
- An average pH of 9.14, buffered by high alkalinity (1133 mg/L CaCO₃) and bicarbonate (977 mg/L HCO₃).
- A **euphotic depth** of 3.30 m.
- Well oxygenated surface waters, with all sampling events of dissolved oxygen being greater than 6.5 mg/L. Slight depletion of dissolved oxygen in June and July below a depth of 4.5 m.
- Water temperature mostly stratified, with the warmest temperature being 22.0°C observed on July 28, 2022.
- **Microcystin** levels below the recreational guideline of 10.0 µg/L. An average microcystin concentration of 0.39 µg/L was recorded.
- Metals were not sampled in 2022, but historic exceedances of arsenic (>5.0 µg/L) have been recorded at all previous sampling events (1993, 2014, and 2016).

Trends observed from 1984 to 2022 include a reduction in Total Phosphorus, Total Dissolved Solids, and euphotic depth. No change has been observed in chlorophyll-a (ALMS 2023a).

Gull Lake

Gull Lake is a large and shallow lake west of the City of Lacombe. The lake has an area of 86.31 km² with a maximum depth of 8.0 m (ALMS 2022). The watershed area of Gull Lake is 211.16 km². Gull Lake was first settled in 1895, with many people originating from the United States of America. A lumber mill was started shortly after, with a boat called the Kangaroo being constructed to haul logs and lumber around the lake in 1898. The Kangaroo was later turned into a steamboat and, in the off season, was used for dances and excursions.

Gull Lake served as a hydroelectric reservoir when a dam was built on Outlet Creek in 1908. The project was short-lived, and the dam was destroyed in 1910 by dynamite. The complexity of the water levels of Gull Lake has long been felt, with the first complaint of water level concerns originating in the year 1921. In that same year, the Summer Village of Gull Lake constructed an earth and concrete dam (Mitchell and Prepas 1990). Lake levels continued to decline, and by the year 1967, studies into lake stabilization were underway.

By the spring of 1977, pumping began to divert water from the Blindman River to Gull Lake. A hydrometric station on the northwest end of the lake near RV Heaven Marina in Ponoka County has collected lake level records, with original records dating back to 1924. The graph on the following page illustrates the variation in water levels from 1924 to 2024.

Sunset at Sandy Point Beach on Gull Lake



Gull Lake Water Levels (1924-2024)

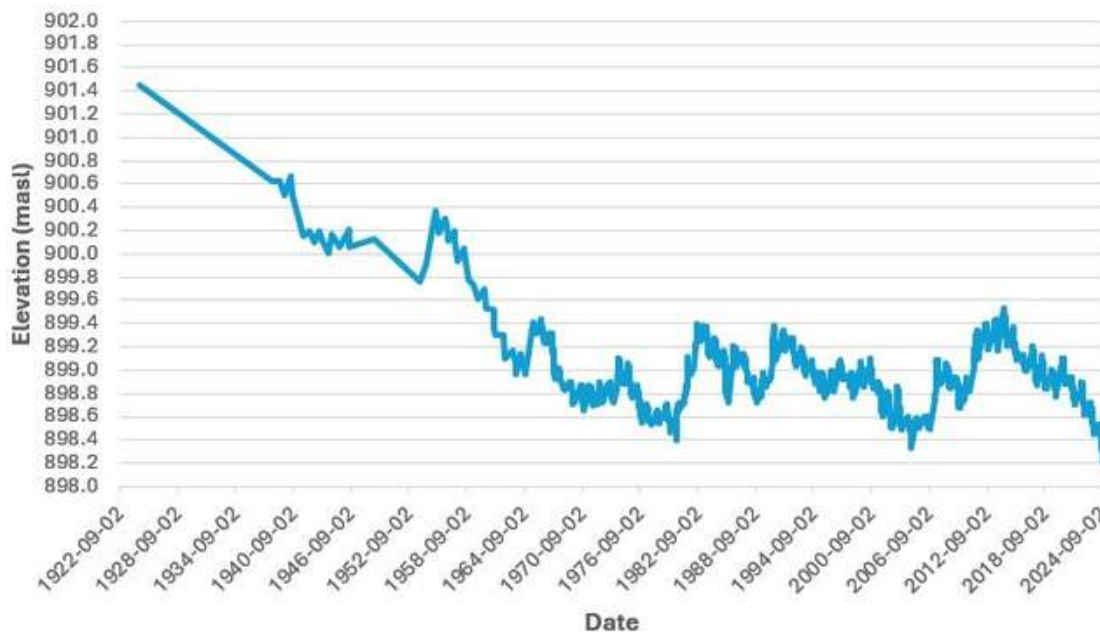


Figure 6: Water levels, measured in metres above sea level, of Gull Lake from 1924 to 2024 (GoC 2025).

The Gull Lake Stabilization Project was constructed in 1976 and involved Outlet Creek on the southwest end of the lake. The creek, which historically drained waters from Gull Lake into the Blindman River, was repurposed to transmit water from a pump house on the Blindman River through a pipeline and open canal to Gull Lake. The project has set parameters for pumping with a lake level of 898.93 masl being the trigger elevation to begin pumping water from the Blindman River and 899.16 masl being the target elevation where pumping is suspended. Prior to the suspension in 2018 pumping hadn't occurred since 2011. To date, Prussian carp have not been detected within Gull Lake through net sampling efforts and environmental DNA (eDNA) analysis. An amended water licence was approved earlier in 2025. Construction at the pumphouse to install a filtration system to prevent the transmission of Prussian carp eggs, to allowing for the pumping water into Gull Lake is currently underway..

The latest ALMS LakeWatch report available for Gull Lake contains data collected in 2021 (ALMS 2022). During the 2021 sampling events, Gull Lake was found to have:

- An average chlorophyll-a concentration of 7.3 µg/L, which falls into the **mesotrophic**, or moderately productive trophic classification.
- An average total phosphorus (TP) concentration of 17.0 µg/L, which falls into the mesotrophic, or moderately productive trophic classification.
- An average Total Kjeldahl Nitrogen (TKN) of 1.9 mg/L.
- An average pH of 9.16, buffered by high alkalinity (702 mg/L CaCO₃) and bicarbonate (600 mg/L HCO₃).
- A **euphotic depth** of 2.82 m (a whiting event where calcium bicarbonate precipitates resulted in lower water clarity).
- Well oxygenated surface waters, with all sampling events of dissolved oxygen being greater than 6.5 mg/L with most being in excess of 7.5 mg/L.
- Water temperature mostly stratified, with the warmest temperature being 22.4°C observed on June 29, 2021.
- **Microcystin** levels below the recreational guideline of 10.0 µg/L. An average microcystin concentration of 0.16 µg/L was recorded.
- Metals were not sampled in 2022, but historic exceedances of arsenic (>5.0 µg/L) have been recorded at all previous sampling events (2012, 2015, and 2016).

Trends observed from 1983 to 2021 include a reduction in Total Phosphorus and euphotic depth, an increase in Total Dissolved Solids, and no change in chlorophyll-a (ALMS 2022).

Lacombe Lake

Located southwest of the City of Lacombe and north of the town of Blackfalds is a small pothole lake named Lacombe Lake. The lake is approximately 3 km long and has a maximum depth of 3.0 m (ALMS 2023b). The lake is a popular destination for non-motorized watercraft and supports diverse waterfowl populations. A Prairie Farm Rehabilitation Administration project was constructed on the north end of the lake in the 1960s. The project entailed installing a weir on Whelp Creek to control and direct flows from Whelp Creek into Lacombe Lake. Concerns about water quality led to the cessation of diversion in 2008 (ALMS 2023b). No hydrometric monitoring station is located on Lacombe Lake and water level data is sparse.

The latest ALMS LakeWatch report available for Lacombe Lake contains data collected in 2022 (ALMS 2023b). During the 2022 sampling events, Lacombe Lake was found to have:

- An average chlorophyll-a concentration of 13.8 µg/L, which falls into the **eutrophic**, or highly productive trophic classification.
- An average total phosphorus (TP) concentration of 23.0 µg/L, which falls into the **mesotrophic**, or moderately productive trophic classification.
- An average Total Kjeldahl Nitrogen (TKN) of 1.6 mg/L.
- An average pH of 8.45, buffered by moderate alkalinity (208 mg/L CaCO₃) and bicarbonate (242 mg/L HCO₃).
- A **euphotic depth** of 2.46 m.
- Well oxygenated surface waters, with all sampling events of dissolved oxygen being greater than 6.5 mg/L with some being in excess of 8.0 mg/L.
- Water temperature mostly stratified, with the warmest temperature being 22.5°C observed on July 14 and August 11, 2022.
- **Microcystin** levels below the recreational guideline of 10.0 µg/L. An average microcystin concentration of 0.34 µg/L was recorded.
- Metals were not sampled in 2022, but no historic exceedances have been recorded at all previous sampling events (2014, 2015, 2016, and 2017).



Lacombe Lake

Sylvan Lake

Sylvan Lake is a medium-sized lake with clear water and sandy beaches lying just west of the City of Red Deer. Sylvan Lake has an area of 42.23 km² and a maximum depth of 18.3 m. The watershed area of the lake is 113.83 km² (ALMS 2023c). Given the lake's proximity to the major cities and condition of the lake, the lake is a hotspot for recreational activities. The year 1899 saw the first settlers arrive at Sylvan Lake, which was originally named Snake Lake from the Cree name "Kinabik" (Mitchell and Prepas 1990). This name paid homage to the numerous garter snakes that would frequent the shores of the lake. The lake levels are considered stable with limited fluctuations in water levels. A hydrometric station on the south end of the lake has collected lake level records, with original records dating back to 1918. The graph below illustrates the variation in water levels from 1918 to 2024.

Sylvan Lake Water Levels (1918-2024)

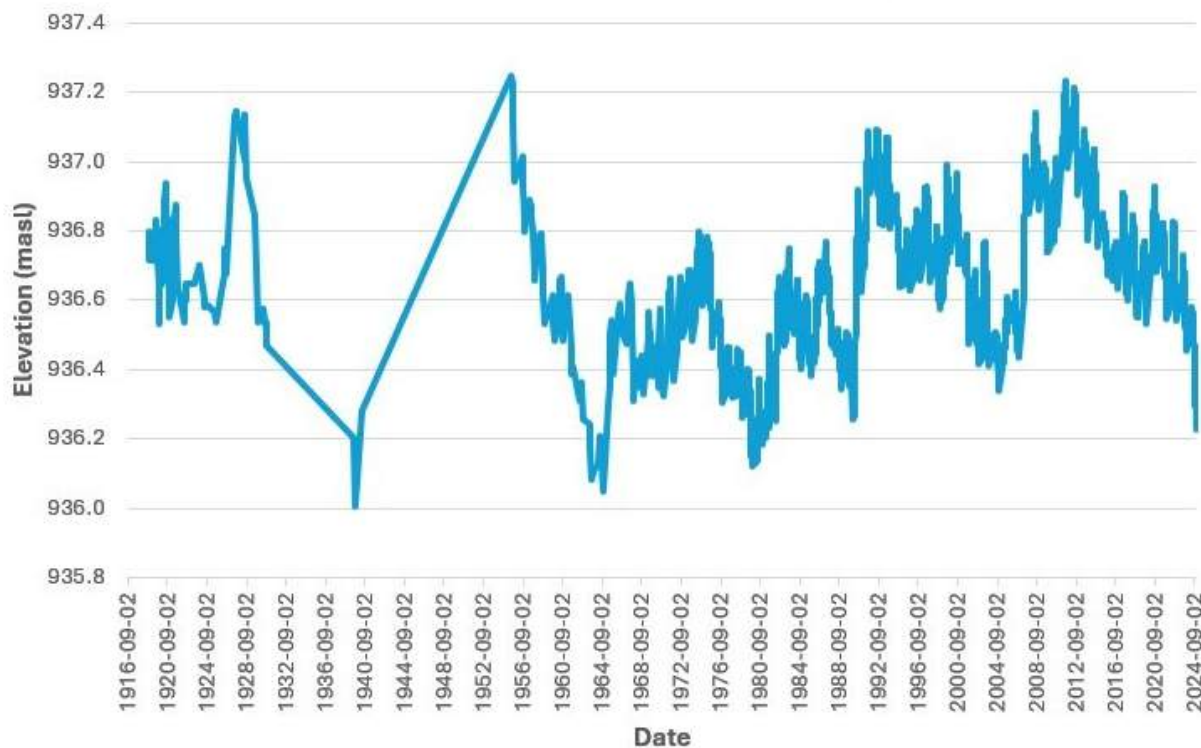
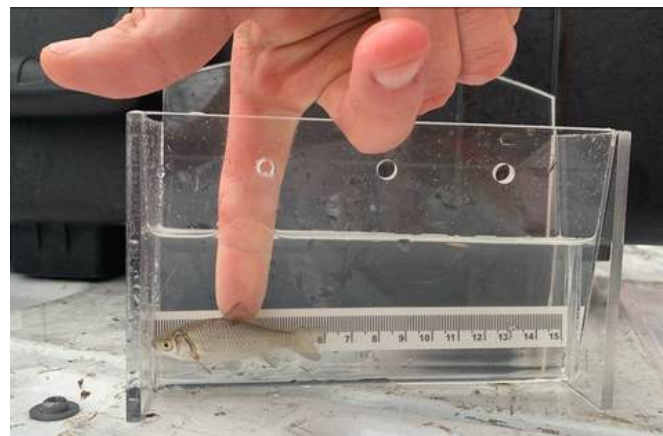


Figure 7: Water levels, measured in metres above sea level, of Sylvan Lake from 1918 to 2024 (GoC 2025).

With the stability of water levels within Sylvan Lake no lake stabilization projects have been constructed or proposed. The nearby Cygnet Lake, which provides excellent waterfowl habitat, has a control structure built by Ducks Unlimited in 1975/76. The stabilization of water levels within Cygnet Lake using the water from Sylvan Lake was approved in 1976. A 1978 study raised concerns that continued water releases from Sylvan Lake could harm recreational use, leading to the suspension of water diversion that same year (Mitchell and Prepas 1990). Invasive species, such as Dreissenid mussels and spiny water flea, were not detected in recent sampling events (ALMS 2023c). However, since 2023, Sylvan Lake has had multiple detections of Prussian carp confirmed.



(Above) Juvenile Prussian carp captured during fish salvage operations within Sylvan Lake.

The latest ALMS LakeWatch report available for Sylvan Lake contains data collected in 2022 (ALMS 2023c). During the 2022 sampling events, Sylvan Lake was found to have:

- An average chlorophyll-a concentration of 3.2 µg/L, which falls into the **oligotrophic**, or low productivity trophic classification.
- An average total phosphorus (TP) concentration of 7.0 µg/L, which falls into the oligotrophic, or low productivity trophic classification.
- An average Total Kjeldahl Nitrogen (TKN) of 0.6 mg/L.
- An average pH of 8.76, buffered by high alkalinity (338 mg/L CaCO₃) and bicarbonate (365 mg/L HCO₃).
- A **euphotic depth** of 10.64 m.
- Well oxygenated surface waters, with all sampling events of dissolved oxygen being greater than 6.5 mg/L with greatest reading being in excess of 9.0 mg/L. However, the August 24, 2022, sampling event observed anoxic conditions (dissolved oxygen <1.0 mg/L) below a depth of 14.0 m).
- The warmest temperature being 21.7°C observed on August 24, 2022.
- **Microcystin** levels below the recreational guideline of 10.0 µg/L with the concentrations observed being less than the detectable limit of 0.10 µg/L.
- Metals were not sampled in 2022, but no exceedances have been recorded during previous sampling events (2010, 2011, 2014, 2015, and 2016).

Trends observed from 1983 to 2022 include a reduction in Total Phosphorus, no change in euphotic depth and chlorophyll-a, and an increase in Total Dissolved Solids (ALMS 2023c). Water quality within Sylvan Lake is reflected through the **oligotrophic**, or low, trophic status the lake holds.

Of 10 natural lakes with long-term water quality monitoring data within the dry mixwood natural subregion of Alberta and 28 natural lakes in the Alberta prairie subregion, Sylvan Lake has the lowest trophic level (Baker et al 2018). A study found that a large-scale sandstone channel, which extends and partially intersects the north side of Sylvan Lake, is a conduit for significant groundwater interaction (Baker et al 2018). It is estimated that approximately 37% to 43% of the lakes annual water input is groundwater. Groundwater outflow is key to the reduction of TDS and maintenance of trophic level within the lake, which is reflective of unelevated nutrient loads in the face of a smaller watershed and increased pressures from agriculture and residential development (Baker et al 2018).



Riparian Intactness – Named Lakes: Lacombe County

The Riparian Web Portal provides summaries of named lakes within Lacombe County. In total 14 named lakes were assessed (RWP 2021). The detailed map (Figure 8, shown below) and summary of intactness (Figure 9, on the following page) are shown below, as referenced from the Lacombe County Summary Report.

Intactness - Named Lakes

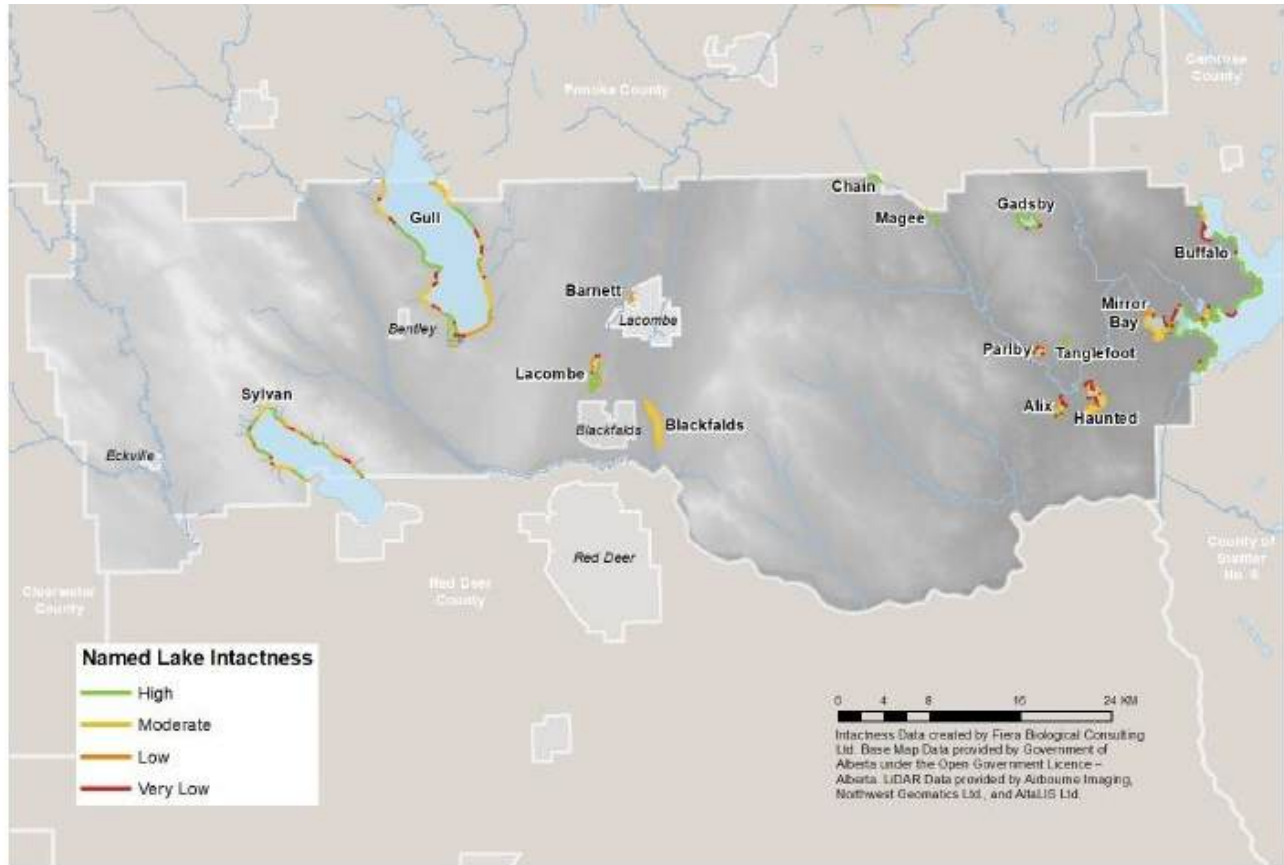


Figure 8: Riparian Intactness of Named Lakes within Lacombe County (RWP 2021).

Intactness - Named Lakes

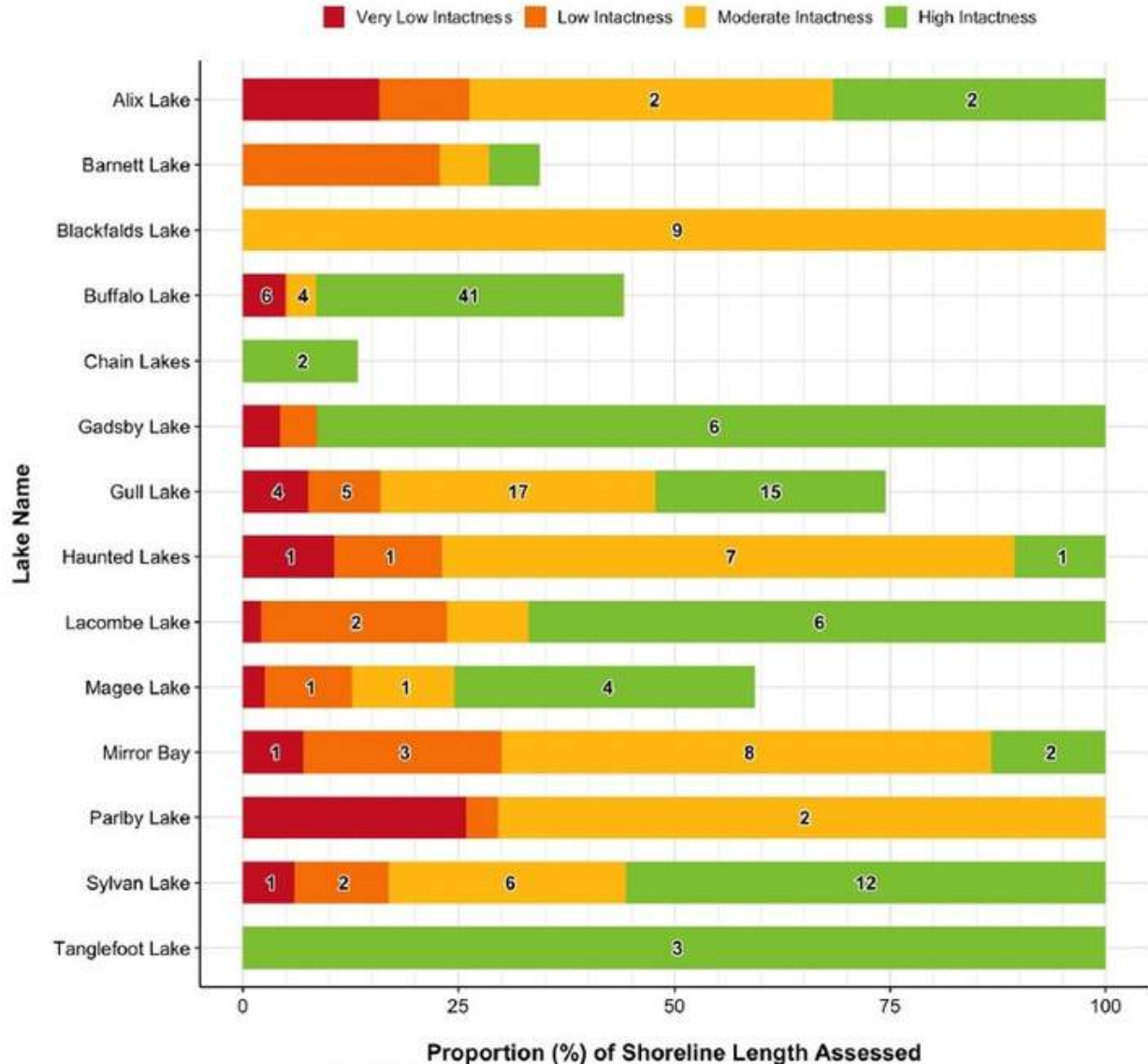


Figure 9: Proportions of Riparian Intactness by Named Lakes, within Lacombe County (RWP 2021)

In general, areas bordering named lakes with lower residential density and the presence of Crown land contribute significantly to the level of riparian intactness.

Our Rivers

Lacombe County has several significant watercourses that flow through the municipal borders or demarcate the municipal boundary. The Red Deer River demarcates Lacombe County's southern boundary after the confluence of the Blindman and Red Deer River. The Red Deer, Blindman, and Medicine Rivers are known to host invasive Prussian carp (FWMIS c2025).

Two local environmental conservation organizations, the **Medicine River Watershed Society** and the **Friends of the Blindman River**, have advocated for the conservation and preservation of water quality and quantity within the respective rivers. Data sets around water quality are limited for watercourses within Lacombe County. However, the Medicine River Watershed Society's advocacy and support have resulted in **CreekWatch** data sets. CreekWatch is a program of the non-profit RiverWatch Institute of Alberta, which leads an initiative to monitor and improve the health of Alberta creeks and waterways (CreekWatch c2025). Unfortunately, the Blindman River has not had CreekWatch monitoring and data sets are limited to provincial monitoring efforts.

The water quality parameters presented in this section are based on data from 2013 to 2025, aligning with the original Lacombe County State of the Environment Report. However, the years presented for some parameters may vary due to a lack of sampling efforts or results that heavily skewed the datasets. Indication of nutrient load, such as the presence of nitrogen and phosphorus, is based on a narrative with maintenance as the overall goal to prevent negative changes to algal and aquatic vegetation communities, dissolved oxygen levels, recreational quality, and biodiversity (GoA, 2018). Therefore, nutrient-related data require additional context, including meaningful baseline data, including visual accounts, for meaningful interpretation.

All rivers within Lacombe County have been subject to alterations within the riparian extent through human development. Riparian intactness data reflects the subjugation of riparian areas through the reduction of natural cover for the purposes of human development including agricultural activities, such as cultivation (Fiera Biological Consulting Ltd. 2018 and 2020).



(Above) Can you see our name spelled out using river waterway segments in Lacombe County?

Blindman River

The Blindman River, located in south-central Alberta, has headwaters that originate in Wetaskiwin County. The river is approximately 155 km long, traversing in a southeasterly direction before discharging into the Red Deer River (Fiera Biological Consulting Ltd. 2018). A riparian intactness study was conducted in 2018 and assessed about 225 km of bank, including the left and right banks, along the Blindman River. During this assessment, 113.5 km of the Blindman River was assessed in Lacombe County, 93.1 km in Ponoka County, and 17.8 km within Red Deer County.



Figure 10: Map showing the extent of the Blindman Riparian Assessment (Fiera Biological Consulting Ltd. 2018).

62% of the assessed area was classified as either low or very low intactness (19% and 43%, respectively). Moderate intactness accounted for 18% of the assessed area, and high intactness accounted for 20% (Fiera Biological Consulting Ltd. 2018). Within Lacombe County 63.2% of the area assessed was classified as either low or very low intactness (20.5% and 42.7%, respectively). Moderate intactness accounted for 20.2% of the assessed area and high intactness account for 16.6% (Fiera Biological Consulting Ltd. 2018).



Blindman River (photo credit J.Vander Meulen)



Blindman River (photo credit Heather Keith)

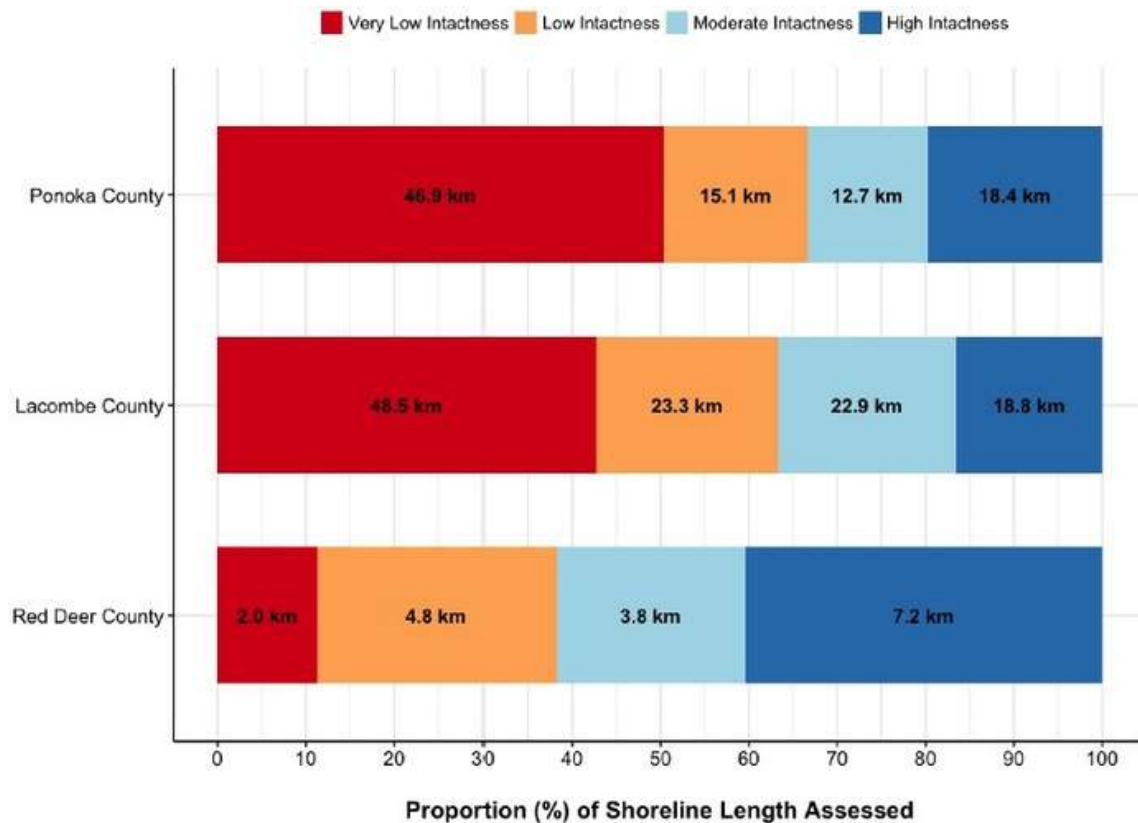


Figure 11: Proportion of bank assigned to each riparian intactness category, summarized by municipality (Fiera Biological Consulting Ltd. 2018).

Water quality data is available for the Blindman River through the provincial Water Quality Data (WQD) Portal (WQD c2025). Hundreds of parameters are present, with sampling dating back to 1987. In general, water quality within the Blindman River is variable, with a decline in quality during times of peak flow, such as spring **freshet**. Selected parameters of note are summarized below:

Blindman River Fecal Coliforms (2013-2025)

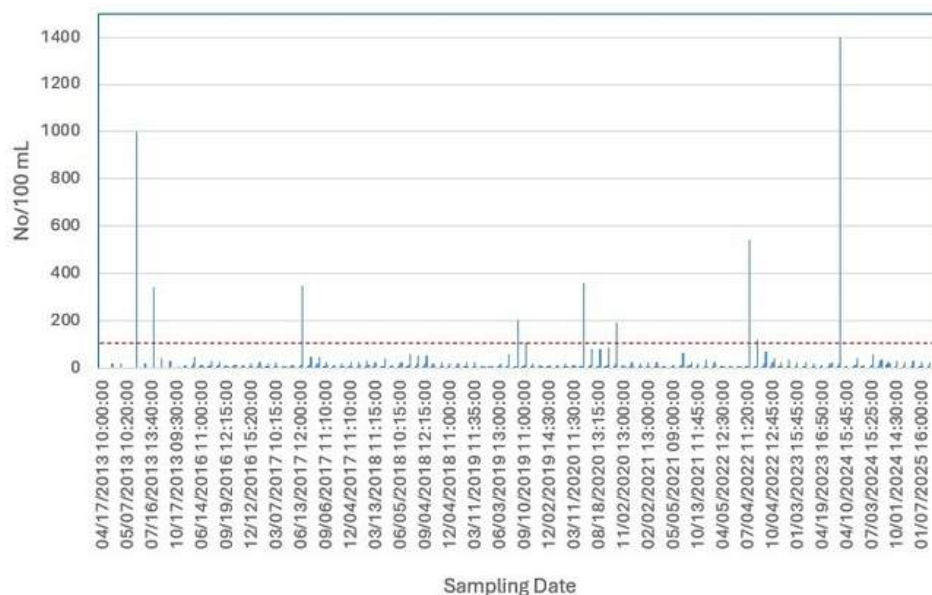


Figure 12: Fecal coliforms detected during water sampling events from 2013 to 2025. Greatest detection occurred on June 20, 2023, with 1400 coliforms detected in 100 mL of sampled water. Water quality guidelines for the protection of agricultural water uses have a set criterion of 100 coliforms/100 mL (shown in red above), which has been exceeded within the Blindman River (GoA c2018).

Blindman River Arsenic Total Recoverable (2016-2025)

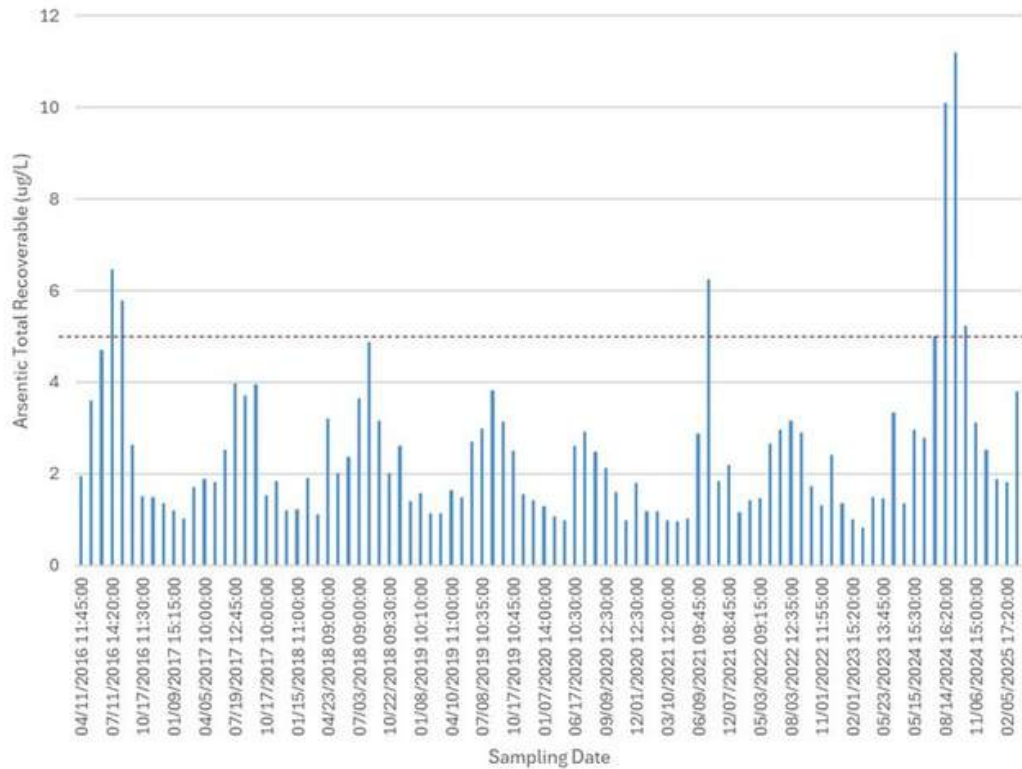


Figure 13: Total recoverable arsenic concentrations detected during water sampling events from 2016 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 5 ug/L (shown in red above), which is exceeded on occasion within the Blindman River (GoA c2018).

Blindman River Dissolved Oxygen (2013-2025)

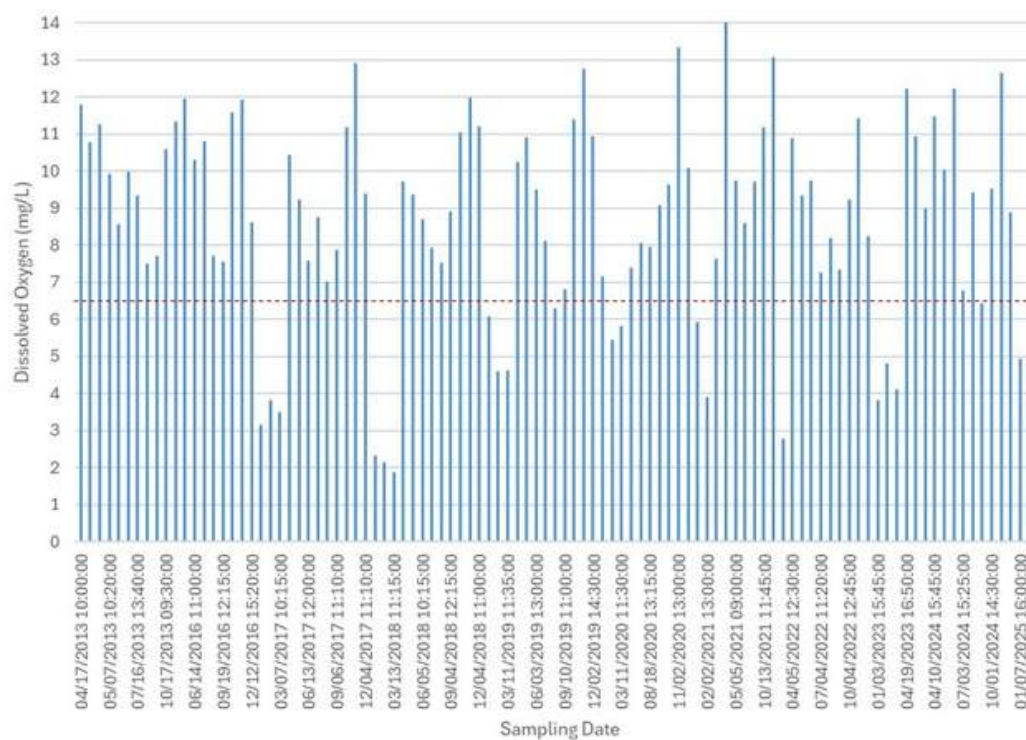


Figure 14: Dissolved oxygen concentrations recorded during water sampling events from 2013 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 6.5 mg/L shown in red above) (GoA c2018). Dissolved oxygen concentrations dip below the set criterion seasonally, with the most common occurrences during the winter months.

Medicine River

The Medicine River is a mid-sized watercourse that originates in Medicine Lake within Clearwater County. The river meanders through the Rocky Mountain House Grazing Reserve and continues to flow southeasterly until it meets the Red Deer River just south of Highway 54 near Markerville. In total, the Medicine River meanders for a total length of approximately 400 km (MRWS 2025). Over the 400 km, the Medicine River experiences an elevation change of only 76 m, corresponding to a gradient of 0.019% (MRWS 2025). Over the course of its path, the Medicine River intersects the counties of Clearwater, Ponoka, Lacombe, and Red Deer.

Across all municipalities, the Medicine River was found to have 30% (127 km) with very low intactness, 12% (51 km) with low intactness, 35% (146 km) with moderate intactness, and 23% (95 km) with high intactness (Fiera Biological Consulting Ltd. 2020). Within Lacombe County, findings from the riparian intactness analysis concluded that 30% (36 km) had very low intactness, 18% (22 km) had low intactness, 44% (53 km) had moderate intactness, and 8% (10 km) had high intactness (Fiera Biological Consulting Ltd. 2020).

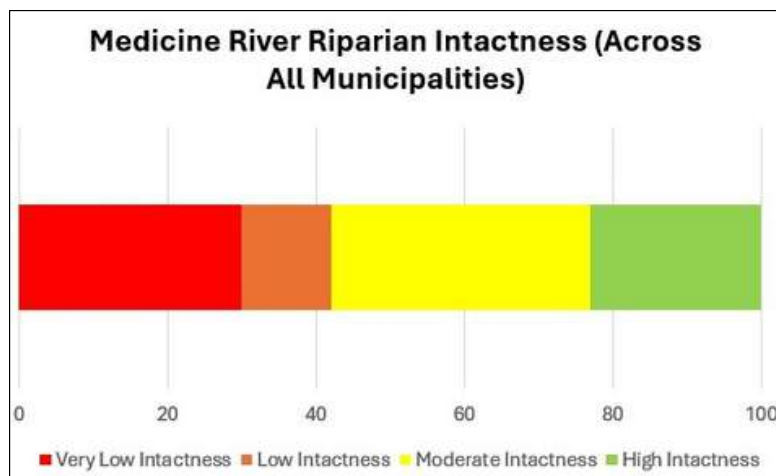


Figure 15: Riparian Intactness of the Medicine River across all municipalities (Fiera Biological Consulting Ltd. 2020).

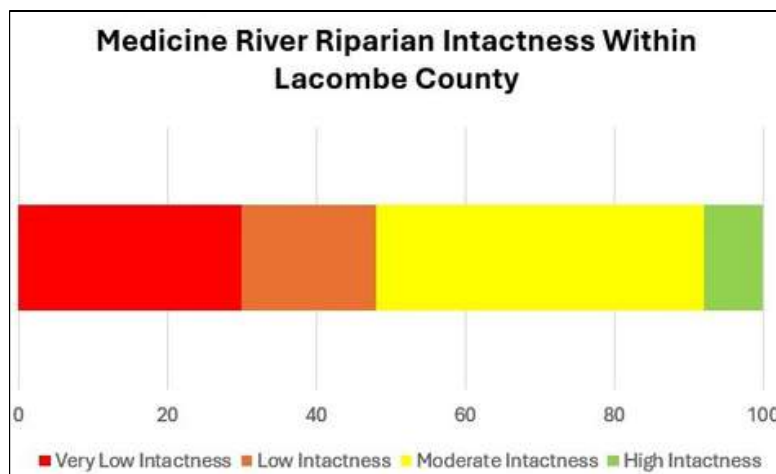


Figure 16: Riparian Intactness of the Medicine River within Lacombe County (Fiera Biological Consulting Ltd. 2020).

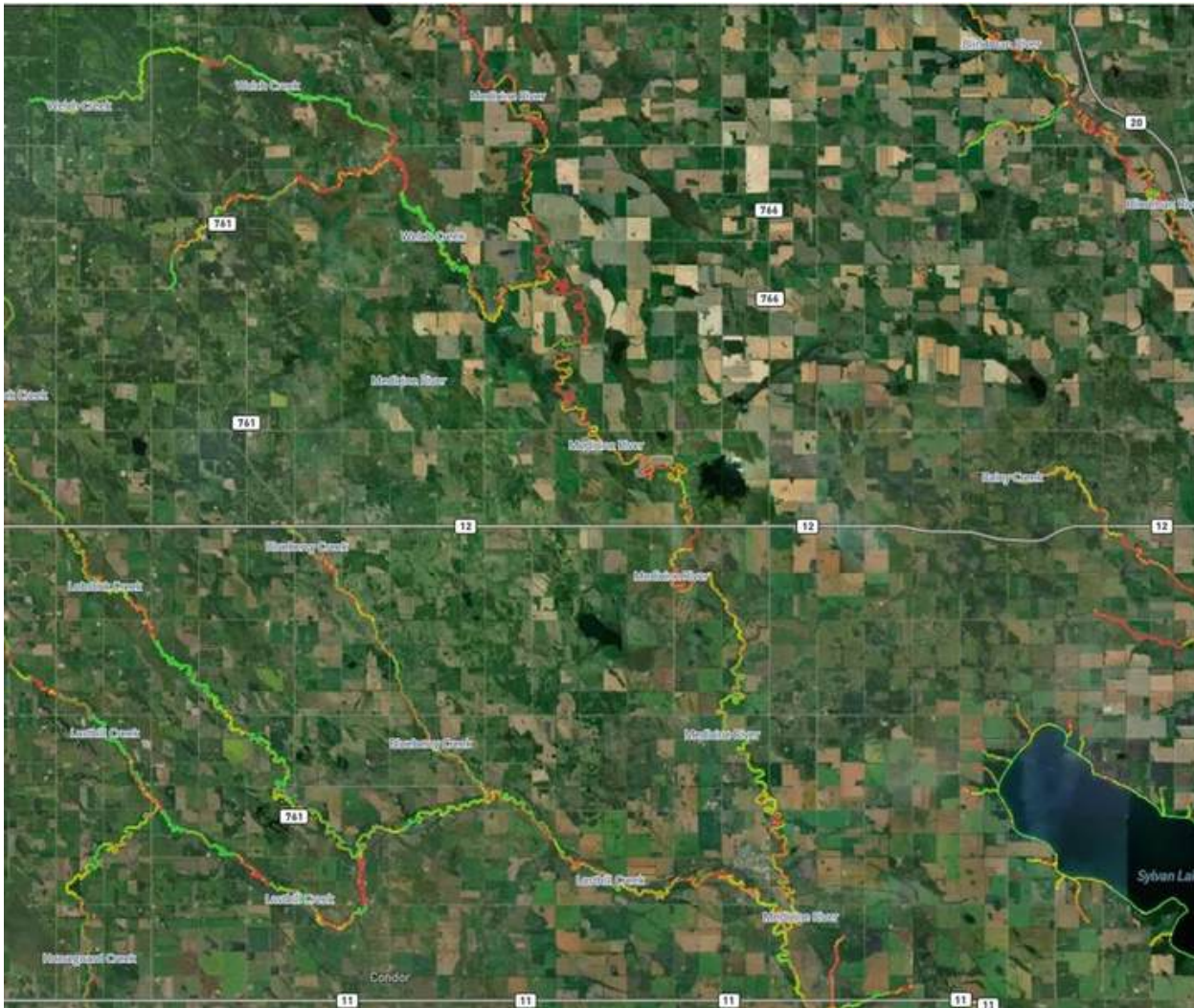


Figure 17: Medicine River Riparian Intactness from South of Highway 53 to North of Highway 11 (RWP c2020).

Water quality within the Medicine River has been sampled through volunteer efforts and partnership with CreekWatch. Additional water quality data was referenced from the provincial Water Quality Data (WQD) Portal (WQD c2025). In general, the Medicine River sees similar trends in water quality data to the Blindman River, with water quality decreasing during times of peak flow related to major runoff events like spring **freshet**.

Medicine River - Relationship between Dissolved Oxygen and Temperature

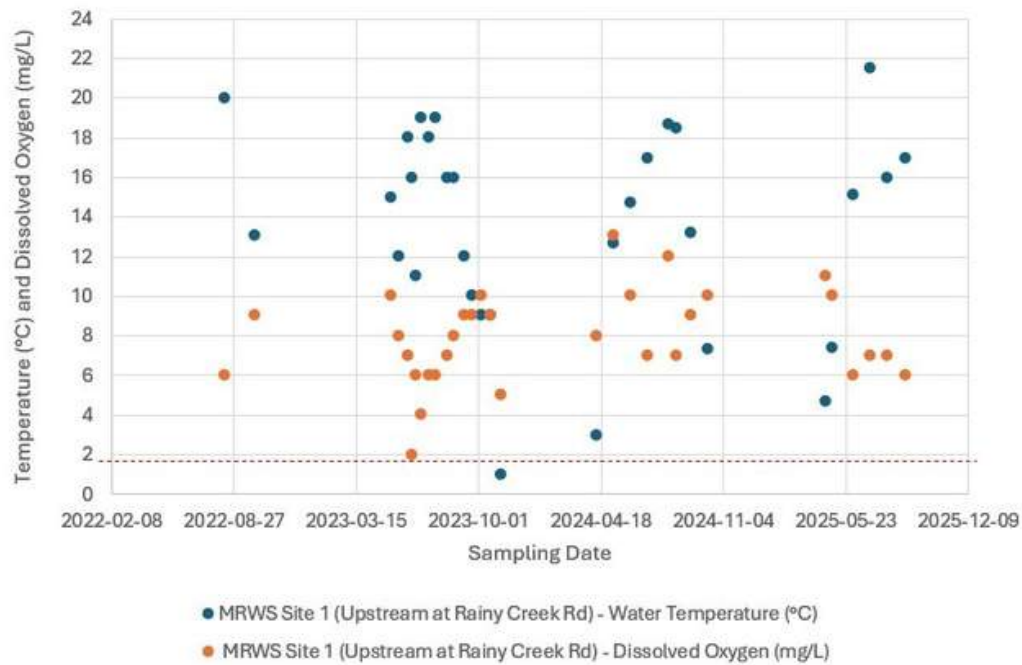


Figure 18: Relationship between temperature and dissolved oxygen concentrations within the Medicine River (RiverWatch c2025). Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 6.5 mg/L shown in red above) (GoA c2018). In general, higher water temperatures result in lower dissolved oxygen concentrations.



Medicine River Fecal Coliforms (2016-2025)

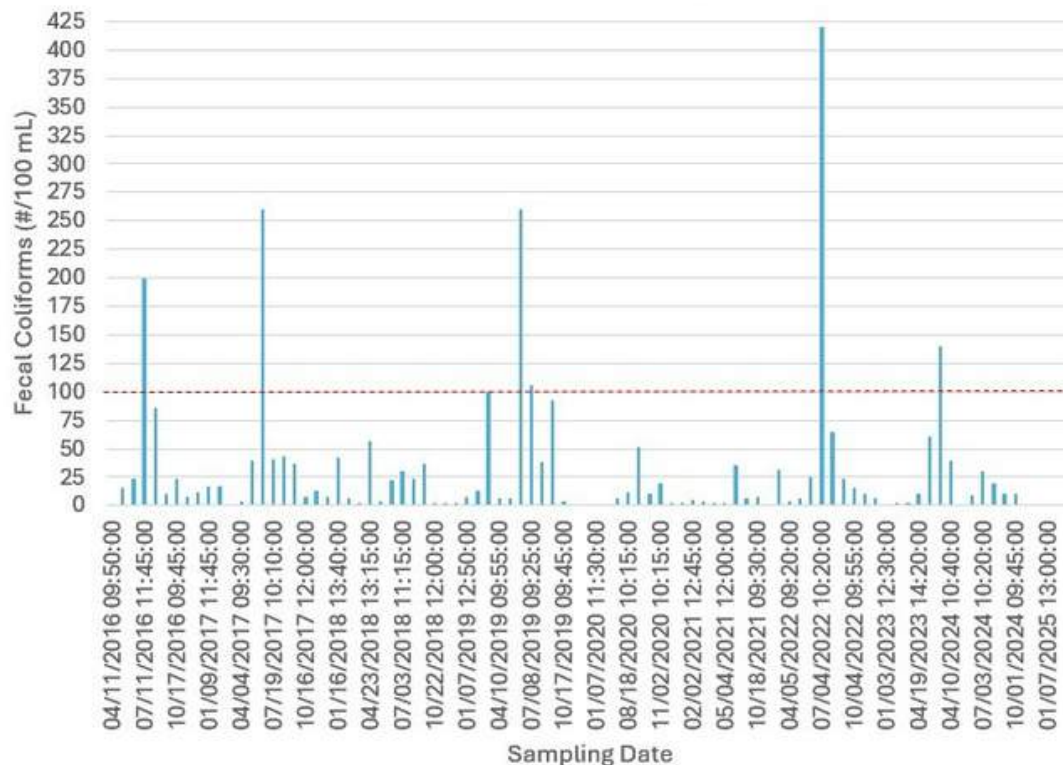


Figure 19: Fecal coliforms detected during water sampling events from 2016 to 2025. A sampling event from May 27, 2013, greatly skewed the dataset with 2900 coliforms detected in 100 mL of sampled water. As a result, data presented within the chart above was reduced to 2016-2025 sampling events. Water quality guidelines for the protection of agricultural water uses have a set criterion of 100 coliforms/100 mL (shown in red above), which has been exceeded within the Medicine River (GoA c2018).

Medicine River Arsenic Total Recoverable (2016-2025)

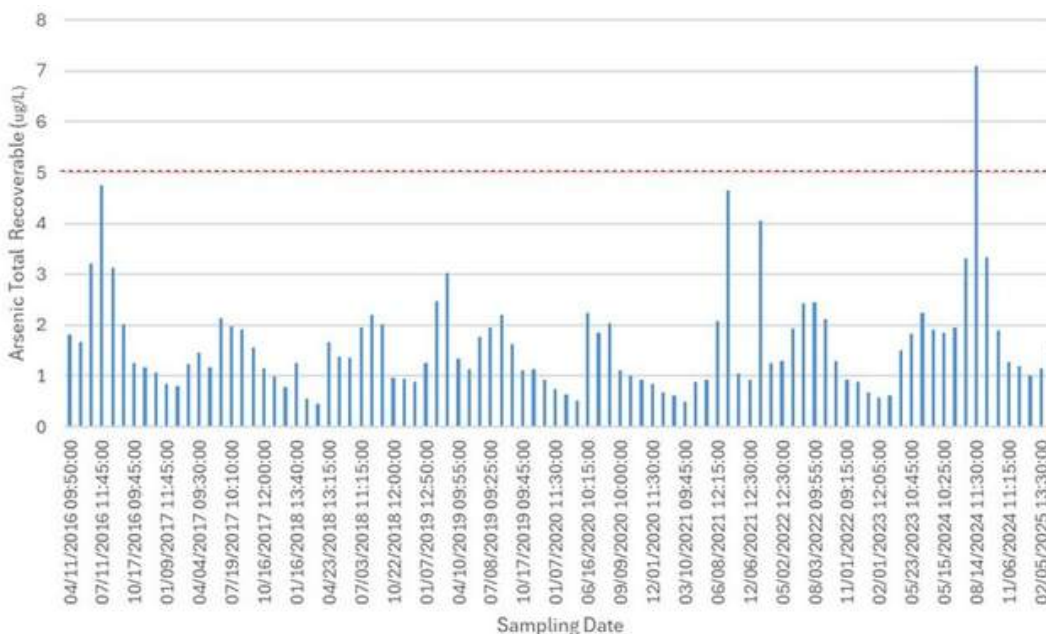


Figure 20: Total recoverable arsenic concentrations detected during water sampling events from 2016 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 5 µg/L (shown in red above), which is rarely exceeded on within the Medicine River (GoA c2018).

Red Deer River

The Red Deer River originates in the Rocky Mountains within Banff National Park. The Red Deer River flows through diverse landscapes, including urban municipalities and agricultural lands, over the course of rivers 724 km length (RDRWA). The Red Deer River has a gross drainage area of 47,032 km² and an average naturalized flow (1912-2021) of 1,666,000 cubic decametres (one trillion six hundred sixty-six billion liters) near the mouth (RDRWA 2025).

While some meltwater from glaciers in the headwaters feeds into the river, the bulk of the Red Deer River's discharge originates from precipitation (Figure 21, shown below), including snowmelt, from the Rocky Mountain and Foothills natural regions (RDRWA 2025). The Red Deer River Watershed Alliance has divided the river's watershed into five watershed management zones and includes (Figure 22, on the following page):

- Upper Headwaters;
- Lower Headwaters;
- Central Urbanizing;
- Central Agriculture; and
- Dry Grasslands.

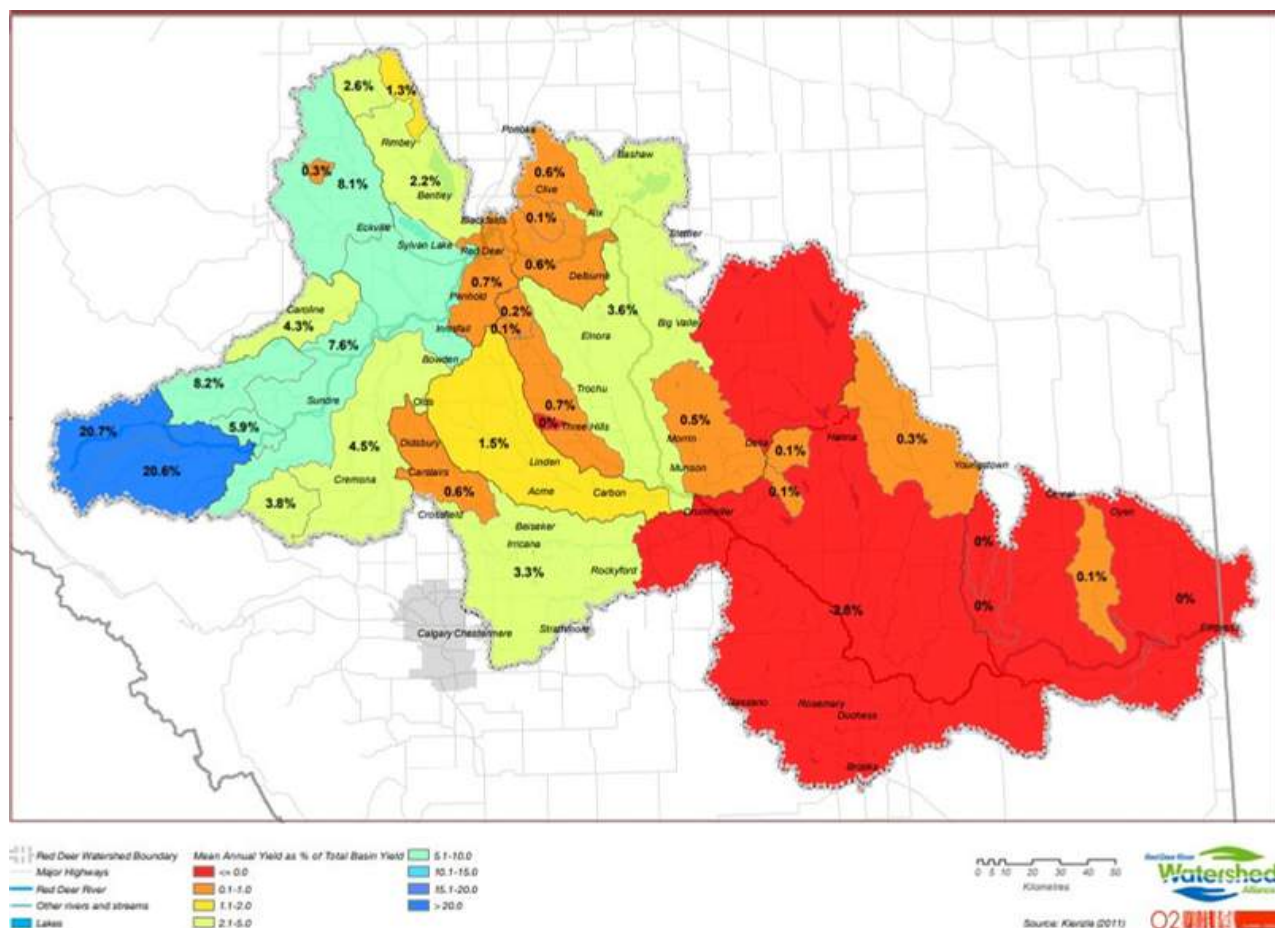


Figure 21: Mean Annual Water Yield (%) of the Red Deer River Watershed (O2 Planning + Design Inc. 2013)



Figure 22: Red Deer River watershed management zones (RDRWA 2025)

The Medicine River and Blindman River are tributaries of the Red Deer River, which forms the southernmost municipal boundary of Lacombe County east of the confluence of the Blindman and Red Deer Rivers. Although exceedances of select water quality guidelines were documented within the Medicine and Blindman Rivers, as noted above, these upstream conditions are muted in the water quality of the Red Deer River near the County's eastern boundary. This is likely due to the significant dilution capacity of the Red Deer River, as the majority of its flow originates from high-quality headwaters in the eastern slopes of the Rocky Mountains. Water quality parameters for the Red Deer River, sampled near the Nevis bridge, are highlighted on the following page.



Red Deer River Fecal Coliforms (2014-2025)

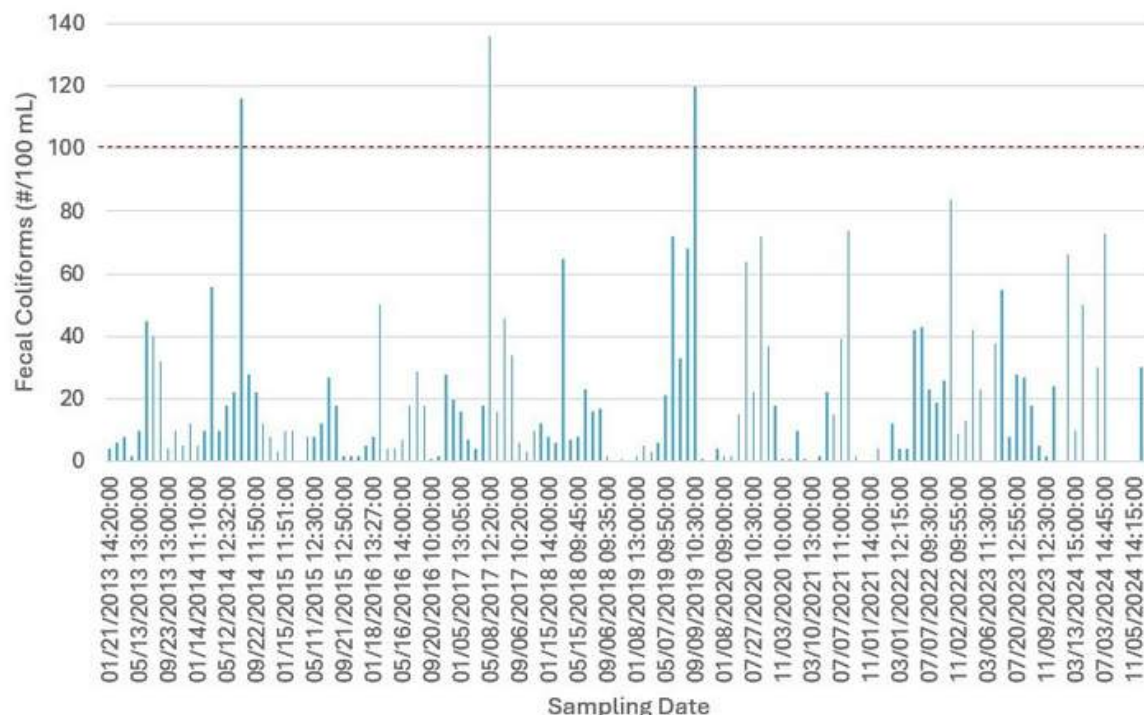


Figure 23: Fecal coliforms detected during water sampling events from 2013 to 2025. A sampling event from May 8, 2017, had the largest detection with 136 fecal coliforms in 100 mL of sampled water. Water quality guidelines for the protection of agricultural water uses have a set criterion of 100 coliforms/100 mL (shown in red above), which has been exceeded within the Medicine River (GoA c2018).

Red Deer River Arsenic Total Recoverable (2013-2025)

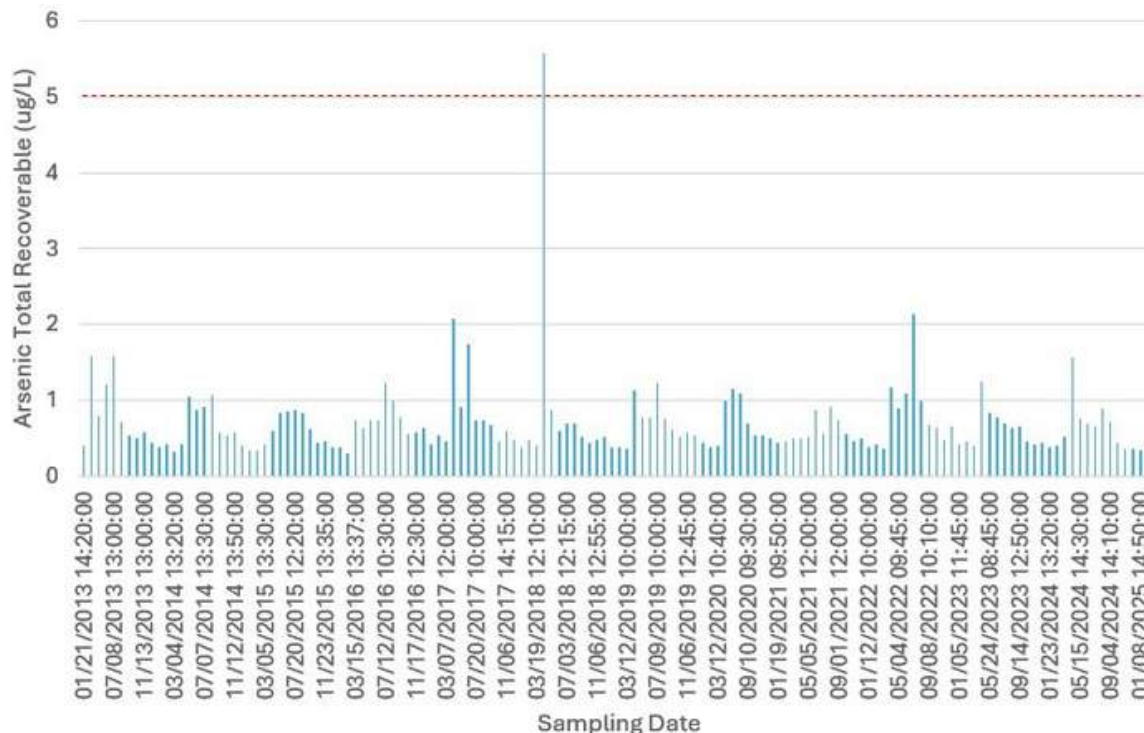


Figure 24: Total recoverable arsenic concentrations detected during water sampling events from 2013 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 5 µg/L (shown in red above), which is rarely exceeded within the Red Deer River (GoA c2018).

Red Deer River Dissolved Oxygen (2014-2025)

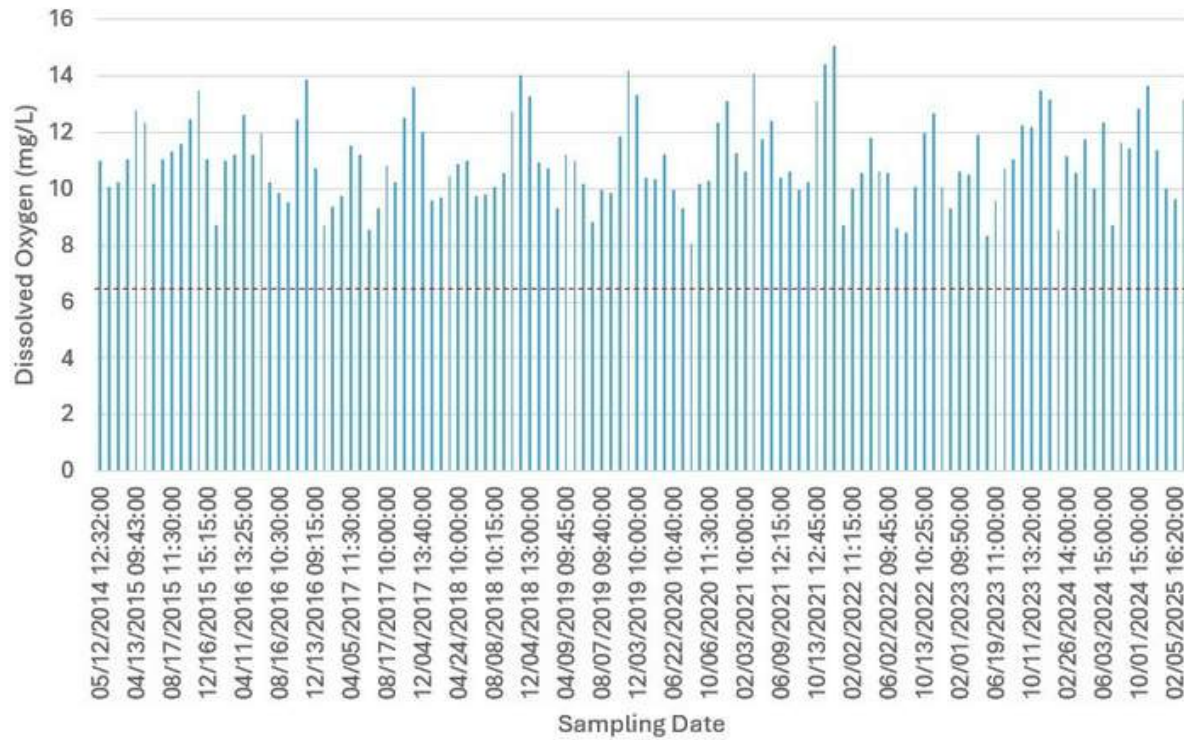


Figure 25: Dissolved oxygen concentrations recorded during water sampling events from 2014 to 2025. Water quality guidelines for the protection of freshwater aquatic life have a set criterion of 6.5 mg/L shown in red above) (GoA c2018). Dissolved oxygen concentrations within the Red Deer River remain stable year-round.

OUR Glossary

Euphotic Depth the maximum depth where enough light penetrates the water for photosynthesis.

Eutrophic an aquatic environment that is rich in nutrients, particularly nitrogen and phosphorus, which promotes excessive growth of algae and aquatic plants.

Freshet stream rise and water flow originating from snowmelt.

Gross Drainage Area the total area of land that can potentially contribute runoff.

Hydrometric Station a data collection tool on a river, lake, estuary, or reservoir where water quantity and sometimes quality is collected and recorded.

Mesotrophic an aquatic environment that has a moderate level of nutrients and productivity.

Microcystin cyanotoxins produced by blue-green algae (cyanobacteria), which is a potent liver toxin.

Naturalized Flow an estimation of a natural flow state where human alteration, disturbance, and influence are not factored into the calculations.

Oligotrophic an aquatic environment that has a low level of nutrients and productivity.

Riparian the lands between the aquatic environment, such as a river, wetland, or lake, and the neighbouring uplands.

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Evaluation Form

Please take a few minutes and provide us with feedback on the SOE. Please scan and email or post the feedback form back to Jordan Nakonechny, Environmental Coordinator at Lacombe County.

T4L 2N3

(Strongly agree)

1. Was there any information missing from the State of the Environment report that you would have like to have seen reported on?

4. Did you learn anything new from the State of the Environment report? If yes, what are some examples?

5. What do you think Lacombe County should do with the information presented in the report?

6. How did you hear about the State of the Environment Report?

THANK YOU FOR YOUR FEEDBACK

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