State of the Environment

2015 Supplemental Report

LACOMBE COUNTY

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THE STATE OF THE ENVIRONMENT 2015 SUPPLEMENTAL 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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- Cajun Paradis, Acting Environmental Coordinator
- Peter Duke, Planner/Development Officer
- Alberta Lake Management Society (ALMS)
- Alberta Environment and Sustainable Resource Development (ESRD)
- Alberta Biodiversity Monitoring Institute (ABMI)

Photo credit:

- Cajun Paradis, Acting Environmental Coordinator

To obtain additional copies of the report:

On the web:

- The 2013 State of the Environment in Lacombe County, the 2014 Supplemental Report and the 2015 Supplemental Report are available on our website: www.lacombecounty.com

Paper copies:

- Please contact Lacombe County directly at 403-782-6601

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Blindman River, North of Bentley

INTRODUCTION

The very first Lacombe County State of the Environment report (SOE) was released in the winter of 2013 with the promise of annual updates tracking changes over the next five years. At the end of the five year period a full updated SOE will be written. The purpose of the 2015 Supplemental Report is to provide updated or supplemental information that is now available since the release of the initial SOE report during the winter of 2013, and the supplemental report in 2014.

Lacombe County is making gains in environmental management, while maintaining our focus on internal operations. Most actions in the first few years are concentrating on setting up the framework for the system. This supplemental report is meant to exemplify the hard work that is being undertaken by the Lacombe County staff and Councillors and in turn we hope to inspire residents to take a proactive approach to reducing their footprint on the environment.

There are many opportunities for improvement of which we are aware and we welcome both positive and constructive feedback from our community members. Without your diligent eyes on the ground we may miss important changes that can and should be happening in the County.

Lacombe County is dedicated to working towards the 20 year vision set by the residents, staff and Councillors of Lacombe County.

- Improved habitat including better water quality within the County;
- Establish a sense of identity that is focused on agriculture; and
- Create a thorough, balanced and transparent system for making decisions about development.

Medicine Hills, West of Bentley

To help exemplify changes over the past year the following data is being presented:

- Department Updates;
- Lacombe County Program and Policy Highlights; and
- Environmental Conditions.

DEPARTMENT UPDATES

Highlights in the Agricultural Sector

Lacombe County empowered by provincial legislation continues to administer the Alberta Weed Control Act. The Act is written to protect agricultural lands from prohibited noxious and noxious weeds causing economic impacts to area producers, as well as preserving natural ecological areas from invasive species. The County in the past has concentrated its efforts on the control of five noxious weeds: Canada Thistle, Common Tansy, Leafy Spurge, Scentless Chamomile and Yellow Toadflax.

Recently Tall Buttercup designated as a Noxious Weed has been increasing in numbers throughout the County. First discovered in the Western portion of the County, Tall Buttercup populations have now been established in the Central and Eastern portions of the County. Transportation of hay and livestock is the most likely cause of spread. Tall Buttercup is not a problem in annual field crops; however it is a threat to hay, rangelands and natural areas. Tall Buttercup thrives in low lying moist conditions found in natural wetlands and riparian areas, complicating control efforts and at times requiring specialized application equipment.


Himalayan Balsam


Yellow Toadflax


Tall Buttercup


Canada Thistle

60 AC RECLAIMED

Hawk

Highlights in the Operations Sector

Crooker Pit Reclamation and Wetland Compensation Project

- The plan for the Crooker Pit is to transform a depleted gravel pit back into natural habitat and wetlands. This work will take place over the next three years.
- In 2014 16,000 cubic meters of topsoil was imported for the final reclamation and wetland development, which is planned for late 2015 or 2016. In 2014 the County did a considerable amount of site improvements with the construction equipment. The site improvements included leveling of the site and preparing an area to stockpile top soil. The perimeter slopes were also improved to match the final design.

Drader Pit Reclamation

- The pit is currently an active gravel pit, with an implemented progressive reclamation plan that will include wildlife habitat and a wetland area. In 2014 a tree planting program was started and approximately 14,000 cubic metres of top soil was hauled in to be used in the final reclamation process. This pit has an estimated life expectancy for the active gravel removal of 10 years but starting reclamation now will reduce the amount of work and speed up the site reclamation when the gravel resource is depleted.

Tees Pit Reclamation

- This gravel pit is depleted and reclaimed. The process was started (site improvements including seeding of grass) to receive a reclamation certificate and the goal is to have that finalized in 2015.

County Reserve Land, Gull Lake

2 OHV TRAILS

Gull Lake Environmentally Sensitive Area

- Running parallel along the communities of McLaurin Beach, New Saratoga, and Wilson's beach is an area of high environmental value. Some of the parcels between residential communities and the lakeshore are owned and managed by Lacombe County, and some are further designated Environment Reserve. This area of land has a unique topographic profile which allows for a very wide and extensive riparian edge along the lake, with an upland area. There have been numerous issues in the area with residents and visitors accessing the lake through the use of motorized vehicles along unauthorized trails. As such, the area has seen extensive environmental degradation and damage caused by the OHV's. This damage has been ongoing for years and various options were considered.
- Currently there are two designated trails that allow access to the lake via OHV's for residents and visitors. These trails are located at the communities of New Saratoga and Wilson's Beach.
- In 2014 the Operations department built the OHV trail and a staging area for community use by New Saratoga. In addition to the new trail, 49 signs were installed to educate the public on the value of the environmental reserve and delineate the reserve area.

County Reserve Land, Gull Lake

130
TREES PLANTED


Red-Osier Dogwood


Moose, Aspelund Road

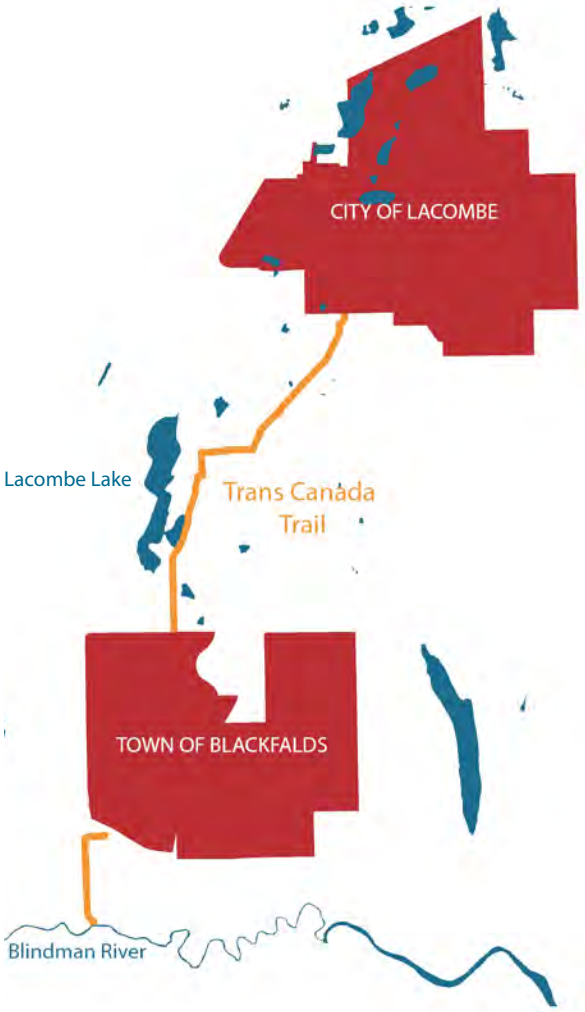
Project Plant

- D&M Concrete Products Ltd. (D&M) operates a gravel pit on property that was gifted to Lacombe County. Both parties recognize that when possible it is important to return landscapes to a more natural condition. In that spirit D&M and the County agreed to work cooperatively to undertake tree planting on Pt. NW 32-40-27-W4M as part of the overall final reclamation of the D&M gravel pit.
- In 2014 Project Plant was initiated. This project consisted of hosting a school tree planting day on May 13, 2014. Two fortunate Grade 5 classes from the City of Lacombe participated as the community planters for the project. Approximately 60 children accompanied by teachers and parent helpers attended a field trip to the planting site. The day's agenda included guest speakers Rebecca Heemeryck, an Area Forester with Alberta Environment and Sustainable Resource Development, and Waskasoo Park with an interactive activity about nutrients and forest succession, planting and watering seedlings, and a barbecue lunch.
- Due to its success a 2015 project has been planned.

Trans Canada Trail

- Lacombe County is doing its part to help build trails and achieve the Trans Canada Trail dream. The Trans Canada Trail is one of the world's longest networks of trails, developed and promoted by a non-profit registered charity. When completed, the Trail will stretch nearly 24,000 kilometres from the Atlantic to the Pacific to the Arctic oceans, linking Canadians in close to 1,000 communities. Today, over 17,000 kilometres of Trail have been developed. Millions of Canadians and international visitors are using the Trail to hike, cycle, ski, horseback ride, canoe and snowmobile. The Trans Canada Trail offers countless opportunities to explore Canada's diverse landscapes and rich history.
- In Lacombe County , two trails have been built since 2010 that make up a link of the Trans Canada Trail. The first is from Blackfalds south to the Blindman River. It is 2028 metres in length and was completed in 2010. A second trail was built from Lacombe to Blackfalds. It is 8074 metres in length and was completed in 2012.
- A number of partners were involved in building the trails including the National Trails Coalition, Alberta TrailNet, and Central Alberta Regional Trails Society (CARTS) providing funding and support for the trail and Blindman River bridge construction. Additionally, much of the labour work for the bridge crossing was provided by Army Reservists of the 25 and 33 Engineering Squadrons, and 41 Combat Engineer Regiment (41 CER). Lacombe County undertook the brushing and base construction for both trails as well as construction of boardwalks, installation of benches, garbage's and the construction of day use sites including washrooms at Lacombe Lake and the Blindman River.

Figure 1
Trans Canada Trail



10.1 KM TRANS CANADA TRAIL

Highlights in the Environmental & Protective Services Sector

Aquatic Invasive Species

- Lacombe County extended its efforts to keep its lakes free of aquatic invasive species (AIS). These species include Eurasian Watermilfoil, Quagga Mussels or Zebra Mussels.
- Lacombe County and ESRD collaborated with Alberta Parks, Commercial Vehicle Enforcement, and the Summer Villages of Sylvan Lake to host an AIS Awareness Event at the Sunbreaker Cove Boat Launch on Sylvan Lake. A total of 14 boats were inspected and found to have no invasive species present.

Sunbreaker Cove boat launch, Sylvan Lake

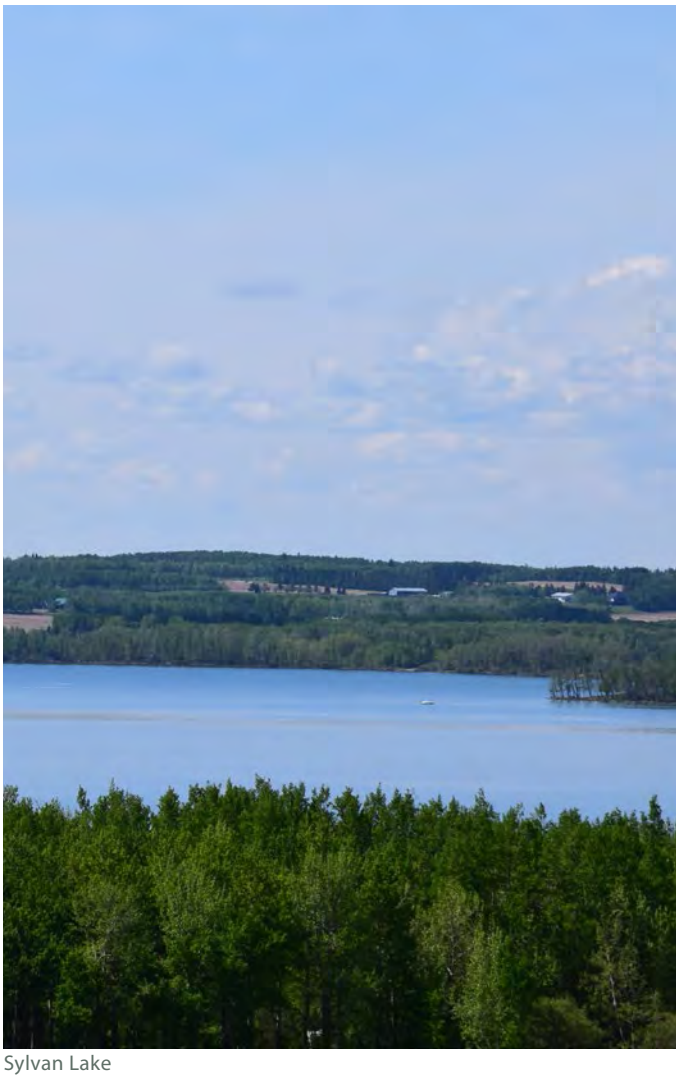
14 BOATS INSPECTED

0 AIS

Communal Sewage System at Sylvan Lake

- Lacombe County has undertaken a project which will include the communities of Blissful Beach, Kuusamo Krest, Yuill, and Palm Bay linking into a communal sewage system. These systems will be installed and ready for individual connections over the spring and summer of 2015.
- Each system consists of a set of holding tanks and low pressure piping that allows homeowners to connect their current sewage systems simply by the addition of a low pressure grinder pump and tank where needed. The operation of this system is governed by a County Bylaw and will see all the residents of these areas (a total of 69 residences) connect by the year 2020.
- For the interim, this sewage will be hauled by truck to the septage receiving station located just north of Sylvan Lake. In future, when the sewage collection line is completed around the lake, these systems will be connected and ultimately send this sewage to the City of Red Deer Wastewater Treatment Plant.
- This project is being funded by a Federal Building Canada Fund Grant, Lacombe County, and the residents affected by this project.

69
EXISTING RESIDENCES CONNECTED



Sylvan Lake

Highlights in the Planning Sector

Subdivision and Development Activity

- Considered 245 Development Permit applications, and 46 subdivision applications.
- Created approximately 80 residential lots, 30 industrial lots, 64 recreational vehicle lots and 50 agricultural parcels in the County.
- Approved the first residence to be connected to the Sylvan Lake Regional Waste Water Line as part of the 49 lot Slopes Development.
- Approved an 11 lot industrial development west of Blackfalds known as South Aspelund Industrial Park that is fully serviced by water and waste water services provided through a partnership with the Town of Blackfalds.

64
RECREATIONAL LOTS

80
RESIDENTIAL LOTS

House development at Eagle's Quay, Sylvan Lake

Park Model development at Degraff's RV Resort, Gull Lake

50
AGRICULTURAL PARCELS

30
INDUSTRIAL LOTS

- Completed the Wolf Creek/Whelp Brook Master Drainage Plan in a cooperative effort with the City of Lacombe, Town of Blackfalds and Ponoka County to jointly regulate the amount of storm water being added into the drainage system.
- Endorsed the first phase of the Sandy Point RV Resort on Gull Lake which created 64 RV lots, an inland Marina, an 18 hole golf course, a public beach and public trails and amenities.

Table 1
Land Use Changes from Agriculture in Lacombe County, 2014

Description	Total Acres
Residential	157.13
Industrial	241.05
Commercial	-
Recreational	705.63
Sand and Gravel Pits	41.47

Reserves

- Lacombe County promotes the development of a healthy environment and healthy workplace through the dedication of municipal reserve in industrial and commercial business parks. The MR space allows for the development of trail systems, park areas and other public amenities. In 2014 walking trails were dedicated as part of the North Aspelund and South Aspelund Industrial Parks. In addition to commercial and industrial areas the County is also ensuring the development of trails on our recreational lakes with dedicated trails in Sandy Point on Gull Lake and the Shores developments on Sylvan Lake. Table 2 provides more detail on the acres of reserves dedicated in 2012 and 2014.

Table 2
Environmental Reserves in Lacombe County

Year	Number of Properties	Total Acres
2012	20	134.55
2014	29	158.87

Municipal Reserves in Lacombe County

Year	Number of Properties	Total Acres
2012	47	54.18
2014	59	191.91

Squirrel

351
ACRES
RESERVES

NOVA Chemicals, Joffre Expansion Project

Long Range Planning

- Long range planning is in full swing. Plans such as Intermunicipal Development Plans (IDP's) and Area Structure Plans (ASP's) guide future growth and development within Lacombe County. Lacombe County is planning to review the Municipal Development Plan (MDP) and Land Use Bylaw (LUB) over the next few years which provides the policy framework for this growth.
- Since 2008 Lacombe County has updated or developed 7 IDP's with neighboring municipalities, 8 ASP's and 2 recreational plans. The remaining plans identified in the MDP will be put on hold until the review of the MDP and LUB is completed in 2015-2017.
- Table 3 provides more detail on Lacombe County's Long Range Planning Program for 2015-2017.

Table 3
Long Range Planning Program, 2015-2017

Topic	2015	2016	2017
Carryover Studies	Mirror Area Structure Plan Lacombe Intermunicipal Development Plan Review	Municipal Development Plan Land Use Bylaw	Municipal Development Plan Land Use Bylaw
Updated Planning Studies	Municipal Development Plan Land Use Bylaw	None Scheduled	Gull Lake Parks, Recreation and Open Space Plan

LACOMBE COUNTY PROGRAM AND POLICY HIGHLIGHTS

In addition to the Environmental Management System the Environmental Coordinator also works with all departments in the County on day to day projects and partners with external agencies to help manage the County's environmental footprint. The highlights for 2014 include:

Environmental Management System

- The Lacombe County internal Environmental Management Plan (EMP) was adopted by Council in March 2014.
- The EMP is the guiding document that helps to provide direction to Lacombe County staff and Councilors in regards to environmental management regarding County operations. Each of the five priority areas has been assigned initial goals over a three tiered timeframe including six months, one year, and two year targets.
- The environmental steering committee chose energy consumption and efficient use of water as the two priority areas to begin focusing on for the first year of implementation. They represent a short and long term goal for internal county operations.
- The six month goals were started after the adoption of the EMP in March 2014.
- For more details, please see *Lacombe County's Environmental Management Plan 2015 Supplemental Report.*

Energy consumption

Efficient use of water

Land use in the natural and built environment

Waste creation and disposal

Water quality

Idle Reduction

- Lacombe County has partnered with Parkland Airshed Management Zone to run a pilot project that targets the reduction of idling within County operations. Work completed in 2014 was the establishment of a committee to tackle the issue. Ongoing data collection and program design will continue through 2015.

Environmental Policy

- Lacombe County is committed to a healthy environment for current and future generations. In order to achieve this goal the County is continuing to focus their efforts on monitoring and improving internal County Operations in order to conserve, protect, and enhance the environment in balance with social and economic needs.
- Lacombe County is enacting their environmental policy through the delivery of a number of education and extension programs as listed below as well as through the achievement of goals as per the Environmental Management Plan.

Environmental Improvement Grant Program

- Lacombe County Council approved the launch of the Environmental Improvement Grant program and policy starting in 2014 for a three year trial. The grant program aims to provide financial assistance to community groups and schools to develop or deliver community-based environmental services and programs within the County.
- Through the 2014 program Lacombe County supported four community organizations with environmental projects.

ALMS Water Sampling at Lacombe Lake

$7,500 GRANTS DISPERSED

4 PROJECTS SUPPORTED

Lacombe Lake

- Cows and Fish received $2,000 through the grant program. Their 2014 project involved education and outreach regarding riparian health with landowners in the Medicine River Watershed. The aim was to better help landowners tackle riparian health issues and implement management changes.
- Lacombe Lake Watershed Stewardship Society received $2,000 through the grant program. Their 2014 project involved water quality monitoring and education in the lake watershed, including an Aquatic Invasive Plant workshop.
- Friends of Chain Lakes received $2,000 through the grant program. Their 2014 project involved measuring riparian health in partnership with Cows and Fish, to increase their understanding of Chain Lakes.
- Medicine River Watershed Society received $1,500 through the grant program. Their 2014 project involved planting trees in conjunction with their partner, Agroforestry and Woodlot Extension Society (AWES) in the Medicine River watershed area. The aim of the project was to educate the public on how to improve water conditions in the watershed through member activities. The society promoted watershed awareness, improvement and biodiversity through riparian planting of native trees, and education through partnership with AWES.

Sylvan Lake Management Committee

Take it Off Program

- In 2011 there were 25 ice shacks left on Sylvan Lake after the March 31st deadline to remove them. This issue brought home the need for a coordinated approach to remove and manage ice huts on our lakes. The huts that were left had the potential to cause serious environmental and health issues. The debris included wood, gasoline, and furniture, plastic and metal. This debris may either settle at the bottom of the lake or float to the surface after the ice has melted. This unwanted debris causes boating and swimming hazards, washes up on shorelines as garbage, and causes detrimental contamination to fish and waterfowl habitat. The end result is pollution

to the lake and environmental concerns from those fishermen who do not respect the lake or the sport.

- Out of this issue rose the Take it off Program. The program was formed by the Sylvan lake Management committee which consists of the eight municipalities around Sylvan Lake including Lacombe County. The program has three main components, education, voluntary registration and ice hut removal.
- The program began in earnest during the winter of 2012 when in conjunction with the local RCMP, a voluntary registration process was developed. Fishermen were encouraged to register their huts and were assigned a 3 digit number that was permanently visible on the structure. The RCMP would use that registration information to contact owners if the ice hut was vandalized while left unattended or to contact owners at the close of the season if the ice hut was still on the lake.
- An educational brochure was developed to compliment the voluntary registration program. When it was first launched site visits were done to individual fish huts which was complimented with wide spread media coverage to spread the word. In 2014 we continued to see attention from the media on this topic.
- The program has been a success on Sylvan Lake with only 3 huts left on the ice after the March 31st deadline in 2014. The three huts remaining were removed by Environment and Sustainable Development. Assistance from Red Deer and Lacombe County was provided to dispose of the huts after they were removed from the lake.

Ice Huts on Sylvan Lake

3

ICE HUTS REMOVED FROM SYLVAN LAKE

Sylvan Lake

Cumulative Effects Management

- Sylvan Lake and its watershed are a healthy, treasured resource where a responsible, collaborative planning approach achieves a balance between development, nature, and recreation. This collaborative approach is the key driving force behind the Sylvan Lake Management Committees mandate. The committee which consists of the eight governing municipalities including Lacombe County, Red Deer County, Town of Sylvan Lake and the summer villages provide a coordinated approach to the implementation of the Sylvan Lake Management Plan (SLMP) to ensure the lake remains a healthy and treasured asset in the future.
- In June 2011, the Sylvan Lake Management Committee (SLMC) partnered with Alberta Sustainable and Resource Development in developing a Cumulative Effects Management Plan for the Sylvan Lake Watershed. It is an on-going, evolving plan which aims to assess, prioritize and address environmental, economic and social needs in the watershed through a collective mission and vision endorsed by the Sylvan Lake Management Committee.
- Highlights in 2014 have seen the culmination of extensive community and stakeholder consultation, the completion of numerous technical reviews in the fields of water quality and quantity, as well as biodiversity, recreation and planning. These studies and engagements have been compiled into a document titled Sylvan Lake Cumulative Effects Management Plan Phase One. This document highlights the importance of understanding what “cumulative effects” mean for the Sylvan Lake Watershed. It introduces and defines the concept of a cumulative effects system, as well as developing three outcome areas, Collaborative Planning, Healthy Environment and Lake, and Diverse Recreation.
- The second phase of the management system will now be to write implementation plans for each of the outcome areas. These plans will be based on the topics of water quality, water quantity, biodiversity, recreation and planning.

ENVIRONMENTAL CONDITIONS

Water Quality

- LakeWatch is a volunteer-based water quality monitoring program offered through the Alberta Lake Management Society (ALMS). LakeWatch is offered to Albertans who are interested in collecting information about their local lake or reservoir. LakeWatch Reports can be used to educate lake users and guide water restoration and management efforts.
- Lacombe Lake, Buffalo Lake and Sylvan Lake were monitored in 2014 through the LakeWatch program. Results will be published in spring 2015.

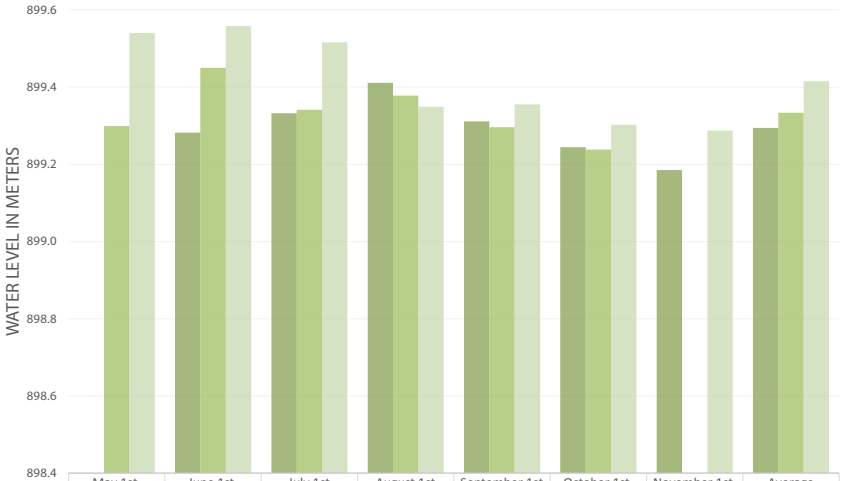
Water Quantity

- The water levels in Buffalo Lake, Sylvan Lake and Gull Lake are monitored every year. The data is collected and collated by Alberta Environment and Sustainable Resource Development. Figures 2, 3 and 4 include comparison data of lake levels in 2012, 2013 and 2014.

Gull Lake

- Gull Lake fluctuated from 899.33 meters in 2013 to 899.41 metres in 2014.
- No pumping of water from the Blindman River into Gull Lake occurred this year. In order for pumping to occur at Gull Lake the water level needs to be drop to well below the full supply level of the lake to a water level of 898.93m before pumping is triggered. The full supply level of Gull Lake is 899.16 meters. During the summer of 2014 Gull Lake maintained an average level of 899.42 meters.

Figure 2
Water Levels Gull Lake, 2012-2014



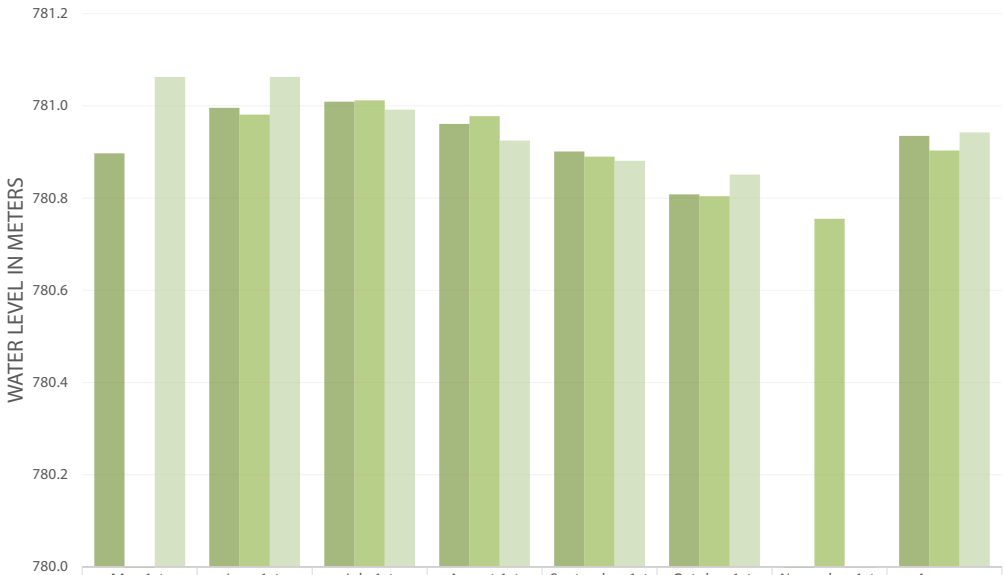
	May 1st	June 1st	July 1st	August 1st	September 1st	October 1st	November 1st	Average
2012	No Data	899.28	899.33	899.41	899.31	899.24	899.19	899.29
2013	899.30	899.45	899.34	899.38	899.30	899.24	No Data	899.33
2014	899.54	899.56	899.52	899.35	899.36	899.30	899.29	899.42

Ray`s Pond

Buffalo Lake

- Buffalo Lake fluctuated from 780.90 meters in 2013 to 780.94 metres in 2014.
- No pumping has occurred into Buffalo Lake since 2010. In order for pumping to occur at Buffalo Lake the water level needs to drop well below the full supply level of the lake to 780.60m. The full supply level of Buffalo Lake is 780.85m. During summer of 2014 Buffalo Lake maintained an average level of 780.94m.

Figure 3
Water Levels Buffalo Lake, 2012-2014

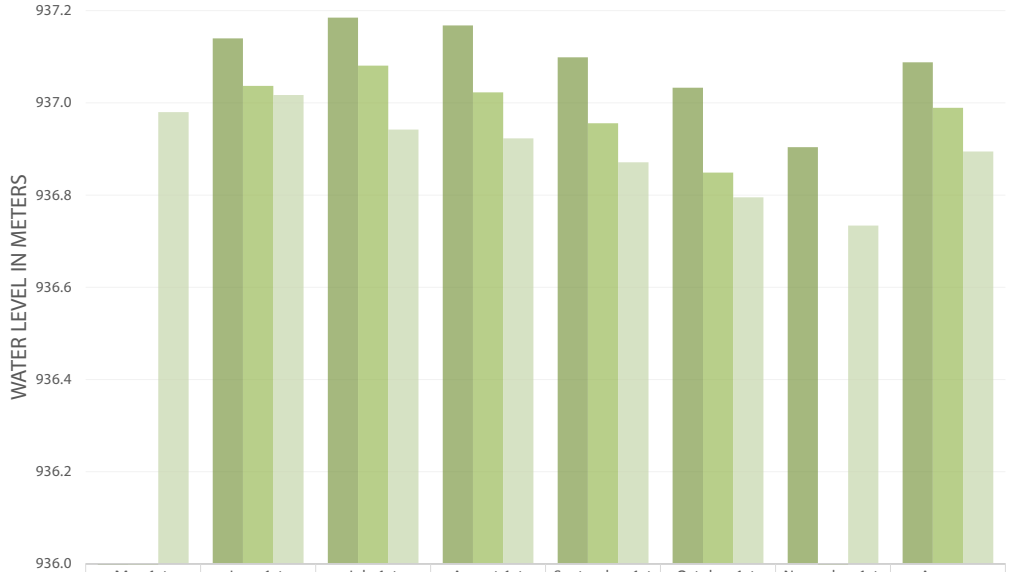


	May 1st	June 1st	July 1st	August 1st	September 1st	October 1st	November 1st	Average
2012	780.90	781.00	781.01	780.96	780.90	780.81	No Data	780.94
2013	No Data	780.98	781.01	780.98	780.89	780.80	780.76	780.90
2014	781.06	781.06	780.99	780.93	780.88	780.85	No Data	780.94

Sylvan Lake

- Sylvan Lake fluctuated from 936.99 meters in 2013 to 936.89 metres in 2014.

Figure 4
Water Levels Sylvan Lake, 2012-2014



	May 1st	June 1st	July 1st	August 1st	September 1st	October 1st	November 1st	Average
2012	No Data	937.14	937.19	937.17	937.10	937.03	936.90	937.09
2013	No Data	937.04	937.08	937.02	936.96	936.85	No Data	936.99
2014	936.98	937.02	936.94	936.92	936.87	936.80	936.73	936.89

Rainbow Trout

Bio-Indicators

Aquatic Invasive Species

- Sylvan Lake, Gull Lake, Buffalo Lake, Alix Lake, Lacombe Lake and Lower Chain Lakes were sampled in 2014 for aquatic invasive species, such as Eurasian Watermilfoil, Quagga Mussels and Zebra Mussels.
- If introduced to Alberta Lakes, these species can cause millions of dollars in damage to aquatic ecosystems as well as water operated infrastructure. Alberta does not currently have Eurasian Watermilfoil, Quagga Mussels or Zebra Mussels, a serious Aquatic Invasive Species threat.
- All lakes sampled in Alberta in the 2014 season tested negative for aquatic invasive species.

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AQUATIC INVASIVE SPECIES

Zebra Mussels

Aquatic Invasive Plants

- Sylvan Lake was also surveyed by ALMS for macrophytes and invasive plants. Sampling took place in June and July 2014.
- Early in the season the lake was very clear, with a secchi depth of 4.25 m. Aquatic plants were sampled along the littoral zone in water depths ranging from 0.9 m to 5.9 m. Five species were collected and identified. The two dominant species in June were Sheathing Pondweed *(Potamogeton vaginatus)* and Richardson's pondweed *(Potamogeton richardsonii)*. Five different species were observed; no invasive species were detected.
- In July a secchi disk reading of 4.5 m was observed in the center of the lake. Sampling locations occurred at depths ranging from 0.5 m to 4.2 m. The dominant species found in June were also the dominant species in July. Over the month of growth, there was an increase in diversity as well as number of occurrences. A larger diversity and density of macrophytes was noticeable in the area just outside the marina, as well as the area in the north portion of the lake where the creek enters. Six more species were observed in July than in June. Eleven different species were observed; no invasive species were detected.
- For more information about the macrophyte and invasive plant sampling, please reference *ALMS's -Sylvan Lake, 2014 Macrophyte Survey Results*
- There is **opportunity for individuals to get involved** in monitoring their lakes for invasive plants and all of ALMS sampling was done with the assistance of volunteers! Please contact ALMS if you are interested in getting involved in any of their programs.

Nest Tunnel

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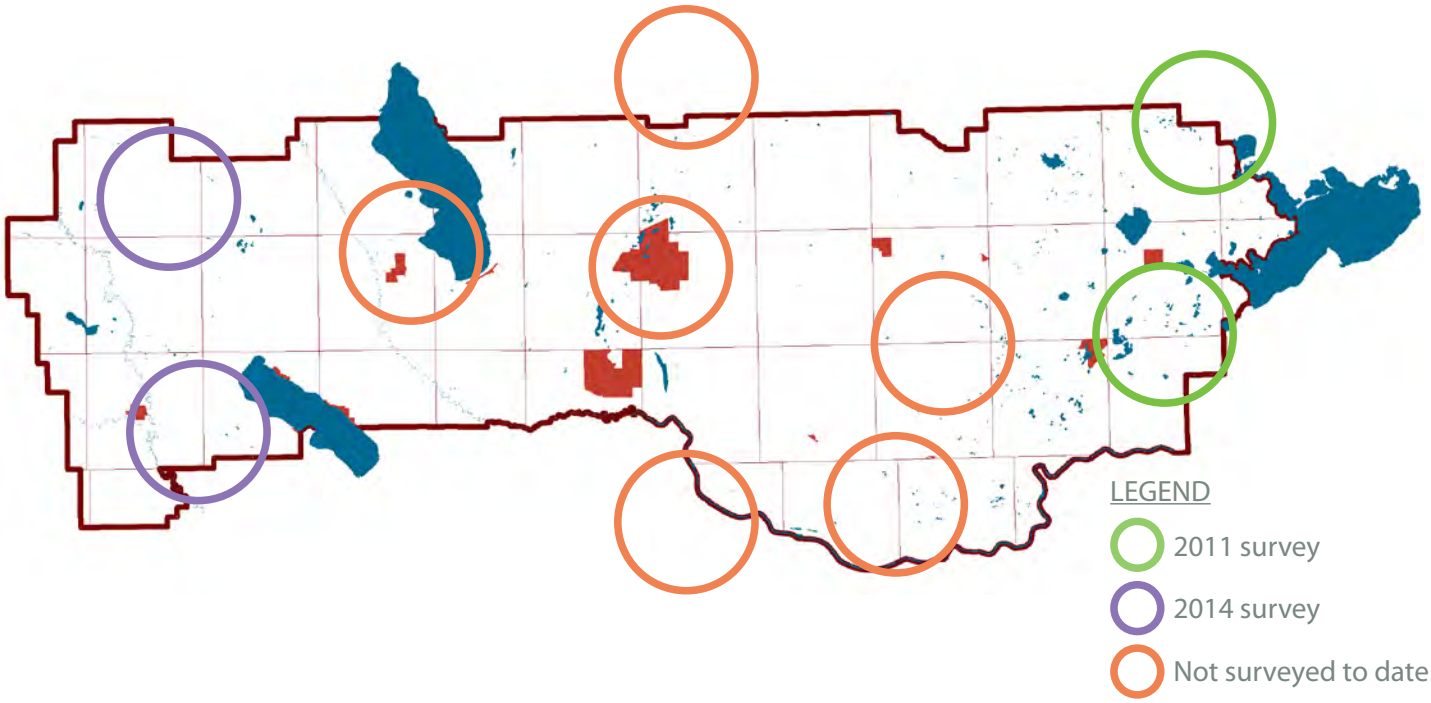
AQUATIC INVASIVE PLANTS

Biodiversity Survey

- When we speak about biodiversity we are referring to all living resources that exist such as plants and animals. As we have seen locally there is more and more awareness and desire to conserve the biodiversity within the County and beyond. We as a community have expressed a desire to ensure the wellbeing of our environment for both current and future generations. As such, to achieve this goals we require predictable and reliable monitoring to better understand the state of our environment and the role we as a community play in effecting and maintaining biodiversity.
- To help us achieve these goals of monitoring the Alberta Biodiversity Monitoring Institute (ABMI) has established programs to help measure and report on the status and trends of biodiversity and human footprint in Alberta. The institute is a not-for-profit scientific organization made up of the University of Alberta, Royal Alberta Museum, Government of Alberta and University of Calgary members. The ABMI was developed into its current organization over a period of 10 years from 1997 – 2007. In 2007 to present, the institute has been gathering and managing biodiversity trend data. Their long term goal is to understand the trends in Alberta's biodiversity over time.

Figure 5
ABMI Survey Sites



33
TERRESTRIAL PLANTS

10
WETLAND PLANTS

Birds at Ray's Pond

5
SOIL MITES

11
MAMMALS

7
MOSSES

58
BIRDS

- To date, ABMI has recorded data for over 1656 sites across Alberta. In 2011 and 2014, four of the ten sites within Lacombe County were surveyed. On these sites data was collected on habitats such as land use, wetlands, and species identification. These sites will be revisited in 5 years to help track changes in our environment.
- Some of the common vascular species included: Foxtail Barley, Alfalfa, Wheat, Early Bluegrass, and Common Dandelion.
- The most common bird species recorded included: Savannah Sparrow, Red-winged Blackbird, Common Crow, and Clay-coloured Sparrow.
- The highlights from the species data collected in 2011are outlined above.

Prussian Carp

- Prussian Carp are native to central Europe to Serbia and eastern Asia. They are known to be very tolerant of low oxygen concentrations and can thrive in most any type of waterbody such as small private dugouts, large reservoirs, small intermittent streams, and in major rivers such as the Red Deer and Bow rivers. Females have been known to spawn up to 3 times in a single season. They are omnivorous and can feed on plankton, benthic invertebrates, plant material, and detritus.
- It is presently unknown how Prussian Carp were introduced into Alberta; the first confirmed case was in 2006 in a small lake east of Strathmore, quickly followed by nearby locations within the Western Irrigation District canal system.
- In 2009 they were first confirmed in an unnamed tributary to the Medicine River near Markerville.
- New confirmed locations were documented and reported last summer (2014) in the Blindman River and in additional locations in the Medicine River watershed.

Prussian Carp (Photo Credit: ESRD)

Northern Pike, Gull Lake

7.1 NORTHERN PIKE /NET

Gull Lake Fall Walleye Index Netting

- In the fall of 2014, Gull Lake had a Fall Walleye Index Netting survey completed. Overall, the catch rate of all the sport fish populations (walleye, pike and perch) in Gull Lake have all increased, the exception being lake whitefish which showed a declined.
- The walleye catch rate was 78% greater from the previous survey conducted in 2009. Over the past 5 years the walleye population has shown an appreciable increased in overall density, age class stability, and evidence of low annual recruitment. Twenty-two age classes ranged from ages 0-9 and 11-22. The 2014 catch rate of 15.1 fish/net places it just under the provincial average of 17.7 fish/net.
- The pike catch rate doubled from 3.5 fish/net in 2009 to 7.1 fish/net. There were 11 age-classes present, with just under half of the sample caught being over the 63 cm harvestable size class.
- Yellow perch saw a 148% increase with a catch rate of 27.8 fish/net compared to the 2009 catch rate of 11.2 fish/net. The yellow perch ranged in size from 94-284 mm.
- Lake whitefish numbers revealed a sharp decline in overall catch rate from 26 fish/net in 2009 to 11 fish/net in 2014. Fish in the larger older size classes represented the majority of this decline. The results of the survey still showed recruitment of younger year classes. Gull Lake did experience a summer kill of lake whitefish in 2014 which likely contributed to the overall decline, as well as continually experiencing very high angling effort throughout the winter months with anglers specifically targeting lake whitefish.
- Fisheries Management is committed to ensure healthy and sustainable populations are maintained in Gull Lake. Recent changes were made in 2012 to address the lake whitefish population in Gull Lake. These changes included the harvest limit being reduced to 3 whitefish from the previous 5 fish limit. Most other waterbodies in the province have a 10 lake whitefish limit.

Human Impacts

Human Footprint

- In addition to the detailed species data found above the ABMI also maps out human footprint. Human footprint are the changes that have come about because of humans such as developments, transportation, and the harvesting of resources such as forestry or agriculture.
- As of 2010, the total human footprint in Lacombe County was 78.7%.

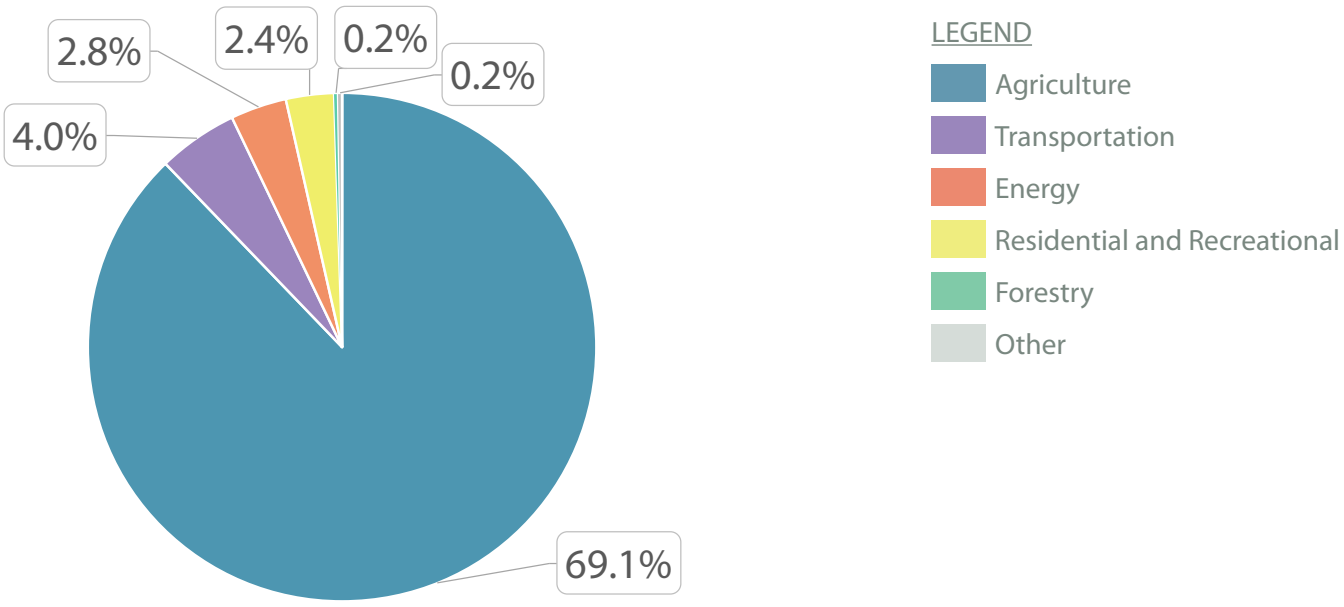
Figure 6
Human Footprint in Lacombe County

Harvest season, East of Bentley

MEGlobal Prentiss Site

- The remaining 21.3% of lands are classed as native habitat. ABMI defines native habitat as undeveloped habitat that is distant enough from human footprint that it meets the particular management objectives of stakeholders. For example, in Lacombe County native habitat includes undeveloped crown land and protected areas with no recreational development.

Figure 7
What is the Human Footprint Composed of in Lacombe County?



- Between 1999 and 2012 Lacombe County has seen a rise of 2.5% in human footprint on the landscape. This increase in human footprint equates to a loss in native habitat. This 2.5% has been from:
  - Residential and Recreational developments – 2.0%
  - Transportation – 0.3%
  - Energy – 0.1%

Waste Generation and Disposal

- In January 2014 the Lacombe Regional Solid Waste Commission was formed. The Commission assumed the former Lacombe Regional Solid Waste Authority's responsibilities, liabilities and asset. The Commission operates on behalf of the six partners including: Lacombe County, Town of Alix, City of Lacombe , Town of Eckville, Town of Clive, and Town of Bentley
- Table 4 illustrates the overall waste generation for the Lacombe Regional Solid Waste Authority area over the years of 2009-2014.
- Waste that is quantified under the "compactor" disposal column is household waste. This waste is compacted into containers and transferred from the Prentiss landfill site to the Dried Meat Lake waste facility.
- The waste column labeled "landfill" is for dry rubble materials disposed at the Prentiss Landfill facility.

Table 4
Waste Generated by LRSWA, 2009-2014

Disposal	2014	2013	2012	2011	2010	2009
Compactor	9,964	9,844	9,743	9,856	11,372	10,515
Landfill	12,984	10,387	No Data	9,839	9,162	10,622

*Weight is represented in Tonnes

- In addition to the overall amount of waste to landfill the authority also tracks the amount of recyclables generated (Table 5). The data collected and depicted below is for the entire authority and is not necessarily only Lacombe County. The waste is also collected co-mingled and as such data regarding the amount of cardboard, plastic and paper is not separated out.

Table 5
Recyclables Generated by LRSWA, 2009-2014

Recyclable Item	2014	2013	2012	2011	2010	2009
Metal	452.14	412.44	382.92	421.88	490.32	476.17
Cardboard, plastic & paper co-mingled	900.18	No Data	No Data	987.98	1,239.47	1,109.48

*Weight is represented in Tonnes

STATE OF THE ENVIRONMENT

Evaluation Form

Thank you for your interest in the State of the Environment 2015 Supplemental Report for Lacombe County. To help ensure continuous improvement in our publications and communications with the community we are looking for your feedback.

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

Email: bwest@lacombecounty.com

Post: Attention: Blayne West
Lacombe County
RR3 , Lacombe AB
T4L 2N3

Please rate the two statements below on a scale of 1 to 10, with 1 being strongly disagree and 10 being strongly agree.

1. The layout for the State of the Environment 2015 Supplemental Report for Lacombe County was well thought out and easy to read.

   Please circle your answer:

   1 2 3 4 5 6 7 8 9 10

   Strongly disagree Strongly agree

2. The information presented in the State of the Environment 2015 Supplemental Report for Lacombe County was clear and understandable.

   Please circle your answer:

   1 2 3 4 5 6 7 8 9 10

   Strongly disagree Strongly agree

Tear Here

3. 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