



**South Saskatchewan River  
Watershed Stewards**

# **Love Your Lake**

## **Blackstrap Lake, Saskatchewan**



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CANADIAN WILDLIFE  
FEDERATION



Watersheds  
CANADA

## Background

Blackstrap Lake was created as a reservoir (1967) to be used primarily for irrigation. However it is now also used for recreational purposes. It is located approximately 50 km southeast of Saskatoon and is approximately 14.4 km long and 0.8-1.2 km wide.

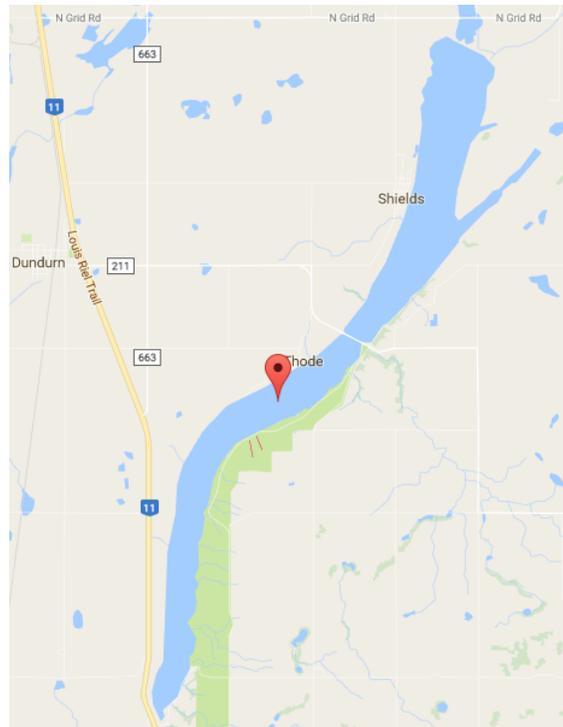


Figure 1. Map of Blackstrap Lake

The closest neighboring town is Dundurn. The lake has two resort villages, the Resort Village of Shields and the Resort Village of Thode located on the west side of the lake. A secondary highway (211) crosses the lake to Blackstrap Provincial Park on the east side of the lake. The lake is surrounded by agricultural activities. The slopes in the valley are fairly steep so this creates considerable runoff from agricultural land. The lake is dammed and the water levels are controlled by the Saskatchewan Watershed Authority. The close proximity of the lake to Saskatoon makes Blackstrap Lake a highly recreational lake with visitors enjoying recreational activities such as:

- Power boating
- Snowmobiling
- Swimming
- Fishing
- Ice fishing
- Canoeing or kayaking
- Water skiing/Wake boarding
- Nature appreciation
- Cross-country skiing
- Hiking
- ATVs
- Camping
- Mountain biking
- Ice skating

- Socializing
- Tubing
- Snowshoeing
- Jet skiing
- Hunting
- Walking
- Painting and crafting
- Sailing
- Scuba diving
- Dirt biking
- Pontoon boating
- Wind surfing
- Paddle boating

In recent years, the water quality of the lake has become a concern for many residents. As the summer months pass on, algae and weeds take over the lake which decreases the water quality. The resort villages also have faced a great deal of erosion and loss of shoreline throughout the years. The Resort Village of Thode has faced the greatest amount of shoreline loss. The Resort Village of Thode has a deeper shoreline than the Resort Village of Shields. This, along with southern winds in the valley creates strong wave action along the shores which contributes to considerable shoreline loss.

The land in front of the Resort Village of Thode shoreline is owned by the municipal government. Although there are properties that are not located on this land, the residents still use the land for their docks. Although their docks are along the shore, the property owners are not responsible for the land. This makes it challenging for governance and maintaining environmental integrity. There is a designated area of municipal land that has been developed as a public beach, a recreational center and a playground for residents to use. Pelican Pass, at the north portion of the Resort Village of Thode, is a new development area within the last 15 years, however, none of these homes will be shoreline property. The land contains natural vegetation of tall grasses because it is rocky and difficult to mow.

Fishing is a major recreational activity enjoyed by many who visit the lake. Northern Pike, Walleye and Perch are the major fish species found in Blackstrap Lake. Water quality and lake health is important to maintain healthy fish populations. The fish species use shorelines for spawning; therefore, it is important for shoreline owners to maintain shoreline integrity.

### **Ecology of Lake**

An ecological description of Blackstrap Lake is important for understanding the dynamics of the lake. Blackstrap Lake is located in the prairie ecozone and the moist mixed grassland ecoregion of the province. The mean annual temperature of this region is approximately 2.5°C. The mean summer temperature is 15.5°C and the mean winter temperature is -11°C. This ecoregion marks the northern extension of open grassland in the province, and is closely correlated with semi-arid moisture conditions and dark brown soils. Most landscapes are comprised of glacial till, and have short, steep slopes and numerous undrained depressions or sloughs, although several large, level glacial lake plains also occur. Native vegetation is confined largely to non-arable pasture lands, where speargrasses and wheatgrasses, along with deciduous shrubs such as snowberry, rose, chokecherry, and wolf willow are among the more common species.

The moist mixed grassland ecoregion comprises a broad plain that is interrupted by deep, scenic valleys and subdued, hilly uplands. The primary slope of the plain is downward to the north and east, in accordance with the slope of the bedrock surface. Most of the region has a cover of glacial drift that is sufficiently thick to obscure the underlying topography; hence striking landscapes. Secondary slopes from the uplands to drainage systems such as the South Saskatchewan, Qu'Appelle, and Souris rivers occasionally break the general northeastward slope of the plain. Level to gently undulating glaciolacustrine and glacial till plains that seem almost endless typify this ecoregion, but hummocky morainal uplands, sand dunes, and local badlands provide diversity. The plains generally lie between 500 and 600 m. the uplands protrude 50 to 200 m above the adjacent plain, with the Neutral and Bear hills reaching elevations of 700 m and more. Although the break from the plains to the uplands is usually gradual and unspectacular, prominent escarpments such as the Missouri Coteau are striking features. The valleys of the Souris, Qu'Appelle, and South Saskatchewan rivers, sometimes entrenched 100 m or more into the plain, are major contributors to the ecology of the region. These river valleys form part of the Nelson River drainage basin.

This ecoregion has dark brown chernozemic soils that are characteristic of this region. This soil type has formed due to the large amounts of organic matter in the mixed grassland and slower rates of decomposition in this cooler part of the mixed-grass prairie. Dark brown soils have a dark colored surface layer that is higher in organic matter than those in the brown soil zone, but lower than in the black zone. Soils tend to be thin and lower in organic matter on upper slopes, becoming progressively thicker and higher in organic matter on mid and lower slopes, in response to an increased supply of soil moisture and plant growth. Brown soils occur on prominent south-facing local and regional slopes where more arid conditions result in reduced growth. Black soils occur on prominent north facing slopes and in lower slope positions on steeply sloping topography, where fescues and other grasses that typify the aspen parkland prevail.

Small aspen groves are typically found around sloughs and are a characteristic feature of the landscape, particularly as compared to the drier Mixed Grassland ecoregion which is largely treeless. The prairie potholes or wetlands provide a valuable habitat for waterfowl. Mule deer and white-tailed deer are conspicuous wildlife species. Other notable species include coyote, red fox, badger, Richardson's ground squirrel and jack rabbit.

The western meadowlark, eastern kingbird, yellow-headed blackbird, sharp-tailed grouse and Franklin's gull are typical birds. Agriculture is by far the dominant land use, with cereals being the main crop. Feed grains, forage crops and oilseeds are also grown, but to a lesser extent than in the Aspen Parkland.

## **Introduction to Program**

The Love Your Lake program was developed in Ontario by the Canadian Wildlife Federation and Watersheds Canada. This program was developed to assess lake shorelines and determine ways that property owners can improve their shorelines to benefit the overall health of the lake. After each parcel of land has been assessed by boat on the lake, the data is then entered into a database to use for creating personalized property reports for each property owner. The objective of this program is to improve shorelines and overall lake health by identifying shoreline issues and providing property owners with stewardship options. In 2016, the South Saskatchewan River Stewards Inc. implemented this program for Blackstrap Lake.

## **Methodology**

There were a number of steps that were needed to be taken in order to ensure that this program would be a success. Firstly, meetings were held with the board members of the resort villages (May 21<sup>st</sup>, June 8<sup>th</sup>, and June 18<sup>th</sup>) in order to make sure that they were aware of the program and to answer their questions that they had about the program. Once this was done, boat drivers were contacted to help conduct shoreline assessments. Since these boat drivers had jobs, it was difficult to make a boat shoreline assessment schedule. Secondly, surveys were sent to all of the residents to ensure that they were aware of the program and also to get their feedback and opinions on the health of the lake. Youth volunteers were recruited to distribute the surveys door to door in the Resort Village of Shields and the Resort Village of Thode. The volunteers distributed 310 surveys between both of the resort villages on July 9, 2016. 47 completed surveys were received and the data inputted into an excel spreadsheet. Once the surveys were sent out, the shoreline assessment surveys were conducted using the Saskatchewan Your Lake shoreline assessment protocols and forms. Due to the rainy weather in August it was difficult to get out on the boat. The shoreline assessments at Blackstrap Lake were conducted during the middle of August and completed at the end of September. A total of 110 shoreline assessments were completed at Blackstrap Lake in 2016.

## **Results and Conclusion**

Based on the Blackstrap Lake shoreline assessments it is evident that majority of the cottage front shorelines are ornamental with few buffer zones. The shoreline assessments revealed degradation of the shorelines are due to cottage developments and severe shoreline erosion. Both of the resort villages have sections of the shoreline that have been lost due to severe erosion. At the Resort Village of Thode there are naturally sandy shorelines that have resisted erosion. Photo 1 illustrates a property that does not have a buffer zone and the shoreline has been compromised with planted ornamental grass. Photo 2 illustrates a property that has a naturally sandy shoreline. This shoreline does not show any signs of erosion. Photo 3 is an

example of how severe the shoreline loss is at the Resort Village of Thode. It is a visual representation of how rapid the shoreline loss has been over time.

Table 1 is the summarized of data that was collected from the mail out surveys. The data was compiled from the following questions on the surveys:

Question 6: How long have you and your family been on the lake? (Years)

Question 9: What do you see as the top 3 issues facing your lake and your lake use?

Question 10: Please identify the top three actions that you believe should be taken to benefit your lake and your lake community.

Question 11: Describe your lake's water quality.

Question 13: Are you interested in learning more about how your activities as a shoreline property owner can affect water quality, wildlife habitat, and the overall health of the lake?

Question 14: Would you be interested in participating in stewardship projects/activities related to your lake?

Table 1. Summary of Blackstrap Lake Survey Results

Average Years on Lake:	14	Top 3 Issues:	Top 3 Actions that Should be Taken to Benefit the Lake and the Lake Community:
	Water quality (93.6%)	Shoreline development (34.0%)	Undertake more water quality testing (48.9%)
	Noise pollution (29.8%)	Water levels (29.8%)	Limit boat wakes along shore (36.1%)
	Faulty or poorly maintained septic (27.7%)	Fish populations (25.5%)	Undertake a lake management plan (34.0%)
	Boating (17.0%)	Wildlife (12.8%)	Engage in a septic reinspection program (19.1%)
	Light pollution (10.6%)		Create or enforce stricter rules for new development (14.8%)
			Provide education materials to property owners on a variety of subjects (12.7%)
			Improve communication between property owners and lake association (10.6%)
			Engage more property owners in lake activities (8.5%)
			Plant shrubs and trees along shore (8.5%)
			Create or enforce stricter rules for redevelopment (6.3%)
			Stop moving grass close to the shore (6.3%)
How people view the water quality:	Learn more about impacts to the shoreline:	Stewardship Participation:	
Poor (65.9%)	Yes (70.2%)	Yes (38.3%)	
Good (31.9%)	No (29.7%)	No (55.3%)	
		Maybe (6.4%)	

Table 2. Summary of Shoreline Assessment Results

<b>Shoreline Assessment: General Observations</b>	
<b>Good:</b>	<b>Bad:</b>
Natural sand shorelines	Ornamental lawns
	Severe shoreline loss
	Minimal vegetation along shorelines



Photo 1. Ornamental shoreline at Resort Village of Shields



Photo 2. Naturally sandy shoreline at Resort Village of Thode



Photo 3. Shoreline loss at Resort Village of Thode

In conclusion, the majority of Blackstrap Lake's shorelines have been altered from their natural state, therefore our plans for next year include naturalization projects through the Natural Edge Program developed and coordinated by the Canadian Wildlife Federation and Watersheds Canada. The South Saskatchewan River Watershed Stewards also have plans to work with these

communities to conduct nutrient and septic assessments next year in attempt to help clean up the lake.

### **Acknowledgements**

On behalf of the South Saskatchewan River Watershed Stewards Inc. we would like to extend sincere thank you and heartfelt gratitude to our partners and volunteers for their participation and hard work. The financial and technical support from Watersheds Canada and Canadian Wildlife Federation is truly appreciated. The council members of the Resort Village of Thode and Resort Village of Shields assisted in providing lake information and graciously helped out with all of our needs pertaining to the program. The volunteers who delivered the surveys door-to-door did an excellent job. The volunteer boat drivers, Dwayne Heidt and Fred Fehr, are praised for their volunteer time and boat use enabling the shoreline assessments to be completed. Without the assistance and support of our partners and volunteers this program would not have been a success. We look forward to continuing our work and partnerships with these groups in the future.

### **References**

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