



BONNYVILLE WATERSHED

A watershed/drainage basin is the water from an area of land which flows into one big body of water. Water will fall from the sky and collection into lakes, streams, wetlands, and rivers to collect into one big body of water, and for us, water drains into the Beaver River. Within a drainage basin, there are sub-basins which first flow into other tributaries before draining into the main body of water.

The sub-basins of Bonnyville are Moose Lake Sub-basin and Muriel Lake Sub-basin. The commercial and industrial side of Bonnyville drains into Moose Lake. The height of land along the rodeo grounds and the ball diamond next to 74th Avenue and 62nd Street, redirects the flow of water into Jessie Lake. The majority of Bonnyville residential area up to the East Gate Subdivision flows will flow into Jessie Lake. The East Gate Subdivision moving east will flow into Barrier Lake before joining Muriel Creek and flowing into the Beaver River.

Jessie Lake is classified as a kettle lake. Kettle lakes are formed when chunks of a receding glacier fall off, becoming dead ice. This dead ice is covered with sediment, slowing the melting rate, and as the ice slowly melts it leaves behind a hole in the land. This left-over hole is then filled with water from precipitation and surface water runoff. No natural waterways flow into or out of our kettle lakes. Jessie Lake is recharged by the rainfall and surface water runoff from Bonnyville. This means all of the herbicides, pet waste, litter and fertilizers from our town get washed into Jessie Lake. With no outflow, these pollutants accumulate within Jessie Lake and have a large impact on the water quality. There is a strong reason to believe this water being washed into Jessie Lake is the reason for the algae blooms and in turn the smell. Algae bloom occurs when fertilizers and extra nutrients wash into a body of water. Algae is a type of aquatic plant which is naturally occurring in nature but it is more recently seen in thick green layers across the surface of the water. This extra deposit of nutrients comes from human activity within our community. Heavy rainfall will wash fertilizers and animal wastes into our bodies of water, which can result in an algae bloom. Algae is harmful due to its rapid growth and death rate, the decomposing plant material takes oxygen out of the water, causing harm to fish. The excess of decomposing matter can also cause a foul odour to the surrounding area. In addition to these harmful effects algae blooms make swimming and boating difficult and unpleasant. In some case algae can produce toxic bio-product, this alga is called cyanobacteria, or blue-green algae. In addition to picking up after your animals and using fertilizers responsibly, riparian areas are an effective way to help improve water quality. A riparian is the area of land directly next to a body of water, a healthy riparian has a high biodiversity of plants. Riparian plants require a high supply of water which is why they can be found on the banks of bodies of water. The presence of riparian areas provides bank stability, water filtration, and homes to many wildlife. The roots of riparian plants provide stability to the soil along the banks and prevent soil erosion. Riparian plants filter runoff by using fertilizers and other nutrients carried by the runoff for their own growth, limiting the amount of nutrients going into the body of water. This helps prevent algae blooms and therefore helps improve the overall quality of water.

LEGEND

● HAMLET	BEAVER RIVER WATERSHED SUB-BASIN	WATERBODY
— PRIMARY HIGHWAY	INDIAN RESERVE	
— SECONDARY HIGHWAY	METIS SETTLEMENT	
— LOCAL ROAD	PARK / PROTECTED AREA	
— WATERCOURSE	POPULATED PLACE	
BEAVER RIVER WATERSHED	PROVINCIAL BOUNDARIES	

0 10 20
1:125,000 KILOMETRES

REFERENCE(S)

BEAVER RIVER WATERSHED AND SUB-BASIN, AND LICA BOUNDARY DATA OBTAINED FROM ALBERTA ENVIRONMENT, NOVEMBER 21, 2016. ALBERTA TOWNSHIP SYSTEM, MILITARY BOUNDARIES, AND POPULATED PLACE DATA OBTAINED FROM ALTA LIS LTD. © GOVERNMENT OF ALBERTA 2015. ALL RIGHTS RESERVED. ALBERTA PARKS AND PROTECTED AREAS OBTAINED FROM ALBERTA PARKS, GOVERNMENT OF ALBERTA, ALBERTA FIRST NATIONS, GRAZING RESERVES, AND HYDROGRAPHY, AND SASKATCHEWAN HYDROGRAPHY MILITARY BOUNDARIES, AND PARKS DATA OBTAINED FROM IHS ENERGY INC. PROVINCIAL BOUNDARIES, ALBERTA HYDROGRAPHY AND TRANSPORTATION, AND SASKATCHEWAN TRANSPORTATION DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. PROJECTION: UTM ZONE 12 DATUM: NAD 83