

Alonsa Integrated Watershed Management Plan

Watershed Characterization

March 2009

Introduction

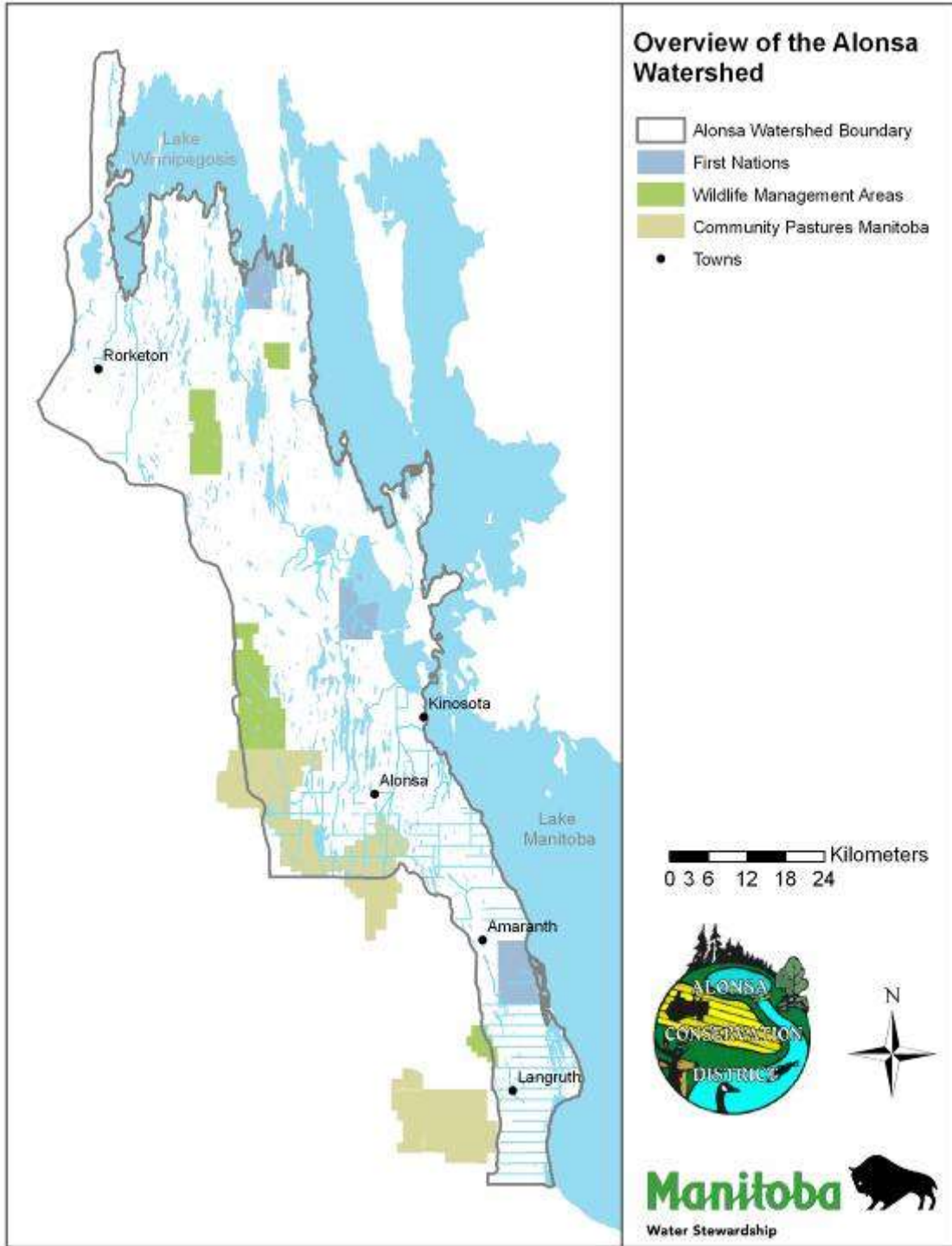
This watershed characterization document is a compilation of technical information on the land and water resources in the Alonsa watershed. This information will be used as the basis for the development of the Alonsa Integrated Watershed Management Plan (IWMP). This document is also a tool to inform watershed residents about their land and water resources in the Alonsa watershed and to identify data gaps and areas where a lack of information exists.

Watershed Overview

The Alonsa watershed is located along the western shores of Lake Manitoba and Lake Winnipegosis (Figure 1). It contains wholly or part of the Rural Municipalities (RMs) of Alonsa, Lawrence and Lakeview. The watershed also contains a portion of Northern Affairs land and three First Nations communities, including Sandy Bay, Ebb and Flow, and Crane River.

The Alonsa watershed has a drainage area of approximately 167.2 km² and is home to approximately _____ people. The population in the watershed is predominantly rural and/or farm-based. Larger towns and communities within the watershed include Alonsa and Amaranth, with a slightly greater population densities living on the Ebb and Flow and the Sandy Bay First Nation Reserves. Agriculture comprises the basis for the local economy within the watershed, with an emphasis on cattle production and ranching. There is some cottage development along the shores of Lake Manitoba.

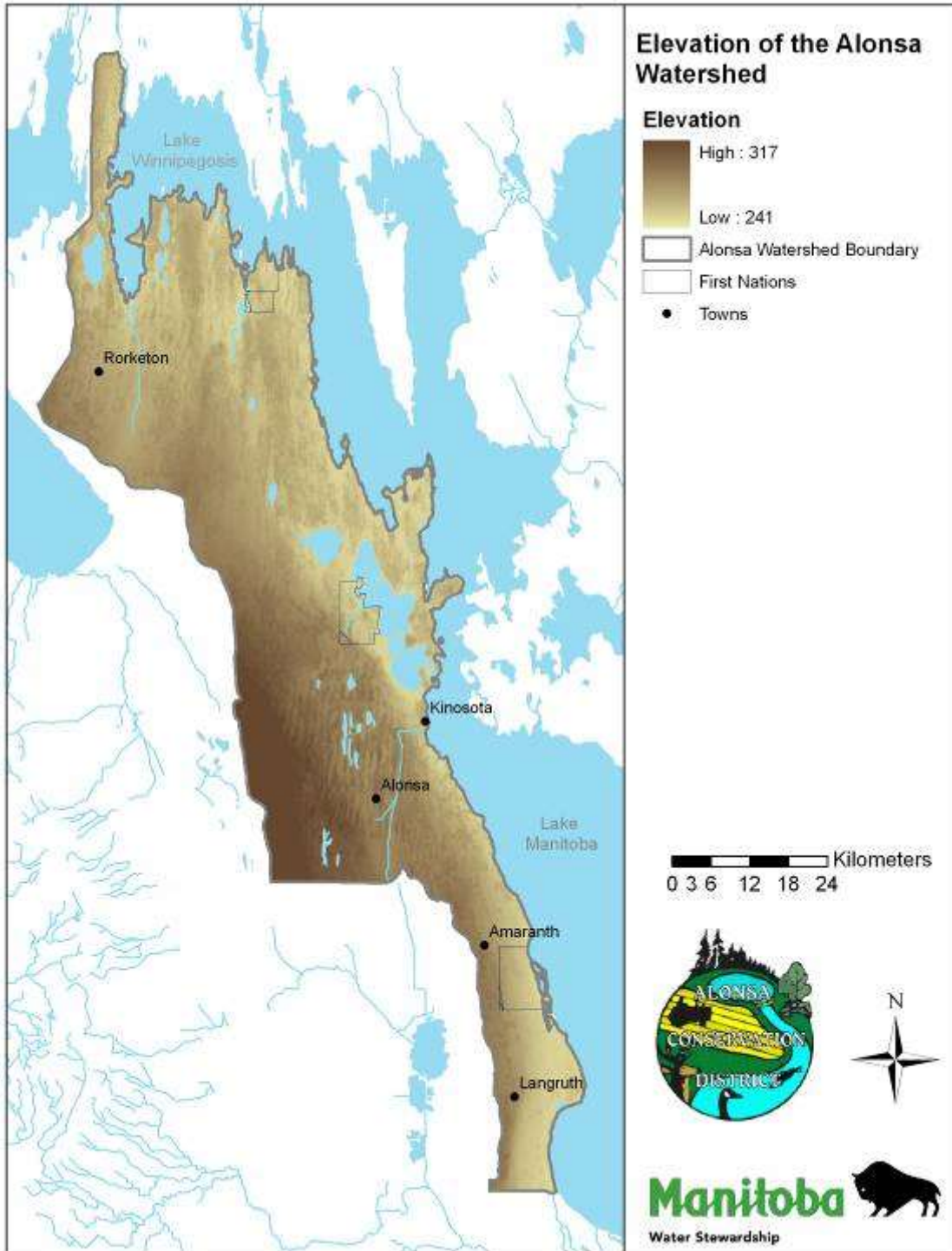
The Alonsa Conservation District covers a large portion of this watershed, including the RMs of Alonsa and Lawrence. The remaining portion of the watershed is outside the boundaries of an existing conservation district. There are four Wildlife Management Areas and four Community Pastures located in the Alonsa Watershed.



Physical Geography

Elevation in the study area ranges from 241 metres above sea level (masl) in the south-eastern corner of the watershed, up to 317 masl in the western region (Figure 2). An area

of lower elevation is present in the eastern half of the watershed, directly adjacent to the Lake Manitoba and Lake Winnipegosis.



Climate

Meteorological factors like temperature, precipitation, sunshine, and wind are commonly used to describe weather conditions at a specific location. Climate is then a description of a region's average long term weather patterns. The Meteorological Service of Canada (MSC) maintains 110 weather stations across the Province of Manitoba, monitoring meteorological factors like temperature, precipitation and snow depth.

Manitoba has a continental climate, with great temperature extremes. The characteristics that most distinguish Manitoba's climate from other regions are:

- large temperature differences from summer to winter;
- large temperature variations from day to day;
- lengthy, frigid winters;
- warm, sunny summers;
- minimal but highly variable precipitation totals;
- dry winters and summers, with more precipitation in the summer.

In terms of annual climate means in the Alonsa watershed, the mean annual precipitation ranges from 451 to 531 millimetres, while the mean annual temperature ranges from 1.1 to 2.5 degrees Celsius. The average length of the growing season is 175 – 183 days.

Climate Change

Climate change is a shift in long-term average weather patterns, which can include changes in mean temperature and in precipitation amounts. Climate change is caused by excess greenhouse gas emissions. Greenhouse gases are naturally found in the atmosphere, although relatively transparent to sunlight, they absorb most of the infrared heat energy transmitted by the Earth towards space. Enormous scientific evidence shows significant increases of greenhouse gas concentrations in the atmosphere since industrialization, due largely to the burning of fossil fuels for transportation and industrial processes. Such an increase of greenhouse gas concentrations in the atmosphere has led to a significant change in global climate in recent years. Important greenhouse gases include: water vapour, carbon dioxide, methane, nitrous oxide, ozone, and halocarbons.

Canada's climate is changing. Mean temperatures are rising, particularly in the Arctic, where permafrost is thawing and the ocean's ice cover is shrinking. Even greater changes are expected in the future, including a continued rise in temperatures, shifts in rainfall patterns, and increases in certain types of hazardous weather, such as heavy rains and heat waves. Canada will be one of the most greatly affected countries in the world.

Manitoba is particularly vulnerable to climate change because of the important role that renewable resources like water and agriculture play in our economy. Climate change will have negative consequences that impact the ecological balance and overall health of this watershed. Temperature patterns and hydrological regimes in Manitoba may be altered, leading to less snow pack, an earlier ice break-up and a change in streamflow across the

Province. These changes could have an impact on water resources management in the Alonsa watershed. Aquatic ecosystems in rivers, lakes and streams are expected to be impacted by changes in stream runoff due to climate change. A changing climate could also exacerbate the risks of extreme hydrological events such as droughts and floods in the watershed which in turn may trigger enormous social and economic suffering.

Ecology

The Alonsa watershed falls within the Lake Manitoba Plain Ecoregion, and contains three Ecodistricts, include the Alonsa Ecodistrict, the Langruth Ecodistrict, and the Ste. Rose Ecodistrict. The native vegetation of the Alonsa Ecodistrict consists of a mixture of trembling aspen groves and grassland. The wetter sites support balsam poplar, mixed with aspen and associated shrubs of beaked hazelnut, pincherry, saskatoon and red-osier dogwood. Herbs of the area include sweet scented bedstraw and sarsaparilla and grasses include big and little bluestem and wild rye. River flats are found to contain white elm, green ash, Manitoba maple, basswood and willow. The vegetation of the Ste. Rose Ecodistrict reflects the moist conditions of this area. Areas of improved drainage are composed of trembling aspen, with some balsam poplar, willows and grass species. Peat lands and wetter areas of this Ecodistrict contain much of the same vegetation as the improved drainage regions, but they may also include sedges and reed and meadow grasses. The Langruth Ecodistrict naturally consists of meadows and contains small areas of trembling aspen and balsam poplar.