INTRODUCTION

The watersheds of the Ausable Bayfield Conservation Authority (ABCA) area are situated along Lake Huron's southeast shore. These watersheds comprise one of the most agriculturally productive regions in Canada. Urban development has also been rising, leading to increased pressure on water and forests. The Ausable River supports one of the most diverse communities of aquatic species in Canada. Some of these species are now at risk (Appendix B) and need protection.

Many residents ask us what they can do to improve their environment. A place to start to improve the environment is your backyard creek and watershed.

A watershed is an area of land that drains (or sheds) rainfall or snowmelt to a common water body, such as a stream or lake. Watersheds are natural systems that reflect the cumulative effects of individual human decisions. When we restore wetlands, we hold water on the landscape and reduce downstream flooding and erosion. If we add year-round vegetative cover, we reduce soil loss to our watercourses.

Watershed management helps to balance human uses with the needs of the natural world. This report card provides an opportunity for watershed residents to learn about local creeks, streams, and forests, and understand their link to the broader natural world.

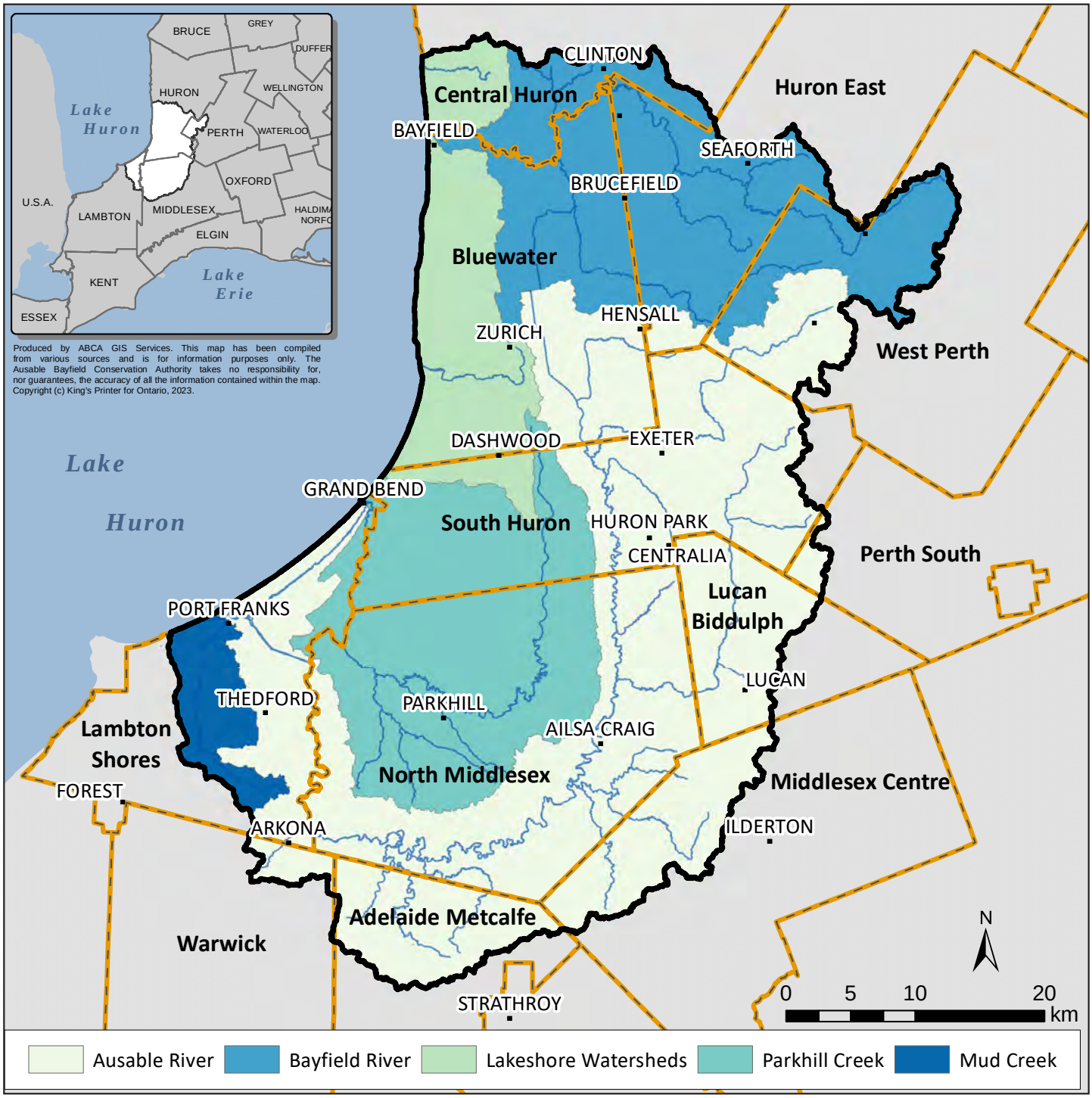
Here we provide a summary of data from existing monitoring programs, list activities to improve watershed conditions, and include baseline information for comparison with future conditions. Reporting follows a five-year cycle. This frequency provides sufficient data for statistical analyses, but it also helps minimize seasonal variations.

This is the fourth Watershed Report Card for the ABCA area. We have been analyzing data over the previous five years and compare it to five-year periods in earlier report cards (Veliz *et al*. 2006, Brock and Veliz 2013, Coleman *et al*. 2018). In five years, we will re-assess watersheds to determine if conditions are changing.

Think Like a Watershed

We all live in a watershed.

Water flows downhill, so watershed boundaries are based on topography (*e.g.*, ridges or hills). Water in a watershed is connected; therefore neighbouring municipalities share local environmental conditions. In the ABCA area, five major watersheds overlap multiple municipalities (Map 1).



Map 1: Major watersheds and municipalities in the Ausable Bayfield Conservation Authority area.

Objectives and Components

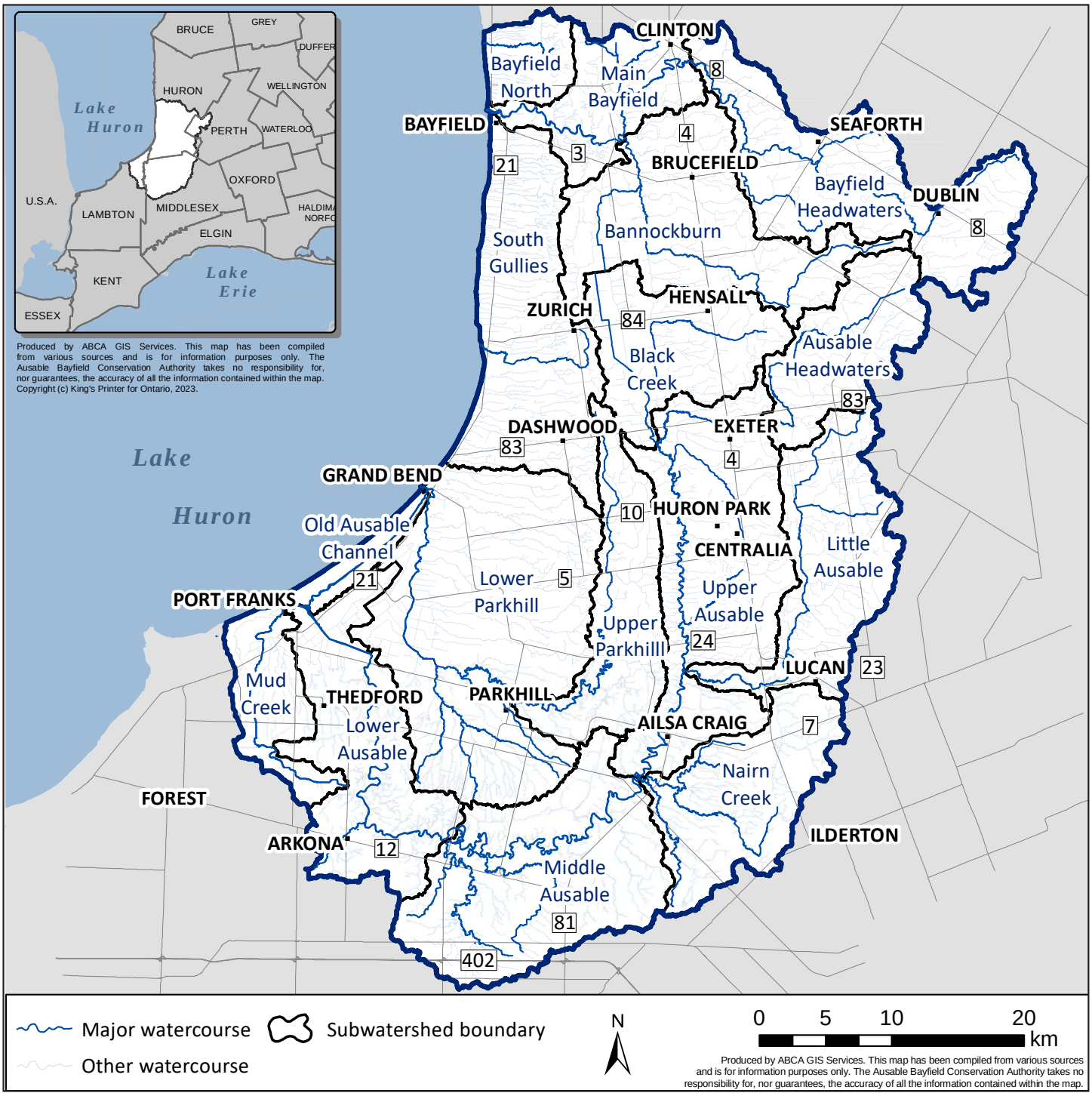
The ABCA area is divided into 16 subwatersheds, that drain into a major river or their tributaries, or directly into Lake Huron (Map 2).

Objectives of this report are to:

1. To use environmental health indicators for forest, wetland, and water, and;
2. To describe opportunities to improve conditions.

Components of this report are:

1. A description of ecosystem indicators with comparisons to previous years; and
2. Subwatershed report cards.



Map 2: Sixteen subwatersheds of the Ausable Bayfield Conservation Authority area.

Forest conditions and water quality impact aquatic life, which Ausable Bayfield Conservation Authority staff monitor along with the indicators listed in Table 1.

WHAT WE MEASURED

Conservation Ontario has provided a standardized set of indicators and evaluation system for reporting on watershed health conditions. These guidelines ensure consistency and use of information across all conservation authorities.

Five categories contribute to our understanding of general watershed health: forest conditions, wetland cover, overwinter vegetative cover on agricultural lands, surface water quality, and groundwater quality. These categories are listed below with their indicators.

Table 1: Watershed evaluation categories with associated indicators of environmental quality.

Category	Indicators
Forest Conditions	• Percentage of forest cover • Percentage of interior forest • Percentage of forested streamside area
Wetland Cover	• Percentage of watershed that is wetland
Overwinter Vegetative Cover	• Percentage of agricultural land covered by wheat, hay, or forages (plants eaten by grazing livestock) during the winter season
Surface Water Quality	• Total phosphorus concentration • E. coli concentration • Benthic* macroinvertebrates • Chloride concentration
Groundwater Quality	• Chloride concentration • Nitrate concentration

* Benthic is the bed (or bottom) of a water body.

Ausable Bayfield Conservation Authority staff monitor water quality at various sites, including wetlands which help to manage stormwater and reduce flooding and erosion.

MONITORING MATTERS

Monitoring is important because it provides baseline data for current conditions that allows us to detect changes in environmental conditions. Such changes may be gradual, taking place over many years from many sources, or sudden, such as a spill or contamination.

Monitoring indicator species, such as benthic invertebrates and mussels, can tell a longer-term story of ecosystem health, compared with water sampling that provides a snapshot in time.

Monitoring can also identify new threats such as invasive species, or concerns such as poor drinking water or lake swimming conditions. Without monitoring, these threats could go undetected and have implications for human and ecosystem health.

Monitoring helps to evaluate progress towards our goals. This helps us to determine the effectiveness of our actions, and how best to proceed in the future. The Watershed Report Card, which is produced every five years, provides an opportunity for this type of evaluation.

With every new Watershed Report Card, we can measure our efforts, and determine the best ways to continue to protect and enhance the watershed. We can then take the needed positive actions in partnership with the community.