

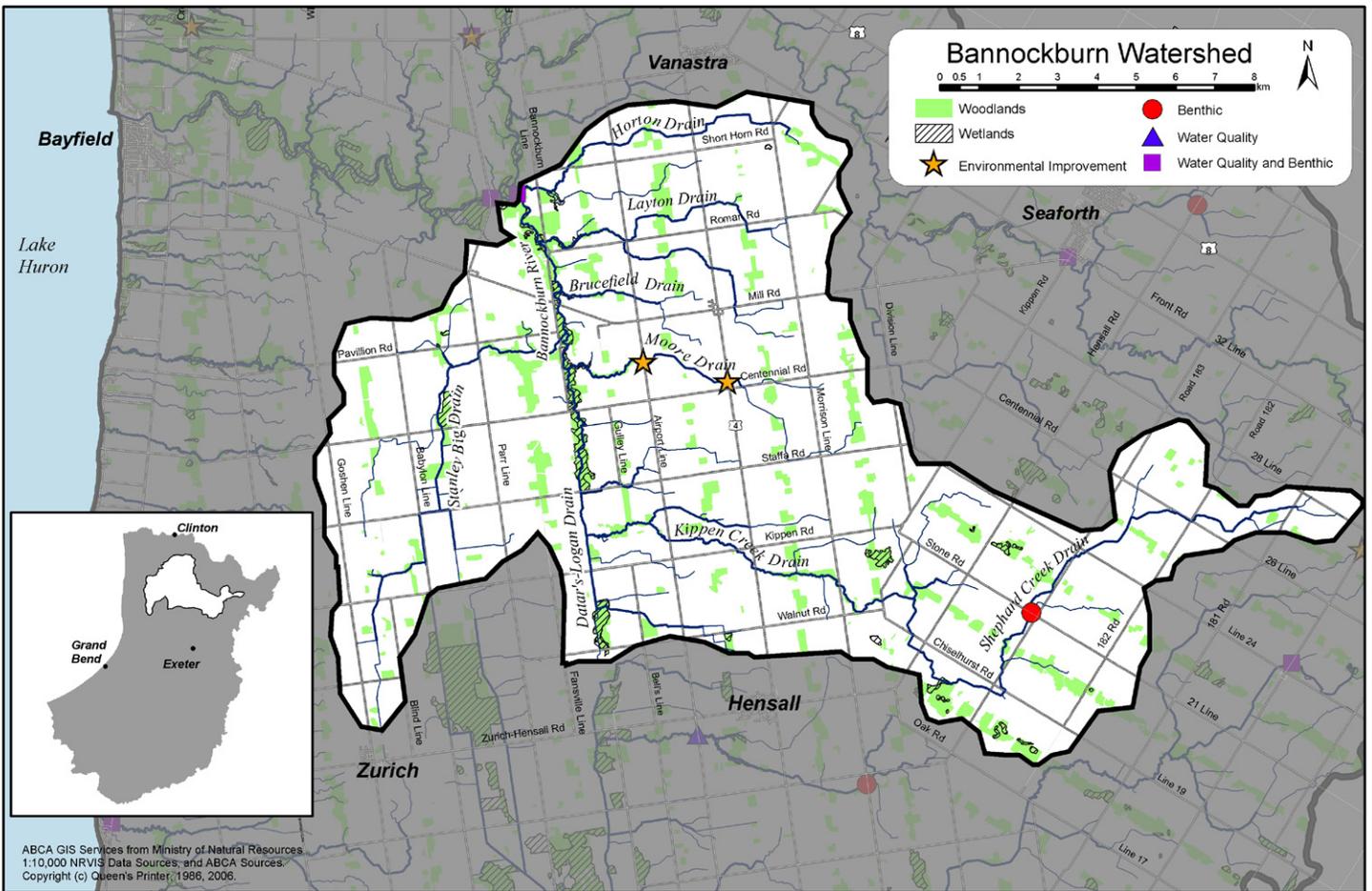


# Bannockburn Watershed Report Card

## Grades:

Forest Conditions	<b>D</b>
Surface Water Quality	<b>C</b>

This report card summarizes water quality and forestry information for the Bannockburn watershed (*the highlighted area on the map below*). This map also shows water quality stations and example environmental improvement locations. For consistency across watersheds, Conservation Ontario has recommended the use of specific water quality and forestry indicators that are described in the following tables. The summary is intended to provide landowners, groups, municipalities and agencies with information to protect, enhance and improve natural features of the watershed. The ongoing monitoring will be reported on a five-year cycle which will help local people manage their natural features. This report card is part of a larger report entitled **The Ausable Bayfield Conservation Authority Watershed Report Card** available at: [www.abca.on.ca](http://www.abca.on.ca). Further information, including methodology, comparisons to the other 15 Ausable Bayfield watersheds and references are also found in the report.



## Priority Strategy for Bannockburn Watershed

**Enhance:** Enhance surface water quality that may influence local groundwater drinking sources.





# Bannockburn Watershed Features



**Area:** 210 km<sup>2</sup>

**Municipalities:** Bluewater, Huron East, West Perth

**Geology** 64% Till Plains (Undrumlined); 21% Till Moraines; 12% Spillways; 3% Bevelled Till Plains (GIS derived with physiographic maps) (Chapman and Putnam 1984)

**Soils** 66% Clay Loam; 24% Silty Loam; 5% Loam ; 3% Bottomland; 2% Organic (County Soils Maps 1951-1991)

**Land Use** 88% agriculture; 10% woodlot; 1% urban; 1% other (OMAFRA 1983)

**Streamside Cover** 21% of the 15 metre area on both sides of open streams is vegetated (OMNR 1986, ABCA 1999)

**Wetlands** Existing: 1% (OMNR 2003, ABCA 2004); Potential: 14% (ABCA 2005)

**Natural Areas** Bannockburn Conservation Area

**Groundwater** Both shallow (Seaforth Moraine aquifer) and bedrock aquifers are found in this watershed. The bedrock aquifer is the most common source of drinking water and is part of a large aquifer system in southwestern Ontario. The Seaforth Moraine aquifer is possibly a very rare source of drinking water for dug or bored wells in the area and is also the main source of the flow in the headwaters area of the Bannockburn. In this area, only the bedrock aquifer has been sampled and nitrate, chloride and fluoride concentrations are well below provincial drinking water standards. Due to this geology there is cold, constant water flow in the upper reaches of the Bannockburn, contributing to base-flow, improved water quality and fisheries. An interesting geological feature of this area is the development of sinkholes, wherein surface waters are drained directly in to the bedrock aquifers, without having filtered through the overlying glacial sediment.

**Fishes** Migratory trout fishery in the main channel; cold water fishery in the tributaries

## Species at Risk

(As determined by the Committee on the Status of Endangered Wildlife in Canada )

(SOURCE: Natural Heritage Information Centre, 2006)

- Vegetation:** None identified at this time.
- Reptiles:** Queen Snake
- Birds:** Louisiana Waterthrush
- Fishes:** Black Redhorse
- Mussels:** None identified at this time.
- Mammals:** None identified at this time.

**Wastewater Treatment Plants** None in area.



# Bannockburn

## Forest Cover, Surface Water Quality

	Indicator and Description	Bannockburn		Ausable Bayfield Area	
		Result	Grade	Result	Grade
Forest Conditions	<b>Forest Cover</b> is the percentage of the watershed that is forested. Environment Canada recommends <b>30%</b> of a watershed should be in forest cover.	9.6%	D	12.6%	C
	<b>Forest Interior</b> is the area inside a woodlot that some bird species need for breeding. Environment Canada recommends <b>10%</b> of a watershed should be in forest cover that is at least 100 m from the forest edge.	1.0%	F	2.8%	D
Water Quality	<b>Total Phosphorus</b> is an element that enhances plant growth and contributes to excess algae and low oxygen in streams and lakes. The Ministry of the Environment has established an environmental health objective concentration of <b>0.03 mg/L</b> .	0.06	B	0.08	B
	<b>E. coli</b> ( <i>Escherichia coli</i> ) are bacteria found in human and animal waste. Their presence in water indicates the potential for the water to have other disease-causing organisms. The Ministry of Health has established a guideline of <b>100 cfu</b> (colony forming units)/ <b>100 mL</b> in recreational waters.	355	C	233	C
	<b>Benthic Invertebrates</b> are small animals without backbones that live in stream or lake sediments. The Family Biotic Index ( <b>FBI</b> ) summarizes the information about the numbers and types of these animals in a sediment sample. FBI values provide stream health information and values range from <b>1 (healthy) to 10 (degraded)</b> .	5.1	C	5.6	C

Grade	Explanation
A	Indicates excellent ecosystem conditions and protection may be required. Some areas may require enhancement.
B	Indicates good ecosystem conditions. Some areas may require enhancement.
C	Indicates ecosystem conditions that need to be enhanced.
D	Indicates poor ecosystem conditions that need to be improved.
F	Indicates degraded ecosystem conditions that need considerable improvement.



# Bannockburn Next Steps and Local Successes



## To improve forest conditions ...

- Use local resources, such as the Huron Perth Woodlot Association to help properly manage your private woodlot.
- Connect woodlots and streamside forest, and protect wetlands.

## To improve water quality ...

- Sinkhole Area Well Care:
  - Have your well inspected and upgraded where necessary
  - Test your well water for coliforms in every season and keep a record of the results
  - Do not store fuel, pesticides, or other toxic material near your well
  - Ensure that abandoned wells are properly capped
  - Practise water conservation – install water efficient toilets and shower heads, restrict use of water for showers, lawn watering and car washing.
  - Attend public meetings to help develop groundwater protection strategies.
  - Reduce contamination of municipal drains that flow into sinkholes.
- Manure Management:
  - Apply manure at rates and times to optimize crop uptake of nutrients and prevent runoff.
  - Monitor tile outlets for contaminants during and following manure application and implement spill contingency plans if necessary.
  - Ensure manure storage facilities are adequate and properly functioning.
  - Keep records; develop a nutrient management plan (Environmental Farm Plan funding may be available).
- Plant windbreaks and practise conservation tillage on erosion-prone soils (Programs available through ABCA).
- Fix faulty septic systems and establish a septic maintenance plan.
- Decommission abandoned wells and upgrade existing wells to prevent groundwater contamination.

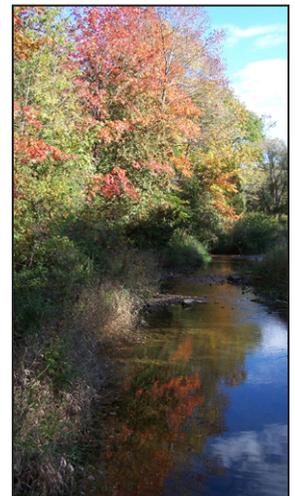
## Other recommendations

- A detailed investigation into the rainbow trout habitat might help to promote these attributes in the area.
- Continue to support the province’s natural heritage policies through local official plans and zoning by-laws (i.e., storm water management, tree cutting bylaw).
- Complete Environmental Action Plans (Farmers see Environmental Farm Plan; Lakeshore residents see Lakeshore Stewardship Manual). A stewardship manual for rural non-farm landowners should be completed by 2007. Contact the ABCA for more information.

## Thumbs up!

Huron Centennial School and private landowners that live along the small drains that feed the Bannockburn have established healthy streamside trees and shrubs.

*This is just one example in the watershed – give us a call and tell us about your project.*



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