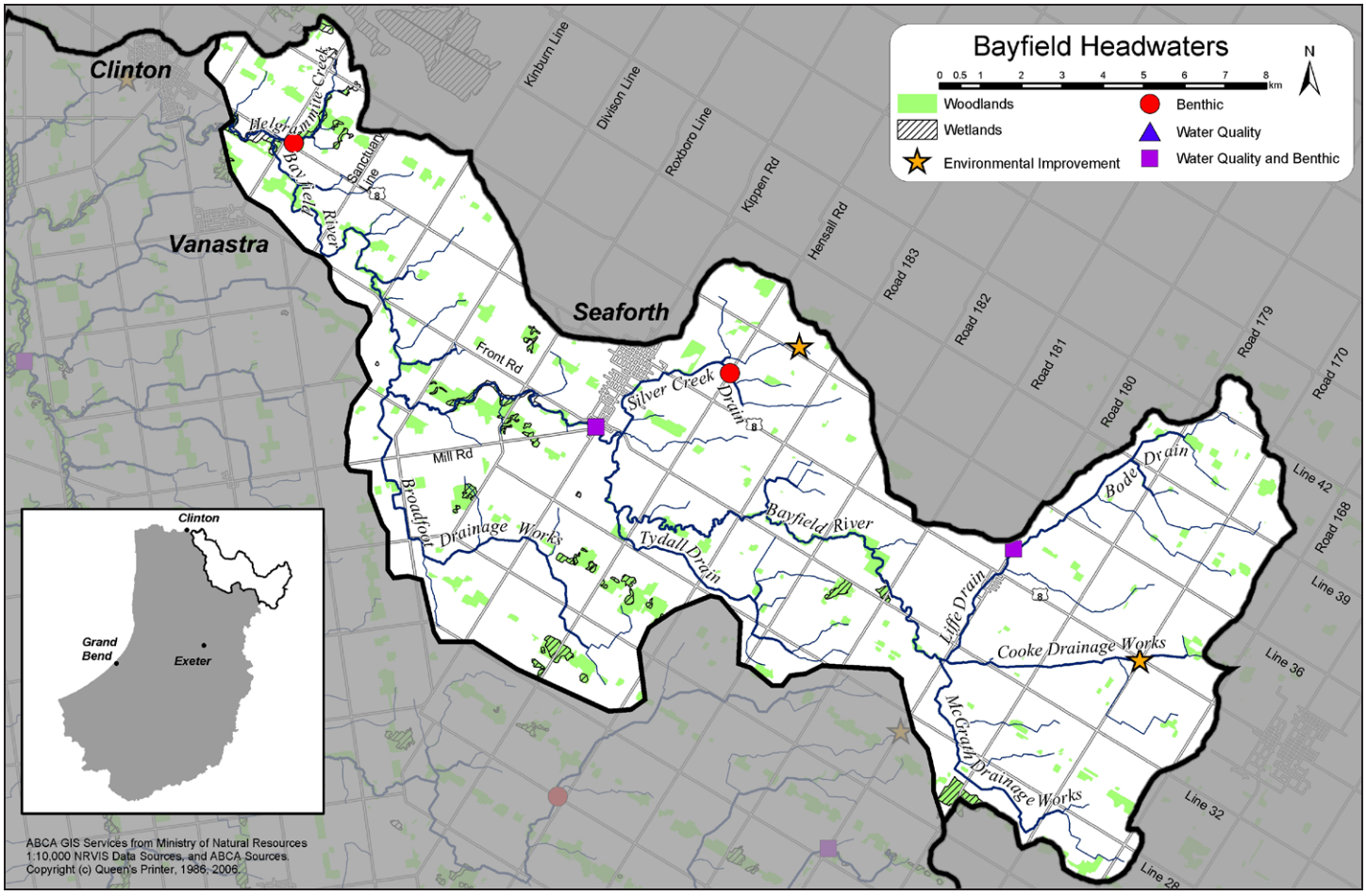
Bayfield Headwaters
Watershed Report Card

Grades:	
Forest Conditions	D
Surface Water Quality	C

This report card summarizes water quality and forestry information for the Bayfield Headwaters 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**. Further information, including methodology, comparisons to the other 15 Ausable Bayfield watersheds and references are also found in the report.



Priority Strategy for Bayfield Headwaters Watershed

Improve: Reforestation efforts are critical in this area.

Bayfield Headwaters Watershed Features

Area: 206 km^2

Municipalities: Central Huron, Huron East, West Perth

Geology	79% Till Plains (Undrumlinized); 17% Spillways; 3% Till Moraines; 1% Other (GIS derived with physiographic maps) (Chapman and Putnam 1984)
Soils	72% Clay Loam; 14% Silty Loam; 6% Bottomland; 4% Loam; 4% Sandy Loam (County Soils Maps 1951-1991)
Land Use	**90% agriculture; 7% woodlot; 2% urban; 1% other (OMAFRA 1983)**
Streamside Cover	17% 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: 15% (ABCA 2005)
Natural Areas	Seaforth-West Wawanosh Moraines, Seaforth Esker, Staffa Kame Complex (Area of Natural and Scientific Interest); Hullett Marsh Complex (Provincially Significant Wetland); Colyer Swamp, McGrath Swamp (Locally Significant Wetland); Hibbert Environmentally Significant Areas 1 to 3; Tuckersmith Environmentally Significant Areas 1 to 8
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 a source of drinking water for dug or bored wells in the area and is most likely a minor source of the flow for the upper Bayfield River. In this area, only the bedrock aquifer has been sampled and nitrate, chloride and fluoride concentrations are well below provincial drinking water standards. A thick sequence of mostly fine-grained glacial sediment separates the Bayfield River from the bedrock aquifer in this area.
Fishes	Warm water fishery in the main channel; baitfish in 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:	None identified at this time.
Birds:	None identified at this time.
Fishes:	None identified at this time.
Mussels:	None identified at this time.
Mammals:	None identified at this time.

Wastewater Treatment Plants: Dublin, Seaforth

Bayfield Headwaters
Forest Cover, Surface Water Quality

	Indicator and Description	Bayfield Headwaters		Ausable Bayfield Area	
		Result	Grade	Result	Grade
Forest Conditions	**Forest Cover** is the percentage of the watershed that is forested. Environment Canada recommends **30%** of a watershed should be in forest cover.	7.0%	D	12.6%	C
	Forest Interior is the area inside a woodlot that some bird species need for breeding. Environment Canada recommends **10%** of a watershed should be in forest cover that is at least 100 m from the forest edge.	0.8%	F	2.8%	D
Water Quality	**Total Phosphorus** 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 **0.03 mg/L**.	0.07	B	0.08	B
	E.coli (*Escherichia coli)* 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 **100 cfu** (colony forming units)**/100 mL** in recreational waters.	376	C	233	C
	Benthic Invertebrates are small animals without backbones that live in stream or lake sediments. The Family Biotic Index **(FBI)** 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 **1 (healthy) to 10 (degraded)**.	5.5	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.

Bayfield Headwaters
Next Steps and Local Successes

To improve forest conditions ...

- Reforestation efforts are critical in this area, particularly in areas with hickory bark beetle devastation.
- Woodlots along the back of farm lots in parts of the former Hibbert and Logan Townships were removed in support of the railroad that runs parallel to Highway 8. Landowners might consider re-establishing back of farm woodlots.

To improve water quality ...

- Are there further wetland re-creation opportunities associated with the Seaforth wastewater treatment plant?
- 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.
- Dredging the Bayfield River Harbour every spring is related to land use practises that promote soil erosion upstream. Soil conservation techniques include: conservation tillage, crop rotation and grassed waterways.
- Keeping water on the land can help to improve water quality by filtering sediment and nutrients (e.g., a wetland). In the spring, take note of where the wet areas persist; grants may be available to help you to enhance these features.

Other recommendations

- 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).
- There are on-line barriers for fish passage in Silver Creek.
- Maintain drains by brushing or bottom clean out only; time maintenance work for the dry months of the year.
- 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!

The Friends of the Bayfield River have recognized the connection between degraded downstream water quality in the Bayfield River and Lake Huron with the lack of forest cover in the headwaters. This community group has helped private landowners in the headwaters secure grants to plant trees along headwater drains.

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

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