

February 2008

KAWARTHA-HALIBURTON SOURCE PROTECTION AREA – OVERVIEW

The Kawartha-Haliburton Source Protection Area (SPA) encompasses approximately 5,500 km² within the central region of Ontario, fringing on the Greater Toronto Area to the south and Algonquin Provincial Park to the north.

Kawartha Conservation's watershed occupies the southern portion of the SPA, including several of the Kawartha Lakes and their tributaries. For the purposes of drinking source water protection planning, the SPA has been enlarged beyond Kawartha Conservation's boundaries to include the headwaters of the Trent River. This includes the Gull and Burnt River watersheds that drain southward to the Kawartha Lakes.

The total population living within the SPA is approximately 84,000 people (2006 census data). Seasonal population fluctuations occur throughout the watersheds, primarily in the summer months due to recreational opportunities and cottagers. The majority of the population in the southern area of the SPA reside in historical settlement areas, including Port Perry, Lindsay, Bobcaygeon and Fenelon Falls. Settlement areas within the northern portion of the SPA include Minden, Haliburton, Norland, Coboconk, West Guilford, Gooderham and Eagle Lake. Much of the population also resides in rural areas.

The Kawartha-Haliburton SPA is comprised of two main geologic areas: the Precambrian Canadian Shield to the north and the Paleozoic area to the south. The Precambrian area is characterized by sparse soils and very

old exposed rocks whereas the Paleozoic area has much younger limestone layers on top of the older Precambrian rocks. The Gull and Burnt River watersheds are located within the Precambrian Canadian Shield. The Kawartha watershed is mainly located in the Paleozoic area to the south. Distinct physical features within the watersheds include the Oak Ridges Moraine, Peterborough Drumlin Field and Schomberg Clay Plains.

The Gull and Burnt Rivers make up the northern headwaters of the western Kawartha Lakes and drain from the Precambrian Shield to the southwest. A number of medium to small lakes are present in their watersheds, and serve as reservoir lakes for the Kawartha Lakes during the summer for navigational purposes. The upper portion of the Kawartha Lakes chain and their interconnecting channels provide the main drainage flow within the central portion of the SPA. Waters from Balsam, Cameron, Sturgeon and Pigeon Lakes



generally flow in an easterly direction. Most tributaries of Lake Scugog, in addition to Pigeon River and Fleetwood Creek, drain the northern flank of the Oak Ridges Moraine and generally flow in a northeasterly direction. Watercourses inflowing to the Kawartha Lakes, such as East Cross Creek, Nogies Creek, Emily Creek, Mariposa Brook, Pigeon River, Scugog River and Nonquon River join lakes from south and north. Lake Scugog is connected to the Kawartha Lakes by way of the Scugog River that enters Sturgeon Lake from the south.

Based on the limited water quality data available, rivers and lakes situated on the Precambrian Shield can be characterized as clean water sources. They have very low levels of dissolved solids, very low concentrations of chloride, sodium, calcium and magnesium and consequently, very low conductivity and hardness. Nitrogen and phosphorus concentrations are usually low. Data indicate elevated concentrations of cadmium, lead and iron that might suggest a natural origin resulting from erosion of the Precambrian rocks.

Rivers and lakes in the Paleozoic part of the SPA generally have poorer water quality. Pressure of human activities are stressing these systems. Nonquon River and Mariposa Brook are two rivers indicating the heaviest stress. All of the southern lakes exhibit elevated concentrations of nutrients, while the rivers usually have high conductivity and hardness, high concentrations of major ions (especially chloride and calcium). concentrations of total phosphorus, nitrates and nitrites are high as a result of human activities. Concentrations of heavy metals often exceed standards. This part of the SPA requires attention, monitoring and future rehabilitation measures.

As a result of physical features (such as shallow soils) characterizing the Precambrian Canadian Shield, the main land uses in the northern portion of the SPA are tourism and recreation; some forestry and mining also exist. The dominant land uses in the fractured landscape of the Paleozoic area include agriculture, recreation, tourism and urban development.

MUNICIPALITIES

Lower Tier

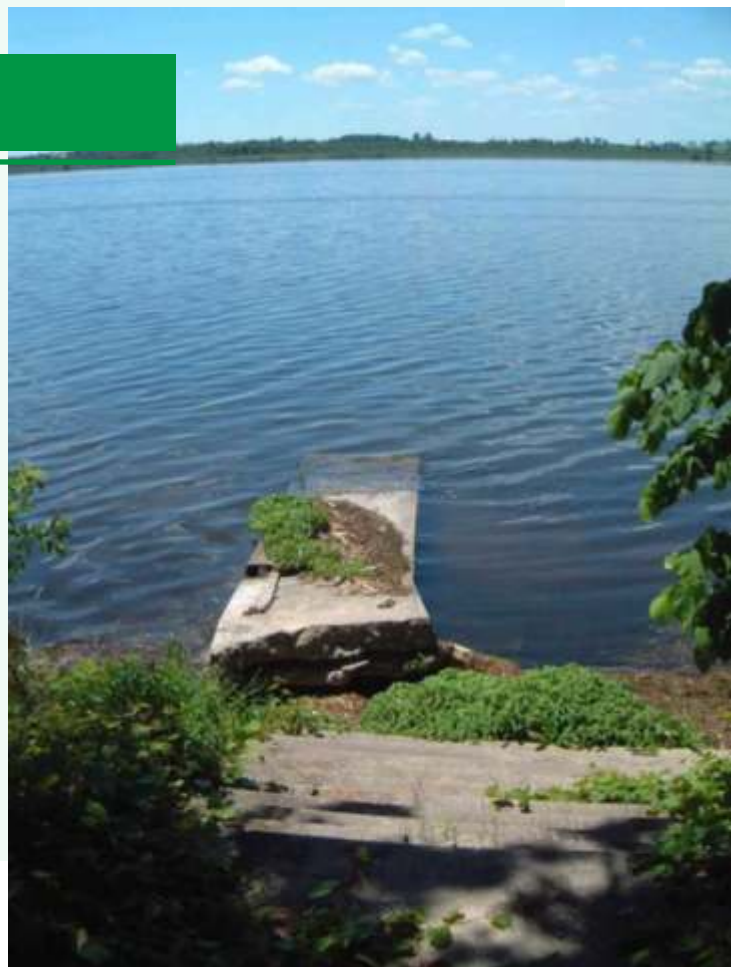
- Township of Cavan Monaghan
- Township of Galway - Cavendish and Harvey
- Township of Minden Hills
- Townships of Dysart et al
- Township of Algonquin Highlands
- Municipality of Highlands East
- Township of Scugog
- Township of Brock
- Municipality of Clarington

Single Tier

- City of Kawartha Lakes

Upper Tier

- Regional Municipality of Durham
- Haliburton County
- Peterborough County



MUNICIPAL WATER SUPPLY SUMMARY – Groundwater

Municipality	System Name	Background	# of Wells
City of Kawartha Lakes	Canadiana Shores +	The Canadiana Shores Well has been designated a Large Municipal Residential System.	3
	Janetville +	The Janetville subdivision is serviced by the Janetville Water Works, which includes approximately 165 serviced connections.	3
	King's Bay +	The Kings Bay Well Supply has been designated a Large Municipal Residential System servicing approximately 78 residences.	3
	Omeme Victoria Glen +	The Omeme Well Supply provides water to a population of 256, all located within a subdivision known as Victoria Glen. This system has been designated to be a Small Municipal Residential System and includes 71 connections and 4 hydrants which are solely used for flushing purposes.	2
	Manorview +	Manorview Well Supply has been designated a Small Municipal Residential System. The water supply draws its water from two wells -- primary supply well and standby well. The system supplies water to approximately 45 residences.	2
	Mariposa Estates +	The Mariposa Estates Well Supply provides water to approximately 80 residents and has been designated a Small Municipal Residential System. The system draws water from two wells both of which have elevated nitrate levels, one exceeding the Ontario Drinking Water Quality Objective.	2
	Pleasant Point +	Pleasant Point Estates (pop. ~365) is located along the north shore of Lake Scugog. Source water is derived from one of two drilled, overburden wells on a rotating basis.	2
	Sonya Village Subdiv. +	The Sonya Village Subdivision has been designated a Small Municipal Residential System. The system services 51 single family dwellings.	2
	Victoria Place +	The Victoria Place Well Supply serves approximately 133 residences. A separate system for lawn watering provides untreated water from Pigeon Lake.	4
	Woodfield +	The Woodfield Well Supply has been designated a Small Municipal Residential System. The system provides water to approximately 33 homes. This water supply draws its water from 2 wells which serve as alternating production wells. A third well is not connected to the system.	2
	Woods of Manilla +	The Woods of Manilla Well Supply has been designated a Small Municipal Residential System. The system provides water to approximately 74 residences. The water supply draws its water from one main well with one standby well.	2
Regional Municipality of Durham	Blackstock *	The Blackstock Water Supply has been designated a Large Municipal Residential System. The water supply draws its water from one main production well, and includes a standby well and an emergency standby well. The system provides water to approximately 448 people.	3
	Greenbank *	Greenbank Well Supply is designated a Focused Large Municipal Residential System. This system serves a population of 512.	5
	Port Perry *	The Port Perry Water System serves Port Perry and Prince Albert. The population served by this water system is 7,217.	3
Township of Minden Hills	Lutterworth Pines *	Lutterworth Pines Well Supply is designated Small Municipal Residential System and services the Lutterworth Pines Trailer Park with 28 private residences and two commercial operations.	2
	Minden *	Minden Water Works has been designated a Large Municipal Residential System. There is a primary production well and a standby well. This system supplies drinking water to a population of approximately 2,300 residents.	2

Summary of Technical Studies:

Groundwater Vulnerability Analysis, Issues Evaluation and Threats Inventory, and the Tier 1 Water Quality Risk Assessment are being completed by Jagger-Hims Limited + and XCG Consulting*.

Scheduled for completion – Spring 2008

XCG completed the Groundwater Vulnerability Analysis for Norwood and Buckhorn Estates Well Supplies in 2006

MUNICIPAL WATER SUPPLY SUMMARY – Surface Water

Municipality	System Name	Background	Source
City of Kawartha Lakes	Bobcaygeon	The Bobcaygeon Drinking Water System has been designated a Large Municipal Residential System. The community includes numerous commercial operations and an estimated population of 2,600 persons.	Big Bob River
	Fenelon Falls	The Fenelon Falls Water Treatment Plant services a population of Fenelon Falls is 1,806 people. It is a Large Municipal Residential System.	Cameron Lake
	Kinmount	The Kinmount Treatment Plant services around 34 homes and is designated a Small Municipal Residential System. A new facility was constructed in 2006 to service the former Kinmount East Hill and Downtown distribution systems. Both East Hill and Downtown systems were decommissioned.	Burnt River
	Lindsay	The Lindsay Water Treatment Plant serves a population of approximately 17,500 and has a capacity of 22,730 m ³ /day.	Scugog River
	Norland	The original Norland Water Works was constructed in 1923 by a consortium of local residents to distribute untreated water from the Gull River to the community. It is now designated as a Small Municipal Residential System serving a population of ~200 persons with 97 service connections.	Gull River
	Southview Estates	The Southview Estates Drinking Water System has been designated a Large Municipal Residential System. The facility draws its raw water from Sturgeon Lake and, until recently, an infiltration-recharge pond adjacent to the pump house. The construction of the new treatment plan eliminated the infiltration-recharge pond as a source. This system supplies water to approximately 300 people.	Sturgeon Lake

Summary of Technical Studies:

XCG Consulting is completing Surface Water Vulnerability Analysis, Issues Evaluation and Threats Inventory, and the Tier 1 Water Quality Risk Assessment. Scheduled for completion in Spring 2008.

For more information

TRENT CONSERVATION COALITION SOURCE PROTECTION REGION
www.trentsourceprotection.on.ca

Kawartha-Haliburton Source Protection Area

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or

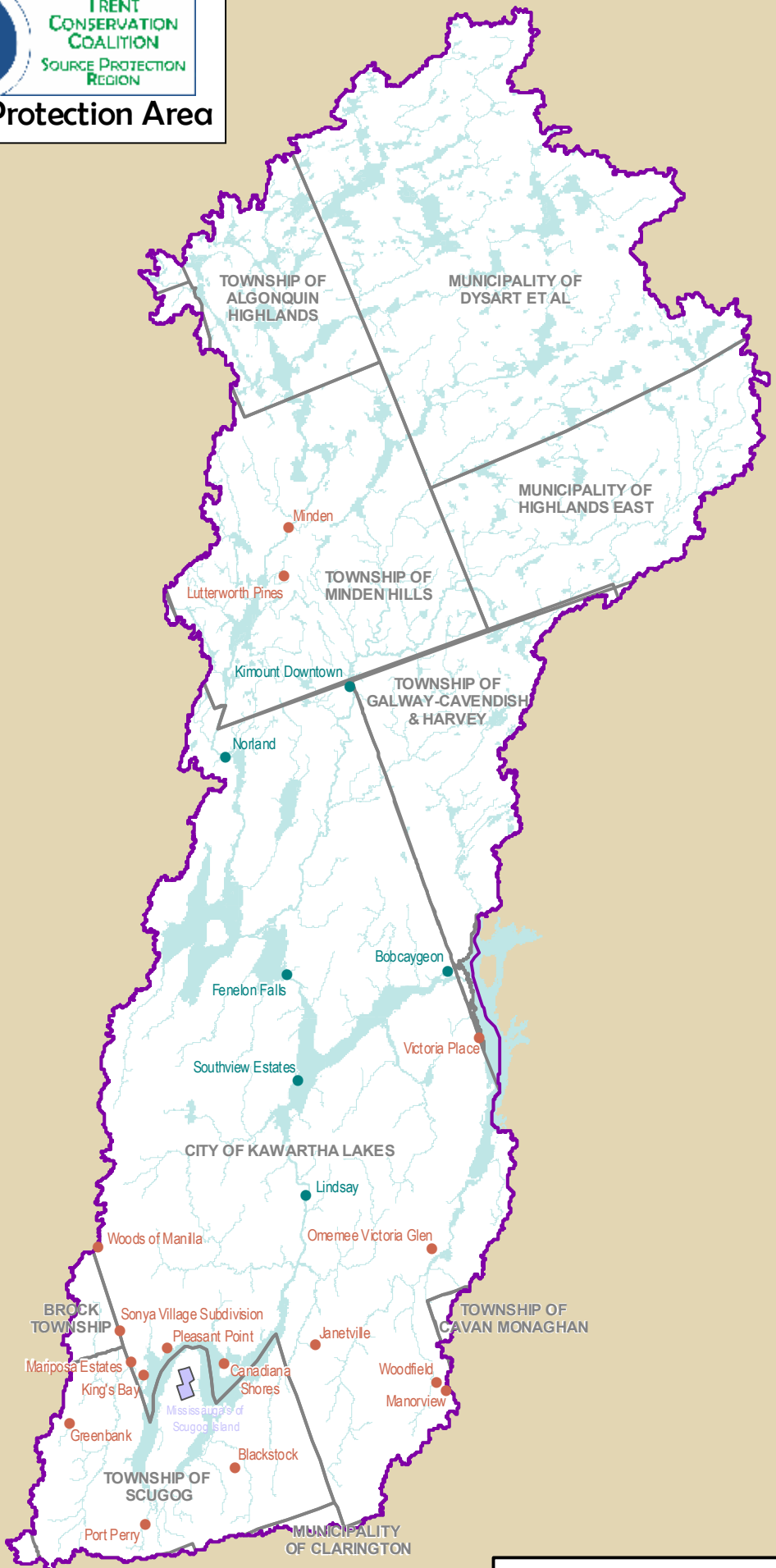
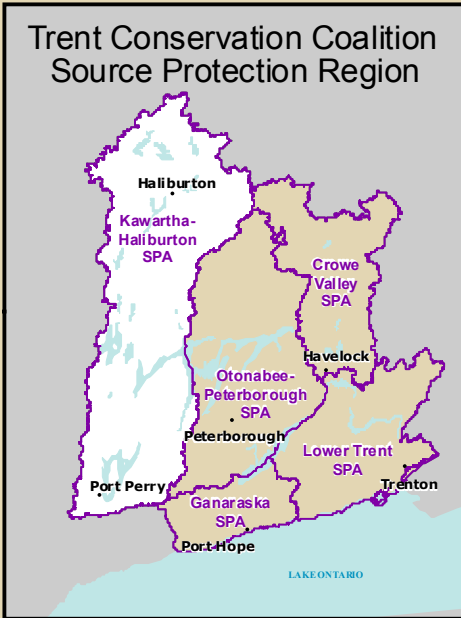
Trent Conservation Coalition Source Protection Region

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Kawartha-Haliburton Source Protection Area

**Trent Conservation Coalition
Source Protection Region**



Legend

- Municipal Wells
- Municipal Surface Intakes
- First Nation Community