

ENGINEERING AND TECHNICAL SERVICES ADVISORY COMMITTEE
Minutes

Meeting: Friday, February 8, 2008

Committee Members Present

Robert Walker	Clearview	Fred Nix	Mono
Tom Elliott	Springwater	Chris Carrier	Collingwood

Committee Members Regrets

Rick Archdekin	Wasaga Beach	Terry Dowdall	Essa
Barry Ward	Barrie	Ron Henderson	Essa

Staff Members

Glenn Switzer	Director of Engineering & Technical Services
Dave Featherstone	Manager, Watershed Monitoring Program
Ryan Post	Hydrogeologist, Coordinator Source Water Protection

1. Elections for the positions of Chair and Vice-Chair of the Engineering and Technical Services Advisory Committee

Robert Walker was selected as Chair and Tom Elliot was selected as Vice Chair of the Engineering and Technical Services Advisory Committee

2. Information update: Project accepted- Orangeville Moraine Study by the Ontario Geological Survey

Ryan Post provided a power point presentation on the Orangeville Moraine study which has now been approved by the Ontario Geologic Survey. The Orangeville moraine extends into a number of municipalities within the NVCA, including Amaranth, Mono and Shelburne. It provides water supplies for a number of municipalities and forms the headwaters for a number of water courses flowing both north into the NVCA and south into the CVC and GRCA including the Upper Nottawasaga River.

The purpose of the study is to further investigate the hydrogeologic setting of the moraine through field surveys and drilling of investigative boreholes. This \$750,000 study funded 100% by the OGS will provide a better understanding of the potential water supplies in this area and develop enhanced hydrogeologic information of the water resources in the moraine.

Glenn Switzer thanked Ryan for his effort in coordinating this project proposal which will improve our knowledge of the groundwater resources within the Nottawasaga Valley Conservation Authority.

Motion

Moved By:
Seconded By:

Fred Nix
Chris Carrier

Recommendation:

Whereas the NVCA Executive endorsed the proposal for the Orangeville Moraine by the Ontario Geological Survey at the August 24, 2007 meeting.

Whereas the Ontario Geological Survey has informed the NVCA that the project proposal has been successful and the anticipated start date is summer, 2008.

Recommended That the staff report regarding the Orangeville Moraine Study by the Ontario Geological Survey be received

Carried:

3. Water Quality, Lower Nottawasaga River, Town of Wasaga Beach

Presentation by Dave Featherstone

Lower Nottawasaga River – Water Quality

Background

In late summer 2006 and summer 2007, Wasaga Beach residents brought forward concerns regarding extensive algae blooms and aquatic vegetation coverage in the lower river through urbanized portions of Wasaga Beach. These conditions had been recently observed in this portion of the river. Resident concerns were associated with aesthetic impacts as well as boat access issues and potential ecological impacts.

In response to these concerns, Watershed Monitoring Program staff investigated the lower river in September 2006 and August 2007. Investigations included: observations of algae and aquatic vegetation growth (including sampling for identification purposes), dissolved oxygen sampling, water quality sampling, river depth measurements and lake level research.

August 10, 2007 Water Quality Run

Water quality measurements and vegetation/algae observations were undertaken at 13 stations, beginning upstream of Jack's Lake and ending at Beach 1 Launch Ramp. Conductivity, pH, dissolved oxygen and turbidity were measured at each station as well as comments on extent of vegetation/algae.

Results

Water quality downstream to Klondike Park road is similar to conditions in Angus area. The river is moderately turbid, in large part due to inputs from Innisfil Creek. The river flows between confining levees through the Minesing Wetlands during low flow periods and is not

subject to the filtering functions typically associated with wetlands (in contrast to spring/storm flooding conditions). The river channel is typically rectangular in cross-section (steep banks and deep/flat mid-channel areas). Aquatic vegetation is present only on the channel fringe.

During low flow conditions, river flow routes directly through Jack's Lake. Similar to the Minesing Wetlands, low flows appear to circumvent the filtering functions of this wetland – measured water quality analyzes are the nearly identical upstream and downstream of Jack's Lake.

Downstream of Jack's Lake, the river character changes as it cuts through the parabolic dunes associated with the Wasaga Beach Provincial Park. High gradients result in a more conventional riffle/pool morphology. Coarser gravel/cobble substrates in the riffles encourage higher densities of benthic macroinvertebrates (i.e. insects, mussels) which filter the water column. Shallower depths in riffle areas and inside bends encourage aquatic vegetation growth. Incremental improvements in water clarity are observed.

Near Knox Road, a combination of benthic and vegetation filtering results in significant improvements in water clarity which, in turn, generates significant aquatic vegetation growth (and algae attachment points). Extensive aquatic vegetation growth and associated filamentous algae growth extends downstream to the river mouth. Low lake levels influence low river levels downstream of the Schoonertown bridge, allowing light to penetrate to river bottom. This appears to encourage plant growth in areas which were relatively free of aquatic vegetation in the past.

Low Lake Levels

There is considerable debate regarding the causal factors associated with present low water levels in Georgian Bay/Lake Huron.

In 2005, Georgian Bay Association hired Baird Associates to undertake a study on low lake levels (check out www.georgianbay.ca). Baird Associates concluded that past dredging in the St. Clair River created erosive condition that have lowered the river sill – a process which may have decreased average lake levels by as much as 50 cm (erosion may be increasing!). The International Joint Commission is undertaking its own studies to review the issue.

Regardless of cause, climate trends remain an important factor for future lake levels. Global warming will likely result in increased evaporation – warmer summers, less ice in winter – and lower average lake levels.

Summary

From Knox Road downstream to Beach 1, backwater areas are characterized by thick aquatic vegetation – pondweed, arrowhead, watermilfoil and tapegrass. Thick growths of algae attached to this vegetation (filamentous green algae dominant– no blue-green algae observed).

Based on September 2006 sampling water quality is similar from shoreline to mid-channel suggesting that vegetation/algae growth is a whole river issue rather than a point source

issue. Dissolved oxygen remains high enough to support sensitive biota (chinook salmon) which begin entering the river in late July.

River aesthetics have changed in recent years but river ecology has not been negatively affected. Aquatic vegetation provides habitat/forage for fish and waterfowl in the lower river.

We can anticipate that average lake levels will continue to decline as a result of climate change (though they will continue to fluctuate based on short-term precipitation trends). Low water conditions downstream of the Schoonertown Bridge are likely to become the norm rather than the exception. Aquatic vegetation and algae will continue to thrive in this environment.

Although filamentous green algae use aquatic vegetation as an attachment point, their density/extent is driven by sunlight and available nutrients. Total phosphorus – the key nutrient driver in the Nottawasaga River – typically exceeds Provincial Water Quality Objectives for aquatic health. Watershed stakeholders must continue to implement nutrient best management throughout watershed to address nutrient levels in lower river.

ADJOURNMENT