



THE TORONTO AND REGION CONSERVATION AUTHORITY

Watershed Management Advisory Board Meeting #5/07

Chair: Richard Whitehead
Vice Chair: Anthony Perruzza
Members: Maria Augimeri
Bryan Bertie
Gay Cowbourne
Grant Gibson
Lois Griffin
Bonnie Littley
John Parker
Gerri Lynn O'Connor - Chair,
Authority

February 8, 2008

10:00 A.M.

SOUTH THEATRE, BLACK CREEK PIONEER VILLAGE

AGENDA

- | | | <u>Pages</u> |
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| 1. | MINUTES OF MEETING #4/07, HELD ON OCTOBER 19, 2007
(Minutes Summary enclosed herewith on <u>BLUE</u>) | |
| 2. | BUSINESS ARISING FROM THE MINUTES | |
| 3. | DISCLOSURE OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF | |
| 4. | DELEGATIONS | |
| 5. | PRESENTATIONS | |
| 5.1 | A presentation by Chris Walker, Senior Communications Advisor, Ontario Power Generation, in regard to item 7.1 - Frenchman's Bay Watershed Rehabilitation Project - Final Report. | |

5.2	A presentation by Jennifer Vincent, Acting Coordinator, Lake Erie and Lake Ontario Lake Management Plans, Strategic Integration and Partnerships Division, Environment Canada, in regard to item 7.2- Lake Ontario Management Plan and Collaborative Near Shore Studies.	
6.	CORRESPONDENCE	
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8.1.2	HUMBER WATERSHED ALLIANCE Minutes of Meeting #1/07, held on June 19, 2007 Minutes of Meeting #2/07, held on October 16, 2007	
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9. NEW BUSINESS

Brian Denney
Chief Administrative Officer

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Item 7.1

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #5/07, February 8, 2008

FROM: Adele Freeman, Director, Watershed Management

RE: **FRENCHMAN'S BAY WATERSHED REHABILITATION PROJECT**
Final Report

KEY ISSUE

The accomplishments of the Frenchman's Bay Watershed Rehabilitation Project.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT the Toronto and Region Conservation Authority (TRCA) thank and acknowledge the project partners who contributed to the success of the Frenchman's Bay Watershed Rehabilitation Project from 2003 to 2007.

BACKGROUND

At Authority Meeting #8/02, held on September 6, 2002, Resolution #B111/02 was approved as follows:

THAT Toronto and Region Conservation Authority (TRCA) continue to implement the Frenchman's Bay Watershed Rehabilitation Project (FBWRP) in partnership with Pickering East Shore Community Association, the City of Pickering, Ontario Power Generation and The Ontario Trillium Foundation (OTF);

AND FURTHER THAT staff continue to provide an annual project progress report that highlights the milestones and the accomplishments of the project.

In 2003, a new partnership with the Pickering East Shore Community Association resulted in a grant from the Ontario Trillium Foundation in the amount of \$125,000. This five-year community stewardship project was designed to increase awareness and educate the community about environmental issues impacting the Frenchman's Bay watershed, while protecting, restoring and enhancing the ecological health of the area through naturalization and stewardship activities. The project included hands-on initiatives such as monitoring, habitat creation, watershed clean-ups and tree plantings that empowered and engaged the community.

The Authority received project updates at Meeting #1/03, held on April 11, 2003, Meeting #7/04, held on December 10, 2004 and Meeting #1/05, held on April 15, 2005. These updates identified accomplishments to date and work plan priorities for the following year. As of December 31, 2007 all work plans associated with the Frenchman's Bay Watershed Rehabilitation Project (FBWRP) were completed as detailed in the Ontario Trillium Foundation funding and commitments.

The project has recently completed its fifth and final year of The Ontario Trillium Foundation funding. The expected targets and actual achievements are summarized below:

Expected Targets	Project Accomplishments
Engage 2125 individuals	Engaged 6939 individuals
Enhanced Areas: 2 hectares of meadows 4 hectares of forests 2 hectares of wetland/ riparian area	Enhanced 2.5 hectares of meadow Enhanced 4.5 hectares of forest Enhanced 2.0 hectares of wetland/riparian
Plant 3000 native trees, shrubs, wildflowers and aquatics	Planted 420 aquatic plants Planted 1200 wildflowers Planted 7025 native trees/ shrubs (Total 8645 native plants)
Install 145 wildlife habitat structures	Installed 205 wildlife habitat structures
Develop 94 property naturalization plans	Developed 100 property naturalization plans
Deliver 49 educational workshops	Delivered 96 educational workshops
Deliver 8 monitoring programs	Delivered 35 volunteer monitoring programs
Additional Accomplishments	Distributed 215 rain barrels Collected 70 bags of litter Marked 42 storm drains with yellow fish Distributed 159 healthy homes kits.

These deliverables were achieved through the following program components:

- Hands on the Earth Program;
- Volunteer Environmental Monitoring;
- Natural Alternative Program.

DETAILS OF WORK TO BE DONE

TRCA and its existing community partners would like to continue to offer a variety of stewardship and outreach education opportunities to the residents of Pickering in 2008. A new shared delivery model and work plan will be designed as resources are confirmed by the project partners. Discussion is underway with current project partners and other key individuals to continue to build capacity through stewardship and outreach education in the City of Pickering.

FINANCIAL DETAILS

Core funding for the FBWRP has been provided by The Ontario Trillium Foundation and through the Regional Municipality of Durham. Additional funds supporting various initiatives within the project have been provided by Community Fisheries/ Wildlife Involvement Program, Human Resources Development Canada, TD Friends of the Environment, Hydro One, Pickering East Shore Community Association, Ontario Power Generation, the City of Pickering and EcoAction Community Funding Program.

Through the successes of this five-year Ontario Trillium Foundation funded project, staff was also able to leverage federal funding from the EcoAction Community Funding Program. This allowed staff to implement the West Shore Habitat Initiative and Pickering Healthy Communities Program.

Report prepared by: Michelle Pongracz, extension 5676

Email: mpongraz@trca.on.ca

For Information contact: Michelle Pongracz, extension 5676

Email: mpongraz@trca.on.ca

Date: January 14th, 2008

Item 7.2

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #5/07, February 8, 2008

FROM: Adele Freeman, Director, Watershed Management

RE: **LAKE ONTARIO MANAGEMENT PLAN AND COLLABORATIVE NEAR SHORE STUDIES**

KEY ISSUE

Presentation on the Lake Ontario Management Plan-based Biodiversity Strategy for Lake Ontario and the Upper St. Lawrence River - Nature Conservancy Canada/ The Nature Conservancy USA.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT Toronto and Region Conservation Authority (TRCA) continue to assist Conservation Ontario with its efforts to coordinate local conservation authority input for the Biodiversity Strategy;

AND FURTHER THAT the Authority support Conservation Ontario's efforts to secure future funding from the Lake Ontario Management Plan (LaMP) for the implementation of actions identified in the Biodiversity Strategy.

BACKGROUND

As part of on-going Bi-National efforts to restore and protect the Great Lakes, LaMP's were developed for each lake. LaMP's are a plan of action to assess, restore, protect and monitor the ecosystem health of a Great Lake. They are used to coordinate the work of all government and nongovernment partners working to improve the lake ecosystem.

LaMP's are coordinated on the Canadian side through Environment Canada, Fisheries and Oceans Canada, and the Ontario Ministries of Natural Resources and Environment, with input from other ministries and departments.

Lake Ontario is an ecosystem at a crossroads. While the lake still harbors significant biodiversity in its native fish, thriving populations of migratory birds, extensive coastal wetlands, and magnificent barrier beaches and dunes, it is threatened by hydrological alteration, nutrient enrichment and continued invasive species introductions, which have vastly altered the food web.

The LaMP, in collaboration with 25 agencies, universities and nonprofit organizations in the United States and Canada is developing a binational road map to protect and restore Lake Ontario's biological diversity. This process will integrate the natural resource information and habitat priorities of Ontario and New York into a binational action agenda for Lake Ontario as a single ecosystem.

The end result will be a scientifically grounded, common vision of priority strategies that partner organizations can pursue. The process involves selecting important conservation targets, ranking threats to them, and then comparing the recommended strategies to the present actions of public and private partners. Recommended actions will include watershed tributaries to the extent that they effect the biodiversity of the lake. This process will identify gaps in conservation efforts that need to be filled through binational collaboration.

By engaging a binational network of partners in developing this action agenda, this project will enhance collaboration and integration of efforts toward achieving the habitat restoration goals of the LaMP.

Ontario conservation authorities and district staff from the Ontario Ministry of Natural Resources are key Canadian watershed partners to the successful development of this binational biodiversity conservation strategy.

Report prepared by: Gary Bowen, extension 5385
Email: gbowen@trca.on.ca
For Information contact: Gary Bowen, extension 5385
Email: gbowen@trca.on.ca
Date: January 30, 2008

Item 7.3

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #5/07, February 8, 2008

FROM: Adele Freeman, Director, Watershed Management

RE: **FRENCHMAN'S BAY HARBOUR ENTRANCE PROJECT**
City of Pickering, Regional Municipality of Durham

KEY ISSUE

Acceptance of the City of Pickering's request for Toronto and Region Conservation Authority to take a lead role and partner with the City on completion of the environmental assessment, design and funding partnership for the reconstruction of the Frenchman's Bay Harbour Entrance.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT Toronto and Region Conservation Authority (TRCA) accept the lead role in partnership with the City of Pickering to undertake the environmental assessment, public consultation, design, approvals and funding partnership for the reconstruction of the Frenchman's Bay Harbour Entrance;

THAT staff be authorized and directed to work with the City of Pickering in the detailed work planning, consultant selection, establishment of a Community Liaison Committee and preparation of the environmental assessment and detailed engineering drawings, and implementation funding partnership with all levels of government and the Frenchman's Bay Stakeholders;

THAT TRCA participation be subject to funding being available from the City of Pickering;

AND FURTHER THAT the City of Pickering be so advised.

BACKGROUND

At Authority Meeting #10/03, held on January 9, 2004, Resolution #A292/03, was approved as follows:

THAT staff be directed to prepare a Pickering Harbour Company Waterfront Regeneration Project (the "Project") on a multi-year basis in the City of Pickering, Region of Durham as a component of the Region of Durham's waterfront multi-year project;

THAT prior to preparation of the Project, the Toronto and Region Conservation Authority (TRCA) obtain written support and a partnership commitment from the City of Pickering and the Pickering Harbour Company for such a major waterfront initiative;

THAT the TRCA, in preparing the Project, including a funding partnership, seek commitments from, but not limited to, the Government of Canada, the Province of Ontario, the Regional Municipality of Durham, the City of Pickering and the Pickering Harbour Company;

AND FURTHER THAT the City of Pickering and the Pickering Harbour Company be so advised.

In 2005, the City of Pickering adopted the 'Framework for a five year implementation plan for Pickering Waterfront and Frenchman's Bay.' At Authority Meeting #6/05, held on July 22, 2005, Resolution #A172/05 endorsing the City of Pickering's waterfront priorities was approved as follows:

THAT the report entitled "Framework for a Five Year Implementation Plan for Pickering Waterfront and Frenchman's Bay" prepared by Suzanne Barrett and Nicole Swerhun for the City of Pickering and TRCA dated June 24, 2005 be received;

THAT the development of a Five Year Implementation Plan for Pickering Waterfront and Frenchman's Bay be endorsed as requested by the City of Pickering Council at its meeting held June 27, 2005;

THAT staff be directed to work with the City of Pickering in the development of a Five Year Implementation Plan for Pickering Waterfront and Frenchman's Bay with priority emphasis on the development of a stormwater management master plan for Frenchman's Bay watershed as a major initiative to improving watershed health;

AND FURTHER THAT the City of Pickering be so advised.

RATIONALE

Moving forward with the environmental assessment, community consultation, detailed design and securing a funding partnership is consistent with the City of Pickering's Five (5) Year Implementation Plan and priorities for the waterfront:

1. Frenchman's Bay Watershed Stormwater Management Master Plan;
2. Frenchman's Bay Harbour Entrance;
3. Completion of Waterfront Trail;
4. Education and Community Stewardship.

These priorities have also been endorsed by the Authority and direction to continue with strategic acquisitions to implement the City of Pickering waterfront vision and plans.

Based on TRCA experience with waterfront environmental planning and implementation, including 35 years of partnership facilitation in working toward a waterfront vision and plans, staff recommend to the Authority that TRCA accept the City of Pickering's request (see attachment 1) to take a lead role and partner with the City of Pickering to complete this project.

DETAILS OF WORK TO BE DONE

TRCA staff will initiate the preparation of a detailed work plan for the approval of City of Pickering staff. Detailed discussions will also occur with the Ministry of the Environment on the environmental assessment approach and utilization of the City's Municipal Infrastructure Class Environmental Assessment. Staff will also be proposing membership suggestions to the community liaison committee for the city's concurrence.

FINANCIAL DETAILS

The City of Pickering received a provincial grant in 2007 in the amount of \$300,000 to fund the environmental assessment, community consultation, detailed design, approvals and securement of implementation funding partnership with all levels of government and key stockholders in Frenchman's Bay. All costs including consultants, TRCA project management and technical staff and other associated costs will be covered by the provincial grant and subject to approval of invoices by the City of Pickering.

Report prepared by: Larry Field, extension 5243

Email: lfield@trca.on.ca

For Information contact: Larry Field, extension 5243; Connie Pinto, extension 5387; Laura Stephenson, extension 5296

Emails: lfield@trca.on.ca; cpinto@trca.on.ca; lstephenson@trca.on.ca

Date: January 30, 2008

Attachments: 2

Attachment 1



Pickering Civic Complex
One The Esplanade
Pickering, Ontario
Canada L1V 6K7
Direct Access 905.420.4660
Toll Free 1.866.683.2760
cityofpickering.com

OPERATIONS & EMERGENCY SERVICES DEPARTMENT

Department 905.420.4624
Facsimile 905.420.4650
o&es-admin@city.pickering.on.ca

January 4, 2008

Mr. Larry Field
Toronto & Region Conservation Authority (TRCA)
5 Shoreham Drive
Downsview, ON M3N 1S4

Subject: Frenchman's Bay Harbour Entrance
- File: A-2800-004

As discussed recently, the City of Pickering received a Provincial Grant in 2007, in the amount of \$300,000 to complete an Environmental Assessment, Work Plan and Financing Strategy for the Frenchman's Bay Harbour Entrance. The City will be budgeting this project for commencement in 2008.

As the TRCA has the experience and knowledge of conducting such studies along the Lake Ontario Waterfront, the City is requesting that TRCA take a lead role and partner with the City of Pickering to complete this project.

The resources and expertise of you and your staff would be invaluable in completing the project and engaging the right consulting and agency involvement to ensure a successful project.

Please advise if the TRCA would be able to assist, in a lead role capacity, with this project understanding that the City's approval of all costs will be required.

Your response should include an estimate of associated costs and possible timeframe for completion.

Thank you in advance for your consideration of this request.

Yours truly

Everett Buntson, NPD., CMM
Director, Operations & Emergency Services

EB:ml

Copy: Chief Administrative Officer
Director, Corporate Services & Treasurer
Division Head, Municipal Property & Engineering

Frenchman's Bay Harbour Entrance Project



Item 7.4

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #5/07, February 8, 2008

FROM: Nick Saccone, Director, Restoration Services

RE: **CANADA GOOSE MANAGEMENT PROGRAM 2006/2007**

KEY ISSUE

Canada Goose Management Egg Oiling Program 2007 report.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT Toronto and Region Conservation Authority (TRCA) staff be directed to continue pursuance of the Canada Goose egg oiling and bird relocation programs with partnering municipalities and agencies;

AND FURTHER THAT TRCA staff be directed to continue participating in the Transport Canada Greater Toronto Area Canada Goose Steering Committee.

BACKGROUND

Since the early 1990's the Canada Goose, specifically the sub-species the Giant Canada Goose (*Branta canadensis maxima*), has become a nuisance within the parklands of the Greater Toronto Area (GTA) and bordering municipalities. In 1998, TRCA initiated a program to locate and oil Canada Goose eggs within the City of Toronto to address this issue. Since then, the City of Pickering, the Town of Ajax, the City of Vaughan and the City of Brampton have also been brought into the program. The objective of the program is to manage the reproduction of nesting Canada Geese through egg oiling on lands in the Toronto region. This technique compliments other management strategies that are being developed and used by various municipalities along the north shore of Lake Ontario.

Canada Geese nests were found by experienced TRCA Environmental Technicians patrolling designated areas. These areas included:

- coastal wetlands;
- golf courses;
- water treatment plants; and
- industrial areas adjacent to wetlands.

In cases where it was not possible to access areas on foot, a boat was used to search the shoreline from the water; this was particularly useful in the coastal marshes and rivers. Typically the egg oiling program encompasses the entire Toronto waterfront from Etobicoke to Ajax as well as extending northwards to inland bodies of water.

Active nests were marked with flagging tape and given an identification number. Eggs were treated with 50-90 ml of Daedol 50 mineral oil. Daedol 50 is a chemically inert, non-poisonous, 100% pure, white mineral oil that is essentially colourless, odourless and tasteless. The product is registered under the Federal Pest Control Products Act and is used in the food industry to render chicken eggs inert. In order to thoroughly coat the eggs, the eggs were turned over in the nest to ensure complete coverage of the egg with the oil. Once an egg has been oiled the pores become clogged and the egg is no longer viable. Oil was not applied to any nests with eggs that were pipped or starred indicating that hatching had started.

Nest locations were noted on appropriately scaled field maps and the data was later transferred into a Geographic Information System (GIS) database. The results were plotted on georeferenced colour aerial photographs. This is an important method to track and archive nest location and egg density.

Each site was monitored on three separate dates in order to locate newly built nests and to ensure the effectiveness of the oiling program by determining the fate of each treated nest. Egg oiling was found to be effective in preventing eggs from hatching. There has never been a visual observation by TRCA staff of a treated egg hatching. While performing egg oiling duties staff would also capture nesting Canada Geese when given the opportunity and apply a numeric band on their legs. To date eighty nesting Canada Geese have been banded. Geese were captured on or near their nest with a large fishing net. Canada Geese were then marked with a plastic and metal leg band with a unique identification number and colour. This banding gave us the opportunity to gain valuable information on the trends of nesting Canada Geese. Banded nesting geese in many cases returned to the same site where they were previously banded and in some cases nested in the exact same location. With this information we can see that the urban Giant Canada Goose shows strong site fidelity towards their nesting location. There has not yet been an incidence of a banded goose nesting at another site.

Mute Swan eggs were also included in the program using the same methods. The Mute Swan has become a target for the egg oiling campaign for the following reasons:

- The Mute Swan is a voracious eater of wetland plants, often uprooting entire clumps of plants while feeding on their roots. This seriously impedes restoration work and damages existing habitat.
- The birds are very aggressive, disrupting waterfowl which are less common and more sensitive to disturbance.
- Their aggression poses a threat to humans.
- The Mute Swan is also a non-native species.

Although some concern has been expressed by members of the public regarding this management decision, the ecological benefits of stabilizing the Mute Swan population must be considered. An annual swan egg oiling program will not affect the existing opportunities for public viewing or appreciation. However it will slow the population increase and distribution of this species into waterfront habitats.

RATIONALE

Increasing numbers of resident and migrant Canada Geese within GTA parklands have become both a problem and a nuisance. North America's current Canada Goose population is estimated at over 4.3 million birds, while the estimated population for Ontario is 700,000. In Eastern Canada, the Giant Canada Goose nests and moults in or near urban and agricultural areas. As a result, there are a number of documented impacts that range from fouling of public lands, habitat destruction, water quality impairment and agricultural crop damage. In addition, they have proven to be a safety concern to road vehicles and airplanes and have demonstrated aggressiveness towards humans during breeding or brood season.

Egg Oiling

Egg oiling has been identified as an effective technique on a site specific level that reduces the population of young birds in a specific area. Oil is applied to the eggs on three separate occasions to ensure success. Once the oil is applied, it has been documented that in using this technique, Canada Geese will tend to stay on their nests past the estimated hatch date. This ensures that re-nesting will not occur due to the lateness in the season.

Since the program began in 1998, over 2056 nests containing 8892 eggs have been treated, preventing approximately 18,000 Canada Geese from entering the resident goose population (given that some of those hatched would have bred successfully).

Participation in Steering Committee

Since 2004, broader planning has been performed through the Transport Canada Greater Toronto Area Canada Goose Steering Committee. The committee works to collectively review issues, identifies problems and define appropriate solutions. Broader planning ensures that a local solution does not impact on other neighbours. One of the initiatives coming from the committee is to inventory areas of concern, including areas of population concentrations over the years, feeding areas, nesting areas, local water bodies at risk from contamination and habitat conditions.

Relocation Program

In 2007, TRCA collected and relocated Canada Geese from the Town of Ajax and Bluffers Park, City of Toronto. In total, 825 geese were relocated (500 from the Town of Ajax and 325 from Bluffers Park, respectively). The geese were relocated via transport truck to under populated suitable habitat on private property in Lansdowne, Ontario. The relocation method is one solution to dealing with the problems associated with these birds along waterfront parks. Through previous banding information, it was shown that approximately 15% of relocated birds return to the area of capture immediately, or the following year.

The most frequent complaint about Canada Geese within the GTA is the excessive fouling of public lands during moulting season. Such soiling occurs due to the fact that geese are flightless for a 6-8 week period, beginning in mid-June. In order to survive, an appropriate habitat for this annual phase is required. Geese require an abundant food source such as grass adjacent to water. Such habitat is indicative of most of the Toronto waterfront: large open spaces of manicured grass adjacent to ponds and lakes. During moulting season, resident geese congregate in these moulting habitats. Moulting migrants also congregate in these areas, drastically increasing the local goose population during this period. Throughout this flightless period each goose consumes approximately 4 pounds (lbs) of manicured grass and excretes approximately 2 lbs of fecal matter daily. In addition, geese lose their feathers, which causes further severe aesthetic impairment.

Additional Canada Goose Management Work

Since 2003, TRCA staff has also assisted the Canadian Wildlife Service with the Toronto Island Canada Goose Relocation Program.

From 2006 to present, TRCA staff has assessed Canada Goose populations across the Toronto waterfront from Marie Curtis Park heading east to Carruthers Marsh in the Town of Ajax. Other designated inland sites were also monitored. Local populations in the GTA are comprised of moulting migrants and year round residents. Fluctuations in populations were found to occur seasonally as migrants came and went and as geese move in search of desirable habitat. Understanding local movement and distribution will assist with the further development of management strategies as well as assessing the effectiveness of those strategies.

In addition, staff routinely design habitat features to deter nesting and moulting Canada Geese along the Toronto waterfront.

DETAILS OF WORK TO BE DONE

Staff propose to:

- continue with the egg oiling program in 2008 as a means of managing local resident geese;
- continue to participate in the Transport Canada Greater Toronto Area Canada Goose Steering Committee;
- continue with Canada Goose counts and assessments along the waterfront and designated inland areas; and
- continue with relocation efforts as needed in designated areas with the partnering regions and municipalities.

FINANCIAL DETAILS

\$74,825 in funding was obtained from the Cities of Brampton, Toronto, Pickering, Vaughan, the Town of Ajax and the Regional Municipalities of Durham and Peel for the 2006 and 2007 programs. \$81,950 is identified in the 2008 Operating and Capital Preliminary Estimates for the 2008 program.

Report prepared by: Danny Moro, extension 5372

Email: dmoro@trca.on.ca

For Information contact: Danny Moro, extension 5372

Email: dmoro@trca.on.ca

Date: January 18, 2008

Item 7.5

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #5/07, February 8, 2008

FROM: Deborah Martin-Downs, Director, Ecology

RE: **WEST NILE VIRUS SURVEILLANCE PROGRAM FOR 2007**
Regional Watershed Monitoring Program

KEY ISSUE

Receipt of annual report on West Nile Virus Vector Status in Toronto and Region Conservation Authority wetlands and storm water management ponds in 2007 and direction for similar activities in 2008.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT the Annual Report on West Nile Virus (WNV) Vector Status in Toronto and Region Conservation Authority wetlands and stormwater management ponds in 2007 be circulated to the public health units for the regional municipalities of Peel, Durham, York and the City of Toronto, and the Ministry of Health and Long Term Care;

THAT Toronto and Region Conservation Authority (TRCA) staff be directed to continue to participate in the WNV advisory committee for the regional municipalities of Peel, Durham, York and the City of Toronto;

AND FURTHER THAT TRCA staff be directed to plan for WNV vector larval mosquito monitoring in TRCA wetlands and stormwater management ponds during the 2008 summer season.

BACKGROUND

The emergence and persistence of WNV in Canada since 2001 continues to present a threat to public and animal health. West Nile virus is an arthropod borne virus transmitted to humans by adult mosquitoes when a mosquito bites an infected bird and then bites humans. Those who get infected may show mild flu like symptoms and very rarely infection will become fatal. WNV in Canada has now established itself as a seasonal epidemic that flares up in the summer, with peak infections occurring in late August and early September, and continues into the fall until mosquito activity ceases due to cold weather.

To minimize the risk of WNV in humans, the public health units of Ontario have set out to identify and eliminate the preferred breeding sites of two key vector species: *Culex pipiens* and *Culex restuans*. Wetland habitats such as marshes, woodland pools and ponds have been suspected of providing breeding habitats because of the permanent availability of water and thick vegetation surrounding the water body. Hence in February, 2003, TRCA was asked by the regional health departments of Peel, Durham, York and Toronto to assist in the monitoring of larval mosquito populations in natural areas.

Since 2003, TRCA has been conducting mosquito larval surveillance and monitoring of selected wetlands and stormwater management ponds (SWMPs) that are under TRCA jurisdiction in an effort to assist the regional health departments in controlling the two key WNV vectors. Results from the TRCA-wide seasonal surveillance and monitoring from 2003 to 2006 have shown that healthy, functioning wetlands pose little risk to the public in terms of providing breeding habitat for vector species. Occasionally, under favourable conditions, high populations of vector species could be found breeding in a few isolated pockets of stagnant water, warranting an ongoing seasonal monitoring and surveillance of the wetlands and SWMP.

RATIONALE

Currently it is impossible to predict the level of risk due to WNV in a given year since the vector population dynamics are driven by abiotic and biotic factors, which change from year to year. Therefore, vector surveillance has been the important source of risk assessments undertaken by health units to predict WNV activity. To minimize the risk of WNV infection in humans, TRCA has set out to identify and eliminate preferred breeding sites of the two key WNV vectors on TRCA property and manage them diligently.

Surveillance and Larval Monitoring 2007

Staff received 11 standing water complaints during the 2007 WNV season, two of which involved TRCA property. Investigation of the complaints showed the presence of non-vectors at one site and the second site had dried up. As in previous years, TRCA also received a Health Order, dated March 7, 2007, under Ontario Regulation 199/03 from the Regional Municipality of Peel Medical Officer of Health to assist with the implementation of control measures in order to reduce the number of mosquito larvae in the Heart Lake wetland complex when necessary. Follow up communications with the Regional Municipality of Peel staff showed that surface water treatments with Aquabac 200G were undertaken south of the Heart Lake wetland complex at White Spruce Park on May 8, 2007.

Investigations carried out during the summer months of 2007 to assess the level of risk that wetlands and SWMPs pose to the public in terms of providing breeding habitats for WNV vectors indicated that only 8% of the natural wetlands surveyed had WNV vector species. In these wetlands, the level of risk was 'low to moderate,' based on average number of larvae per 10 dips. Thirty three (33) percent of SWMPs had vector species in them, but the risk level associated with these sites was 'low to moderate' in the majority of the ponds except for a single location where the risk level was 'high.' This single site contained 84% of the total larvae collected from the SWMPs in 2007. The detection of high numbers of larvae from a few locations emphasizes the importance of regular monitoring. When identified, the WNV vector breeding sites can be managed in part through modifying small depressions to prevent standing water and removing garbage. When high numbers of vectors are found in the wetlands or SWMPs, the application of a larvicide such as *Bti* (*Bacillus thuringiensis* var *israelensis*) may be warranted.

The results of the 2007 sampling season are summarized in an annual report. Copies of this report will be available at the meeting, upon request and will also be posted on the TRCA website. The Executive Summary is outlined in Attachment 1.

DETAILS OF WORK TO BE DONE

Staff recommend continuation of the WNV vector larval mosquito monitoring program in 2008. If approved, staff will continue to liaise with the regional health units and participate in WNV advisory committees. Staff will continue to respond to public inquiries on WNV and reports of standing water on TRCA property, in addition to providing general information for both the public and staff. Staff will continue to identify sites of concern for WNV on TRCA property in the upcoming 2008 field season through larval monitoring and will advise other TRCA sections of maintenance or management duties required to reduce the number of potential breeding sites of major WNV vectors on TRCA lands. TRCA staff will develop the 2008 vector monitoring program and explore opportunities to expand surveillance or data collection to carry out further research on wetlands and SWMP habitat features with regards to providing suitable habitat for WNV vector.

FINANCIAL DETAILS

Funding for the 2007 WNV surveillance program was made available through regional capital funding under the TRCA's Regional Watershed Monitoring Program. This funding, in the amount of \$50,000 was sufficient to support the 2007 surveillance, to respond to the standing water complaints and to liaise with the regional health units. This funding does not cover costs associated with any control measures if deemed necessary. Staff will continue to discuss the responsibility for funding with the regional and provincial health departments in the event that control measures are required.

Report prepared by: Thilaka Krishnaraj, extension 5665

Email: tkrishnaraj@trca.on.ca

For Information contact: Scott Jarvie, extension 5312

Email: sjarvie@trca.on.ca

Date: January 17, 2008

Attachments: 1

Attachment 1

Annual Report on West Nile Virus (WNV) Vector Status in Toronto and Region Conservation Authority wetlands and storm water management ponds in 2007 Executive Summary

West Nile Virus (WNV) is established as a seasonal epidemic in Canada and two key mosquito species, namely *Culex pipiens* and *Culex restuans*, have been identified as the principal vector species in spreading the disease in Ontario to humans and animals for the past five years. The severity of WNV seems to vary from year to year and mainly depends on bird hosts and weather conditions. During the 2007 WNV vector surveillance period, the Toronto and Region Conservation Authority (TRCA) received 11 Standing Water Complaints, two of which originated from TRCA property. Investigation of complaints showed the presence of non-vector mosquito species at one site (Altona forest) and the other site was found to be dry. A few complaints involved seeking advice from TRCA staff in identifying environmentally sensitive area and larviciding in those areas. Current TRCA standing water complaints procedure does not include providing advice on either identifying and/or larviciding environmentally sensitive areas. Therefore, the TRCA standing water complaints procedure needs to be reviewed to clarify TRCA's role. The Ministry of Environment and Ministry of Natural Resources will be consulted in the review process as these two organizations are the lead agencies responsible for identifying environmentally sensitive areas and issuing larviciding permits for WNV vector control in Ontario.

The larval surveillance and monitoring for the 2007 summer was conducted in 36 wetlands, including 7 new sites that are under TRCA's jurisdiction. Surveillance results indicate that there has been an overall reduction in the density and the number of species of mosquitoes occurring in the wetlands. Dry and hot weather conditions were attributed to the reduced number of larvae collected this year. During the survey, 1516 larvae to eight species in total were identified. The majority of the mosquitoes were non-vector species and of these, *Culex territans* was the predominant (37%) non-vector species collected from 61% of the sites, followed by *Anopheles punctipennis*, which was collected from 39% of sites. *Culex pipiens*, a key vector species was represented in only 3% of the total larvae. *Culex restuans* the other key vector was absent in the wetlands during 2007. WNV risk ranking was 'low' for all the vector species (*Anopheles punctipennis*, *Anopheles quadrimaculatus* and *Culex pipiens*) identified.

A total of 9 storm water management ponds (SWMP) were monitored for vector abundance and presence in 2007. A total of 2279 larvae in 5 vector species were identified and one non-vector species. *Culex pipiens* represented 91% of the total larvae identified, while *Culex restuans* accounted for only 4%. *Culex territans* (non-vector) larvae represented only 1% of the larvae collected from SWMP during 2007. 84 % of the total *Culex pipiens* larvae was collected from one SWMP (L'Amoreaux Park North Pond, City of Toronto). This pond represented the only hot spot identified for WNV vectors in 2007 with averages of 45.5 and 478.5 larvae per 10 dips during the second and third sampling events respectively. Risk ranking for the remaining vectors was 'Low.'

Data on water quality parameters and total and marginal vegetation were collected during routine monitoring to confirm some of the relationships established between vector presence and the above parameters from previous years. This data will be analysed in the future once necessary resources become available. Based on the surveillance data and the fact that the WNV hot-spots change from year to year, it is suggested that ongoing seasonal monitoring is necessary to help predict WNV vector abundance and identify hot-spots. It is also recommended that additional funding be made available to increase the number of SWMPs monitored and draw improved links with pond design.

Item 7.6

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #5/07, February 8, 2008

FROM: Deborah Martin-Downs, Director, Ecology

RE: **DOG-STRANGLING VINE: REVIEW OF DISTRIBUTION, ECOLOGY AND CONTROL**

KEY ISSUE

Receipt of staff report "Dog-strangling vine - *Cynanchum rossicum* (Kleopow) Borhidi: a review of distribution, ecology, and control of this invasive exotic plant".

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT the Toronto and Region Conservation Authority (TRCA) report entitled Dog-strangling vine - *Cynanchum rossicum* (Kleopow) Borhidi: a review of distribution, ecology, and control of this invasive exotic plant be received;

THAT staff be directed to continue to monitor the extent and distribution of Dog-strangling vine (DSV) within TRCA's watersheds.

AND FURTHER THAT staff use the information in the DSV report to assist in the preparation of management and restoration plans for TRCA lands.

BACKGROUND

Dog-strangling vine is native to Eastern Europe but is becoming the dominant ground cover in many of TRCA's natural areas, crowding out native species. In response to the serious threat to biodiversity presented by DSV, TRCA approached the Rouge Park Alliance with a funding application to complete a review of the distribution, ecology and control of this plant. The Rouge Park Alliance accepted the application and provided a grant for \$5,000 toward the preparation of a review.

Existing reviews of DSV have not looked at all aspects of its ecology, distribution and control. Research has tended to be focused on single aspects of the species ecology relating only to small parts of its geographic range. Thus it was necessary, as part of this project, to integrate the findings from a wide number of sources in order to get a full picture of the plant's ecology, impact and the implications for management in TRCA watersheds.

RATIONALE

Dog-strangling vine is one of the worst invasive plant species now present in TRCA's jurisdiction. It has overrun considerable areas of TRCA properties, as well as other public and private lands. Valleylands from Toronto to Pickering and Ajax are particularly affected, including the Rouge Park. The species is also present in smaller concentrations elsewhere. A better understanding of DSV is essential if TRCA is to develop effective strategies for its control.

The report, "Dog-strangling vine - *Cynanchum rossicum* (Kleopow) Borhidi: a review of distribution, ecology, and control of this invasive exotic plant", provides a review of the existing scientific literature supplemented with local field data and information from TRCA watersheds collected by TRCA and Ministry of Natural Resources (MNR) staff. The report provides information on the distribution and history of the species, habitat preferences, propagation and colonization strategies and observed and potential impacts on native habitats. The report also provides an overview of existing research on methods of control (mechanical, chemical and biological) with recommendations to prevent or reduce its spread. The report highlights the need for early detection of new populations and the prevention of seed production as being critically important. This is because DSV spreads quickly due to its heavy production of highly fertile wind-dispersed seed. After an initial period of establishment, populations become capable of suppressing native vegetation and expanding explosively. Possible approaches to containment of existing extensive populations are also discussed (mowing, mulching, barrier and windbreak plantings).

FINANCIAL DETAILS

The report was prepared with the assistance of a \$5,000 grant from the Rouge Park Alliance in conjunction with capital funding of \$7,000 from TRCA's municipal partners in conjunction with the Regional Watershed Monitoring Program.

DETAILS OF WORK TO BE DONE

The report will be made available shortly on the Rouge Park website. Printed copies will also be available at the Watershed Management Advisory Board meeting to be held on February 8, 2008. The report will also be distributed among TRCA staff to assist with land management and restoration efforts. Staff will work with the Rouge Park Alliance to ensure that the report is made available to municipalities, other agencies and stakeholders (including those concerned with infrastructure and utilities that have land holdings).

Report prepared by: Gavin Miller, extension 5258
Email: gmiller@trca.on.ca
For Information contact: Gavin Miller, extension 5258
Email: gmiller@trca.on.ca
Date: January 17, 2008

Item 7.7

TO: Chair and Members of the Watershed Management Advisory Board
Meeting #5/07, February 8, 2008

FROM: Carolyn Woodland, Director, Planning and Development

RE: LOWER HUMBER BARRIER MITIGATION
Implementation Update

KEY ISSUE

Direction to develop a Memorandum of Understanding with the Ontario Ministry of Natural Resources for alterations to the control structures for the Lower Humber River Barrier Mitigation Project.

RECOMMENDATION

THE BOARD RECOMMENDS TO THE AUTHORITY THAT the commitment by the Ontario Ministry of Natural Resources (MNR) to restore the movement of non-jumping fish through the existing series of weirs on the Lower Humber River be acknowledged;

THAT the general direction of the project plan as outlined in the Lower Humber River Barrier Mitigation Project Class Environmental Assessment be supported, including the current implementation of the preferred alternative for Weir 5 and the securement of funding to proceed with the works proposed at the other weirs;

AND FURTHER THAT Toronto and Region Conservation Authority (TRCA) request that MNR develop a Memorandum of Understanding with TRCA to outline the roles and responsibilities for the monitoring and maintenance of the structures.

BACKGROUND

In 1959, the Metropolitan Toronto and Region Conservation Authority constructed a series of eight weirs for the purpose of flood control along the main stretch of the Lower Humber River, from just north of Bloor Street West upstream to Lawrence Avenue. These weirs serve to reduce the flow and dissipate the river's energy by cascading water over a series of concrete steps. This property is owned by TRCA.

In accordance with the recommendations of the Humber River Fisheries Management Plan, alterations were made to the weirs as a temporary solution to facilitate the migration of jumping fish species. The 5 southernmost weirs (Weirs 1 to 5) were altered by cutting a notch out of the top step of each. Weir 6 was not altered, as it was already low enough for fish to jump over. A fishway was constructed at Weir 7 to allow fish passage and Weir 8 was notched similar to Weirs 1 to 5. Weir 1 also acts as a control structure to restrict the movement of sea lamprey.

Since 2001, rainbow trout have been observed spawning in the East Humber River as a result of these modifications. Although the work to date has provided passage for jumping species, the weirs still present a barrier to the movement of non-jumping species. Mitigating these barriers to restore connectivity in the Humber River would be a significant accomplishment toward achieving the objectives of the Humber River Fisheries Management Plan.

In July, 2007, MNR completed a Class Environmental Assessment for Resource Stewardship and Facility Development to investigate alternatives to restore the movement of non-jumping fish species past the existing series of weirs, while maintaining the current sea lamprey control barrier and addressing financial, operational and safety concerns. The Environmental Study Report identified the reconstruction of a fishway at Weir 1, and the partial removal of the structures through notching at Weirs 2, 3, 4, 5, 6 and 8 as the preferred alternative.

DETAILS OF WORK TO BE DONE

MNR is now proceeding with the implementation of the project plan as outlined in the Lower Humber River Barrier Mitigation Project Class Environmental Assessment through the design and construction of Weir 5. TRCA staff is currently reviewing the plans and design brief for this component of the overall project plan. It is expected that this component will be constructed in the summer of 2008. Staff are encouraging and intend to assist MNR with the project plan implementation by securing funding to complete the works proposed at the other weirs.

TRCA has expressed concerns to MNR for the structural integrity of the weirs with the proposed notches. Additional technical analysis by qualified structural engineers has been requested, given that the structures are now 50 years old. The structural engineers have not been able to access the structures in the field. For this reason, staff is requesting that a Memorandum of Understanding be developed with MNR outlining the respective roles and responsibilities for both MNR and TRCA for the monitoring and maintenance of the structures.

Report prepared by: Alex Blasko, extension 5714

Email: ablasko@trca.on.ca

For Information contact: Deborah Martin-Downs, extension 5706

Email: dmartin-downs@trca.on.ca

Date: January 30, 2008