

**Further to Watershed Management Advisory Board Meeting #8/04**  
**To be held Friday, February 11, 2005**

**Pages**

**4. DELEGATIONS**

- 4.2** Margaret Catto, Conservation Councillor, Toronto Ornithological Club, speaking in regards to management of Double-crested Cormorants at Tommy Thompson Park.
- 4.3** John Carley, Co-Chair, Friends of the Spit, speaking in regards to management of Double-crested Cormorants at Tommy Thompson Park.

**6. CORRESPONDENCE**

- 6.1** A letter dated February 4, 2005 from Gregor Beck, Executive Director, Ontario Nature, in regards to management of Double-crested Cormorants at Tommy Thompson Park. 24-25
- 6.2** A letter dated January 31, 2005 from Margaret Catto, Conservation Councillor, Toronto Ornithological Club in regards to Proposed Cull of Wild Birds at Tommy Thompson Park. 26-27
- 6.3** A letter dated February 5, 2005 from AnnaMaria Valastro, Co-Director, Peaceful Parks Coalition, in regards to management of Double-crested Cormorants at Tommy Thompson Park. 28-29
- 6.4** A letter dated February 8, 2005 from John Carley, Co-Chair, Friends of the Spit, in regards to the Double-crested Cormorant Cull. 30-32
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**7. SECTION I - ITEMS FOR AUTHORITY ACTION**

**ITEM 7.4 - LISTED ON AGENDA AS REPORT TO FOLLOW**

- 7.4 YORK-PEEL-DURHAM-TORONTO GROUNDWATER STUDY 35-40**



February 4, 2005

Watershed Advisory Board  
c/o Chief Administrative Officer  
Toronto and Region Conservation Authority  
5 Shoreham Drive  
Downsview, Ontario  
M3N 1S4  
Fax: 416-661-6270

Dear members of Watershed Advisory Board,

This letter is in regard to proposed management options and environmental assessment relating to the "management of double-crested cormorants at Tommy Thompson Park" in Toronto. Ontario Nature recognizes the double-crested cormorant as a native species of the Great Lakes ecosystem. Its presence as a high-order consumer within an aquatic ecosystem has made it an effective barometer of changes in Great Lakes community structure and also of changing levels of persistent toxic chemicals. The near-complete extirpation of the cormorant from the Great Lakes in the mid 1900s has been directly linked to bioconcentration of toxins, notably organochlorine contaminants such as PCBs and DDT (and derivatives).

With falling concentrations of these and other contaminants in the Great Lakes watershed during the late 1900s, cormorant populations have recovered (perhaps accelerated due to the presence of non-native fish species, such as alewife and rainbow smelt) and Ontario Nature believes that this recovery must be viewed as an environmental success story that reflects decreasing concentrations of some toxic chemicals in the environment. The population of double-crested cormorants has increased significantly in recent decades for numerous reasons, and we believe that it will ultimately plateau and perhaps decrease, fluctuating around a natural carrying capacity.

Ontario Nature also recognizes that the ecology of the Great Lakes is highly complex and is incompletely understood. The complexity, both in terms of community structure and water chemistry, has been increased further over the last 100 to 150 years by the introduction of numerous exotic species (both accidental and intentional), significant fluctuations in levels of nutrient and contaminants, and not infrequently through unsustainable levels of both commercial and sport fisheries.

Top order consumers, such as cormorants, have often been vilified and blamed for declines in game species such as sport fishes. Such claims are frequently unsubstantiated by scientific research, and declining sport fish populations are more likely the result of a great many factors, including the impacts of over-harvesting and non-native species (and which may also include the effect of naturally-occurring predator species, such as the double-crested cormorant).

Ontario Nature does not support the suppression of predator species to enhance hunting and fishing opportunities, which we believe is a major factor behind the desire to 'control' cormorant numbers across the Great Lakes basin and continentally. Consequently, Ontario Nature has opposed – and continues to oppose – the Ministry of Natural Resources' lethal control programs in the Georgian Bay/ North Channel Area of Lake Huron and at Presqu'ile Provincial Park (as outlined in earlier EBR submissions).

The protection of biological diversity is central to the mandate of Ontario Nature, as is the protection and recovery of species at risk. Similarly, Ontario Nature supports the protection and, where required, the restoration of natural systems. Natural systems are dynamic and change over time for a variety of reasons, including, for example, the effects of natural succession. One of the best examples of natural succession in recent decades has been at the Tommy Thompson Park (also known as the Leslie Street Spit or the "Spit") – a designated Important Bird Area.

The Spit is one of the finest, and most easily accessed locations to witness natural succession in action – from the colonization by various plant species to the evolving communities of colonial water birds. Ontario Nature believes that the Spit's population of double-crested cormorants is a natural part of this dynamic system. Further, Ontario Nature is not aware of evidence at this time that would indicate that there is a significant threat to other colonial waterbirds or species-at-risk, or that there is a threat to the broader Spit ecosystem. Consequently, Ontario Nature opposes any proposal for a lethal control program of cormorants at the Spit.

Ontario Nature strongly encourages the Toronto Region Conservation Authority and the Ontario Ministry of Natural Resources not to implement a lethal control program for cormorants at Tommy Thompson Park.

Yours sincerely,



Gregor Beck  
A/ Executive Director

c.c. The Hon. David Ramsay, Minister of Natural Resources  
Mr. Gord Miller, Environmental Commissioner of Ontario

## CORRESPONDENCE 6.2



### The Toronto Ornithological Club

(Founded 1934)

294 Bessborough Drive  
Toronto M4G 3L1  
January 31, 2005

Tamara Chipperfield, Environmental Technician  
TRCA  
Fax: 416-667-6277

Dear Tamara,

#### **RE: PROPOSED CULL OF WILD BIRDS AT TOMMY THOMPSON PARK**

The Toronto Ornithological Club vigorously opposes the “lethal cull” (i.e. killing) of an unknown number of native birds, called Double-crested Cormorants, at their nests, in Toronto’s premier waterfront park. This cull is proposed for spring 2005 by the Toronto Regional Conservation Authority in partnership with the Ontario Ministry of Natural Resources. A request for an environmental assessment is to be posted shortly.

Cormorants are fascinating, intelligent, large, black waterbirds that nest in colonies. They are an important part of the wildlife biodiversity that TRCA claims to encourage in the Park, and which has earned it the internationally recognized designation, **Important Bird Area (IBA)**. Cormorants have co-existed with other colonial waterbird species since long before the last ice age, fluctuating in numbers as living conditions altered. They nest both on the ground and in trees. After a few years their droppings destroy the trees, and the birds either move on to a new location or resort to ground-nesting.

TRCA’s current rationale for resorting to lethal measures of cormorant control (the options presented are unthinkable: shooting, cannon-netting and leg-hold trapping) is that management staff are unwilling to lose any further tree cover at the Park. We agree that cormorants’ gradual destruction of trees may well impact other tree-nesting birds, including Black-crowned Night-Herons. Herons, however, are apparently viewed by wildlife managers as a more desirable species, although their droppings also kill trees.

Possibly the Black-crowned Night-Herons, which are relative newcomers to the Park from an abandoned colony at Muggs’ Island, may move again if the trees they nest in are destroyed. Certainly what will seriously discourage them and many other birds from nesting at Tommy Thompson will be the daily disruption of their breeding cycle by whatever horrific method of “lethal cull” TRCA puts into effect against the cormorants. This was demonstrated only one year

ago at Presqu'ile Provincial Park after the appalling slaughter of 6030 cormorants there; as a direct result the fledging success of Black-crowned Night-Herons was reduced by one-third. The shooting at Presqu'ile was carried out in contravention of both the stated management aims for cormorant control at the Park and the Ministry of Natural Resources' policies and guidelines for acceptable activity in a viable heronry.

It is our belief that the rationale provided for resorting to lethal culling measures in the management of Double-crested Cormorants is completely faulty. The killings will be ineffective, since non-breeding cormorants already at the Park, or birds from other colonies, will rapidly replace the culled individuals. A cull does not reduce the local area's desirability to cormorants, nor its carrying capacity; it merely removes a single season's cohort of breeding birds.

This internationally famous Park has been evolving for 50 years on the Toronto waterfront. During this time its biodiversity has increased as plants, birds and other animals adapted to conditions on "The Spit". A minimum of cormorant management activity will allow this gradual evolution to continue. The instigation of the planned lethal cull will needlessly stress other Park wildlife, may well jeopardize the Park's status as an IBA, will outrage the Toronto citizenry, and will completely undo the goodwill that TRCA has built up over many years at this and other Toronto parks.

Toronto Ornithological Club urges you put a stop to this unnecessary and intolerable proposal to kill wildlife in a Toronto park.

Yours sincerely,

**ORIGINAL SIGNED BY**

Margaret Catto  
Conservation Councillor  
Toronto Ornithological Club  
416-485-5188

**TO:**

Hon. Dalton McGuinty, Premier of Ontario  
Hon. David Ramsay, Minister of Natural Resources  
Hon. Leona Dombrowsky, Minister of the Environment  
Mr. Gordon Miller, Provincial Environment Commissioner  
His Worship Mayor David Miller  
Councillor Paula Fletcher, Ward 30, Toronto-Danforth  
Mr. Brian Denney, CAO, Toronto and Region Conservation Authority  
Mr. Donald Burton, President, Toronto Ornithological Club

## **CORRESPONDENCE 6.3**

February 8, 2005

Councillor Paula Fletcher  
100 Queen Street West, Suite 44  
City Hall  
Toronto, Ontario M5H 2M2

Dear Councillor Fletcher,

The Ontario government, in conjunction with state governments from the United States, has initiated a plan to cull tens of thousands of double-crested cormorants from the Great Lakes basin. This initiative is primarily driven by a desire to enhance the sport fishery.

In some cases, such as the Leslie Spit here in Toronto, government agencies argue that double-crested cormorants are “destroying” trees and ground vegetation, and must be culled to “preserve biodiversity”. The same argument is being made across the southern Great Lakes where cormorants typically nest in trees. Such a massive cull of a native species is unprecedented, equal only to the bounty placed on wolves decades ago.

Three years ago, the Peaceful Parks Coalition initiated a campaign to protect the double-crested cormorant from government actions that arbitrarily targeted these birds for fisheries and vegetative depletion because these arguments are not substantiated in scientific literature.

Double-crested cormorants are not a problem. They are not an ecological problem. They are not responsible for fisheries depletion nor do they “destroy” vegetation. Double-crested cormorants are colonial birds typically found nesting in large colonies of hundreds and thousands of birds. They are top of the food chain predators, like wolves, and feed exclusively on live fish. When nesting in trees, their guano will eventually kill the host tree.

This process of prematurely killing live trees is a natural process found throughout the natural world. It is necessary in the development of “snags” (dead or dying trees). Snags are crucial habitat for a different array of wildlife, such as woodpeckers. So while cormorants may alter the vegetation, this process of natural succession is necessary in preserving biodiversity.

In fact, the Toronto and Region Conservation Authority has recently erected artificial snags down at the Spit immediately adjacent to the colony of double-crested cormorants.

Therefore, killing these birds is more a matter of “grooming” the landscape for the purpose of aesthetics or arbitrarily promoting one species over another.

We oppose any further actions to manipulate bird species at the Leslie Spit or anywhere in Ontario. We want to preserve wilderness values and these birds are currently wild – their population fluctuating and stabilizing with natural forces. Once management begins, you will need to manage into perpetuity because management ultimately changes the course of an otherwise natural process.

And culling in particular, often exacerbates the situation by creating a vacuum in habitat and food availability, encouraging expansion in recruitment through reproduction. In other words, if the birds believe there is room to grow, they will expand their population either through immigration from other areas or reproduction.

Thirty years ago, the double-crested cormorant was on the brink of extinction on the Great Lakes because of high pollution levels. Its recovery should be a celebration, and it is to many people, because it means the waters of the Great Lakes are cleaner and support greater diversity. The minority of people who support culling, often do so solely because these birds are colonial and highly visible, and not because they are an ecological problem.

Please support our campaign to protect one of the most dynamic colonial bird colonies on Lake Ontario. We are lucky to have the opportunity to host such a colony at the Leslie Spit, and learn from this natural process.

Sincerely,

AnnaMaria Valastro  
Co-Director

Cc: Watershed Management Advisory Board  
Mayor David Miller  
Premier Dalton McGuinty  
Minster of Natural Resources, David Ramsay

## CORRESPONDENCE 6.4

### Friends of the Spit

P.O. Box 51518  
2060 Queen Street East  
Toronto ON M4E 3V7  
Tel: (416) 699-3143  
e-mail: fos@interlog.com



8 February 2005

Mr. Brian Denney, CAO  
The Toronto and Region Conservation Authority  
5 Shoreham Drive  
Downsview, Ontario  
M3N 1S4

Dear Brian,

We understand that a lethal cull of Double-crested Cormorants is under consideration as one of the management techniques to be applied to the cormorant colony at the Spit.

Friends of the Spit is absolutely against a lethal cull of these colonial nesting waterbirds. It is our understanding that the need for *any* management has not been proven. Especially in light of the disastrous results and deeply flawed inconclusive data obtained from the Presqu'ile slaughter, we feel the TRCA should not proceed until a full review has been done.

To that end, we are adamant that a full EA take place, with full consultation, prior to the execution of any management techniques. We do not wish a situation such as that occurred at Presqu'ile, where the slaughter proceeded by ministerial approval. We recognize your staff's commitment to a full and open process, and wish to ensure that such includes the EA process.

In addition to the fact that the need for management has not been proven, there are three other main issues to deal with: land use issues, scientific issues, and most importantly, moral and ethical issues of killing wildlife.

Regarding land use issues, Friends of the Spit has always espoused a "let it be" philosophy. The Spit should develop as nature wills it, with minimal management. The Spit will never be complete: it is a dynamic ecosystem, the cormorant colony is a part of that ecosystem, as it has been a part of the Great Lakes' ecosystem for millennia.

In response to the excellent habitat created, and the success of colonial nesting species, the Spit was named an Important Bird Area (IBA) by BirdLife International. To kill birds, with this designation in place, makes no sense.

A lethal cull would have to be conducted with guns, or perhaps even more damaging methods such as cannon netting, strangulation, poisoning, or leg-hold traps. These are inhumane ways to achieve an end. Equally undesirable is the prospect of guns in parks.

Finally, in terms of land use, a lethal cull will demand exclusion zones on The Spit and throughout the Outer Harbour, drastically affecting public access to land and water recreation.

Scientifically, the need for management is not proven. No one can say whether this expansion of population is a long term effect or simply a cycle within the ecosystem. Others, more expert, have pointed out that the ecology is not understood fully. Therefore it is a folly to intervene.

A lethal cull embarks the TRCA on a project of dubious scientific footing, and one which will require expenditure year after year. Killing some cormorants will not solve anything, as a replacement cohort will quickly move in. Does the Conservation Authority want to be party to successive years of culls, with the attendant cost, staff diversion, and adverse publicity?

Further, lethal culls and other management techniques drive away the very species that the cull is purporting to serve and protect. There is absolutely no evidence that cormorants are impeding species at risk, according to the information that we have received. Again, all bird populations are dynamic systems, and presumably the populations of cormorants will peak naturally, and then ebb off.

To quote Gregor Beck of Ontario Nature:

“The Spit is one of the finest, and most easily accessed locations to witness natural succession in action – from the colonization by various plant species to the evolving communities of colonial water birds. Ontario Nature believes that the Spit’s population of double-crested cormorants is a natural part of this dynamic system. Further, Ontario Nature is not aware of evidence at this time that would indicate that there is a significant threat to other colonial water birds or species-at-risk, or that there is a threat to the broader Spit ecosystem. Consequently, Ontario Nature opposes any proposal for a lethal control program of cormorants at the Spit.”

Finally, the moral and ethical questions are most important. Why would a Conservation Authority become an organization not of protection, but of killing? Why would one presume to suppress one species at the expense of the other? Is, as has been widely said, the suppression of a predator species required simply to enhance fishing opportunities? Why, when an organization has as its slogan “The Living City”, would it even consider adding a lethal cull to its activities?

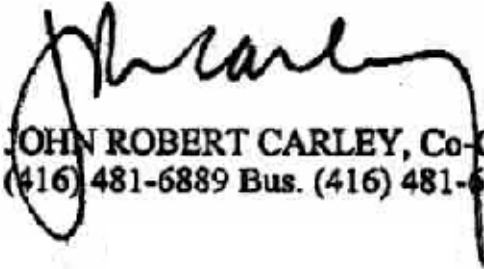
In conclusion, Friends of the Spit pleads with the TRCA to remove the lethal cull from consideration, and to ensure that an EA with full public participation takes place to evaluate all management methods for Double-crested Cormorants at the Spit.

The Conservation Authority has invested a great deal of time, effort, care, and consideration into the developments of the Leslie Street Spit/Tommy Thompson Park. Those efforts have met with success. Friends of the Spit has been pleased to see the public urban wilderness evolve according to the Master Plan under the care of the Conservation Authority. With all the good will accruing to it from its work at the Spit, why would the TRCA risk the wrath of an appalled citizenry if cormorants were killed? Why would the TRCA risk the removal of the IBA status? Why would the TRCA wish to kill cormorants and generate a major public relations disaster?

Yours sincerely,

FRIENDS OF THE SPIT

per:



**JOHN ROBERT CARLEY, Co-Chair**  
**(416) 481-6889 Bus. (416) 481-6291 Bus. Fax**

**JACQUELINE COURVAL, Co-Chair**  
**(416) 699-6442 Bus.**

c.c. Other interested parties

## **CORRESPONDENCE 6.5**

Dear Ms. Stranks:

The Toronto Ornithological Club (TOC) will be attending the Watershed Management Advisory Board meeting on Friday, February 11, 05. I am a member of the TOC and have sent the letter below and the attached items to Nancy Stewart and Dave Ryan. I would appreciate it if you could ensure that these materials are made available to all the other Board members.

Thank you very much.

Yours truly,  
Jess MacKenzie

Dear Ms. Stewart:

I spoke to your husband earlier today about the proposed killing of cormorants in Tommy Thompson Park and he suggested that I write to you about our concerns. I am a member of the Toronto Ornithological Club.

I telephoned to let you know we are alarmed because we have been made aware there is a proposal under discussion amongst the staff of the TRCA to carry out a lethal cull of the Double-crested Cormorant at their nests in the Park this spring. There is widespread alarm in the Toronto environmental community about this idea. Members of the Toronto Ornithological Club are asking that the slaughter option be rejected in favour of the present non-lethal control measures.

Although the cormorants' numbers plummeted in the 1960s and 1970s due to PCB and DDT contamination in the Great Lakes, over the last number of years they have recovered and now return to the Park each spring to nest. They provide an inspiring example of how a species can recover from an endangered status. Many other fish-eating birds, such as herons, are also experiencing similar surges in their numbers because there are fewer pollutants in the lake and there is an abundance of food.

Those who support the cull say the cormorants are destroying the "tree canopy" at the Spit. This is a gross exaggeration. As you know, trees were never planted by the Parks Department there. They have grown from seeds transported by the wind and by birds. No one denies that cormorants, over time, damage the trees they nest in. All the colonial birds - gulls, terns and herons - kill the vegetation around their nests, but admittedly at a slower rate than the cormorants. This, however, is a normal process at bird nesting colonies whether they be penguins, albatrosses, puffins or cormorants.

As you will note from our letter to you, we feel that at Tommy Thompson Park there should be a minimum of cormorant management and that the natural biodiversity of the Park should be allowed to evolve without interference in what is one of our most important and accessible bird-watching areas in the City.

For your information, I am attaching a copy of a letter, dated January 14th, 05, sent to Mr. Brian Denney of the Toronto and Region Conservation Authority and other parties of interest from Margaret Catto of the Toronto Ornithological Club. I'm also attaching a copy of a letter from Ontario Nature, dated February 4, 05, to the Board.

If you need further information about this matter, I would be pleased to help. My phone number is: 416-653-6420

Yours truly,

Jess MacKenzie

**TO:** Chair and Members of the Watershed Management Advisory Board Meeting #8/04, February 11, 2005

**FROM:** Adele Freeman, Director, Watershed Management

**RE:** YORK-PEEL-DURHAM-TORONTO GROUNDWATER STUDY

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**KEY ISSUE**

Update on status of tri-regional, York Peel Durham Toronto (YPDT) and Conservation Authorities Moraine Coalition groundwater initiatives and approval of initial YPDT 2005 budget components.

**RECOMMENDATION**

**THE BOARD RECOMMENDS TO THE AUTHORITY THAT WHEREAS the York-Peel-Durham-Toronto Groundwater Management Strategy Study continues to provide an example of a successful partnership initiative between the federal government, the province, municipalities and conservation authorities;**

**WHEREAS through the initiative, the partner agencies have managed to capitalize on the economies of scale to each agency's benefit by undertaking collective initiatives only once rather than taking different approaches at each agency;**

**WHEREAS the Oak Ridges Moraine provides a common physiographic link to all of the partner agencies;**

**AND WHEREAS this partnership is supported by key staff at the Geological Survey of Canada (GSC) and Earthfx Incorporated,**

**THEREFORE LET IT BE RESOLVED THAT staff be directed to implement the following components of the 2005 work plan of the YPDT Groundwater Management Strategy Study:**

- **establish an agreement with the GSC to provide ongoing geoscience services in 2005;**
- **establish a multi-year agreement with Earthfx Incorporated to continue to provide ongoing modeling, database and website management services to the partner agencies; and**
- **make formal presentation(s) of the study progress to the Planning and Public Works Committees at the Regions of York, Peel, Durham and the City of Toronto, as well as the boards of the partner conservation authorities.**

## **BACKGROUND**

The York-Peel-Durham-Toronto Groundwater Management Strategy Study was initiated in 2000 as a partnership between the Regions of York, Peel and Durham, the City of Toronto (YPDT), and the associated six conservation authorities (Credit Valley, Toronto and Region, Lake Simcoe Region, Kawartha, Ganaraska Region and Central Lake Ontario) with a view to arriving at consistency in groundwater management both from a technical and analytical perspective, as well as from a policy and management perspective. With similar goals and objectives, staff, acting on behalf of the Conservation Authorities Moraine Coalition, (CAMC) are also directing groundwater work across the entire Oak Ridges Moraine.

The joint YPDT/CAMC groundwater team referred to in this staff report currently consists of three full time contract staff members, the hydrogeological and planning staff members from the various partner agencies, as well as a core team of consultants from Earthfx Inc. and Gerber Geosciences Inc. Project initiatives that are tied more closely to the interests of the four municipal partners are part of the YPDT study and are approved through the Toronto and Region Conservation Authority, while projects tied more closely to the overall moraine study are approved through Central Lake Ontario Conservation Authority.

The YPDT/CAMC groundwater initiative continues to contribute insightful, practical deliverables to the partner agencies. The key focus areas of the groundwater program continue to be data management, geological understanding, numerical groundwater modeling and policy development. A large part of the program's success has been the delivery of data and tools at a practical level to partner agency staff and their consultants who are charged with understanding the groundwater system for a variety of day-to-day issues.

The purpose of this report is to provide a brief update on the accomplishments of the groundwater program in 2004 and to obtain support for the planned 2005 initiatives that the YPDT Technical Steering Committee recommended at its December 2004 meeting. The YPDT Technical Steering Committee comprises hydrogeological and planning staff from the City of Toronto, Peel, Durham and York regions as well as the six associated conservation authorities.

## **2004 ACCOMPLISHMENTS**

2004 was a busy year for the YPDT and Conservation Authorities Moraine Coalition groundwater study programs. An annotated list of some of the 2004 accomplishments is presented below:

- **Modeling** – the groundwater modeling studies progressed significantly in 2004 with the team continuing to make significant contributions to York Region, specifically for critical projects such as the York Region deep trunk sewer project, but also for their ongoing Permit to Take Water (PTTW) requirements. A significant thrust is being made to expand the model both to the east and the west to encompass all of Peel Region and Durham Region at the same level of understanding as has been achieved in York Region and the City of Toronto. This will bring all of the municipalities to a similar level of understanding. The final report on the first phase of modeling is being finalized in early 2005. The report will document the modeling approach and methodologies.

- **Database** – Several key changes were made to the database. Of particular note, an additional set of boreholes was received from the Ontario Geological Survey. This dataset, known as the Urban Geological Automated Information System (UGAIS), added some 30,000 borehole locations to the database. The Geological Survey of Canada also provided access to their database of geological outcrops across the area, which have also been added to the database. Key information (new boreholes and well location information) taken from the South Simcoe Groundwater Study has also been incorporated. Many key boreholes drilled as part of ongoing or historical projects were also added by the YPDT/CAMC team in 2004.
- **Data Release to Partner Agencies** – in the fall of 2004 the YPDT/CAMC team released the first “official” version of the database, coupled with geological interpretive layers and modeling files. This release, known as “Version 1” establishes the template for future data releases and allows all partners to communicate with each other knowing that they are all using the same set of tools to understand and manage the water resources within their jurisdictions. The distributed dataset was structured so that locations of interest could be readily mapped in the project software (e.g. all flowing wells, all active municipal wells, all Environment Canada climate stations, all drought susceptible wells, etc.). Cross-sections show the interpreted geological layers and provide the opportunity for staff to evaluate and provide feedback on the geological layers that have been constructed so that they can be updated.
- **Website** – in 2003 the YPDT/CAMC password protected website was set up for use by the partner agencies. In 2004 progress has been made in assembling a public front end to the website. An official domain name has been secured and the public part of the website will be launched officially in 2005. This will provide to the public a site where they might gain an understanding of the geology and hydrogeology of the Oak Ridges Moraine and the surrounding area.
- **Source Water Protection** – staff from the YPDT/CAMC project were invited to participate in the Ministry of the Environment’s (MOE) Technical Experts Committee as part of the source water protection initiative. This provided staff with an opportunity to help direct this important initiative that will shape many aspects of municipal and conservation authority decision making in the coming years.
- **Policy Direction** – Through much of 2004 the YPDT/CAMC team was leading a study to better link watershed plans to municipal official plans. The project was undertaken through a consulting team with input provided by key conservation authority and municipal staff from the partner agencies. The report is to be finalized in early 2005 and will be made available throughout the Greater Toronto Area (GTA) so that planning and watershed staff can begin to use the recommended approaches laid out in the report.
- **MOE Water Budget Guidance Document** – In 2004 the YPDT/CAMC staff were asked by the MOE to assist with the development of a water budget guidance document to assist with the implementation of the Oak Ridges Moraine Conservation Plan. This report was produced and delivered to the MOE in 2004 and will be circulated on the EBR (Environmental Registry) in 2005.
- **Professional presentations/seminars** – YPDT/CAMC team provided professional talks to a variety of groups and conferences during 2004:
  - **January** – Invited to speak to the Ottawa section of the Canadian Geotechnical Society;

- **January** – Presentations to the Quaternary Science Section of the Geological Survey of Canada and to the Chief Hydrogeologist of the Geological Survey of Canada (a very favourable write up on our project was presented in their spring newsletter);
  - **January to March 2004** - Invited to make presentations at the province's Well Aware sessions in the Ganaraska, Lake Simcoe and Lower Trent conservation authority areas;
  - **March 2004** – Invited to present at the Annual Canadian Groundwater Association Conference;
  - **Oct. 2004** – Two presentations at the Joint Conference of the International Association of Hydrogeologists/Canadian Geotechnical Society (the keynote groundwater speaker, Dr. de Marsily from France, commented favourably on our project in his keynote speech);
  - **Nov. 2004** – invited to speak at the A.D. Latornell Conference (Source Water Protection Presentation);
  - **Dec. 2004** – Invited to speak at a special session on source water protection by the Ontario Water Works Association.
- **Barrie Seismic Study** – in cooperation with the Ontario Geological Survey (OGS), the GSC, Lake Simcoe Conservation Authority and the City of Barrie, the YPDT/CAMC team undertook a seismic survey in the vicinity of Barrie and Angus in the Nottawasaga watershed. With the tremendous growth pressures in the City of Barrie and the need for additional water supplies, the purpose of the seismic study was to assist with tracing favourable aquifer conditions westward from the Barrie area. The study was also designed to help in further understanding the Laurentian Valley, which was studied in the Schomberg area in 2003. The data is currently being analysed, however preliminary observations indicate that coarse grained aquifer materials have definitively been found in parts of the seismic lines.
  - **Port Perry Seismic Study** – in cooperation with the OGS, the GSC and the Region of Durham, in late 2004, the CAMC/YPDT team undertook a seismic survey in the vicinity of Port Perry to assist the Regional Municipality of Durham with finding additional water supplies. The seismic study was successful in delineating subsurface conditions to the west of Port Perry, however, aquifer conditions are not as favourable as found in other seismic studies. Plans are underway to drill targets along the seismic line.
  - **Earl Bales Borehole** – in cooperation with, and with funding from, the City of Toronto, the YPDT/CAMC team oversaw the drilling of a strategic cored borehole in Earl Bales Park at Sheppard and Bathurst Streets. The core has been sent to the GSC for further analysis and the monitoring wells may become part of the Provincial Groundwater Monitoring Network.
  - **GRPS Reports** – YPDT/CAMC staff continued to work with the OGS to produce a series of documents on the groundwater resources across the Oak Ridges Moraine.

## **2005 PROGRAM**

YPDT/CAMC team continues to assess the progress of both the modeling study and the database project, both being undertaken by Earthfx Inc.. Over the past two years, the modeling project has received accolades from a number of key internationally known groundwater researchers. Given the successes that the partner agencies are having with these projects, staff recommend that a multi-year (5 year) agreement be established with Earthfx Incorporated to continue the modeling and database. This will provide Earthfx Incorporated, whom have a limited, although very high quality, capacity to focus attention on the YPDT/CAMC project. Groundwater modeling is a rare special consulting service in southern Ontario and with the amount of work that will be flowing from source water protection in 2005, it is key that the YPDT/CAMC project secures the services of Earthfx Inc. staff to continue to build on the achievements of the past few years.

Since inception, the YPDT/CAMC team has fostered and established a close working partnership with the GSC. Dr. Dave Sharpe and his colleagues from the GSC continue to meet with the YPDT/CAMC team to provide their expertise pertaining to the geological and hydrogeological setting in the Oak Ridges Moraine area. There continues to be internal pressure within the GSC for having their staff focus on other areas across Canada, however in 2005 they remain willing to make some of Dr. Sharpe's time available to the YPDT/CAMC team, provided there is some level of financial support. The YPDT steering committee is recommending that some level of financial support for the GSC continue in 2005.

Key aspects of the YPDT/CAMC 2005 work program include:

- public launch the website where the public will be able to obtain background material on the project;
- establishment of data sharing and ownership agreements amongst the partner agencies to more readily permit the exchange of information;
- the roll out of a series of training seminars on various aspects of the database and the software used in the YPDT/CAMC study;
- finalization of the model expansion eastward to include watersheds up to the Ganaraska River, thereby incorporating all of Durham Region into the model;
- finalization of the model expansion westward to incorporate the Credit River watershed, thereby incorporating all of Peel Region into the model;
- the "cookie cutting" of specific watersheds out of the regional model so that agency staff will have the ability to run various land use and climate change scenarios through the model to evaluate impacts on stream flow and the overall groundwater flow system; and
- preliminary work to explore the potential linking of groundwater and surface water modeling within a pilot area on the Oak Ridges Moraine.

## **OUTCOMES**

The YPDT initiative has resulted in a groundwater management tool that is already in use by TRCA and our partner agencies. Technical staff have used, or will be using, the model output for the following:

- identification of significant recharge areas for input into the provincial Greenbelt Plan;
- confirmation of existing groundwater recharge rates for input into the development review process;

- identification of significant groundwater discharge zones for input into surface water baseflow monitoring programs and fisheries management plans;
- delineation of wellhead protection zones (i.e. Whitchurch/Stouffville) and calculations of water budgets (including locations of previously unknown aquifer systems) for input into future drinking water source protection plans; and
- targeting of hydrogeologically sensitive areas for input into TRCA's land acquisition strategy.

#### **FINANCIAL DETAILS**

The initiatives described above can be implemented within the current 2005 budget for the YPDT study. No agreements will be signed until the financial contributions from the City of Toronto and York, Peel and Durham regions are in place and the appropriate approvals have been obtained from the Executive Committee.

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