

FORUM SUMMARY

ALL ABOUT WATERSHEDS - Getting to Know Your Watershed

This document provides a summary of presentations and resources that were part of the Watershed Forum held at the Canadian Museum of Nature on May 2, 2006. This event was sponsored by the OFNC/Fletcher Wildlife Garden, the Canadian Museum of Nature and the Wildlife Festival.

This was the fourth in a series of annual forums that take place during the Wildlife Festival, a regional celebration of National Wildlife Week. Each forum highlights current issues in wildlife conservation. In 2006, the forum featured organisations and individuals who shared their knowledge and experience related to the protection and managements of watersheds.

1. Presentations

Introduction to Watersheds - David Spence, Friends of the Carp River

David gave a wonderful talk about the importance of watersheds and how people can take action to protect them. Since his talk was not accompanied by a PowerPoint presentation or written text, we are not able to include the full content in this summary. However, we encourage you to visit the Friends of the Carp River website for insight into their activities and approaches to watershed conservation.

<http://www.friendsofthecarpriver.com/>

Amongst the topics he covered, David discussed how he personally, and the Friends of the Carp as a group, always discuss issues with politicians, developers, landowners, others, with respect and politeness, are never confrontational, seek compromises that make both sides feel they have done some good. He believed this was key to the success of the Friends of the Carp River in their ability to convince those who might oppose restoring the Carp and protecting the watershed, to see things differently. He said that coming into meetings with a confrontational attitude, with a no-compromise position, an unwillingness to discuss issues from all sides was a sure way to not get anywhere.

Habitats within a Watershed - Jacques Bouvier, Wetland Habitat Fund

Habitats within a Watershed

- Riparian Zones
 - Streams / small rivers and their adjacent upland habitat (trees/shrubs)
- Wetlands
 - Areas seasonally or permanently covered by shallow water
 - Transition zones between upland and deep open water

Wetlands Types - Four main types are:

- Bogs
- Fens
- Marshes
- Swamps

Bogs + Fens = Peatlands

- > 40 cm of peat (decomposed mosses or sedges)
- < 25% trees
- Carnivorous plants - Pitcher Plants - Sundews

Bogs VS Fens

Bogs	Differences	Fens
- precipitation	Water source	- groundwater flow
-poor	Nutrients	- rich to poor
- sphagnum mosses	Vegetation	- sedges, mosses

Peatlands

- 1% of wetlands in Ontario
- Little info available on their rehabilitation
- Protect them and their water sources

Marshes

- Shallow surface water (< 2 m) which fluctuates dramatically
- Nutrient rich
- Dominated by emergent non-woody plants such as cattails, reed grasses and sedges (1 m)
- Submerged or floating plants flourish in open water (= 2 m)
- 10% of area of wetlands in southern Ontario

Swamps

- Treed or tall shrub areas that are periodically flooded
- Nutrient rich
- Often no standing water in mid to late summer
- Most abundant wetland type in southern Ontario
- 89% of total wetland area

Role of Habitats within Watersheds

Riparian Zones

- Streams deliver our drinking water
- Habitats to
 - Aquatic invertebrates
 - Fish communities
 - Fish-eating wildlife
- Upland vegetated habitat adjacent to waterways act as:
 - Travel lanes for wildlife

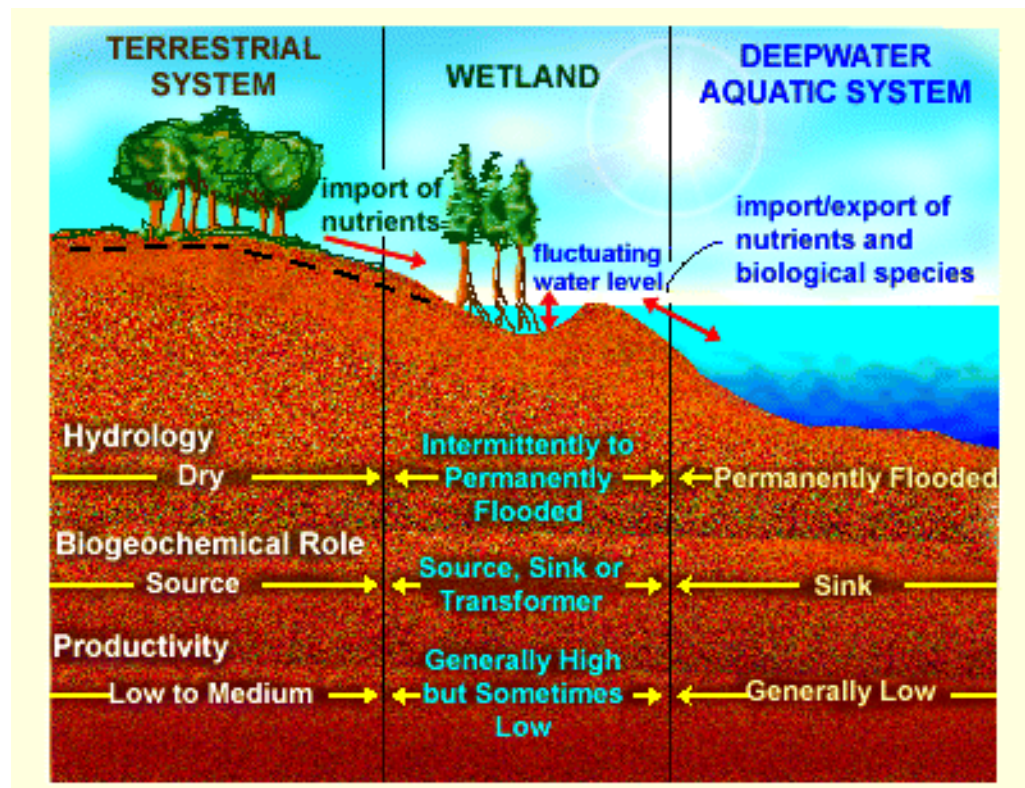
- Filters - upland vegetation traps lethal suspended sediments** before they can enter waterway
- Also provides shade, and organic debris and insects for aquatic organisms
- Upland vegetation (Best Management Practices - BMP)
 - Minimum 30 m wide on both sides
 - Along 75% of stream length

****Sediments**

- Smother fish eggs and prevent them from hatching
- Inhibit young fish's ability to see prey and feed properly
- Suffocate young and adults
- Inhibit movement and migration

All Wetlands help

- Trap soils running off nearby uplands before they enter lakes and streams
- Maintain and improve water quality by filtering contaminants renew groundwater supplies
- Control flooding and reduce flood days
- Protect shoreline from erosion by flowing water and wave action
- Support recreational activities such as fishing, nature appreciation and bird watching
- BMP for Wetlands in a watershed
 - > 10 % of each major watershed in wetland habitat or
 - Restore to original % of wetlands in the watershed



Swamps

- Support higher diversities of plant and wildlife species than any other wetland or forest community
- Provide critical habitat for many species:
 - most cold-water (Brook Trout) streams originate in swamps
 - most deer/moose wintering areas are in coniferous swamps
- Used by many other wildlife species such as:
 - Provide temporary pools for many amphibians to breed

Marshes

- Used exclusively (all life cycles) by many specialized wildlife species:
 - Muskrat
 - Ruddy Duck
 - Banded Killifish
 - Pied-billed Grebe
- Used by other wildlife species
 - During part of life cycle
 - As breeding, feeding or nursery areas
 - Snow Goose
 - Lesser yellowlegs

Summary- Habitats in Watershed

Habitat Role	<u>RIPARIAN</u> Streams/ Rivers	<u>ZONE</u> Buffer (trees, shrubs)	Wetlands	Wetlands Buffer
Wildlife Habitat	√	√	√	√
Filter		√	√	√
BMP		≥30 m (2 sides) 75% length	>10% of watershed area	≥100 m around

Taking Action - Carol Dillon, Friends of the Tay Watershed

How community groups can take action to help protect their watersheds

Friends of the Tay Watershed Association

- Mandate
 - To provide stewardship for the Tay watershed
 - Through education and monitoring

Some Guiding Principles

- Stick to issues affecting our watershed
- Represent the community
- Be fact based
- Work within the law
- Be diplomatic and respectful

Taking Action

- Gather experience & expertise
- Create partnerships
- Build profile and image
- Use available processes
 - Letter Writing
 - Public Consultation
 - Environmental Bill of Rights

Submission Regarding the Great Lakes Charter Annex

“The Friends of the Tay Watershed Association is a community-based organization providing stewardship for the Tay River watershed in eastern Ontario. This watershed is part of the Great lakes Basin, and thus the draft agreements regarding Great Lakes Basin water are of concern to us. *Our efforts at the local level are rendered useless, unless similar strong stewardship and protection is provided for the entire Great Lakes Basin.*”

- Respond to Issues
- Leaving a legacy...

What is Water Quality all about? - Paul Hamilton, Canadian Museum of Nature

The question I commonly get from residents of the Ottawa Region:
“Is our water polluted?”

Yes... all natural waters are “contaminated”.

H₂O - Unique molecule - Characteristics of Water

- Molecular Structure
- Density
- Specific Heat
- Viscosity
- Surface Tension

There are four groups of natural chemical contaminants. These natural contaminants come from the air, soil, bedrock and wildlife.

These “contaminants” can be conservative compounds (predictable i.e. we can easily account for and understand their distribution) or non-conservative (the way they react is unpredictable and not fully understood).

Contaminants in water

- Conservative compounds (Ions)
 - + Calcium, Sodium, Potassium, Magnesium
 - - Bicarbonate, Chlorine, Sulphate, Carbonate
 - Also includes rarer metals (e.g. Lithium, Beryllium, Fluorine)
- Non-Conservative (Nutrients)
 - Carbon, Nitrogen, Phosphorus, Silica
- Non-Conservative (Metals)
 - e.g. Copper, Zinc, Nickel, Mercury
- ? (Metals) (We are not sure if these are conservative or not but we think they are non-conservative)
 - e.g. Zirconium, Chromium, Tin
- Synthetic chemicals
 - Pesticides, Herbicides, PCBs, PAHs, POPs
- Biological life
 - Plants, Vertebrates, Invertebrates, Algae, Parasites, Fungi, Bacteria, Viruses

Conservation/Restoration

- Natural water quality is dependant of local geology and biology
- Water quality can change through time
- So the questions is: Conserve or restore to what?

Conservation/Restoration – Options

Conditions.... Do we conserve / restore to...

- before last glaciation (ca. 10,000 years ago)?
- before First Nations settlement?
- before European settlement/development?
- stabilize water at present conditions?
- meet Water Quality Guidelines?
- exceed Water Quality Guidelines?

We don't really have a good answer. We usually restore to the guidelines that we currently consider to be acceptable relative to our land use patterns.

Example: Swan Lake - Oak Ridges Moraine

- We have data for the last 200+ years so it could be restored to pre-settlement conditions or to meet current guidelines

- Lake changed in 1800's, stable today
- Meets current Canadian standards
- To conserve / maintain conditions - surrounding land and aquatic habitats must be protected

Regional perspective: Region of Ottawa - Aquatic Environmental Report Card

- Satisfactory to Good both in terms of water chemistry and biological diversity
- Local land and aquatic habitats must be improved and conserved

Examples:

3 Lakes (McKay, Constance, Mud) - Monitored by the City of Ottawa

- Nutrients (phosphorus) are an issue
- E. coli levels variable
- Metal levels meet guidelines
- Synthetic compounds below guidelines
- Invasive species present in one lake

4 rivers (Ottawa, Rideau, Jock, Carp) - Monitored by the City of Ottawa

- Nutrients (phosphorus) are an issue
- E. coli levels variable (inner city)
- Metal levels meet guidelines
- Synthetic compounds below guidelines
- Invasive species present in 3 rivers

Summary / Questions

- Conservation/restoration what standard should we set (aquatic life, swimming, drinking)?
- Education?
- Who is responsible?
- How is success evaluated?

Source and Ground Water at the Heart of a Watershed - Sommer Casgrain Robertson, Rideau Valley Conservation Authority and Mississippi Valley Conservation Authority

What is Source Water?

- Untreated surface & groundwater that supplies private and public drinking water systems

What is Source Water Protection?

- Protecting both the quality and quantity of source water, now and in the future

“Multi-Barrier” Approach

- Reliable treatment
- Sound distribution system
- Testing and monitoring

- Source protection

Why Protect Source Water?

- Protect human health
- Prevention costs less than clean-up
- Environmental benefits

How to Protect Source Water?

- At the watershed scale
- Create a source protection plan: an agreement among the people and municipalities of a watershed about the ways to protect water quality and quantity.

Proposed Source Water Protection Legislation

- Legislation: Province of Ontario introduced source water protection legislation – proposed Clean Water Act, 2005 (Bill 43)
- Funding: Province has committed 100% funding to create source protection plans

Creating a Source Protection Plan

- Technical Assessment Reports
 - Watershed Characterization
 - Watershed Description
 - Water Quality
 - Water Quantity
 - Vulnerable Areas
 - Threats Inventory
 - Issues and Concerns
 - Water Budget
 - Identify Vulnerable Areas
 - Identify Issues & Threats
 - Assess & Evaluate Risk
- Source Water Protection Plan
 - Community based plan with actions to address local issues & threats
 - Implement the plan
 - Monitor results, report on progress
 - Review & update the plan

Some Threats to Source Water

- Mine shafts and improperly constructed wells
- Industrial discharges
- Road salt application
- Sewage disposal
- Landfill sites
- Underground storage tanks

- Agricultural runoff
- Urban runoff

Want to Learn More!

- Visit our website at: www.mrsourcewater.ca
- Fact Sheet
- Sign-up for our source water protection updates



2. Exhibitors

Here is a list of the organisations that set up exhibits at the forum.

Canadian Wildlife Federation

National Wildlife Week – Watersheds... more than just water... explore yours!

http://www.cwf-fcf.org/pages/wildprograms/wildprogramsweb_e.asp?section=6&language=e

Centre for Sustainable Watersheds

Centre for Sustainable Watersheds (CSW), a non-governmental, non-profit charitable organization, dedicated to facilitating community involvement in water resource protection in Canada.

http://www.watersheds.ca/whatwedo/about_us.html

Friends of the Jock River

The Friends of the Jock River is a non-profit, charitable environmental organization managed by volunteers in the Jock River watershed. Its mandate is to protect the Jock River watershed ecosystem.

<http://www.geocities.com/jockriver/>

H2O Chelsea

H2O Chelsea is a community-based water research and monitoring program developed collaboratively by the Municipality of Chelsea, the University of Ottawa's Institute of the Environment and Action Chelsea for the Respect of the Environment (ACRE). Our goal is to develop a better understanding of ground and surface water resources in Chelsea that will inform municipal planning and management decisions.

<http://www.h2ochelsea.ca/Introduction.htm>

http://www.h2ochelsea.ca/fr_Introduction.htm

LandOwner Resource Centre

The Rideau Valley Conservation Authority LandOwner Resource Centre is a one-window information shop for landowners. It is located in the scenic village of Manotick, just outside Ottawa, Ontario. Stop in for a visit. Browse through the information. The LRC is where you can get accurate, impartial, user-friendly information on forestry, agriculture, wildlife, water, soil and any land management issues. They have the information all under one roof.

<http://www.lrconline.com/>

Ottawa Field-Naturalists' Club

Founded in 1879, the Ottawa Field-Naturalists' Club is the oldest natural history club in Canada. Its objectives are to promote the appreciation, preservation, and conservation of Canada's natural heritage; to encourage investigation, publish the results of research in all fields of natural history, and diffuse the information as widely as possible; and to support and cooperate with organizations engaged in preserving, maintaining or restoring environments of high quality for living things.

<http://www.ofnc.ca/>

Ottawa Riverkeeper

The Ottawa Riverkeeper is a citizen-based, charitable organization working to serve as an independent voice for the Ottawa River. They are committed to ensuring a healthy, ecologically sustainable Ottawa River for the well-being of all.

<http://www.ottawariverkeeper.ca/>

Ottawa Wildlife Festival

The Wildlife Festival is a regrouping of government agencies, non-governmental organisations, wildlife artists and dedicated individuals raising awareness and encouraging stewardship of wildlife and wildlife conservation in the National Capital Region.

<http://www.ncrwildlifefestival.org/>

Wetland Habitat Fund

The Wetland Habitat Fund operates through a team of professional program representatives who provide technical assistance to landowners who are planning habitat projects while the WHF provides financial assistance to implement the project. Since 1997, the program has helped hundreds of landowners conserve thousands of acres of wetlands across southern Ontario.

<http://www.whc.org/wetlandfund/en/home/home.html>

All About Watersheds – Resource List

Watershed Watch

These volunteer monitoring programmes are offered by Conservation Authorities
Mississippi Valley Conservation Authority <http://www.mvc.on.ca/text/watch.html>
Rideau Valley Conservation Authority
http://www.rideauvalley.on.ca/programs/wwatch/watershed_watch.htm

Know Your Watershed

Everyone lives in a watershed. By entering your town name you will be able to access a map of your local watershed, its ocean basin and a growing watershed profile including: towns sharing your watershed, upstream/downstream basins, related federal and provincial web sites, and local environmental groups. Future plans include expanding the content (e.g. water levels, water quality, water use, local photos ...)
<http://map.ns.ec.gc.ca/kyw/>

Connaître son bassin versant

Désirez-vous voir une carte du bassin versant de votre localité ou du bassin océanique dans lequel il se trouve? Il vous suffit d'entrer le nom de votre localité pour accéder à ces cartes et à un nombre croissant de profils de bassin versant et notamment à des renseignements sur : les autres localités situées dans votre bassin versant, les bassins en amont et en aval, les sites Web connexes des gouvernements fédéral et provinciaux, ainsi que les groupes environnementaux locaux. <http://map.ns.ec.gc.ca/kyw/Default.aspx?lang=fr-Ca>

Portail jeunesse sur la surveillance de l'eau

Pour les gens intéressés par l'eau, le Portail jeunesse est un incontournable! Partez à la découverte de programmes éducatifs dynamiques auxquels participent des jeunes de 9 à 17 ans du Québec et de l'Ontario. Ces programmes sont réalisés dans le cadre d'activités scolaires ou parascolaires. Dans ce cadre, les groupes participants recueillent des données sur l'eau et rédigent un rapport. Les résultats sont cartographiés et expliqués grâce à des capsules d'information. Celles-ci vous permettront d'en connaître davantage sur les paramètres étudiés et leurs significations dans la vie de tous les jours.
<http://www.pjse.ca/>

Water Monitoring Youth Portal

The Portal is an absolute must for people interested in water! Discover dynamic educational programs that students 9 to 17 years old in Quebec and Ontario participate in. Whether the projects are part of the school curriculum or done as extra-curricular activities, participating classes collect different types of water data and write a report. Their results are then mapped and explained through information capsules that show you even more about the parameters studied and their significance in daily life.
http://www.pjse.ca/1portail/portail_en.html

Watershed InfoXchange

Watersheds InfoXchange is a free service that provides access to water quality data across Ontario - including data from community groups, individuals, researchers, municipalities, conservation authorities, provincial and federal government. It also provides protocols and allows groups to manage their water quality data on-line.
http://209.217.116.154/htdocs/home_t.phtml

Well Aware

Well Aware encourages Ontario's residential well owners to protect their wells and our common groundwater supplies. It provides education material, guided self-assessment, tools and

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resources. Well Aware is a project of The Green Communities Association in partnership with the Ontario Ground Water Association. This project has received funding support from the Ontario Ministry of the Environment.

<http://www.wellaware.ca/default/index.php?m=&site=>

National Watershed Stewardship Coalition

In the fall of 2002 representatives of five leading watershed stewardship organizations from across the country joined together to form the National Watershed Stewardship Steering Committee. The Steering Committee aimed to identify key lessons learned in implementing watershed stewardship activities and use these lessons to develop policy recommendations. Organizations comprising the Steering Committee span the five regions of Canada and include the Atlantic Coastal Action Plan; Quebec Zones d'intervention prioritaires; Conservation Ontario; Alberta Land Stewardship Centre of Canada.

<http://www.watershedstewardship.ca/watershedStewardship/home/wscnIndex.asp>

Integrated water management at the watershed level

This section contains the main information, documents and data currently available on the Quebec's Ministère du Développement durable, de l'Environnement et des Parcs Web site regarding integrated water management at the watershed level.

http://www.mddep.gouv.qc.ca/eau/bassinversant/index_en.htm

La gestion intégrée de l'eau par bassin versant

Le lancement de la Politique nationale de l'eau au Québec en 2002 a été l'aboutissement de cinq années de recherches, de consultations, de recommandations et de prises de position sur les enjeux, les orientations et les engagements à mettre en œuvre en matière de gestion de l'eau au Québec. La mise en oeuvre de la gestion intégrée de l'eau par bassin versant constitue un engagement majeur de cette Politique. De précieuses informations relatives à l'eau sont présentées sous les différentes rubriques de cette section que nous vous invitons à visiter.

<http://www.mddep.gouv.qc.ca/eau/inter.htm>

Conservation Ontario

Conservation Ontario is the umbrella organization that represents Ontario's 36 Conservation Authorities. Conservation Authorities are local, watershed management agencies that deliver services and programs that protect and manage water and other natural resources in partnership with government, landowners and other organizations.

<http://www.conservation-ontario.com/>

Regroupement des organisations de bassin versant du Québec

Le mandat du ROBVQ est de promouvoir la gestion intégrée de l'eau, des écosystèmes et des autres ressources associées à l'eau à l'échelle du territoire du bassin versant et supporter l'action de ses membres. Faire connaître les positions des organisations de bassin versant du Québec auprès de la population et des instances gouvernementales ou autres organisations ou intervenants intéressés par le sujet.

<http://www.robvq.qc.ca/>

The Waterhole: Your Source for Information on Water Protection

The Waterhole is a meeting place for those concerned about the protection of water. On this site you can find information on legislation and policies, check the latest news, contact groups working on the issue, or find related events. It is a collaborative project of Environmental Defence, and the Canadian Environmental Law Association.

<http://www.thewaterhole.ca/aboutwaterhole.htm>

Advisory Committee on Watershed-based Source Protection Planning.

The Advisory Committee on Watershed-based Source Protection Planning was established by the Minister of the Environment (MOE) on November 15, 2002. Advisory Committee members were asked to provide advice to the government on a framework for watershed-based source protection planning. Together, this report and its recommendations fulfil that mandate.

<http://www.ene.gov.on.ca/programs/3585e01.pdf>

Community Involvement in Wetland Protection - Ontario

A good source of information on wetlands in Ontario with an emphasis on regulatory issues. Includes a list of other sites for more information on wetland protection.

http://www.greatlakesdirectory.org/GLAHNF_wetlands_packet/wetlands_fact_sheets/ON_fact_sheet.htm

Wetlands of Ontario.

This site provides descriptions of the different types of wetlands, the wildlife that live there, wetland functions and values, wetland science and monitoring, and many other aspects of wetlands and their preservation.

<http://www.on.ec.gc.ca/wildlife/wetlands/intro-e.cfm>

WetKit. Tools for Working with Wetlands in Canada

A Web-based tool kit designed to streamline access to practical tools that can help Canadians better understand and manage wetlands. WetKit showcases a wealth of wetland tools and explains how each one can help conserve wetlands. WetKit also helps users to find the tool they need, and to access that tool quickly and easily - on the Internet or over the phone!

http://www.wetkit.net/modules/1/showtool.php?tool_id=1789