

HEADWATER STEWARDSHIP SUCCESSIONS AND CHALLENGES



A PRESENTATION FROM THE
ONTARIO HEADWATERS INSTITUTE

OHI Mission

To promote the protection and preservation of headwaters in Ontario



Areas of Activity

- Research
- Education
- Best Practices
- Time-limited special projects

Contents



- **What are headwaters, and why are they important?**
- **Key Drivers of Headwater Health**
- **Successes and Challenges noted in Regional Discussions RE:
Stewardship, BMPs, and Policies & Protocols**

Notes for the PDF version posted to the website:

- The slides on Polices and our seven recommendations on the review of the Provincial Policy Statement were not spoken to in detail, but provided as reference material, to praise recent work, and to set the framework for the subsequent slides on perceived policy gaps and the OHI's suggested headwater threat matrix.

What are headwaters?

Headwaters are the foundation of our watersheds

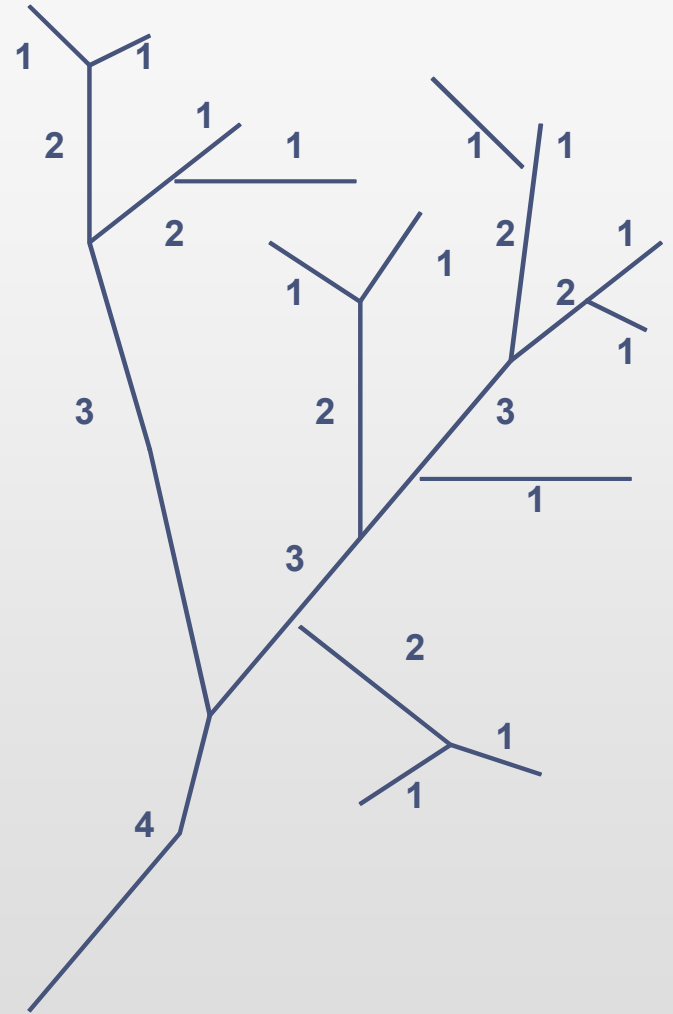


They include:

- **Glaciers and snow-packs**
- **Lands in which water pools, collects into rivulets, and/or infiltrates into the ground**
- **Aquifers and groundwater; and,**
- **Swales, wetlands, and small streams.**

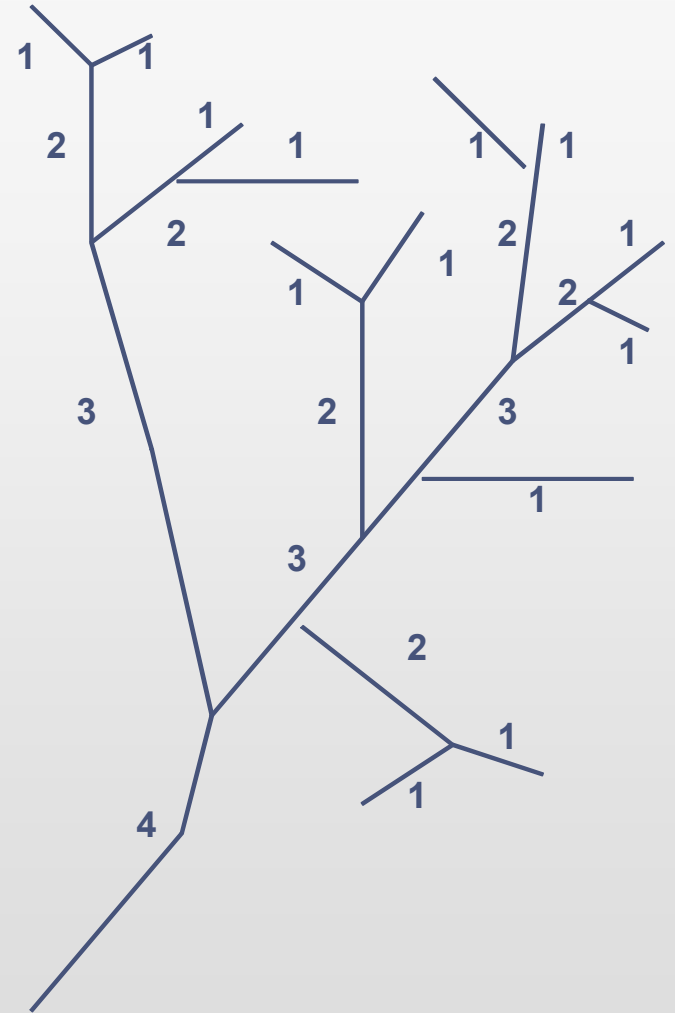
In Ontario, Headwaters include

- **Springs, wetlands, aquifers, and ground-water**
- **1st and 2nd order streams**
- **Ephemeral and Intermittent streams, and**



In Ontario, Headwaters include

- Springs, wetlands, aquifers, and ground-water
- 1st and 2nd order streams
- Ephemeral and Intermittent streams, and
- Zero order streams and Headwater Drainage Areas



Why are Headwaters important?

- **Make up 50 - 80% of total watercourse length**
- **Contribute most of the mean annual flow**
- **Provide key habitat – eg: breeding areas**
- **Provide significant portions of a stream's nutrients, organic material, & sediment, and**
- **Provide the majority and the foundation of a watershed's biodiversity**





Spoken only

This is one of my favourite slides, depicting that we live in a fortunate part of the world, with forests, good soils, lots of water, and a moderate climate, but that there are storm clouds on the horizon.

Key Drivers of Headwater Health



- **Development & Pollution**
- **Climate Change**

Key Drivers of Headwater Health



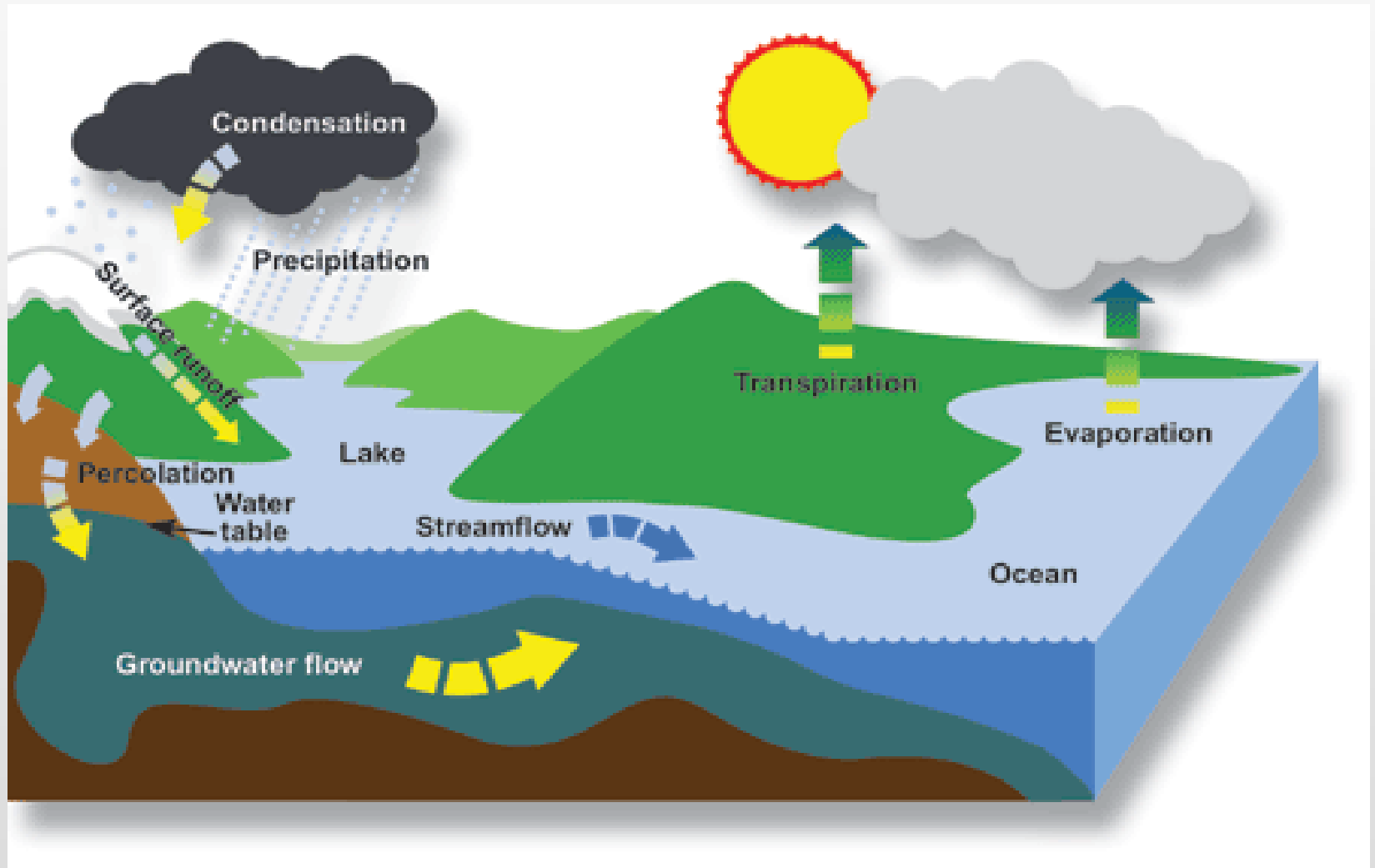
Development

- Fragmentation, PTTW, loss of wetlands and small streams

Pollution

- MP&Q, Forestry, Agriculture, Road and Rail, Sewage

Climate Change



Common Threads from Regional Discussions

- Ontario's natural heritage, hydrologic systems, biodiversity, and agriculture are under increasing threat
- There must be better inter-agency cooperation, outreach, and accountability
- The PPS must be strengthened and the bias of development over sustainability, especially with respect to aggregate extraction, must be redressed



Successes and Challenges



- **Stewardship Activities**
- **Best Management Practices (BMPs)**
- **Policies and Protocols**

Stewardship Activities



- **MNR, CAs, Ducks Unlimited, Bruce Trail, land trusts & easements, community groups, etc**

Stewardship Activities



- MNR, CAs, Ducks Unlimited, Bruce Trail, land trusts & easements, community groups, etc
- **TRCA/CVC Headwaters project & draft guideline**
- **Various rural outreach programs: eg – SWP, CVC Northern Headwaters Coordinator**
- **MNR's Moraine wetland mapping exercise**
- **Kawartha CA: headwater metrics in watershed report card**

Opportunity for Greater Public Stewardship?

More money

More programs

More education



Best Management Practices



Some great programs:

Environmental Farm Plans, Forestry Codes of Practice, Golf Courses, Pit Restoration, and septic system & wells

Best Management Practices



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Environmental Farm Plans, Forestry Codes of Practice, Golf Courses, Pit Restoration, and septic system & wells

But we are just not there yet and perhaps need a broader framework to encourage more actions.

Policies and Protocols: Prior to 2000

- **Boundary Waters Treaty of 1909 and the creation of the International Joint Commission**
- **Hurricane Hazel, 1954, and significant expansion of Conservation Authorities**
- **The creation of the Ontario Water Resources Commission, 1956**
- **The launch of federal and provincial ministries of the environment following the 1972 UN Conference on the Human Environment,**
- **The Great Lakes Water Quality agreements of 1972 and 1987, and the creation of Remedial Action and Lake Management Plans**
- **The Municipal-Industrial Strategy for Abatement, etc etc...**



In addition, in Land-use Planning -

- **Niagara Escarpment Planning & Development Act, 1973, and**
- **The PPS provided protection for significant wetlands**

Since 2000 ie - Since Walkerton

- **Oak Ridges Moraine Conservation Act, 2001**
- **Low Water Response Plan, 2003**
- **GL-SLRB SWRA, 2005**
- **Clean Water Act, 2006**
- **Conservation Authorities Act, (2006*)**
- **Lake Simcoe Protection Act, 2008**
- **Greenbelt Plan, 2005**
- **Growth Plan for the Greater Golden Horseshoe, 2006**
- **The Water Opportunities and Water Conservation Act, and**
- **The Provincial Policy Statement (The PPS)**



Key Issues

Clean Water Act

- Source Water protection
- Threat Matrices
- Water Budgets
- Mapping of Significant Groundwater Recharge Areas

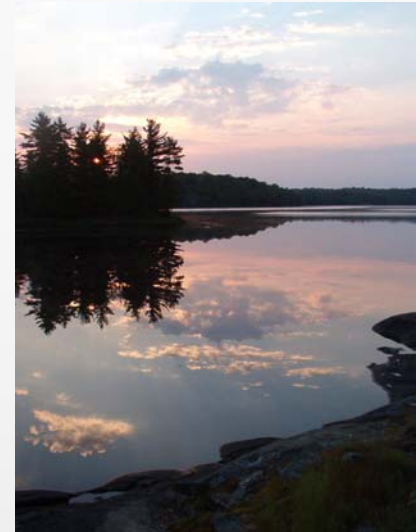


Conservation Authorities Act - re-defines watercourse as “an identifiable depression in the ground in which a flow of water regularly or continuously occurs.”

The 2010 Review of the PPS – for which the ECO has recommended that Ontario require Integrated Watershed Management Planning.

OHI's Seven Recommendations for the 2010 Review of the PPS

- 1. Set targets to help preserve the ecological goods and services that form the foundation of Ontario's social and economic well-being;**
- 2. Embrace an environment-first perspective in the Vision (Part IV) of the PPS;**
- 3. Re-order the sections of PPS to further signal the primacy of the environment;**
- 4. Provide greater support for agriculture, sustainable agriculture, & local food, both within and far beyond the PPS;**



Our Seven Recommendations for the 2010 Review of the PPS

- 5. Signal that it will shift to and implement a comprehensive system of IWM by 2015;**
- 6. Immediately begin to address existing conflicts, policy gaps, and implementation problems in the current system of hydrologic and watershed management; and,**
- 7. Take significant steps to protect the remaining wetlands in EcoRegions 5E, 6E, and 7E.**



Conflicts, Policy Gaps, and Implementation Problems



- **Conflict between the Conservation Authority Act and the Municipal Drainage Act & the on-going practice of municipalities that continue to bury zero, first, and second order streams**
- **Conflicts of interest when municipal appointee to a CA votes against a CA budget allocation for watershed management studies**
- **The absence of policies to support the new definition of a watercourse in the Conservation Authorities Act (2006), and**
- **The need to extend Source Water Protection to full watersheds**

Headwater Threat Matrix

- **Settlements**
- **Mining**
- **Forestry**
- **Agriculture**
- **Roads and Rails**
- **Septic Systems**

Headwater Threat Matrix

- **Settlements**

- **Mining**

- **Forestry**

- **Agriculture**

- **Roads and Rails**

- **Septic Systems**

- **Fragmentation, PTTW, wetlands & small strms**

- **Sediment, chemicals, temperature**

- **Cover, flow, debris, temperature**

- **Flow, nutrients**

- **Chemicals**

- **E-coli**

Headwater Threat Matrix - Solutions

- | | |
|--|---|
| <ul style="list-style-type: none">• Settlements• Mining• Forestry• Agriculture• Roads and Rails• Septic Systems | <ul style="list-style-type: none">• IWM, <u>and</u> we must stop draining wetlands and burying small streams• Measure & publish Headwater Q&Q data• Challenge society to have water leave their area in the same quality in which it arrived |
|--|---|



We must treat each and every swamp, river basin, river and tributary, forest and field with the greatest care, for all these things are the elements of a very complex system that serves to preserve water reservoirs – and that represent the river of life.

UNESCO report, 2006

Thank you



Contact information:

Andrew McCammon

Andrew@OHWI.ca

416 231 9484