

Muskoka Stewardship Conference

April 28, 2012

Terry Rees

Biodiversity Stewardship

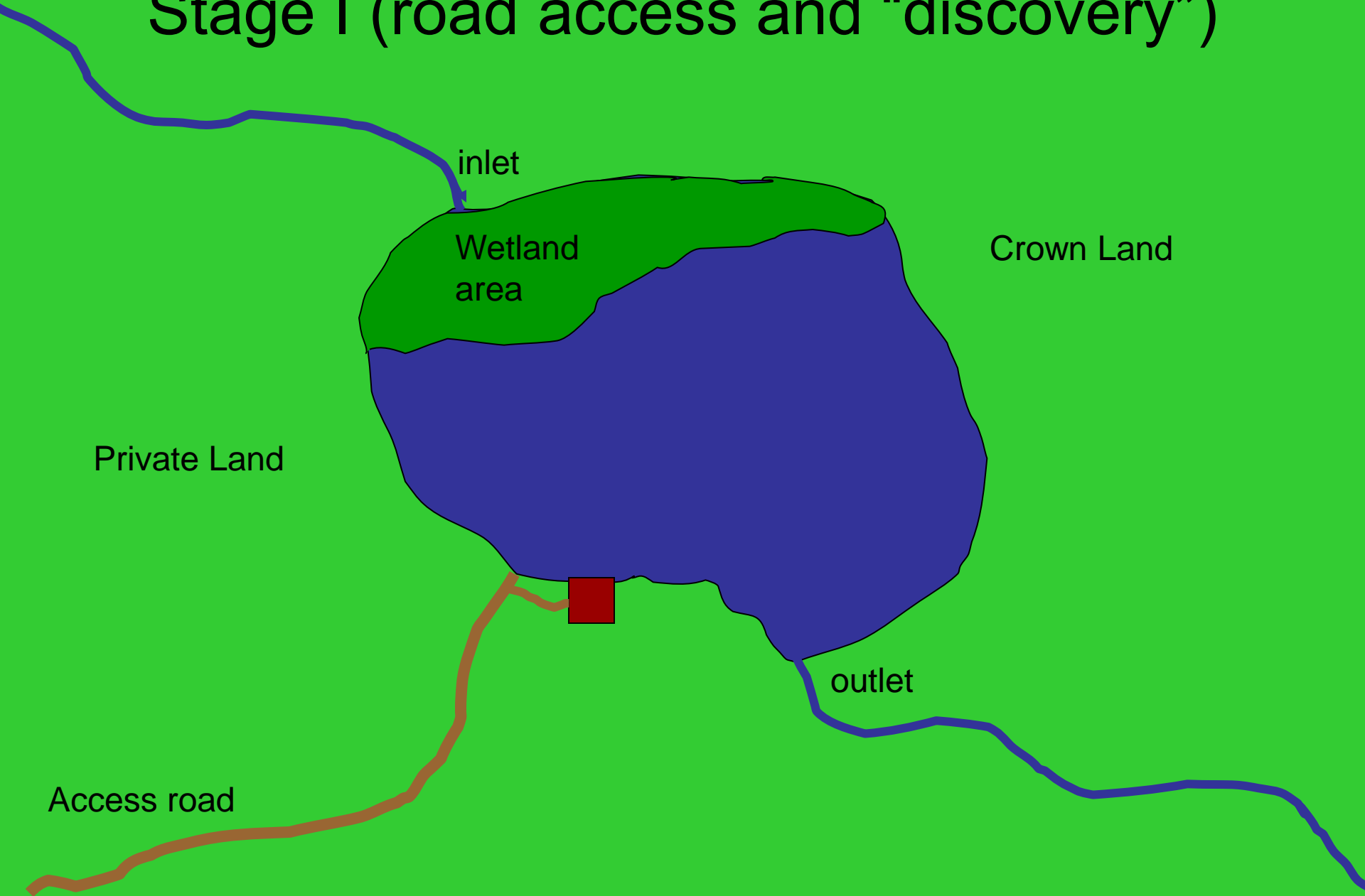
Biodiversity is the lifeblood of Muskoka



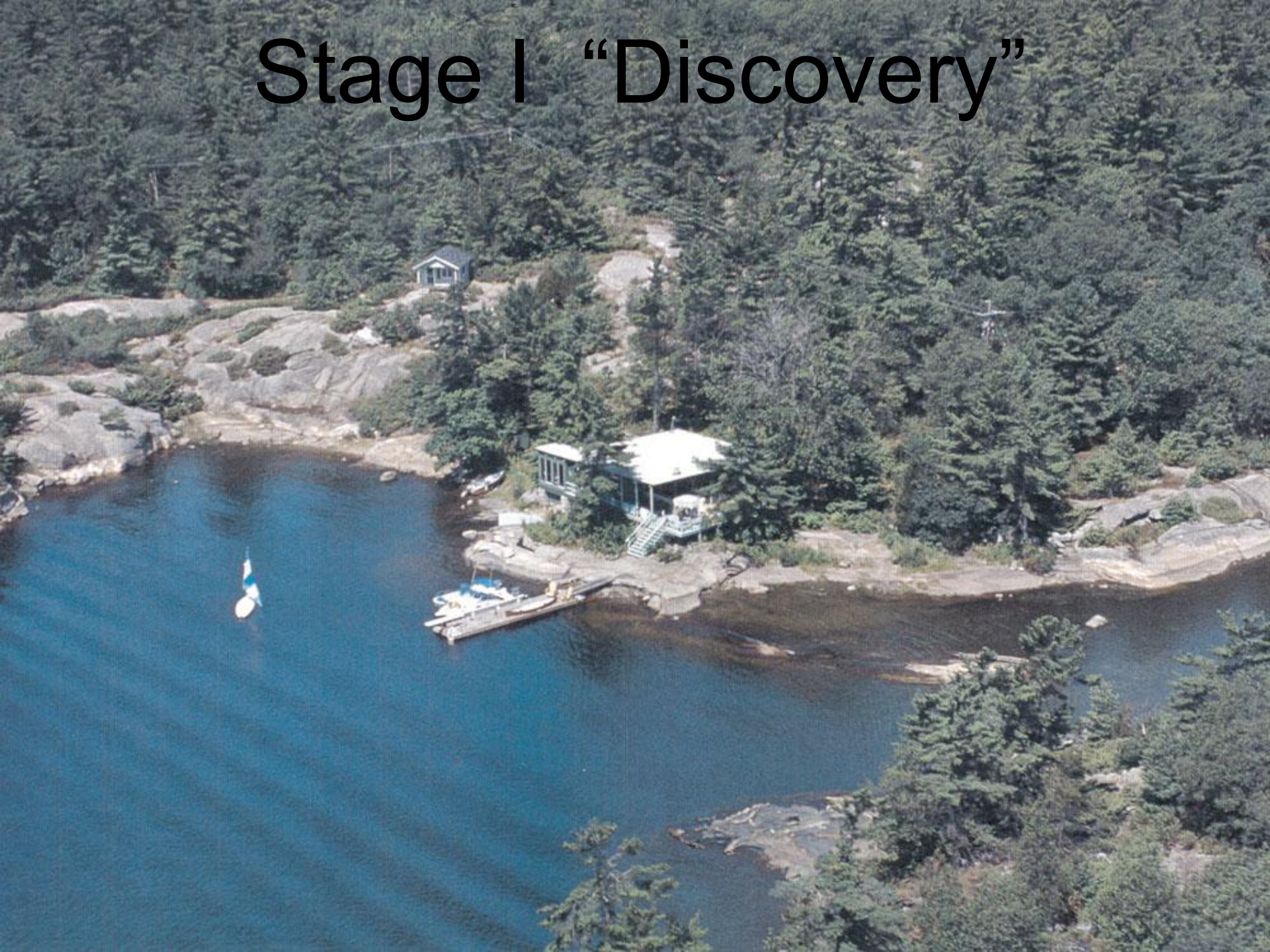
The Case for Green Infrastructure in Ontario report draws on input from diverse stakeholders and existing research to present a strong case for improved policies and investments to support green infrastructure in the province. It also offers specific, practical recommendations that the Government of Ontario can undertake to realize the multitude of environmental, social and economic benefits provided by green infrastructure. The time to act is now.

Stages in Recreational Lake Development

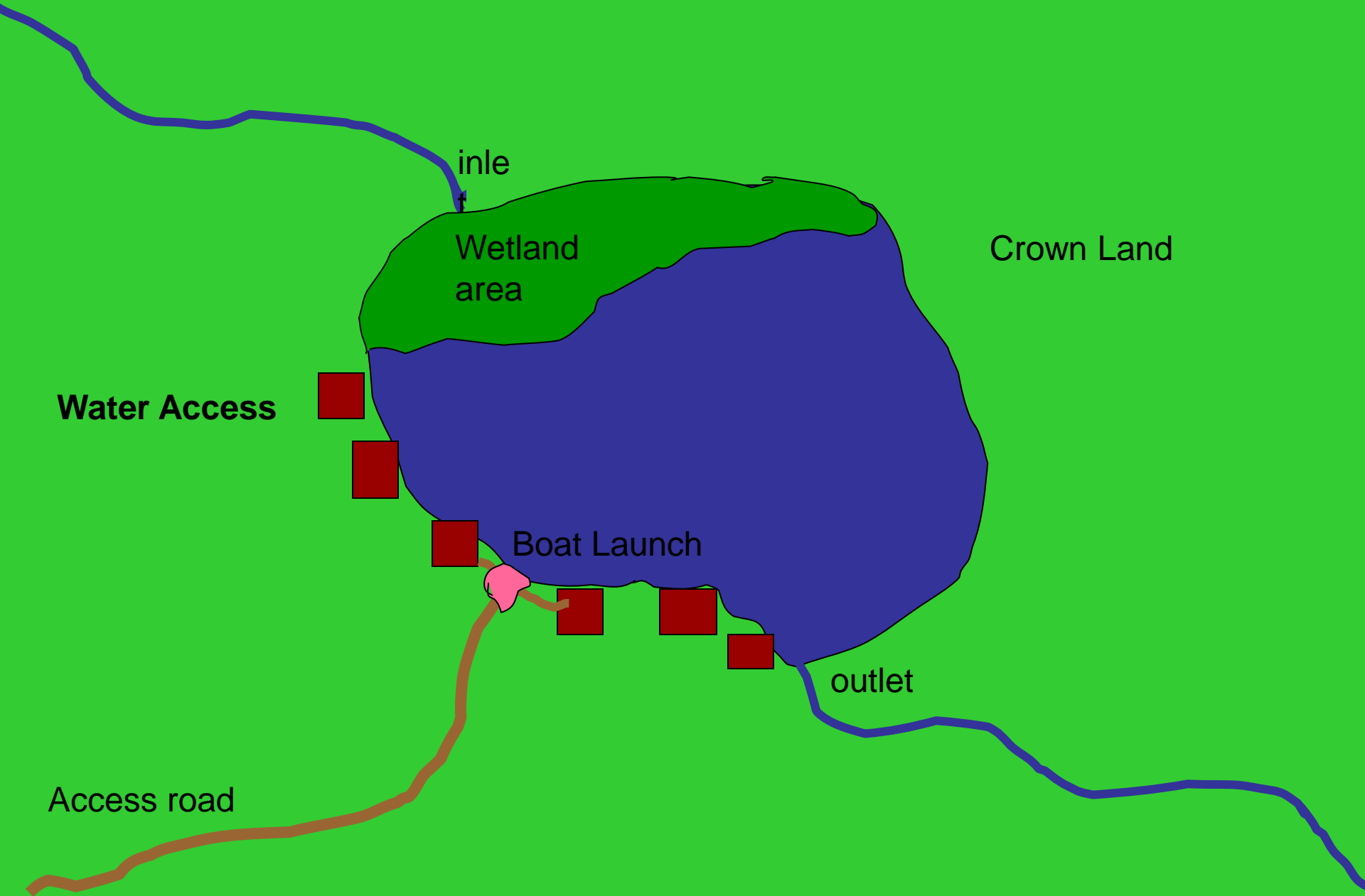
Stage I (road access and “discovery”)



Stage I “Discovery”



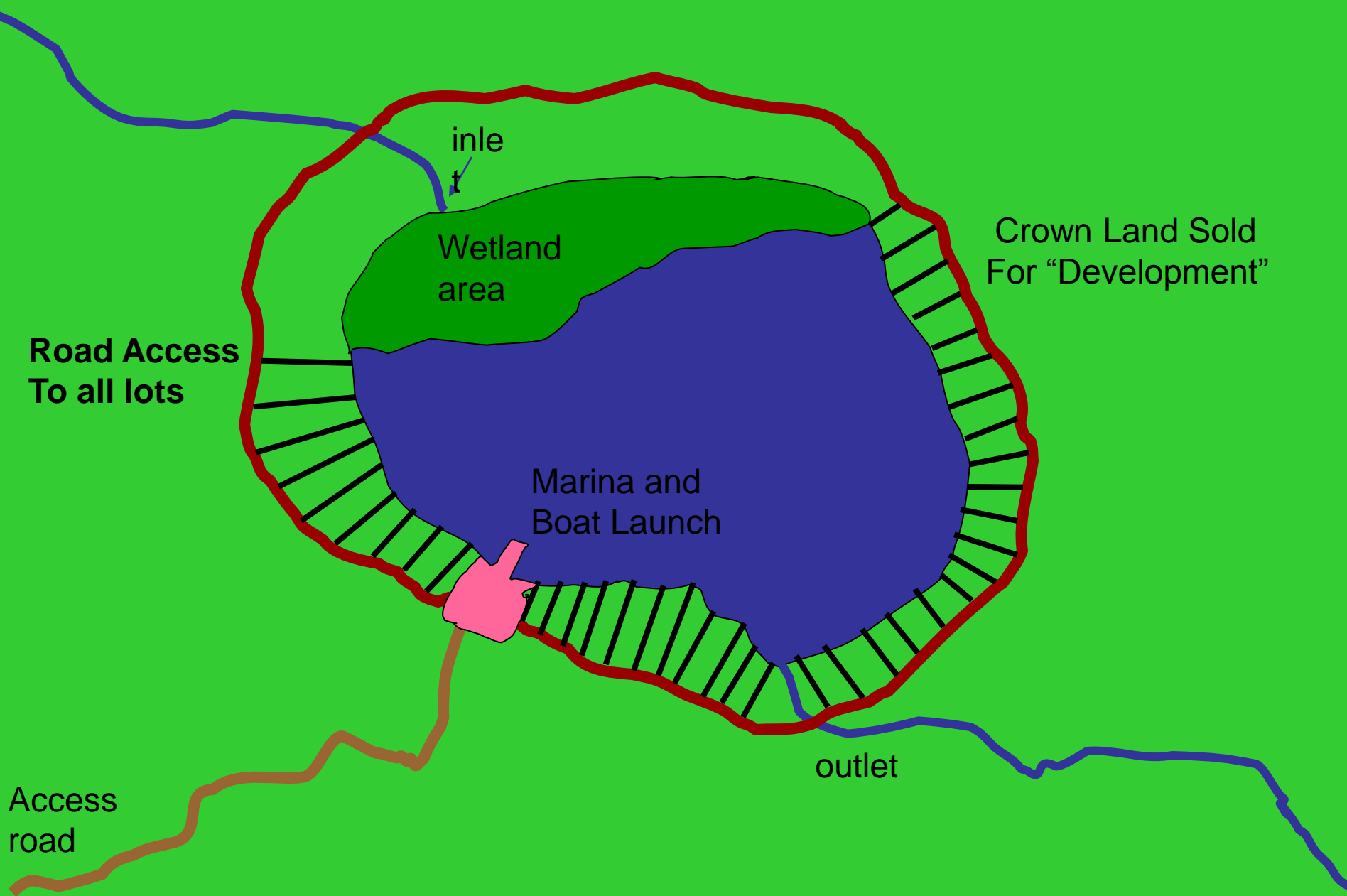
Stage II (Water Access and Subdivision)



Stage II Water Access and Subdivision



Stage III (road development and subdivision)



Stage III (road development and subdivision)

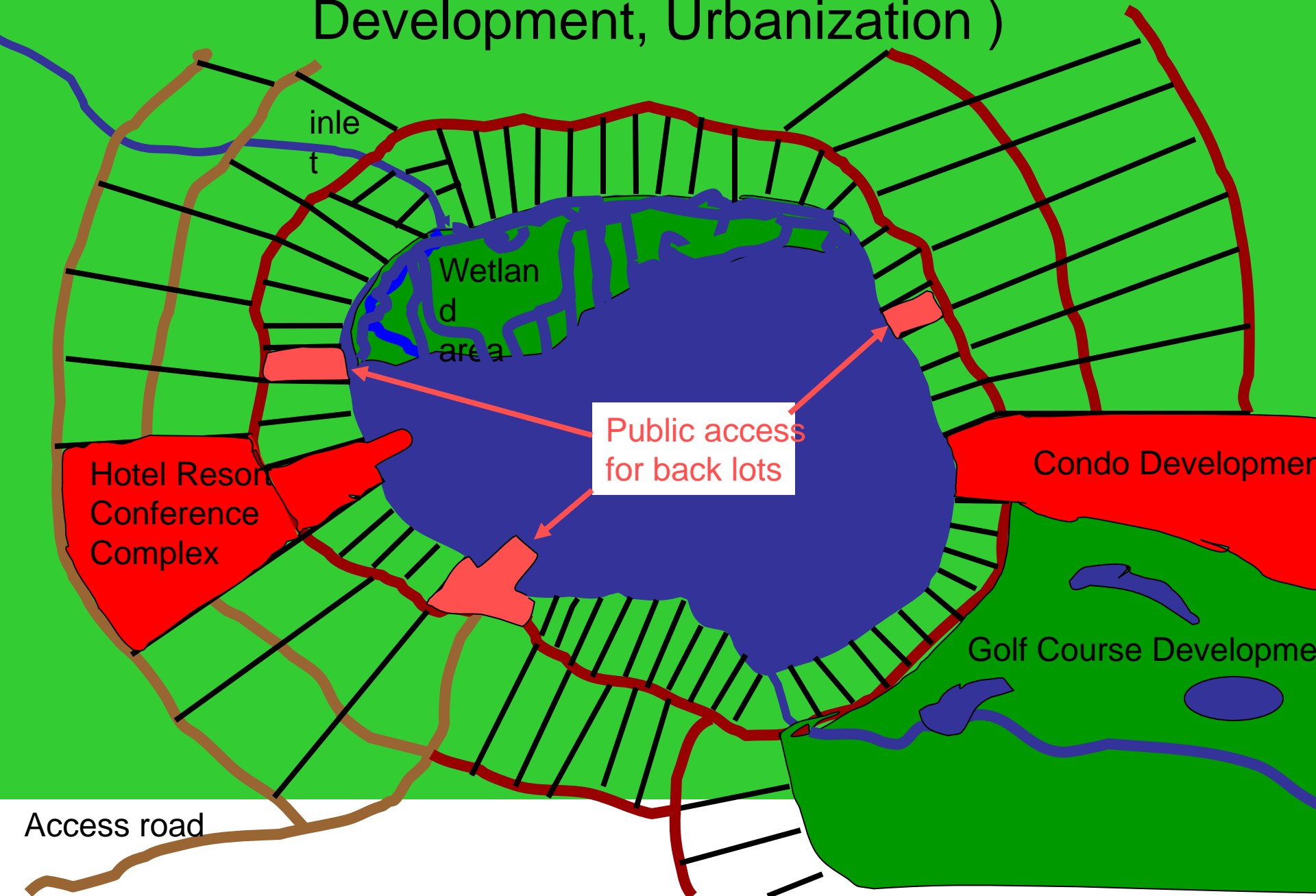


Stage IV (infilling of vacant lots and more marginal lakeshore, conversion of summer cottages to 4 season or full time residences, monster “showplace” cottages)

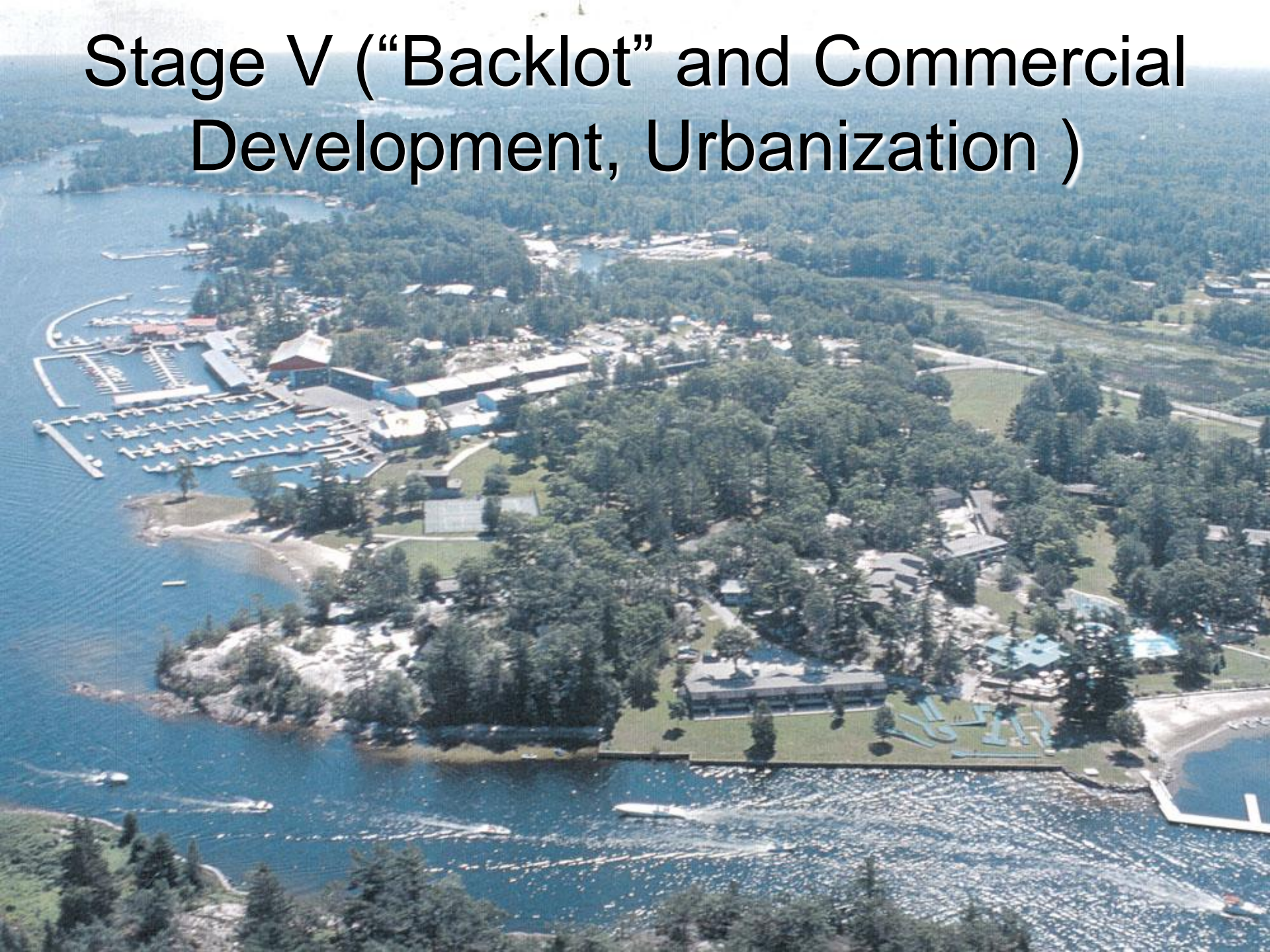




Stage V ("Backlot" and Commercial Development, Urbanization)



Stage V (“Backlot” and Commercial Development, Urbanization)

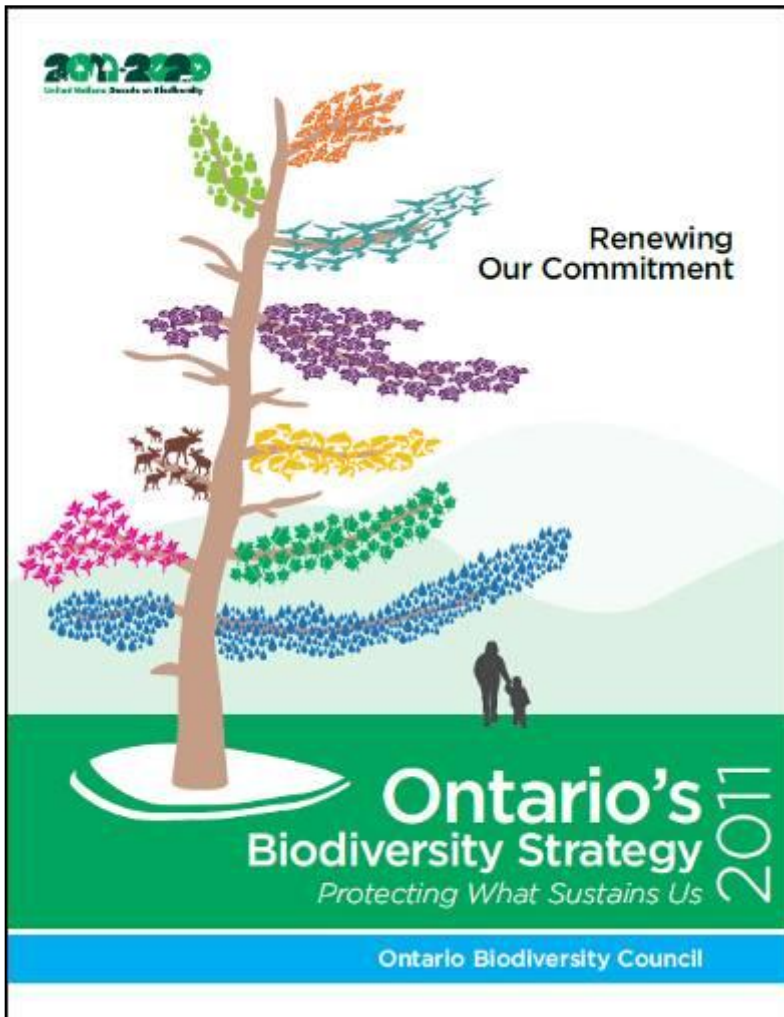




High densities of algae in 2002 (photo courtesy of Bill Tedford).



Multi-species blue-green algae bloom, September 2002 (photo courtesy of Bill Tedford).



Ontario's Biodiversity Strategy, 2011



What is Biodiversity?

“Biodiversity is life”

The variety of life through genes, species, and ecosystems that is shaped by ecological and evolutionary processes



“Biodiversity is our life”

The variety of life on Earth is essential to sustaining the living systems we depend on for health, wealth, food, and other vital goods and services



Threats to Biodiversity

Habitat loss

Invasive species

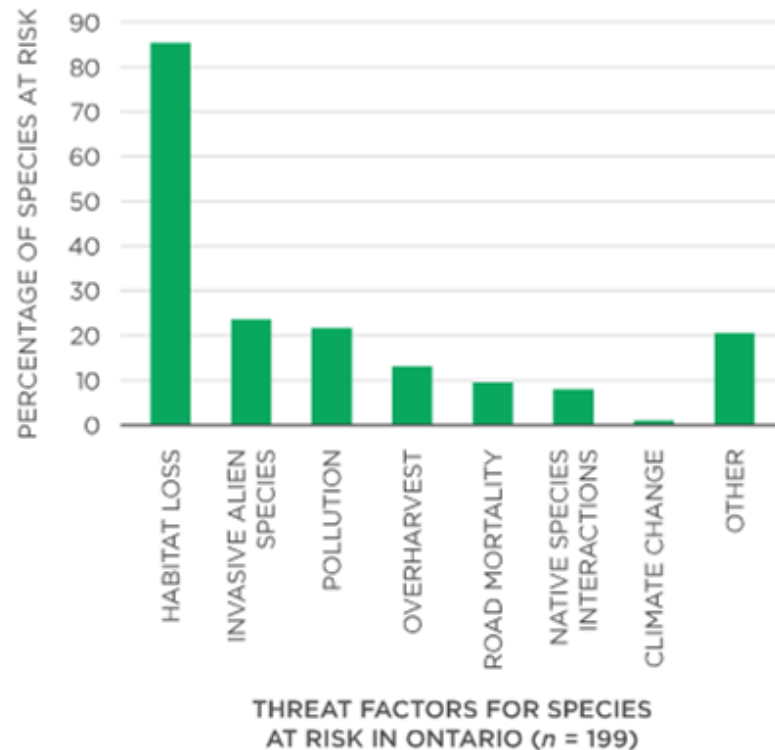
Population growth

Pollution

Unsustainable use

+

Climate change



The Ecological Footprint

MEASURES

how fast we consume resources and generate waste



Energy



Settlement



Timber & paper



Food & fibre



Seafood

COMPARED TO

how fast nature can absorb our waste and generate new resources.



Carbon Footprint

Built-up land



Forest

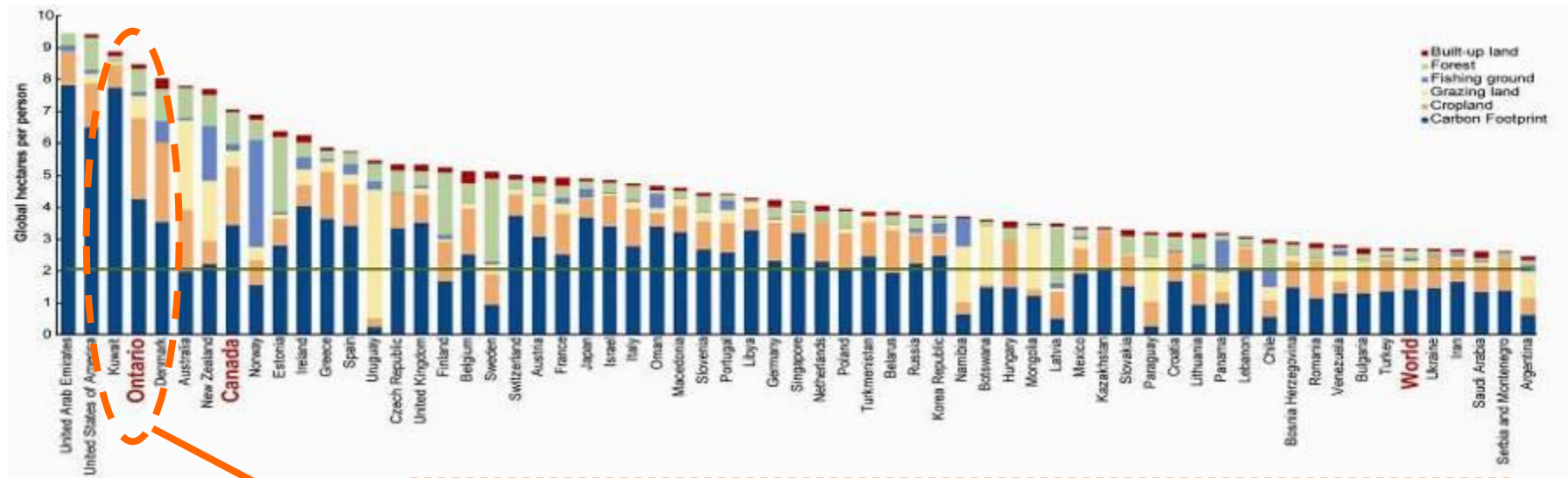
Cropland & pasture



Fisheries

Ontario's Ecological Footprint

- Ecological Footprint compares human demands on nature with the available Biocapacity to provide products and assimilate wastes - indicator of overarching human pressures causing biodiversity loss.
- Ontario's Ecological Footprint is equivalent to its available Biocapacity, but exceeds the world average by more than four times.



If everyone in the world lived comparable lifestyles to Ontarians, it would require the resources of four planets to support humanity.



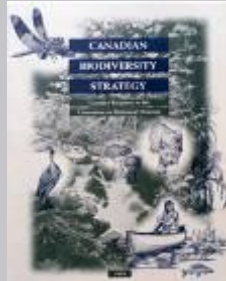
Biodiversity Conservation: Actions at Global and National Scale



**UN Convention on
Biological Diversity**
Strategic Plan 2011-2020

International Activities

- COP 10 Strategic Plan 2011-2020 (Aichi Target), Nagoya Japan
- Signatories to convention reporting on progress using global indicator framework
- Major Reports: *Millennium Ecosystem Assessment*, *Global Biodiversity Outlook 3*; *The Economics of Ecosystems and Biodiversity*
- 2011-2020 – United Nations Decade on Biodiversity



**Canadian Biodiversity
Strategy**

National Activities

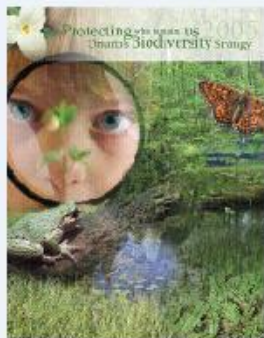
- National Strategy (1995) and Biodiversity Outcomes Framework
- Reporting to Canadians – *Ecosystem Status and Trends Report (ESTR)*
- Policy on Access and Benefit Sharing of Genetic Resources
- Survey on Value of Nature to Canadians (2011?)
- Revision of national framework to address new global Strategic Plan



Ontario's Biodiversity Conservation Timeline

2005

Ontario Government
Released Ontario's
Biodiversity Strategy
Protecting What Sustains Us



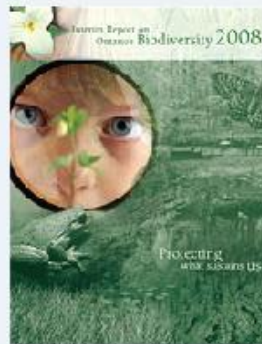
2005

The Ontario Biodiversity Council was formed along with 3 working Groups; The Biodiversity education and Awareness Network; the Stewardship Network of Ontario and the Ontario Biodiversity Science Forum



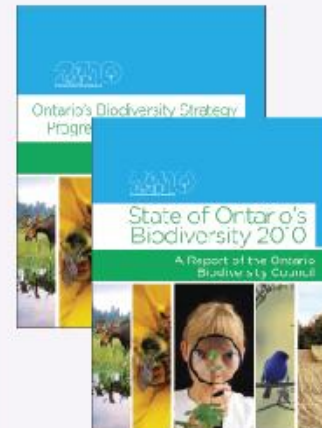
2008

Ontario Biodiversity Council released an Interim Report on Ontario's Biodiversity



2010

Ontario Biodiversity Council released the first ever State of Ontario's Biodiversity 2010 report and the Ontario's Biodiversity Strategy Progress Report



2011

Ontario Biodiversity Council renews its commitment to Protecting What Sustains us with Ontario's Biodiversity Strategy, 2011



Ontario Biodiversity Council

Formed in 2005 to guide the implementation of Ontario's Biodiversity Strategy – an action from *Ontario's Biodiversity Strategy, 2005*

Volunteers from environmental and conservation groups, government, academia, Aboriginal organizations and industry

Minister of Natural Resources represents Ontario government on Council

MNR provides secretariat support

Council led the development of *State of Ontario's Biodiversity Report 2010*, *OBS Progress Report 2005-2010* and *Ontario's Biodiversity Strategy, 2011*

Much of Council's work is accomplished by its three Working Groups

Structure and governance of Council will be reviewed in 2012



Anishinabek Nation



Ontario's **Biodiversity** Strategy
Protecting what sustains us



Ontario's Biodiversity Strategy, 2011

VISION

Our vision is a future where biodiversity loss is halted and recovery is advanced. People value, protect and enhance biodiversity and the ecosystem services essential for human health and well-being.

GOALS

Mainstream Biodiversity.

Protect and restore Ontario's biodiversity.

Use Ontario's biological assets sustainably.

STRATEGIC DIRECTIONS

Critical components of change required



OBJECTIVES ➔ OUTCOMES ➔ KEY ACTIONS

Clear focus for our efforts

What we want to achieve

Things we can do to achieve outcomes

TARGETS

How we will measure progress



Photo: Ontario Tourism

- Opportunity to build on work started in 2005 and further extend biodiversity conservation in Ontario
- Establishes a guiding framework for conservation of Ontario's biodiversity over the next decade
- Outcome-based biodiversity conservation framework including key actions and responsibility and clear measurable, time-bound, targets
- Four strategic directions:
 - Engage People
 - Reduce Threats
 - Enhance Resilience
 - Improve knowledge



Ontario's Biodiversity Strategy, 2011

T ONTARIO'S BIODIVERSITY STRATEGY TARGETS

- 1.** By 2015, biodiversity is integrated into the elementary, secondary and postsecondary school curricula, including schools of business.
- 2.** By 2015, 50 per cent of Ontarians understand biodiversity and its role in maintaining their health and well-being.
- 3.** By 2015, the number of Ontarians who participate in biodiversity conservation activities is increased by 25 per cent.
- 4.** By 2015, all sectors have initiated the development of implementation plans in support of Ontario's Biodiversity Strategy, and by 2020, those plans are implemented.
- 5.** By 2020, all relevant policies and programs integrate biodiversity values.
- 6.** By 2015, plans for climate-change mitigation are developed and implemented and contribute to Ontario's target to reduce greenhouse-gas emissions by 6 per cent below 1990 levels.
- 7.** By 2015, strategic plans are in place to reduce the threats posed to biodiversity by invasive species.
- 8.** By 2015, the release of pollutants harmful to biodiversity is reduced.
- 9.** By 2020, the growth of Ontario's per-capita resource consumption and waste generation is halted and reversed.
- 10.** By 2015, the status of species and ecosystems of conservation concern in Ontario is improved.
- 11.** By 2015, the proportion of private lands in Ontario that are managed for biodiversity is increased.
- 12.** By 2015, natural heritage-systems plans and biodiversity-conservation strategies are developed and implemented at the municipal and landscape levels.
- 13.** By 2020, at least 17 per cent of terrestrial and aquatic systems are conserved through well-connected networks of protected areas and other effective area-based conservation measures.
- 14.** By 2020, programs and policies are in place to maintain and enhance ecosystem services.
- 15.** By 2015, a long-term monitoring and reporting system for assessing the state of Ontario's biodiversity is established and operating.

- Success of the Strategy to be tracked through 15 specific, measurable, time bound targets
- These targets represent important areas of focus for biodiversity conservation in Ontario over the next 10 years



Ontario's Biodiversity Strategy, 2011

Key Actions	LEAD RESPONSIBILITY	SUPPORT
1. Employ strategies to effectively communicate the relevance of biodiversity to the public.	All sectors	Ontario Biodiversity Council and working groups
2. Continue to integrate biodiversity education into all levels and all types of curricula.	Provincial government and education sector	Biodiversity Education and Awareness Network and non-government organizations
3. Develop and implement a Children's Outdoor Bill of Rights.	Provincial government	All sectors
4. Develop a strong network of partners engaged in acquiring a deeper understanding of the linkages between biodiversity and human health and well-being.	All governments and health sector	Non-government organizations
5. Develop and provide decision-making tools for effective biodiversity conservation.	All governments and Canadian Business and Biodiversity Council	Ontario Biodiversity Council and working groups
6. Develop implementation plans to incorporate biodiversity values into the government and business sectors.	All governments and business sector	Ontario Biodiversity Council and Canadian Business and Biodiversity Council
7. Review and enhance Ontario's policy and legislative framework to maximize alignment with Ontario's Biodiversity Strategy and support ecological sustainability.	Provincial government	All sectors
8. Integrate the economic value of biodiversity and ecosystem services into decision making.	All sectors	
9. Investigate economic tools that encourage biodiversity conservation (e.g., incentives, removal of disincentives, markets).	All governments and business sector	
10. Support the involvement of Aboriginal communities in shared stewardship for biodiversity conservation.	All sectors	
11. Support and enhance biodiversity stewardship activities and partnerships with local communities and landowners.	All sectors	

- 39 actions listed under 4 strategic directions
- High-level responsibility and support recognized
- Not an exhaustive list; all sectors are encouraged to develop their own action-based implementation plans in support of the Strategy



What We Want to Achieve

Current State	Future State	Outcome
Biodiversity is only a government responsibility	Everyone has a responsibility for biodiversity conservation	Mainstreaming Biodiversity
Focus on individual species and critical habitats	Conservation planning and management at landscape scale	Diversity of species and ecosystems are protected
Manage biodiversity threats independently <ul style="list-style-type: none">• Climate Change• Invasive Species etc..	Integrated, ecosystem based approach to managing biodiversity threats and pressures	Threats to biodiversity are reduced
Measuring by activities and programs	Measuring against outcomes and indicators	Robust performance measurement and transparent state of biodiversity reporting
Biodiversity conservation investments are random and not prioritized	Strategic investment and partnerships for biodiversity	Conservation action delivered through key partnerships
National/ provincial accounts exclude natural capital and biodiversity	Biodiversity indicators included in national/ provincial accounts	Biodiversity is valued for its contribution to human health and well-being

Cultural Shift

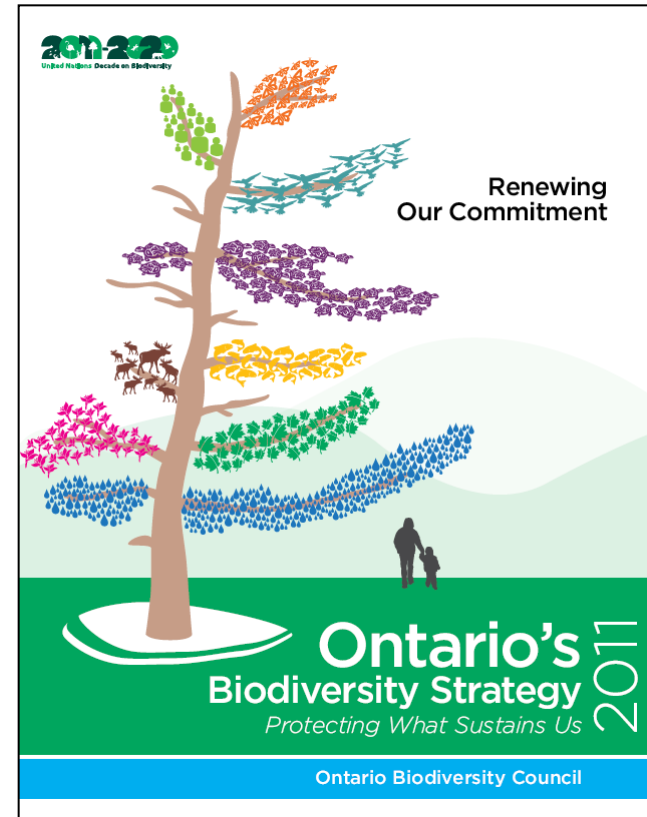


Towards Implementation

The Ontario Biodiversity Council alone cannot deliver the scale of change required to conserve Ontario's biodiversity; all sectors and all Ontarians have a role

Objectives, outcomes, actions, and targets provide a broad framework for coordinating biodiversity conservation across the province, but much more is possible

All sectors are encouraged to think creatively about biodiversity conservation and the actions they can take to implement OBS 2011



Act Now to Conserve Ontario's Biodiversity

Biodiversity sustains us and enriches our lives – and we need to protect it. Ontario's Biodiversity Strategy, 2011 is our new call to action and our road map to safeguard Ontario's genetic, species and ecosystem diversity for this generation and the generations that follow.

What you can do to help conserve Ontario's Biodiversity:

- ✓ Get outside and discover Ontario's rich biodiversity.
- ✓ Share your passion for nature with others.
- ✓ Lower your Ecological Footprint at school, at home and at work:
 - ✓ Reduce, Reuse and Recycle.
 - ✓ Drive less! Try walking, riding your bike or using public transit to get around.
 - ✓ Use less energy and water: you'll lower your energy bills and conserve natural resources.
 - ✓ Live local by purchasing locally grown produce, farm products and other goods and services.
- ✓ Share your talents by volunteering and participating in biodiversity stewardship activities.
- ✓ Watch out for invaders. Learn about and help prevent the spread of invasive species.
- ✓ Help monitor biodiversity in your backyard, neighbourhood or community by becoming a citizen scientist.
- ✓ Get your hands dirty—plant native trees and flowers in your garden.



What We Are Doing

FOCA is an active member of the Ontario Biodiversity Council.

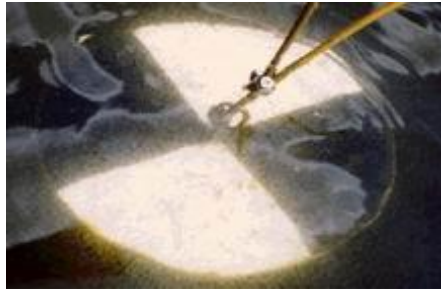
We are currently involved in the following initiatives that contribute to Ontario's Biodiversity Strategy:

- *Educating our members, government, and the public about the importance of biodiversity*
- *Empowering our associations to spread the word*
- *Providing the information that is relevant to our region(s) and working with partners to help make it happen.*
- *Helping to articulate the impacts of landowner stewardship on overall environmental health*

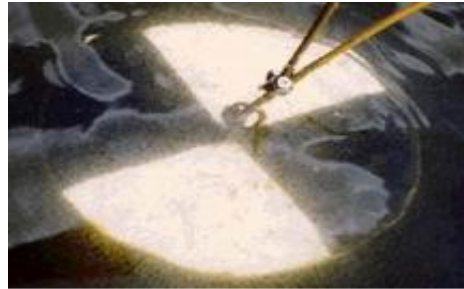
Ontario's Biodiversity Strategy is the guiding framework for conservation of Ontario's biodiversity – we all need to work together to contribute to the goals and vision of the Strategy.



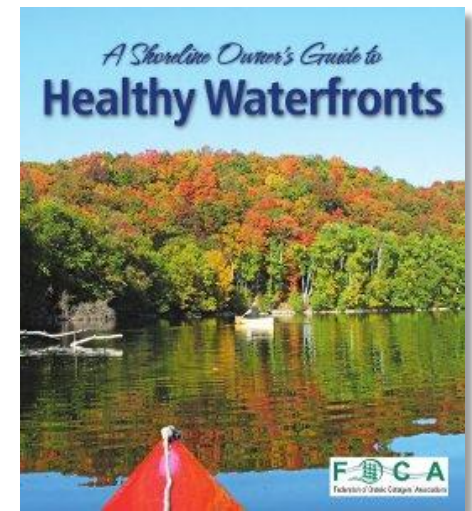
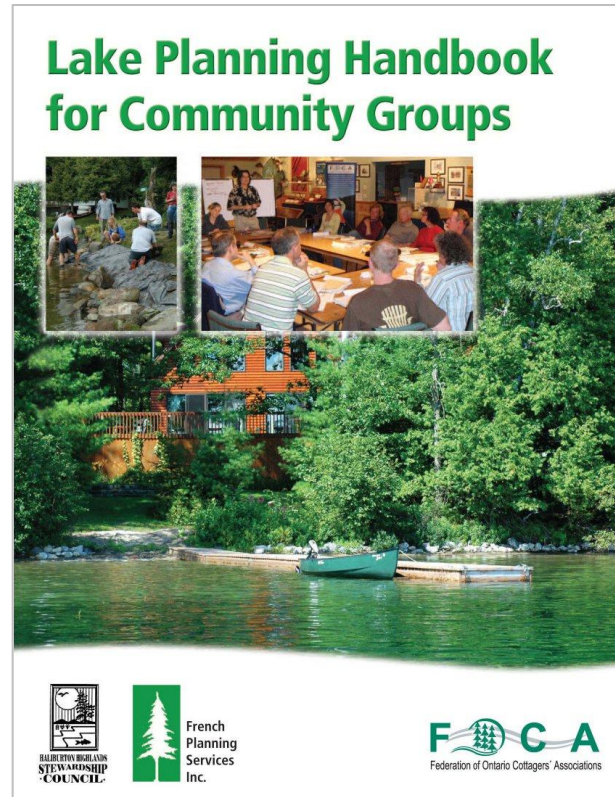
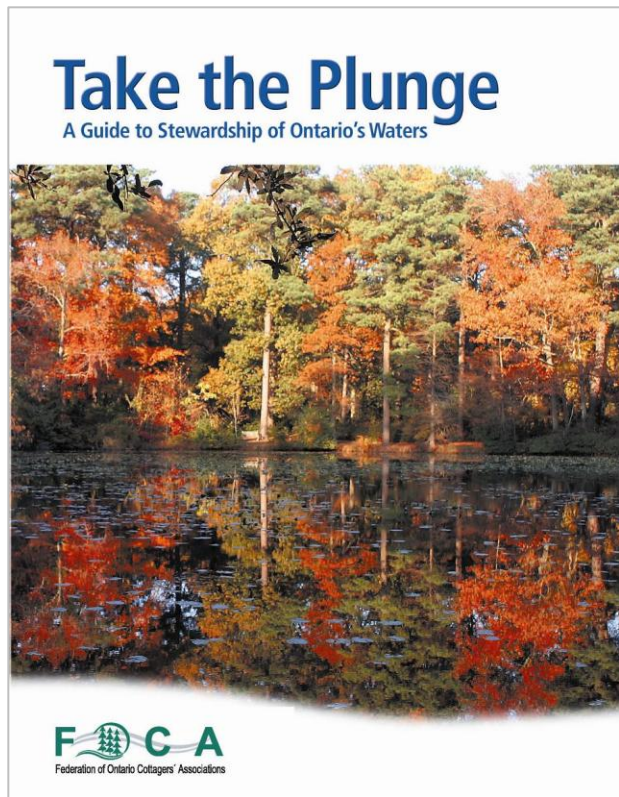
Lake Partner Program



Lake Partner Program



Building on community resources



FOCA Communications

Website



Facebook
link

Watch for the next FOCA Newsletter in May



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Are we ready for Spring?



President's Address

This is the time to start anticipating good times with family and friends at the cottage. We scribble out plans for a new bunkie, and choose the tasks that will make it onto the priority list this year. Going to the Spring Cottage Show (with our real and imagined shopping lists) makes us realize it's almost here. Some of our cottage obligations fall into the category of "important but not urgent." But if we don't attend to the less glamorous

tasks...it will hurt us eventually. FOCA feels this way about many of the challenges we face as the provincial voice of cottagers. We are busy worrying about all the small details so you can keep enjoying the big picture: safe, sustainable waterfront living.

FOCA has established pivotal industry partnerships to ensure the availability of affordable association and cottage insurance, as well as legal guidance and planning advice on issues of cottage succession.

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Algal Blooms in Ontario's Lakes

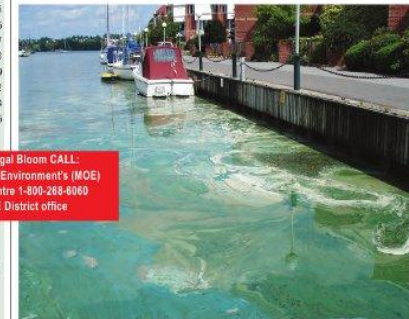
As of August 2011, blue-green algae had been reported in several Ontario locations, including Sturgeon Lake, Big Bald Lake, Pigeon Lake, Desbarats Lake, Crab Lake, the French River, Lake Nipissing, and on four City of Sudbury Lakes: Long, McFarlane, Middle and Ramsey.

Not all algae are toxic. Read onward to learn what to look for, and what to do if you find algae in your lake.

What are Algae?

Algae are small, mostly microscopic plants that live in virtually all water bodies. They can be free-floating, or attached to rocks or the lake bottom. There are literally thousands of species of algae that grow in many different habitats. Algae are similar to other terrestrial (and) plants in that they require nutrients and light, and they grow better when it is warm. Algae are an important part of lake "food

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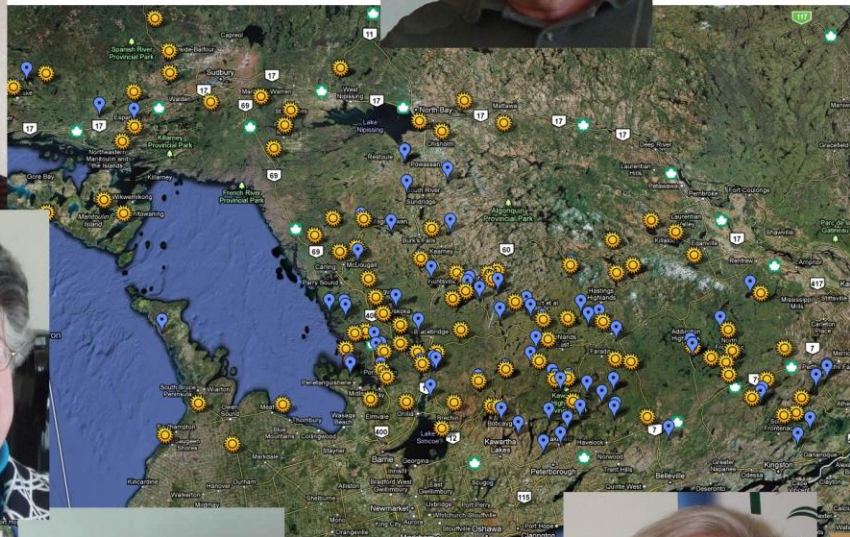


To report an Algal Bloom CALL:
The Ministry of the Environment's (MOE)
Spills Action Centre 1-800-268-8060
or your MOE District office



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FOCA's Staff



Michelle, Tracy and Emma



Terry



Michelle

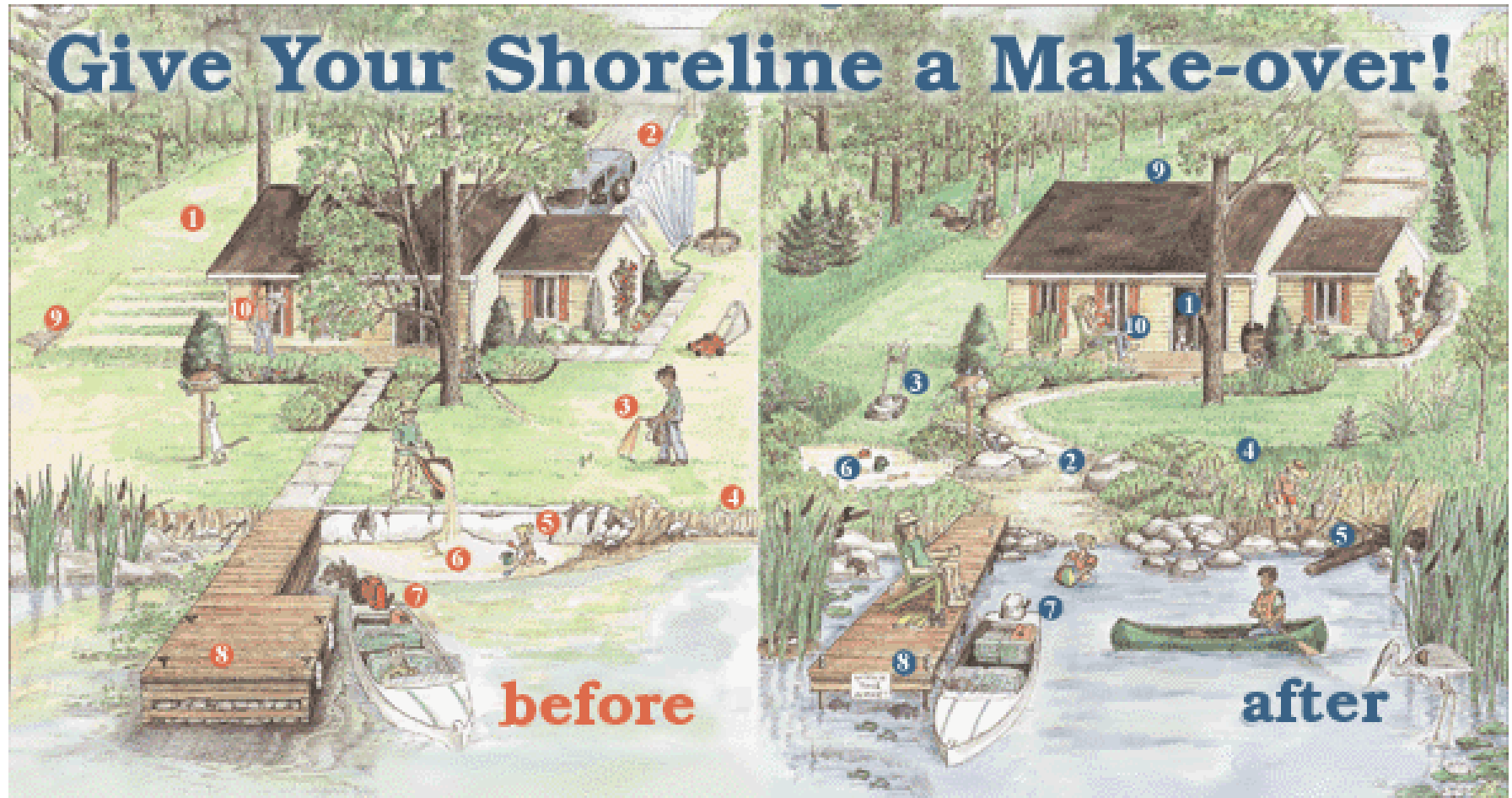


Mike



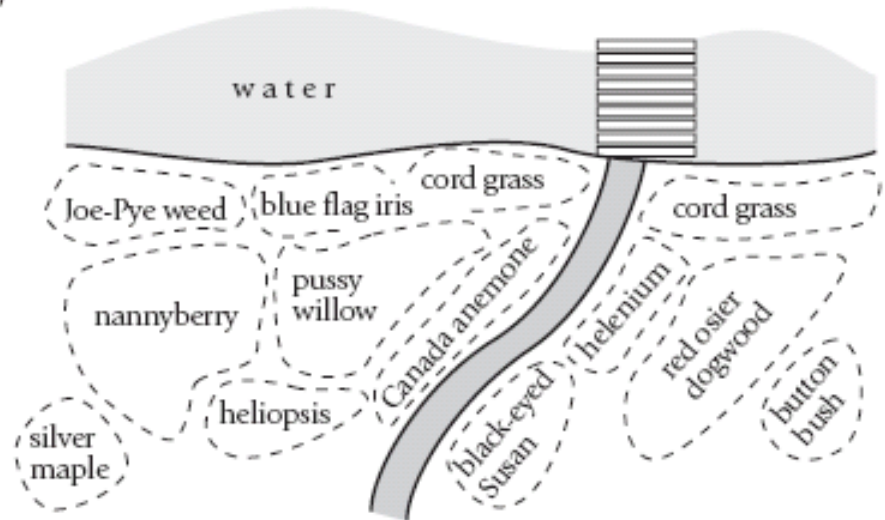
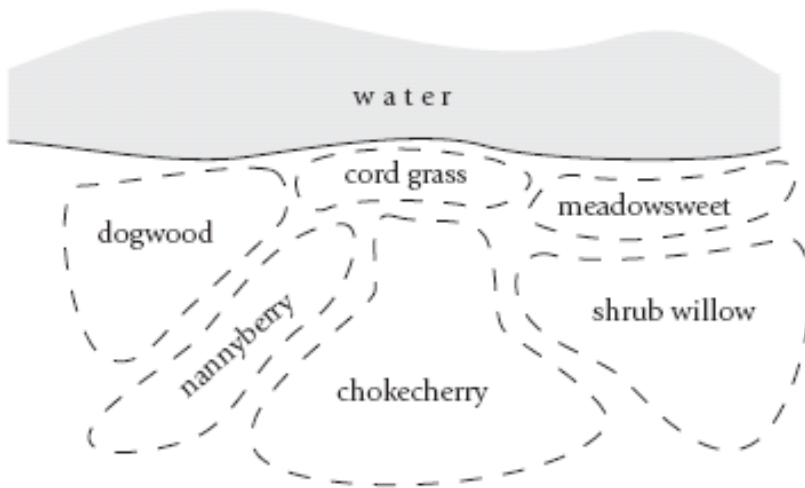
Liia

Encourage Smart Shorelines



Naturalize Your Waterfront

Create Shoreline Buffers



Restoration



Joe Pye Weed



Meadowseet



Black Eyed Susan



Cardinal Flower



Heath Aster



Nannyberry

Before



Kawartha Conservation

After



Kawartha Conservation

Joe Fowler Park, Port Perry, Ontario. Restoration undertaken by Scugog Lake Stewards.

Be Aware of your Dock's Impact

Floating Dock

Good



Concrete Pier

Bad



Cantilever Dock

Good



Crib Dock

Bad



Save a Turtle on the Road

- Small Turtle
 - Pick them up firmly by gripping both sides of the shell
 - Move them across the road to the other side



Save a Turtle on the Road

- Snapping Turtle
 - Use a shovel
 - Use a board
 - Push them across
 - Lift at the back of shell
 - Move them across the road to the other side

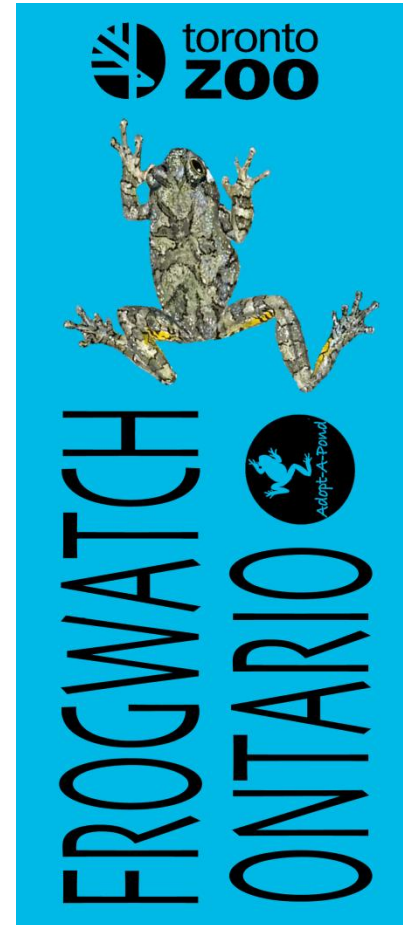
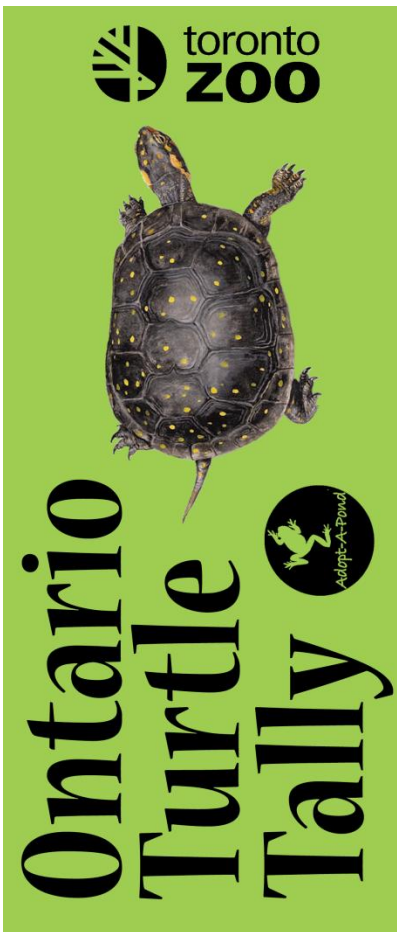


Submit your Sightings

Visit our website to submit
your turtle and frog
sightings

Learn how to identify local
species

This information helps us
monitor the health of
populations throughout
Ontario

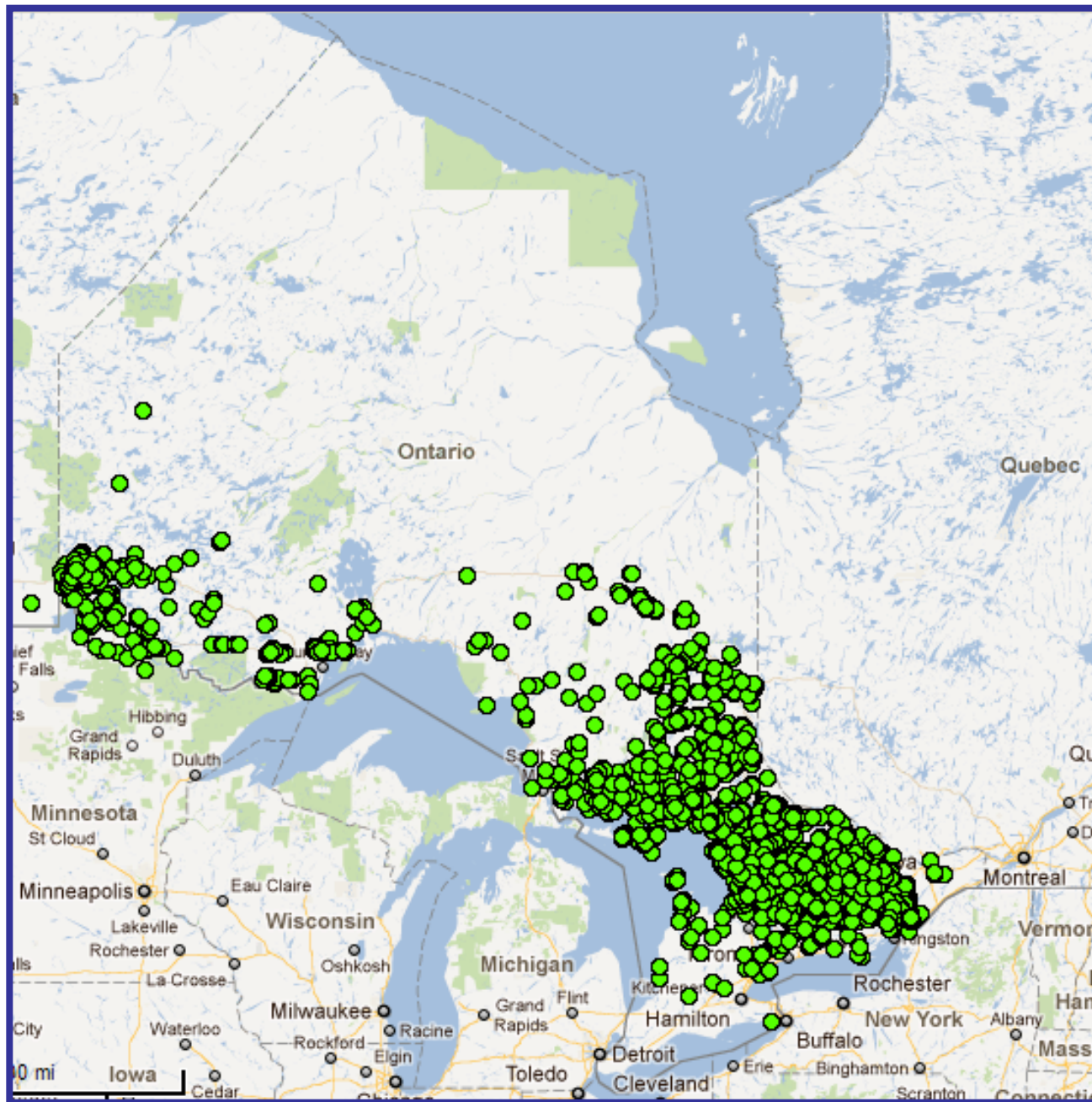


THE LAKE PARTNER PROGRAM

in 2011

- **739** sites were sampled in **491** Ontario Lakes by over **580** volunteers

*This equates to over **3000** samples of total phosphorus analysed by the ministry of the environment chemistry lab at the dorset environmental science centre*



Ten Years of *low level phosphorus Analysis at Dorset*



Since 2002 the lake Partner phosphorus samples have been analysed on a low level phosphorus analyser at Dorset

This has increased the precision of results from +/- 6 μg of phosphorus per litre to +/- 0.7 μg P/L

Here is Christiane Masters, the phosphorus technician, adding tubes to the colourmetric low level phosphorus analyser. This specific analyser is new to the Dorset lab – arriving in the winter of 2011

Measuring Calcium

Declining calcium concentrations in some of Ontario's inland lakes has recently become a concern to aquatic scientists. To achieve a better understanding of how calcium concentrations are changing in lakes across Ontario the Lake Partner Program began measuring calcium concentrations from water collected in the 'blue capped jars' in 2008.

Calcium *in Ontario's Inland Lakes*

Calcium is a nutrient that is required by all living organisms. For example, water fleas (*Daphnia*, Figure 1), which are tiny organisms called zooplankton, are very sensitive to declining calcium levels. *Daphnia* use calcium in the water to form their calcium-rich body coverings when they moult.

Recent experiments by Dr. Norman Yan (York University Professor) and his colleagues have shown that the reproduction of most *Daphnia* species is



Figure 1. Image of a calcium-rich *Daphnia*. (Photo credit: Dr. Derek J. Taylor)

The two main human causes of calcium decline in soils, and thus in lakes, are acidic deposition ("acid rain") and forest harvesting, which are described below.

Acid rain

The majority of Ontario's lakes are located in the Precambrian Shield region where the bedrock is very hard and resistant to weathering. This is why most Ontario lakes have soft waters that are low in calcium. These low calcium concentrations can make lakes vulnerable to acid rain because they are less able to neutralize or 'buffer' incoming acids.

In the early days of acid rain (early to mid-1900s), calcium was leached from watershed soils into lakes faster than it could be replenished through weathering or through deposition from the



A calcium fact sheet is included in the sampling kits this year.

Data will be made available once it has gone through a standard data editing protocol.

If there is an algal bloom occurring in your lake you can call the district or regional office who will take a sample for analysis

Go to the link below for office locations and contact information

http://www.ene.gov.on.ca/environment/en/about/regional_district_offices/index.htm

1-800-810-8048

FOCA's Mission

***To protect thriving and sustainable
waterfronts across Ontario***

Get Involved!

