Greater Sudbury Watershed Alliance

The Greater Sudbury Watershed Alliance (GSWA) is a grassroots partnership of lake, river and creek stewardship committees and other concerned citizens.

Our Members

St. Charles Lake Watershed Stewardship Association	Ward 1 and 9
Fairbank Lake Camp Owners' Association Inc.	Ward 2
Vermillion River Stewardship Committee	Ward 2
Simon Lake Community Stewardship Group	Ward 2
Long Lake Stewardship Committee	Ward 2 and 9
Whitewater Lake Stewardship Committee/Azilda CAN	Ward 3 and 4
Valley East Ratepayer's Association	Ward 6
Junction Creek Stewardship Committee	Ward 2, 8, 10, 12
Black Lake Stewardship Committee	Ward 9
Richard Lake Stewardship Committee	Ward 9
Friends of McFarlane Lake	Ward 9
Nepahwin Lake Stewardship Committee	Ward 10
Ramsey Lake Stewardship Committee	Ward 10
Minnow Lake Restoration Group/CAN	Ward 11
Sudbury Game & Fish Protective Association	
Coalition for a Liveable Sudbury	

No committees from Ward 5 (Whitson Lake) and Ward 7 (Lake Wanapitae)

Phosphate-free Fertilizer

- The Alliance is requesting a municipal bylaw to restrict the use of lawn fertilizers that contain phosphorus
- Routinely residents could purchase fertilizers containing no phosphorus. Products like 32-0-10 fertilizers.

City of Lakes

Blue-green algae (cyanobacteria) blooms have been detected in:

Ramsey Lake
Long Lake
McFarlane Lake
Grant Lake
Windy Lake

Drinking water sources for tens of thousands of Sudbury residents.

Ramsey Lake in bloom, 2010

Water from Ramsey Lake, September 2010

Cost to the City

- Beaches close indefinitely
- Cannot swim or boat
- Cannot eat the fish
- Families lose a recreational area
- Tourism is compromised
- Image of city is tarnished
- Property values can decline around area lakes affected
- Cannot drink the water if on a private water system. Lakes have permanent health warning issued on them.
- Cost of extra monitoring and cleaning of water filtration filters
- Cost to supply an alternative water source
- Cannot shower, wash dishes, cook with affected water source

Drinking water treatment plants can get clogged by algae.

- Canadian Forces Base Gagetown engineers noticed a reduction in the quantity of water being produced at the New Brunswick base's water treatment plant.
- They believed blue-green algae in the Saint John River was obstructing sand filters at the treatment facility.
- August 20, 2010

Phosphorus is the Limiting Nutrient for Algae Growth

Research has shown 1 pound of phosphorus can grow 700 pounds of blue-green algae.

Other Effects of Phosphorus

- **Green algae** - foul odors and can prevent swimming, fishing, boating,
  - exists in Simon, McCharles and Mud lakes.
- Feeds aquatic plants like the invasive species **Eurasian water milfoil**
  - boating and swimming difficult in many Sudbury lakes.
- **Lowers dissolved oxygen** levels in water which kills fish.

Costly to remove P at the WWTP

- WWTPs must remove a certain amount of phosphorus from their liquid waste before releasing it into a lake or river.
- Removing phosphorus at a WWTP costs approximately $1-$20 per pound.
- By reducing levels of phosphorus entering WWTPs, communities can save money for its removal.

Governments have banned phosphorus

- From laundry detergent in the 1970s
- From dishwasher detergent in 2010

Another source of phosphorus - runoff from lawns

USGS
science for a changing world

Effects of Lawn Fertilizer on Nutrient Concentration in Runoff from Lakeshore Lawns, Lauderdale Lakes, Wisconsin

Introduction

Transport of nutrients (primarily forms of nitrogen and phosphorus) to lakes and resulting accelerated eutrophication are serious concerns for planners and managers of lakes in urban and developing suburban areas of the country. Runoff from urban land surfaces such as streets, lawns, and rooftops has been noted to contain high concentrations of nutrients; lawns and streets were the largest sources of phosphorus in residential areas (Waschbusch, Selbig and Bannerman, 1999). The cumulative contribution from many lawns to the amount of nutrients in lakes is not well understood and potentially could be a large part of the total nutrient contribution.

Why study runoff from lawns?

The shorelines of many lakes are already highly developed, and the potential water-quality effects of this development are increasing. Many lawn-care professionals and homeowners hold a common belief that runoff from lawn surfaces is minimal and that phosphorus movement from lawns is not a problem (Barth, 1995). The homeowners' goal to maintain lush green lawns may conflict with the lake manager's goal to minimize nutrient inputs. In cooperation with the Lauderdale Lakes Lake Management District and the Wisconsin Department of Natural Resources, the U.S. Geological Survey (USGS) conducted a study during 1999–2000 to determine the magnitude of nutrient runoff from nearshore residential lawns surrounding a lake and to determine whether fertilizer application and the type of fertilizer (regular or nonphosphorus types) affect the amount of nutrients in runoff from lawns. Such information is important for developing stormwater best-management practices and for developing or improving shoreland zoning ordinances and other local regulations to protect or improve the water quality of lakes (Wisconsin Department of Natural Resources, Wisconsin Shoreland Management Program, http://www.dnr.state.wi.us/org/water/wm/dsfm/shore/title.htm, accessed February 8, 2002).

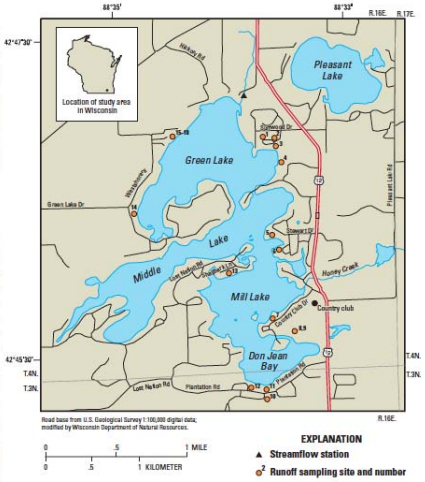


Figure 1. Site locations surrounding Lauderdale Lakes, Wis.

The study area was located at Lauderdale Lakes in Walworth County, a chain of lakes in the more populated southeastern part of Wisconsin (fig. 1). The 15-mile shoreline of the lakes is about 70 percent developed, primarily as single-family housing, and is the focus for additional residential development. Most of the lakefront homes have sloping lawns that are maintained to the water's edge (fig. 2). Information about the specific sources and amounts of phosphorus entering the lakes was needed to develop a plan for reducing the input of phosphorus. The lakes are phosphorus limited, meaning that phosphorus is the nutrient limiting plant growth and affecting lake productivity. A previous study (Garn and others, 1996) found that surface-water inflow from the small nearshore contributing drainage area accounted for only 4 percent of the water inflow to the lake but represented 51 percent of the total annual phosphorus input from all sources. The Lake Management District is in the process of installing

Figure 2. Lakeshore development and lawns at Lauderdale Lakes, Wis.

Study of three types of lawns. Median dissolved phosphorus concentrations in runoff:

Regular fertilizer 0.77 mg/L

Unfertilized 0.38 mg/L

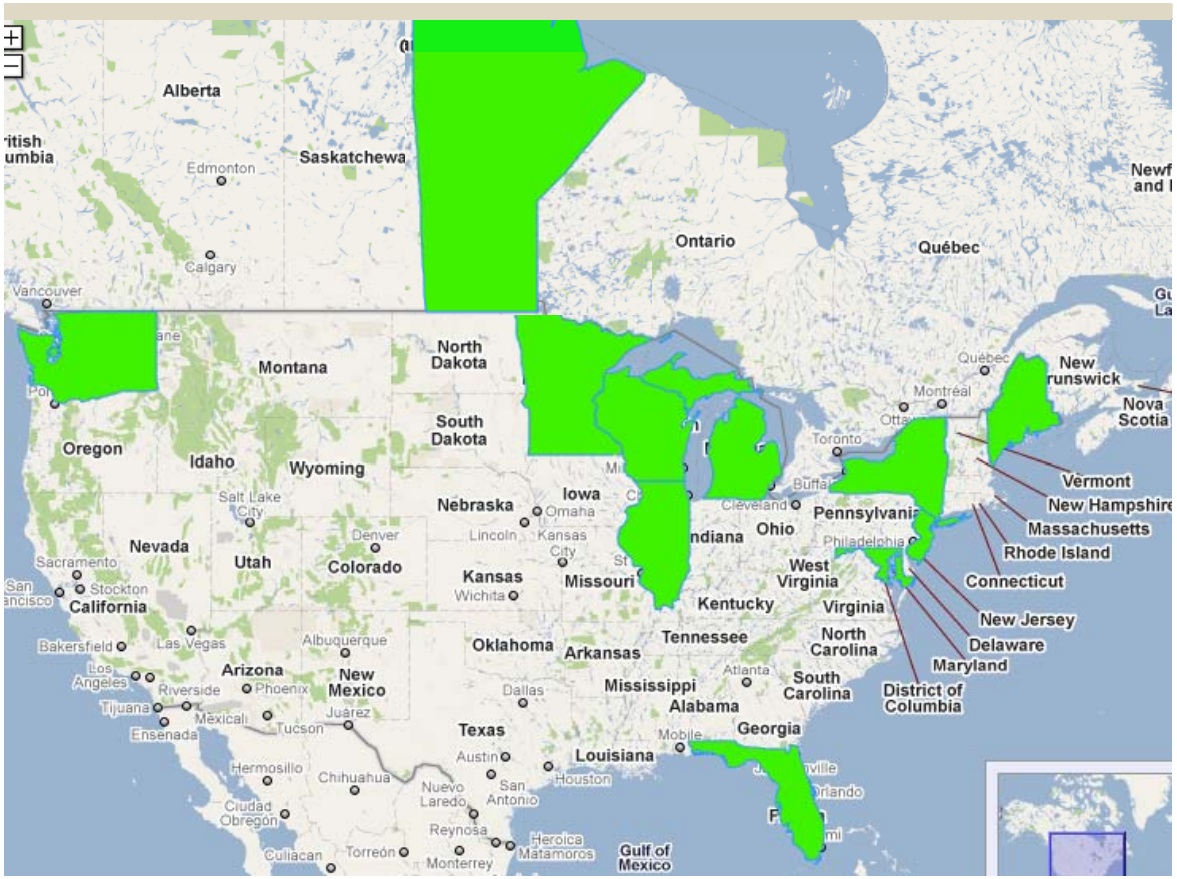
Non-phosphorus 0.33mg/L fertilizer

Extra 420 micrograms/L is washed away when using phosphorus fertilizers.

Phosphorus removed from lawn fertilizers

- Hundreds of cities enacted fertilizer bans in the U.S. starting in 1999
- Minnesota was the first state to ban phosphorus in fertilizers in 2004

States and Provinces with Bylaws Restricting Phosphorus



Minnesota, Maine, New York State, Florida, Illinois, Maryland, Wisconsin, Washington State and New Jersey all have bylaws, which ban the use of lawn fertilizers with phosphorus. Theses laws affect over 60 million people.

Manitoba Has a Bylaw Too

In Manitoba, no fertilizers are permitted along waterways such as rivers, lakes, streams, wetlands and retention ponds.
In these areas, defined setbacks must be observed:

- at least 15-30 metres along vulnerable lakes and rivers
- if away from waterways, lawn fertilizer must not have more than 1% phosphorus

The Water Stewardship Minister in Manitoba Christine Melnick says the new restrictions are backed up by penalties as high as $50,000 — but she would rather educate offenders than punish them.

Lake Winnipeg

The Bylaws are Working to Reduce Phosphorus Levels in Waterways

- A study showed that phosphorus levels in the Huron River dropped an average 28% after Ann Arbor, Michigan adopted a fertilizer bylaw in 2006.

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- Many residents of Sudbury think this is just an issue for shoreline residents that they don't need to know about.
- After 2 years, Minnesota's law reduced phosphorus fertilizer use by 82% and 97% of consumers support the law.

Are these laws enforceable?

- **Bylaw's real value is in raising people's awareness about phosphorus** and making phosphorus-free lawn fertilizer more widely available. Stores are already selling the right fertilizer.
- In that regard, the law has been successful in the U.S. People are more aware of the connection between phosphorus runoff and green lakes.
- In the few instances where a bylaw officer was called, a brochure was given to the home owner and they were told to stop using the fertilizer with phosphorus. No fines have been issued. No new bylaw officers are needed.

Bylaw

1. The **use** of lawn fertilizers with phosphorus would be prohibited.

2. Could get phosphorus fertilizer if:
   - a soil test demonstrates phosphorus is needed
   - laying sod
   - seeding a new lawn

3. A bylaw would not affect vegetable gardens, flower beds, tree planting, nurseries, sod growers nor golf courses with trained staff.

No problem for businesses in States and Manitoba

Canadian Tire – Winnipeg, Manitoba
WeedMan – Winnipeg, Manitoba
WeedMan – Ann Arbor, Michigan
Home Hardware – Selkirk, Manitoba
Home Depot and – Minneapolis, Minnesota
Ace Hardware Stores – Minneapolis, Minnesota
Lyell Crest True Value Hardware – Rochester, New York

Sudbury Businesses Not Opposed to a Bylaw

Weed Man
Home Depot
Southview Greenhouse Growers
Planet Earth Organic Landscaping
Turf Logic
Long Lake Lawn Care
The Sudbury Horticultural Society
North Range Sod

Endorsement of Bylaw

- Dr. John Gunn
  Head, Cooperative Freshwater Ecology Unit
  Canada Research Chair
  Department of Biology
  Laurentian University

- Dr. Charles Ramcharan
  Aquatic Biologist
  Department of Biology
  Laurentian University

Protecting all lakes in the City of Lakes

The Source Protection Committee is working on protecting **municipal** drinking water sources from significant drinking water threats.

The City can help protect all our lakes with a bylaw.

Wait for province or federal government to solve our problem?

- Province of Ontario and the Federal governments are currently not working on any legislation to restrict lawn fertilizers with phosphorus so it is up to Council.

Can a municipality pass such a bylaw?

- **Canada's Supreme Court: Precautionary Principle**
  The number of pesticide bans in Canadian municipalities has grown since 2001 when the Supreme Court of Canada dismissed a challenge by two large lawn care companies, Chemlawn and Spraytech, against the Town of Hudson, Quebec. In a unanimous judgment, Justice Claire L'Heureux-Dube wrote for the court, "It is reasonable to conclude that the town bylaw's purpose is to minimize the use of pesticides in order to promote the health of its inhabitants. Permitting the town to regulate pesticide use is consistent with international law's 'precautionary principle,' which states it is better to be overly cautious than to create a potential risk to the environment." The judges noted that many provinces have similar provisions enabling their municipalities to make such bylaws.

City of Lakes

We are the stewards of these lakes and rivers and we are entrusted to protect them for our children and their children.

We should use the precautionary principle to reduce the risk to our environment and our health.

Joshua and Noah on Moonlight Beach


Many thanks to the Lakes Advisory Panel
for supporting this presentation


Questions?

10 Tips from Lawn Experts

1. Fertilize in Late August or September.
Use only nitrogen and only after a soil test demonstrates the need and only on new or young lawns (less than 10 years old)

2. Mow High
3" or more for vigorous roots and to shade out weeds

3. Leave Clippings
They are high-quality, free fertilizer

4. Plant Appropriate (Endophyte-enhanced) Grass Species
They require less water, fertilizer, and pesticides, and compete better with weeds

5. Get Your Soil Tested
The only way to know just what the lawn needs is to do a soil test

6. Keep Turf Cover Dense
Higher density means fewer weeds - overseed, overseed, overseed

7. Core Aerate, Topdress or Mulch Leaves
Reduces thatch, improves soil structure and releases nutrients into the soil

8. Water Deep and Infrequently
Only if absolutely necessary, deeply soak the lawn once or twice a week with a total of 1" of water

9. Keep Fertilizer and Clippings Off Sidewalks and Driveways
Prevents runoff of nutrients into our waterways

10. Keep Mower Blades Sharp
A clean cut prevents disease
Top Northeast Experts by Paul Schlein

Adequate Phosphorus in Soil

- A survey (1979) summarizing nearly 20,000 soil samples showed that 70 – 80% of home lawns in the cities of Minneapolis and Saint Paul have soil P levels in the high to very high range.
- Average phosphorus was 44 parts per million. Compare to University of Minnesota recommendation of no additional P needed above 25 ppm
- What happens if you add more phosphorus than your lawn needs?

- Oakville council enacted a bylaw that banned the use of cosmetic pesticides in Oakville. The bylaw took effect January 1, 2008 before the province passed a similar bylaw.