A bit about Algae

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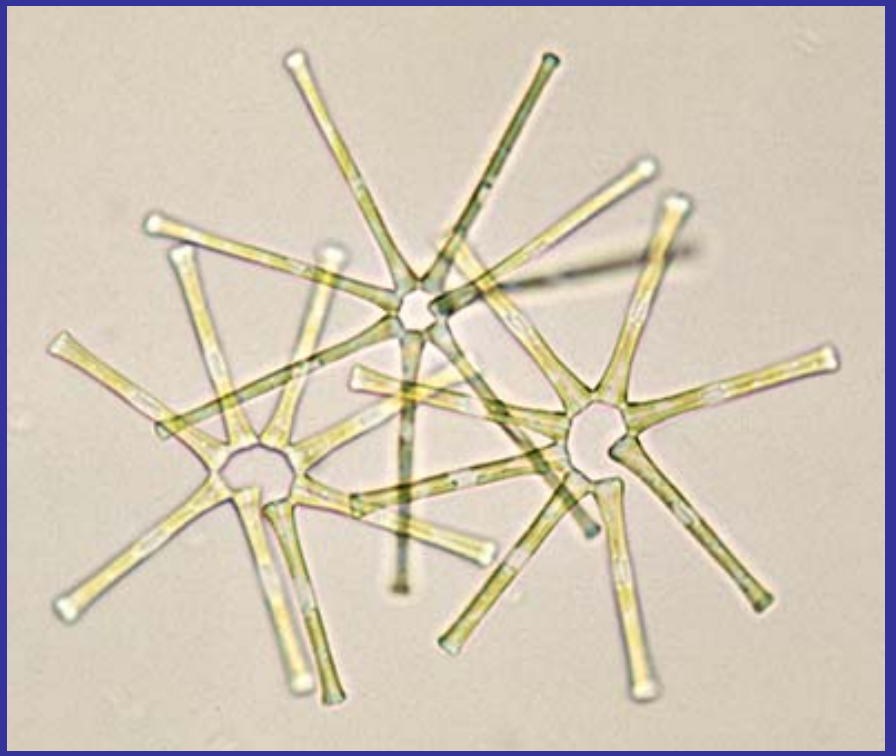
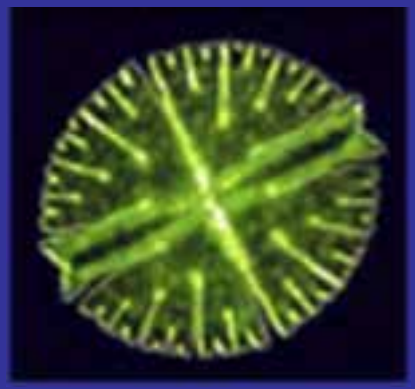
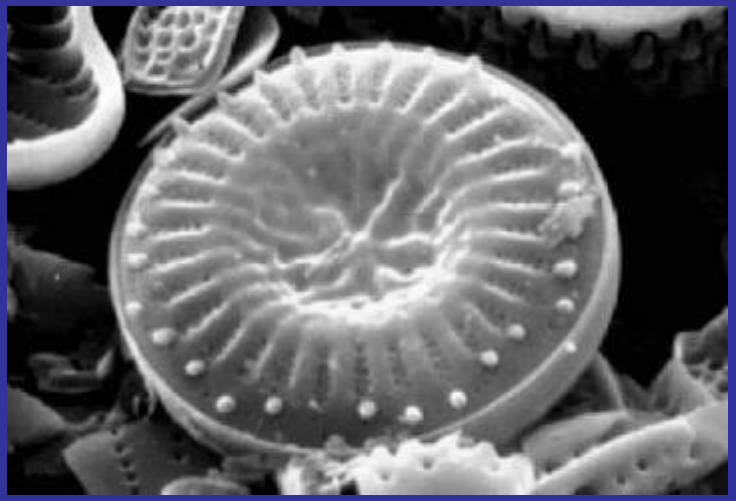
Algae

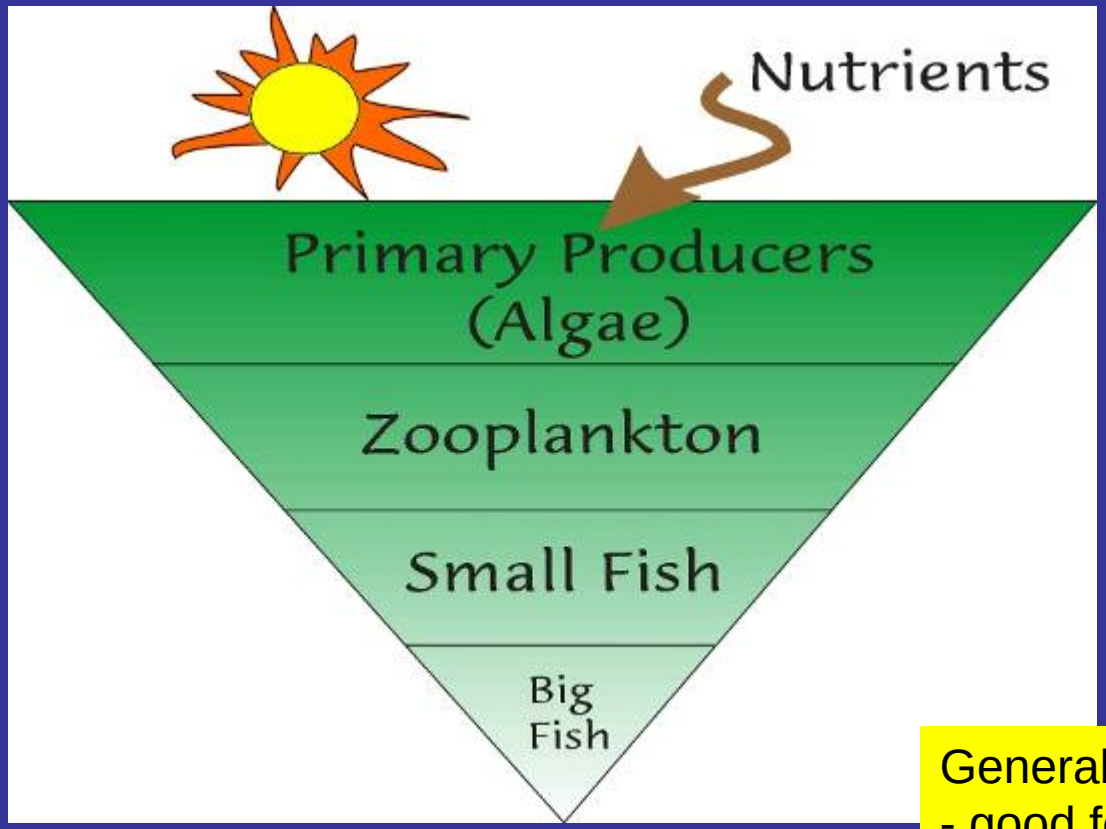
- small, mostly microscopic plants
- live in virtually all water bodies
- free floating, some attached
- thousands of species
- many different habitats and habits
- similar to other terrestrial plants in that
  - they require nutrients, light,
  - grow better when it's warm etc.







What's good about algae?



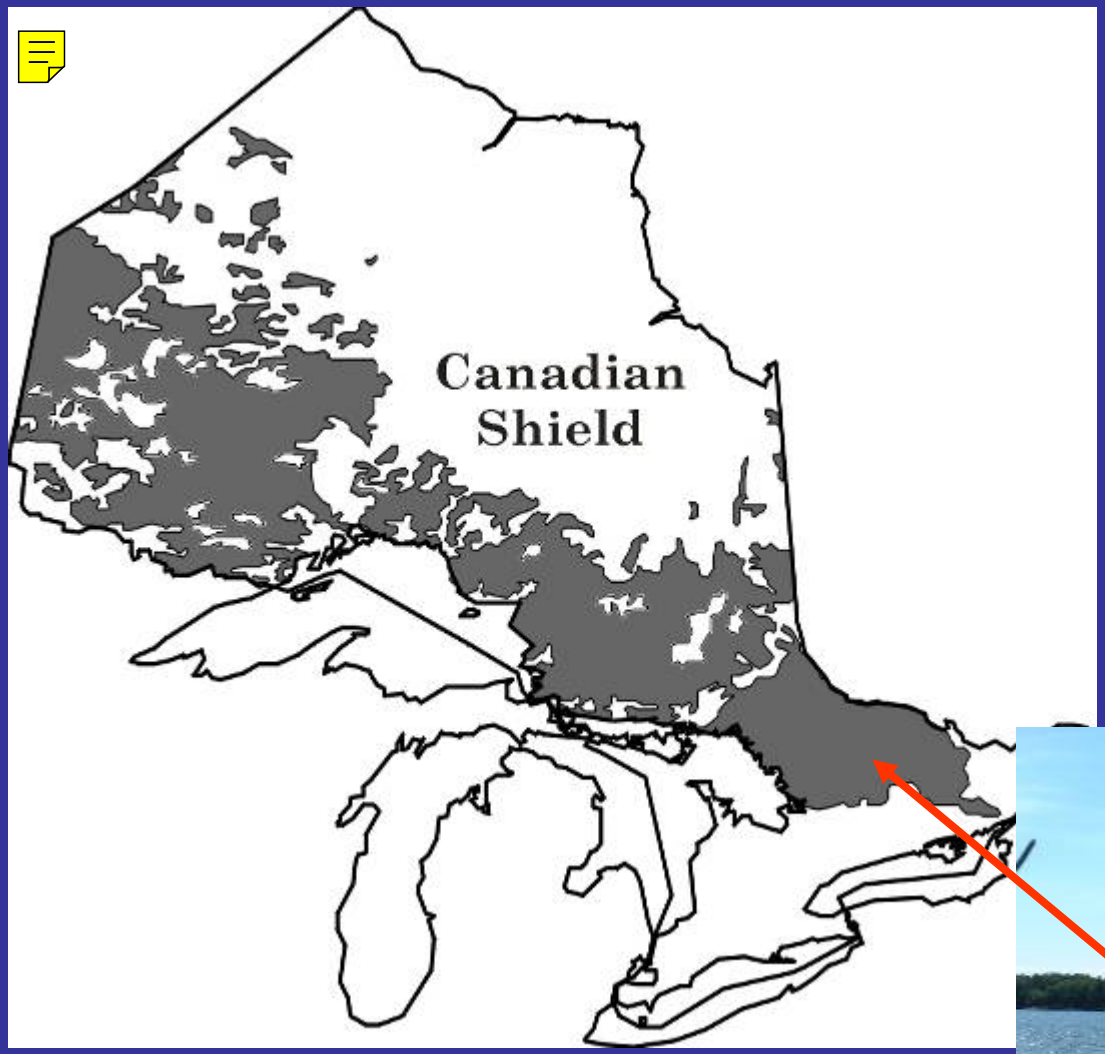
Generally algae are important
- good for the lake
- necessary part of ecosystem integrity
- responsible for the atmosphere

What about ‘bad’ algae? What about algal blooms?

total phosphorus (ug/L)

0 10 20

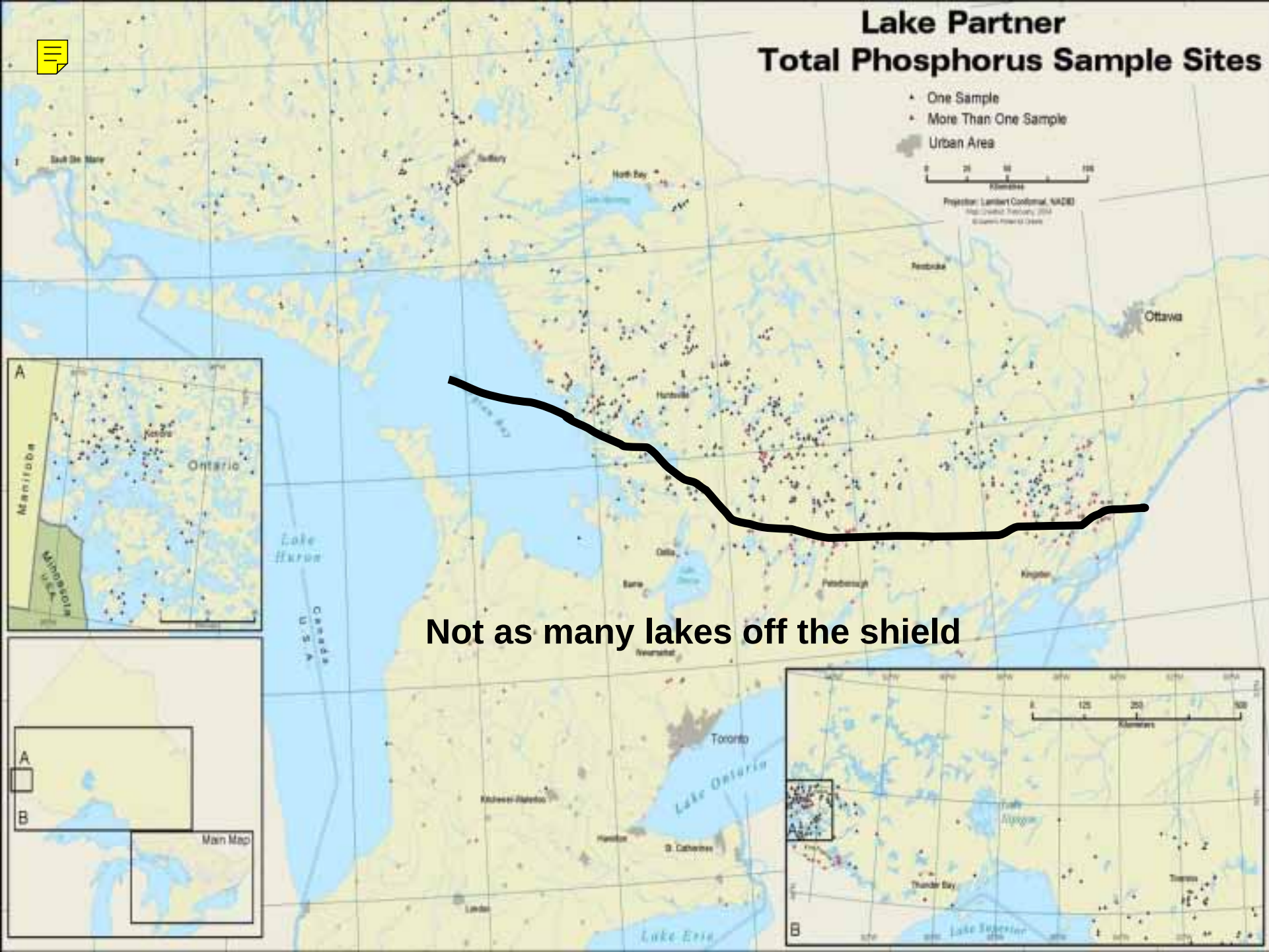
Algal Blooms
- taste and odour problems
- oxygen depletion
- toxin production (blue green algae)



Canadian Shield
- typically oligotrophic

total phosphorus (ug/L)

0 10


Lake Partner
Total Phosphorus Sample Sites
One Sample
More Than One Sample
Urban Area
Projection: Lambert Conformal, NAD83
Sault Ste. Marie
Sudbury
North Bay
Pembroke
Ottawa
Huntsville
Barrie
Orillia
Peterborough
Kingston
Toronto
Kitchener-Waterloo
Hamilton
St. Catharines
London
Thunder Bay
Timmins
Lake Huron
Lake Ontario
Lake Erie
Lake Superior
Canada
U.S.A.
Manitoba
Minnesota
Ontario
Kenora
A
B
Main Map
Not as many lakes off the shield

Which is why we don’t have many algal blooms in Ontario

(except in 2007)

A few lakes bloom every year, some bloom frequently (nuisance)
These are usually high nutrient lakes i.e. > 20-30 ug/L (eutrophic systems)

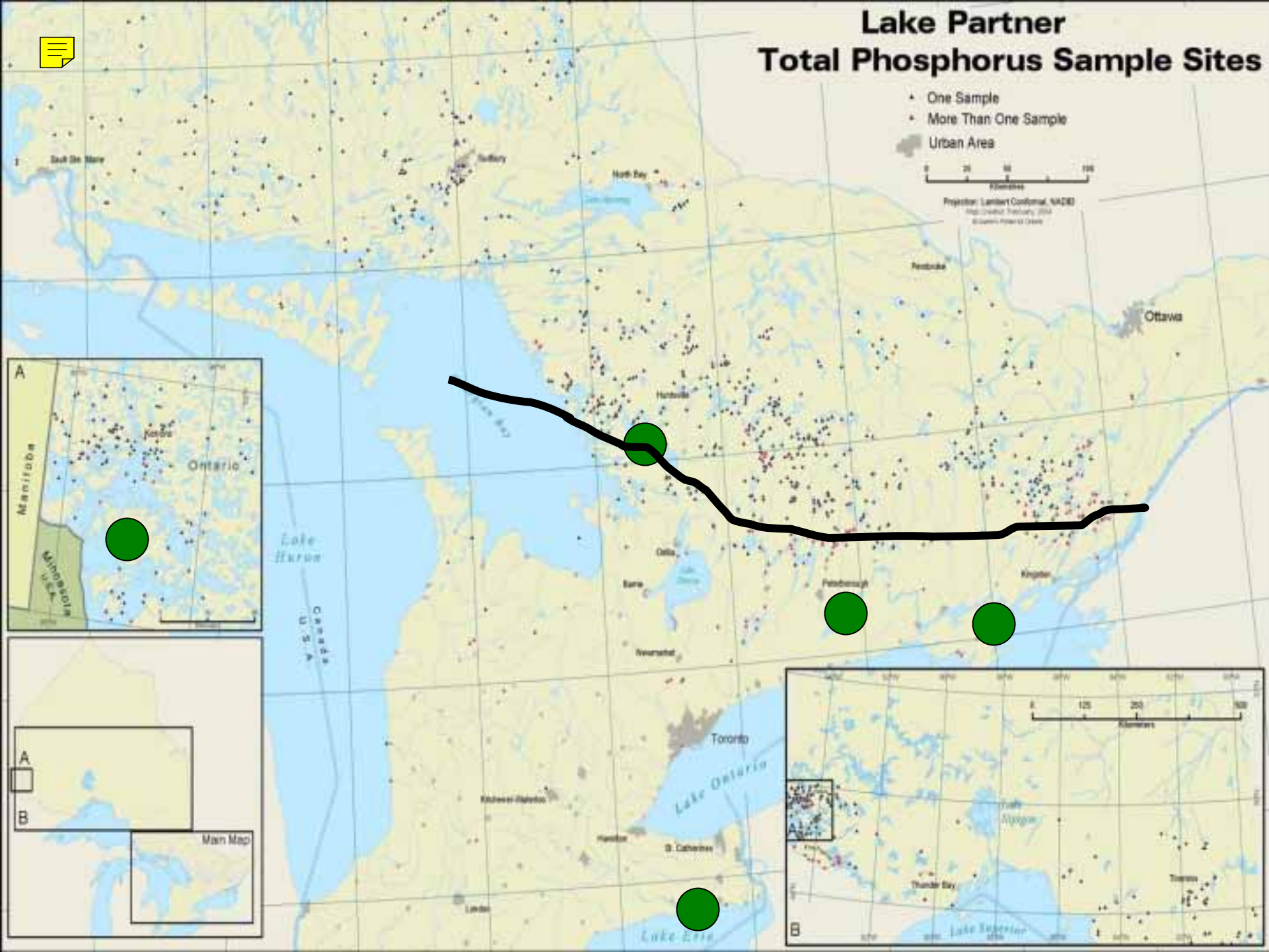
Rice Lake

Brandy Lake

Others:
Lake Erie
Bay of Quinte
many urban Lakes

Troy Lake

Lake of the Woods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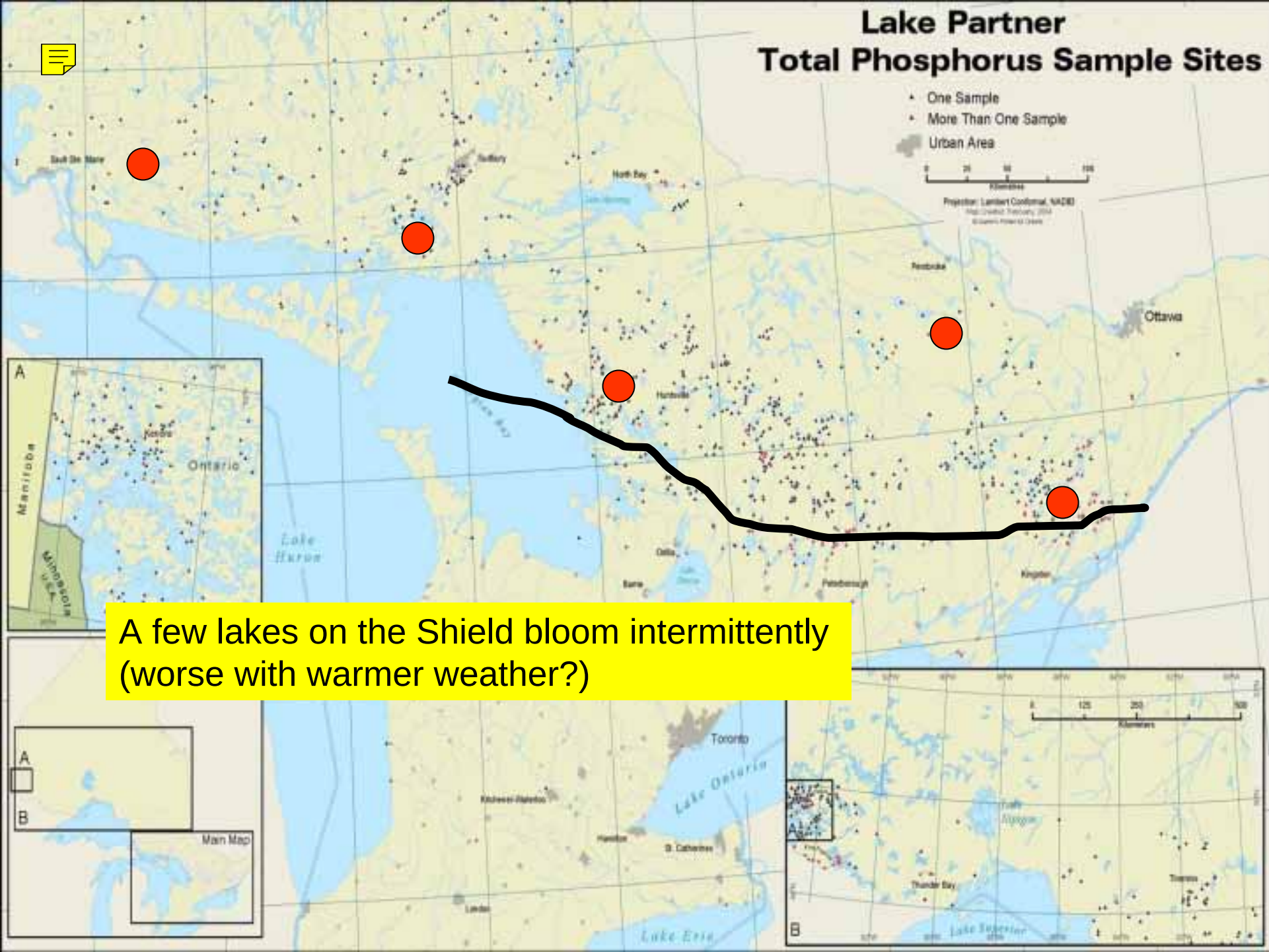
Main Map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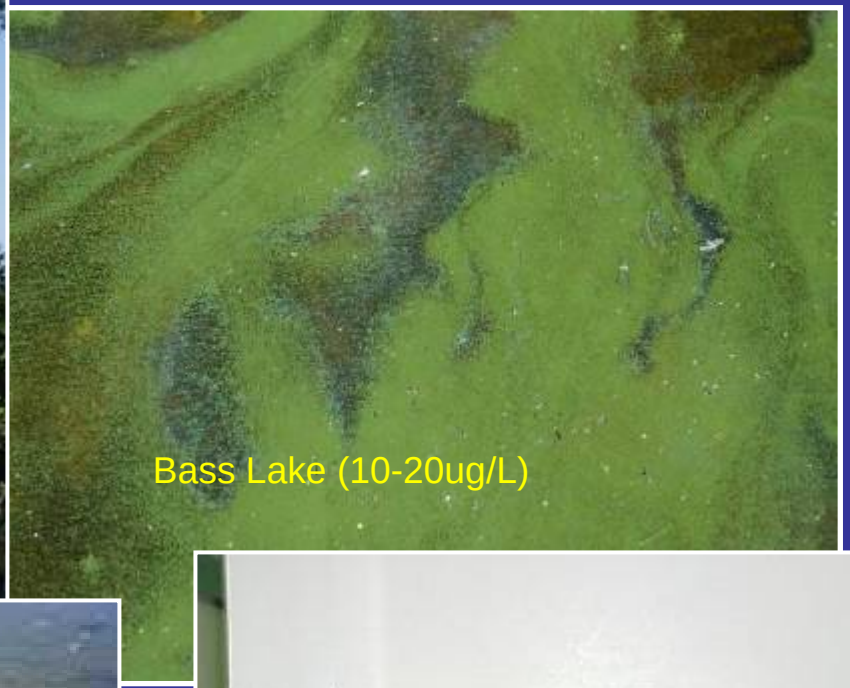
Main Map
A
B
A few lakes on the Shield bloom intermittently
(worse with warmer weather?)

most are mesotrophic and shallow (9-11m?)



So…most lakes behave as you would expect (until the weather gets weird).

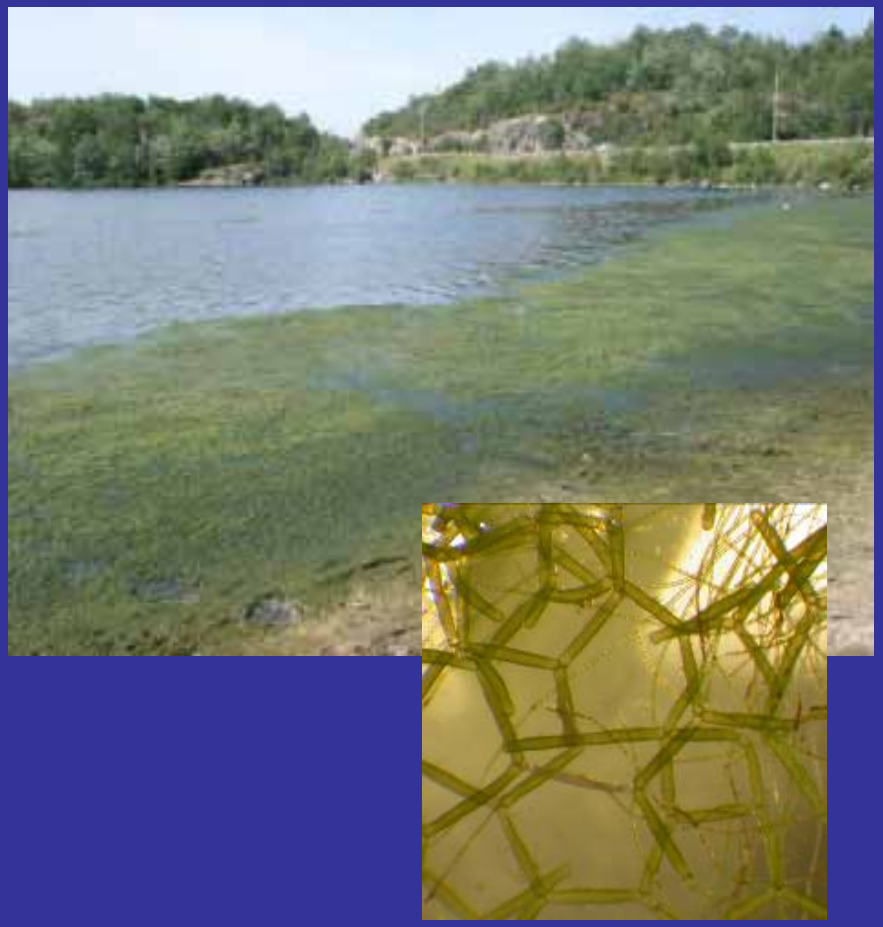
- Planktothrix rubescens
- Spring bloom
- Little Lake Panache
- Fall blooms common
- TP 10-20ug/L
- short ice cover

- Anabaena
- Bagot Long Lake
- mean TP = 12.7ug/L
- TPso 2007 <10ug/L
- also short ice cover
- 9 - 11 m deep
- internal load

2007

Lake Simcoe - Spirogyra

These look like blue green blooms
- But they're not



Simon Lake - hydrodictyon


Big Hawk

Conjugating Algae

- also grow better with hot weather
- do not produce toxins
- probably not a nuisance in shield lakes

(Spirogyra, Zygnema, Mougeotia)


Oedogonium

Caribou


Opinicon

Shoe Lake Uroglena bloom - 2007

Chrysophytes

- low nutrients
- shift in algal communities throughout Ontario


Questions