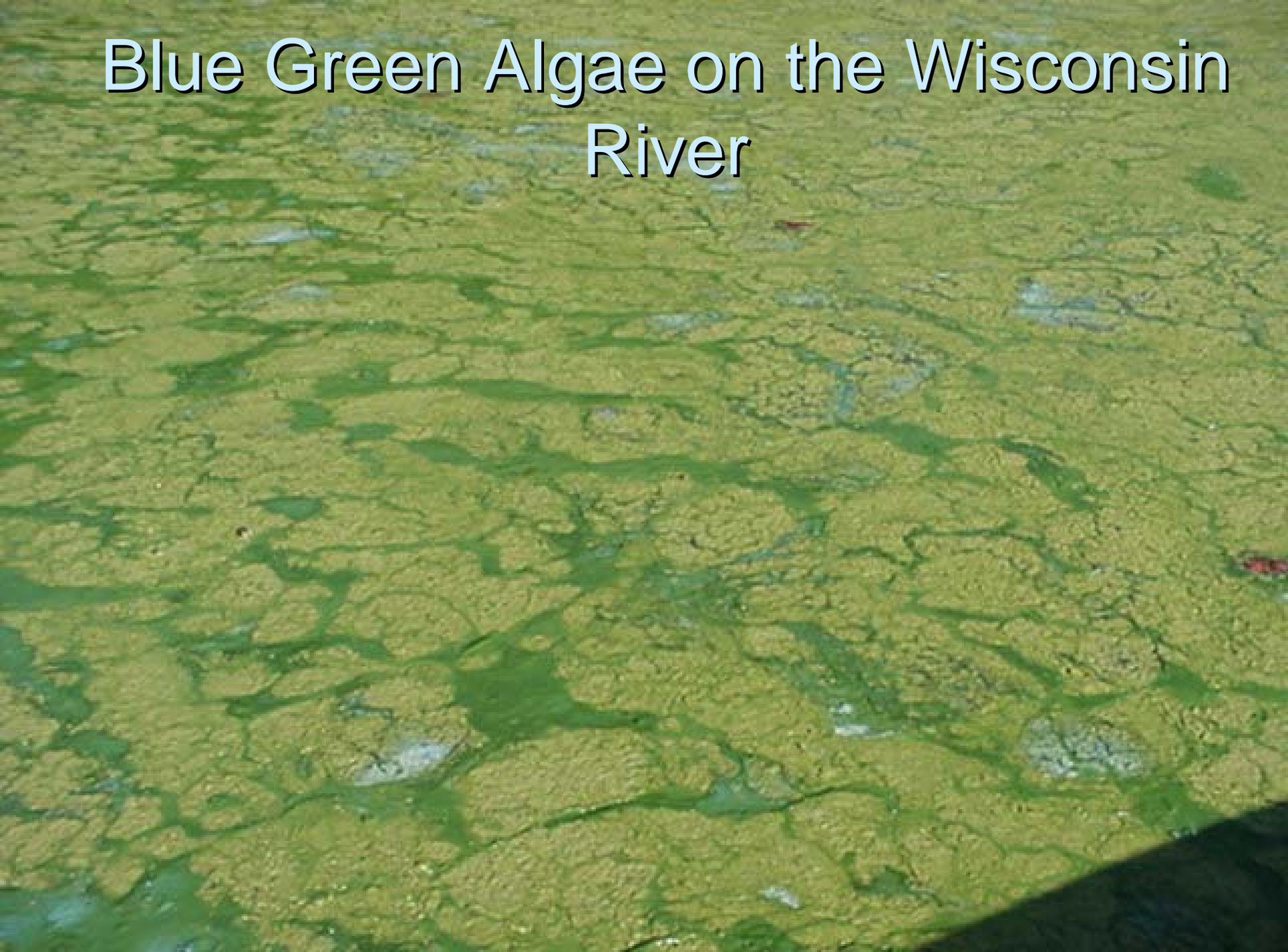


Blue Green Algae on the Wisconsin River



What are blue-green algae?

- Cyanobacteria that can photosynthesize
- Need nutrients (P and N)
- Naturally-occurring in lakes and ponds
- Been on the Earth for millions of years
- Can form obnoxious mats and/or scum
- Some can release toxic substances



Why on the Wisconsin River?

Huge drainage area – 20% of the state!

Natural nutrient rich water

Increased nutrients with settlement

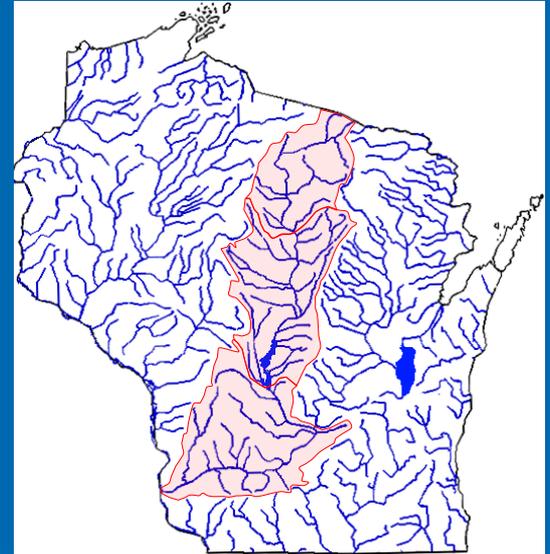
Creation of the reservoir systems

Developed shorelines

More recreational contacts

Emerging health implications

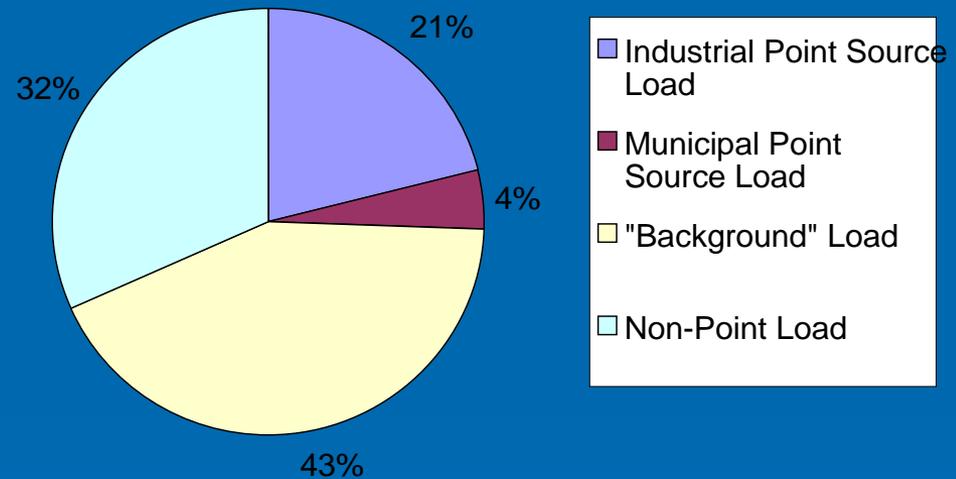
Socio-economic impacts



Nutrients are the driving force

- Huge watershed and nutrient load
- Point sources 25%, NPS 32% the balance is from the watershed and lake
- Just to reduce the number of blooms, P imports would have to be cut by half

2002 Petenwell
Phosphorous Loading



Not a new problem

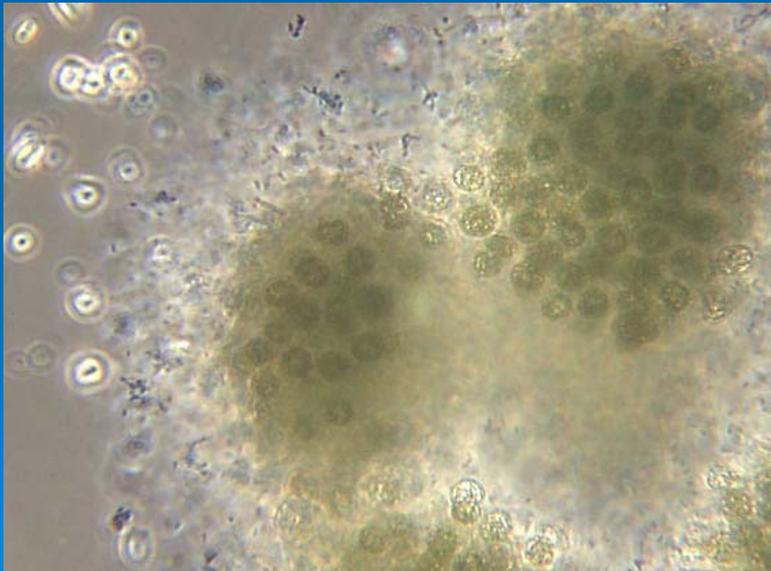
- Severe pollution indicated shortly after construction of reservoirs.
- Threinen, C.W. (1964) "...lack of algae blooms except on very calm days...are evidence of substantially reduced productivity."
- By the 1980's algal blooms were common
- By 2000's illnesses reported

When do blooms occur?



Glad you asked!

- Virtually everywhere and opportunistic
- Responds positively to sunlight, temp, nutrients (P & N), quiescent waters



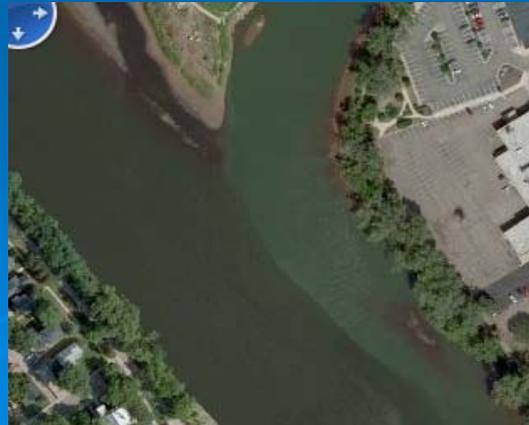
And...

- Usually mid June through early September
- Usually a lack of plants, but not always



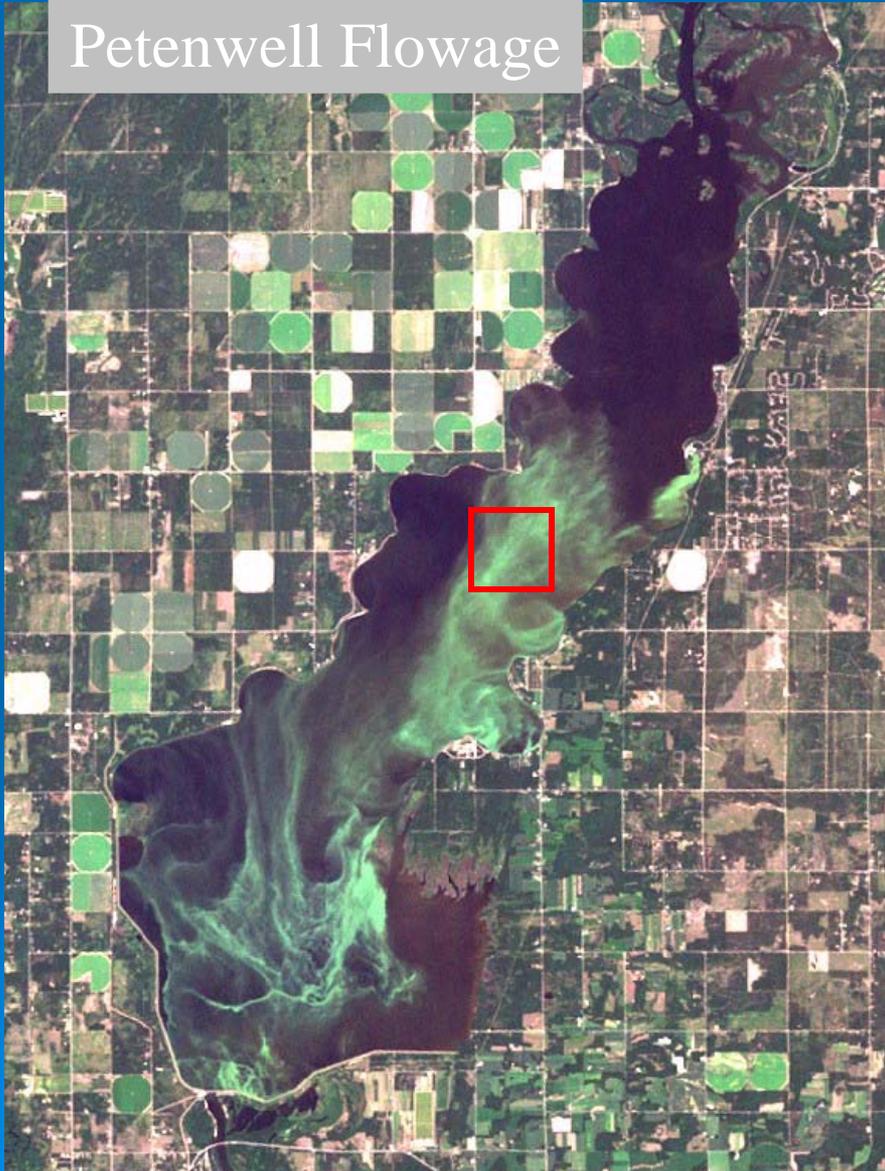
Where does BGA occur?

- Wind can easily concentrate it on downwind shores.
- Can be very dense at shore
(coincidentally where kids and dogs usually play)

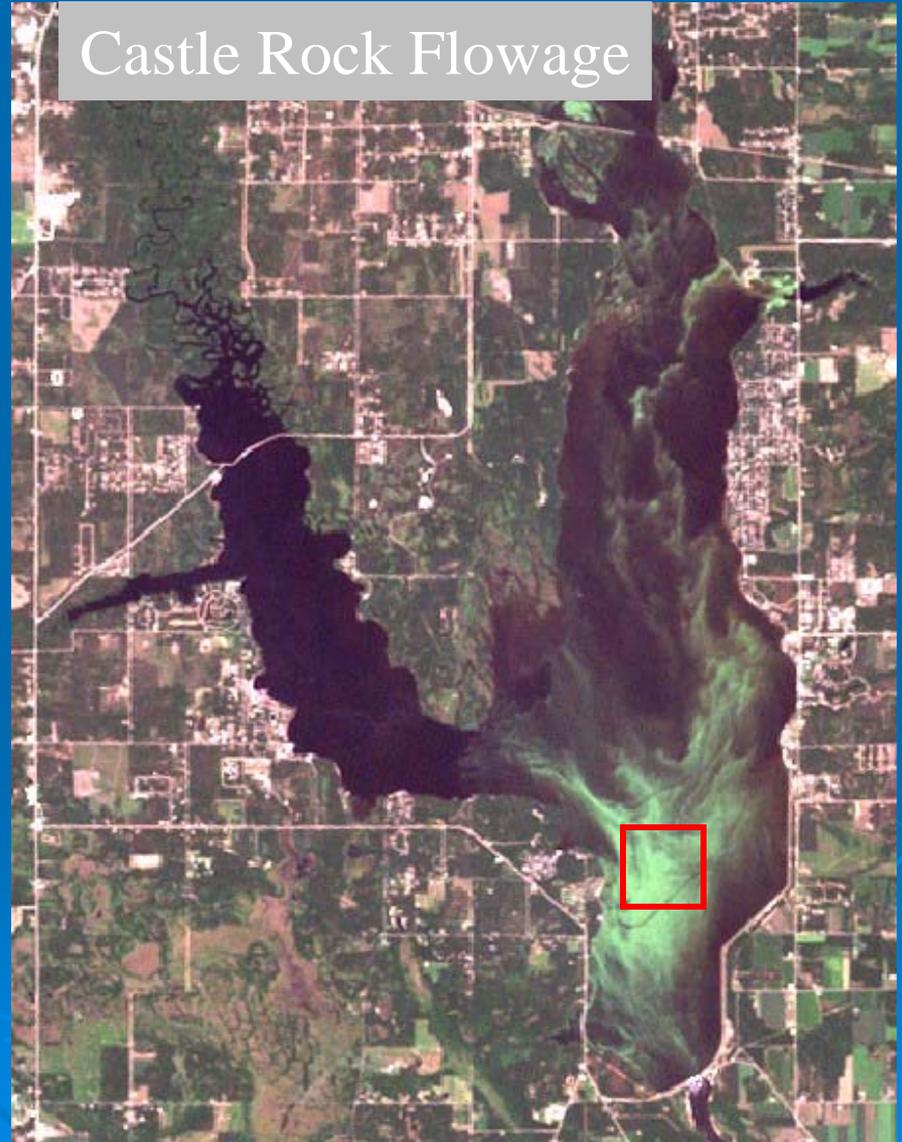


BGA Blooms can also be massive

Petenwell Flowage



Castle Rock Flowage



An aerial photograph of a lake completely covered in a dense, vibrant green layer of algae. The water is dark, and the algae forms a thick, textured mat across the entire surface. The lighting is bright, highlighting the various shades of green.

Besides being stinky and disgusting, what else?

Quote: *“What are you going to do about this algae? I bought a piece of property on a lake to enjoy it, but I have to go to the dump to get a breath of fresh air!”*

- Angry Adams County Resident 2008

The common BGA that can be harmful...

The “Big Three”, or AKA, Annie, Fannie and Mike.

But there are others!

Aphanizomenon sp.



10 microns

Microcystis sp.



Anabaena sp.

5.23.1999

Some types of toxins produced by bluegreen algae

Type of Toxin	Species	Toxins Produced	Symptoms
Neurotoxins (affect nervous system)	<i>Anabaena</i> <i>Oscillatoria</i>	<i>Anatoxin-a</i> Saxitoxin	Muscle cramps, twitching, paralysis, respiratory failure
Hepatotoxins (affect the liver)	<i>Microcystis</i> <i>Cylindrospermopsis</i>	<i>Microcystin</i> <i>Cylindrospermopsin</i>	Nausea, vomiting, acute liver failure

Unfortunately there are more than the listed

Blue-Green Algae

Dept. of Health Services (DHS)

- Respiratory ailments, watery eyes and rashes.

World Health Organization (WHO)

- High Health Risk** = 100,000 c/ml

Monitoring

- Petenwell** (2009) = 3,249,700 c/ml
- Klein Creek** (2010) = 440,795 c/ml

WDNR is monitoring BGA to assist DHS and medical care facilities.



Numerous dog illnesses

- Under reported?
- Veterinarian confirmed cases in Juneau Co.
- Dog deaths elsewhere in the state
- Infection possible into the fall
- Dogs habits increase chances of infection
 - Licking
 - Drinking
 - Use of shallow water

Solution is not as easy as monitoring

Its complicated...

- Not always reliable due to life cycles of BGA
- Algae can be present, but not toxin
- Toxin can be present, but low algae cell counts
- Bacteria can be present, but not algae
- Algae can be present, but no bacteria
- Monitoring for closures almost impossible

Example from DNR study:

2004 45/187 (24%) BGA samples had toxins

2005 34/194 (18%) BGA sample had toxins

[Chl-a] not corr to [BGA] however [Chl-a] corr to [microcystin]

Response monitoring and who's in involved

- Department of Health



- Center for Disease and Control



- Wisconsin DNR



The best option to protect human health

- I and E
- For now, if it looks bad then don't enter
- Continue with response monitoring
- Encourage public to report symptoms

Should you let your kids or pets play in this?

BAD IDEA!

Algae are common in lakes and rivers. But at high concentrations a type called "blue-green" algae can make people and animals sick.

What to look for:

- Does the water look "pea soupy"?
- Does it smell swampy?

Blue-green algae can:

- irritate skin, eyes and nasal passages and make you sick.
- poison your pets or livestock – animals have died from it.

If you or your pets have come in contact with blue-green algae, **wash thoroughly.** Think you or animals are sick from it? Call a doctor or veterinarian immediately.

When in doubt, best keep out!

This poster prepared by the Minnesota Interagency Work Group on Blue-Green Algae.

In Wisconsin - <http://dnr.wi.gov/lakes/bluegreenalgae/>

What to do!

Report cases to DOH immediately

608.266.1120 or in case of emergency
call the Wisconsin Poison Center at:

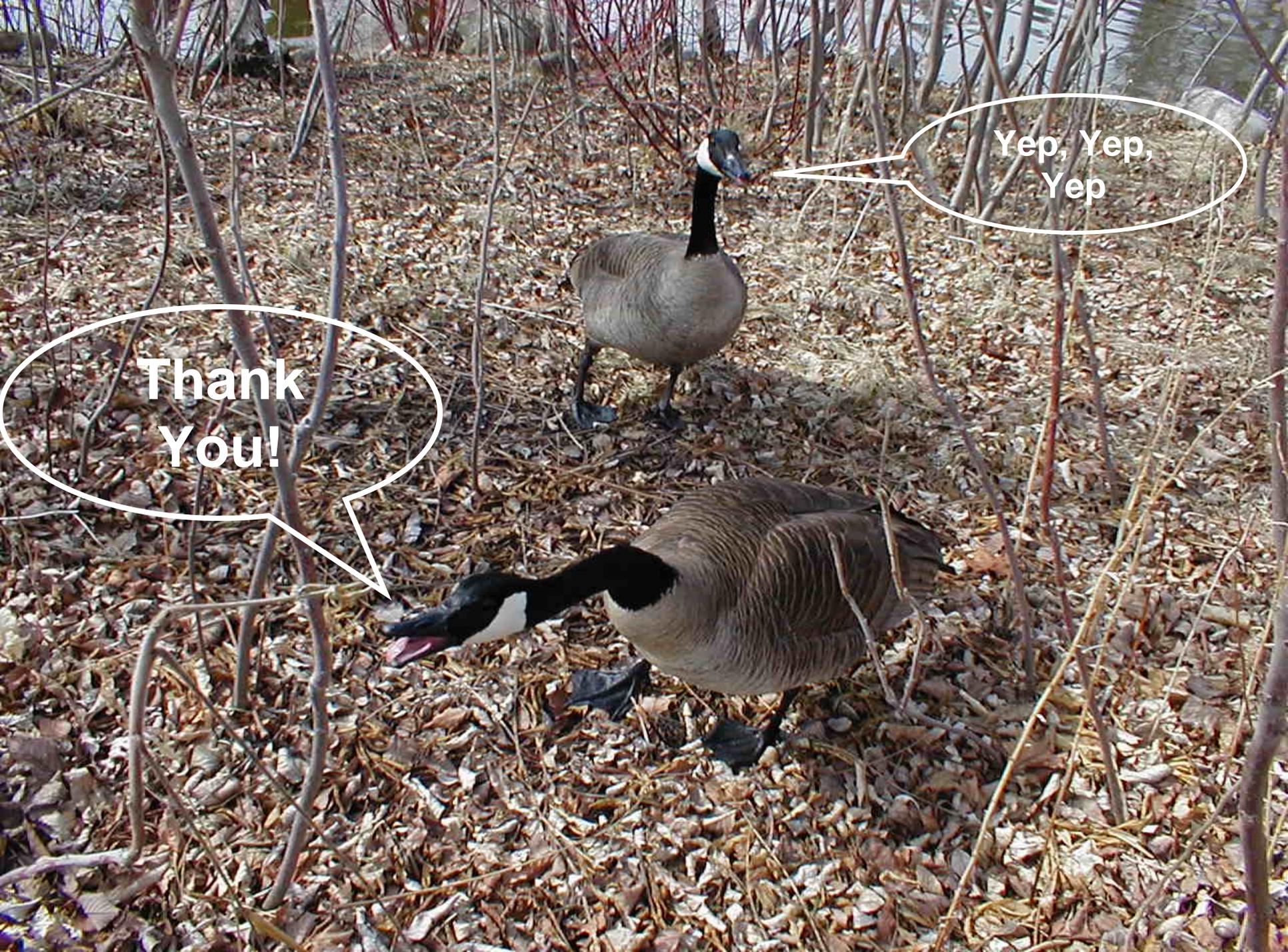
1.800.222.1222

Report also to DOH website:

www.dhs.wi.gov/eh/bluegreenalgae

Long Term Solutions Decrease Nutrient Loads

- Identify sources
- Use multi-agency approach
- Need a paradigm shift
- Increase habitat (aquatic plants)



Thank
You!

Yep, Yep,
Yep

CONTACTS

DOH: 608.266.1120

Wisconsin Poison Center: 1.800.222.1222

DOH website:

www.dhs.wi.gov/eh/bluegreenalgae