

**BLUE-GREEN ALGAE TESTING
ON
THE WISCONSIN RIVER BY
CITIZEN VOLUNTEERS**

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The Wisconsin River Watershed drains approximately 21% of Wisconsin's lands.

Scott Watson, WDNR

If these lakes were clean, we would have the best natural recreational area in the state"

Bay Rest Restaurant customer

PR v Reality



Issues of Petenwell and Castle Rock Flowages

- **Impaired water quality**
- **Loss of recreational use**
- **Decline of property value and tax revenue**
- **Negative impact on business – tourism**

“ What’s this green like paint that floated into the marina last weekend?”

Barnum Bay Sailor

“ What’s all this green?”

Researcher/Sailor from NOAA





Petenwell Flowage

23,173 ACRES
Max Depth 44 feet



Castle Rock Flowage

12,981 ACRES
Max Depth 36 feet

**BOTH ARE ON THE
FEDERAL 303(D) LIST**

Impaired Water Quality



What's Been Done?

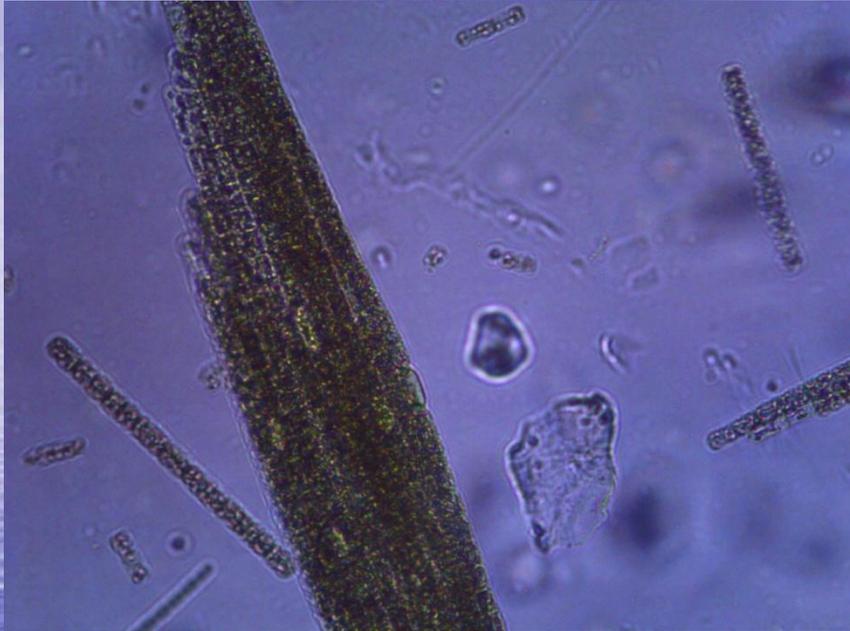
In partnership with the CDC, NOAA, Adams County LWCD, and PACRS, citizen volunteers have been trained to take regular water samples at 15 GPS'd sites and to identify 6 types of potentially toxic blue-green algae present.

Results are reported to Federal Phytoplankton Monitoring database. Volunteers also take Secchi and temperature readings.



This is one aspect of a larger project that also involves the Wisconsin River Alliance, several county LWCDs, WDNR, ACOE, EPA, UWSP, & others.

TARGETED CYANOBACTERIA

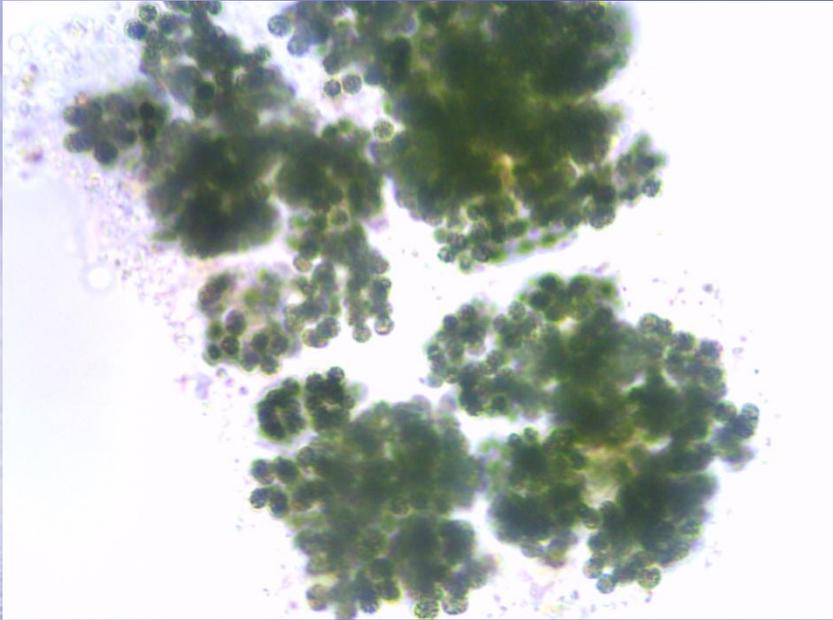


APHANIZOMENON*

ANABENA*

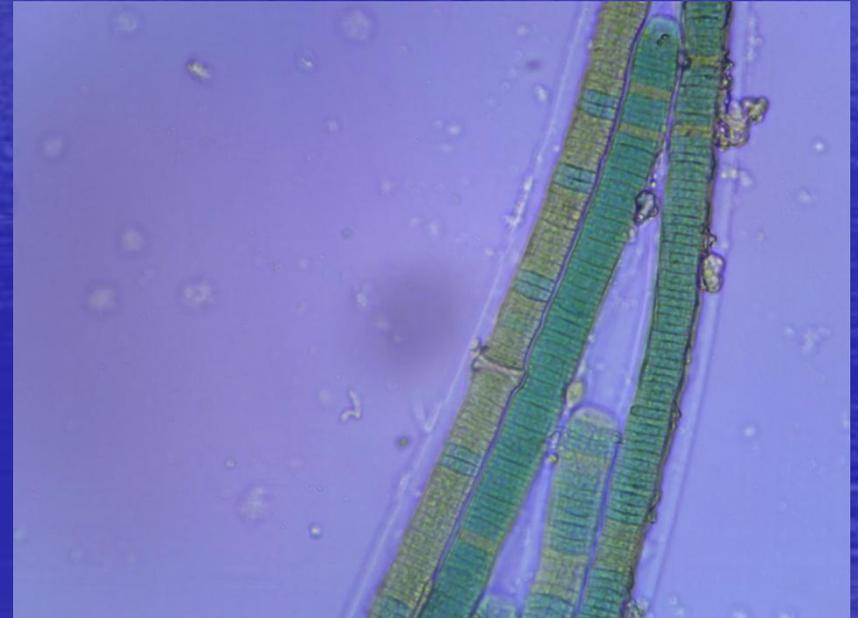


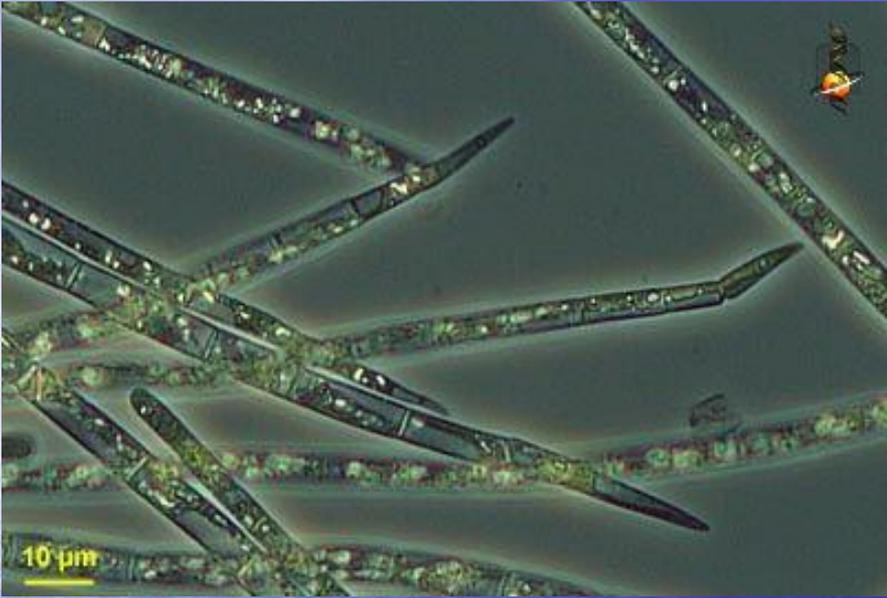
*these photos taken from collected samples



MYCROCYSTIS*

OSCILLATORIA*





CYLINDROSPERMOPSIS

EUGLENA



Reported Information

- Presence of Any Targeted Blue-Green Algae
- Level of Presence: Not Present; Present; Common; Abundant; Bloom
- Water & Air Temperature
- Weather Conditions, such as sunny/cloudy, wind direction & speed
- Water Color
- Secchi Disk Reading



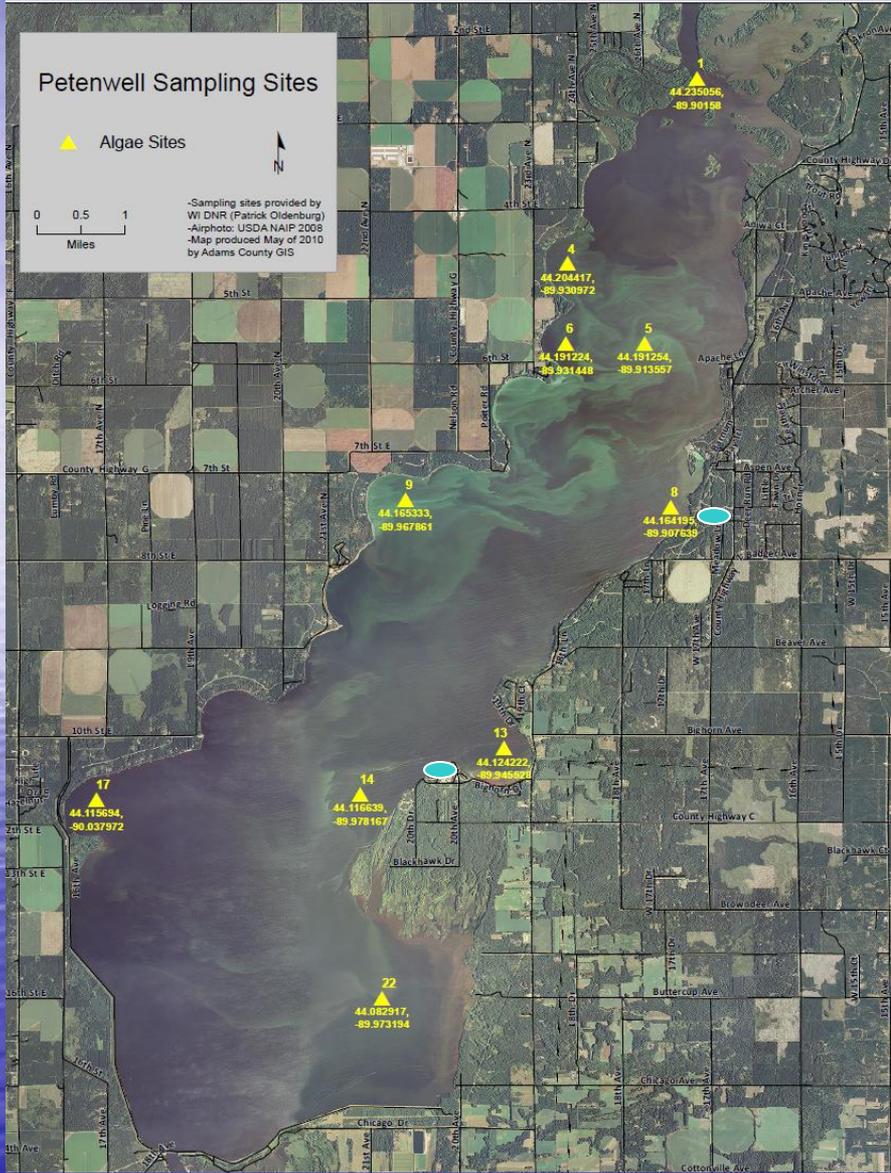
Petenwell Sampling Sites

▲ Algae Sites



0 0.5 1
Miles

-Sampling sites provided by
WI DNR (Patrick Oldenburg)
-Airtphoto: USDA NAIP 2008
-Map produced May of 2010
by Adams County GIS



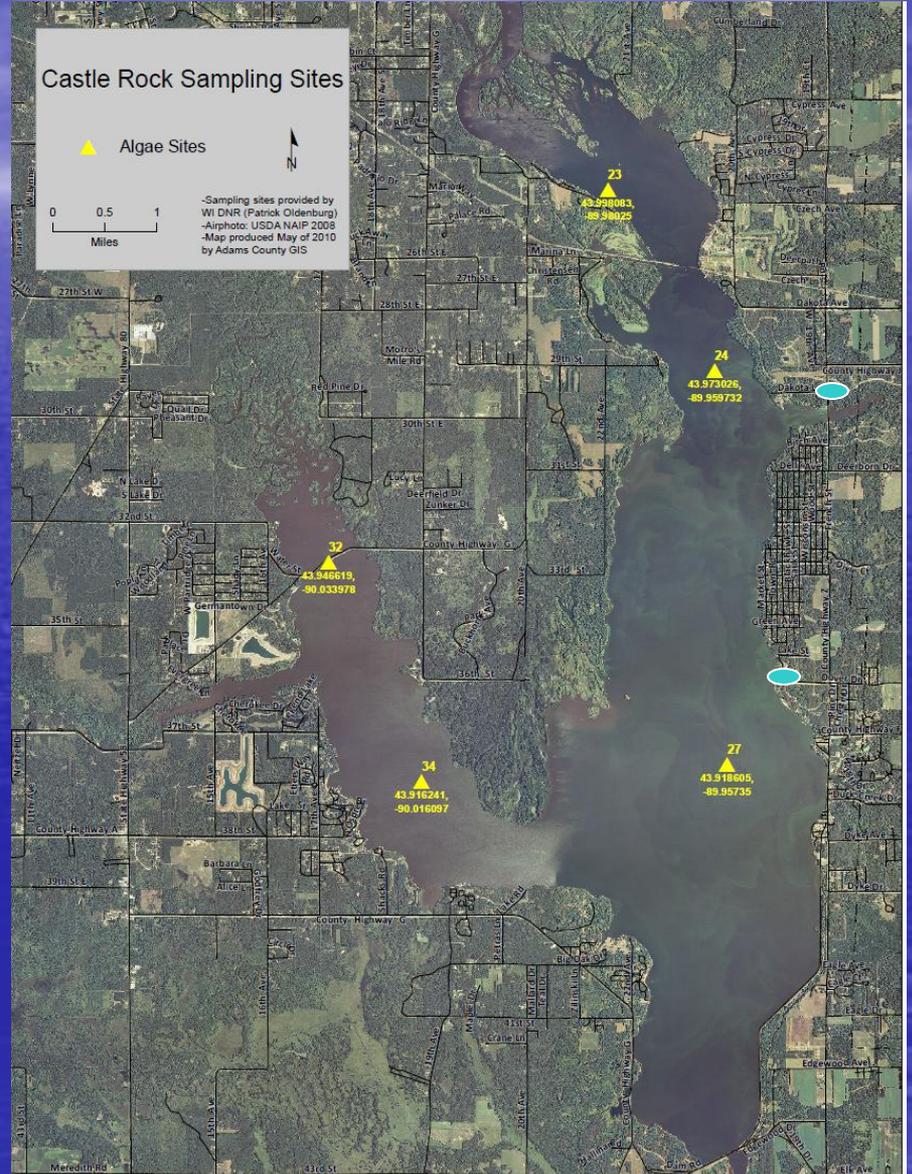
Castle Rock Sampling Sites

▲ Algae Sites



0 0.5 1
Miles

-Sampling sites provided by
WI DNR (Patrick Oldenburg)
-Airtphoto: USDA NAIP 2008
-Map produced May of 2010
by Adams County GIS



Citizen Volunteers



Blue Green Algae Results by PACRS volunteers--2010

- 19 volunteers gave 343.5 hours for training, water sampling and algae sampling/identification, as well as donating the use of 8 boats.
- 114 samples collected
- 56% of the samples contained one or more of the targeted blue-green algae genera

2010 Results by Lake

Petenwell

- Microcystis 49.3%
- Oscillatoria 28.0%
- Aphanizomenon 20.0%
- Anabena 12.0%
- Cylindrospermopsis 5.0%

69.3% of the samples had one or more of the targeted blue-green algae genera.

Castle Rock

- Microcystis 30.0%
- Oscillatoria 2.5%
- Aphanizomenon 5.0%
- Anabena 7.5%
- Cylindrospermopsis 5.0%

37.5% of the samples had one or more of the targeted blue-green algae genera.

Overall 2010 Results

- Microcystis 43.0% of samples
- Oscillatoria 19.3% of samples
- Aphanizomenon 14.9% of samples
- Anabena 10.5% of samples
- Cyndrospermopsis 3.5% of samples

Blue Green Algae Results by PACRS volunteers--2011

- Volunteers spent about 297 hours in 2011 taking samples.
- 18 volunteers took bi-weekly samples at the same 15 spots on the 2 lakes.
- 4 sites that could be reached from the land were added. These were taken weekly by volunteers.
- 179 samples were taken in 2011 out in the lakes from boats.
- 88 samples were taken from land.

LAND SITE RESULTS 2011

- Aphanizomenon: 15.7% of samples
- Anabena: 9.1% of samples
- Cylindrospermopsis: 3.4% of samples
- Microcystis: 36.4% of samples
- Oscillatoria: 27.3% of samples

Of the 88 land-based samples, 64.8% of them contained one or more of the targeted blue-green algae genera.

2011 Results by Lake

Petenwell

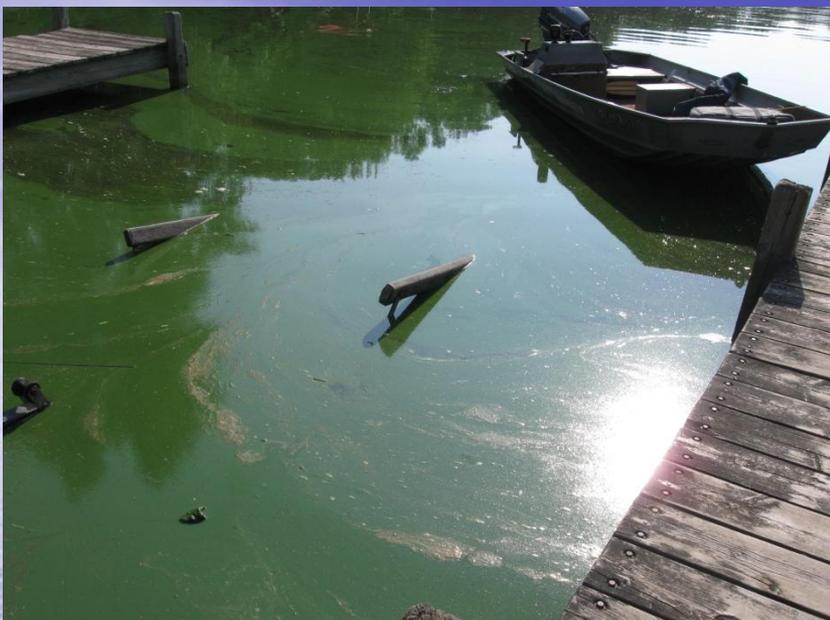
- Oscillatoria 35.0%
- Aphanizamenon 17.1%
- Microcystis 14.6%
- Anabena 7.3%
- Cylindrospermopsis 0.8%

50.4% of the samples had one or more of the targeted blue-green algae genera.

Castle Rock

- Oscillatoria 30.1%
- Microcystis 19.6%
- Aphanizamenon 16.1%
- Anabena 8.9%
- Cylindrospermopsis 1.8%

55.4% of the samples had one or more of the targeted blue-green algae genera.



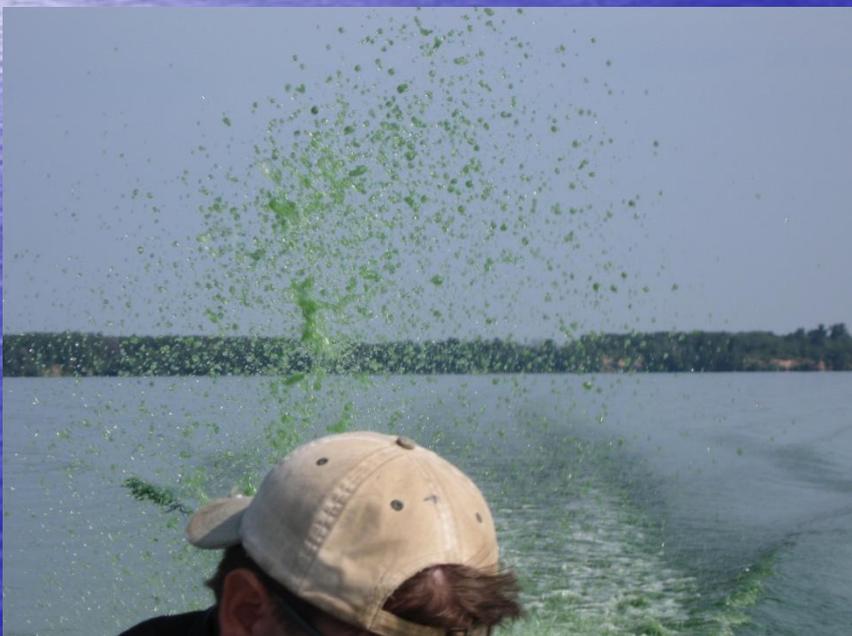
Although this photo was taken on 8/5/11, the same area looked like this (or worse) on 10/12/11



2011 Overall Water Results

- Microcystis 16.2% of samples
- Oscillatoria 33.5% of samples
- Aphanizomenon 16.8% of samples
- Anabena 7.8% of samples
- Cylindrospermopsis 1.1% of samples

52% of the samples contained one or more of the targeted blue-green algae genera.



COMING IN 2012

About mid-March, we were informed that the federal funding for this program for 2012 has been cut, and that equipment needs to be returned to NOAA. However, arrangements have been made to keep one microscope through 2012, and the program will continue as before.

4 land-based sites to be sampled weekly on the west side of these two lakes will be added in 2012. The sample-taking will continue through the summer of 2012 and, if possible will continue for several years.

All samples to determine the presence and level of targeted blue green algae are being taken by citizen volunteers. UWSP students are taking other water quality samples at 5 sites bi-weekly on each lake.

Use of Information

The algae information collected by these volunteers will be combined with other algae sampling results and with the more traditional water sampling occurring on total phosphorus, etc. It is hoped that this data can be used to better determine non-point phosphorus loading locations and develop a TMDL for the Wisconsin River.



Thanks to the volunteers!



THANKS!

VOLUNTEERS

Kevin Erickson

Ann & Paul Egge

Curt Frost

Gerry Ganther

Judy & Bob Gause

Rick Georgeson

Wayne Gjservig

Karl Klingforth

Tom & Joan Koren

Virgil Miller

Mike Richardson

Gail Rollins

Chris & Mike Turok

Jim Weidner

WDNR: Scott Provost

Adam Schuenemann

NOAA: Jeff Paternoster

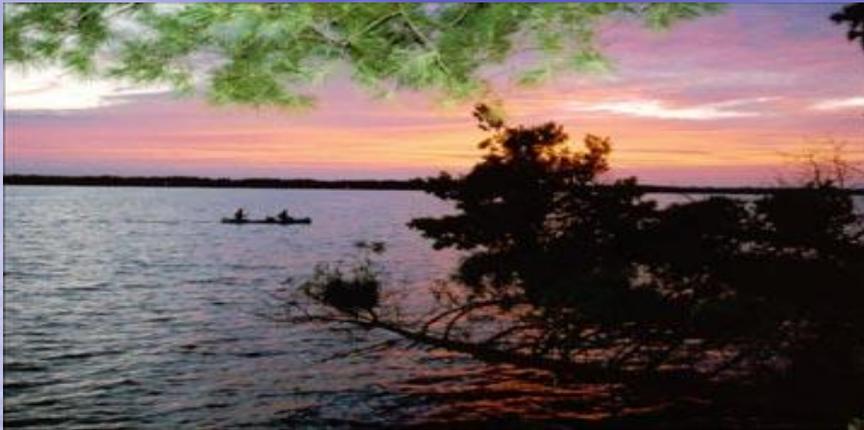
MOTE: Barb Kirkpatrick



For those of you who may be unfamiliar with blue-green algae, to put it bluntly, it stinks”

Former U.S. Senator Russ Feingold

QUESTIONS?



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