



Blue-green Algae (Cyanobacteria) and Cyanotoxin Poisoning in Wisconsin: **The Public Health Approach**



Wisconsin Lakes Partnership Convention

April 12, 2019

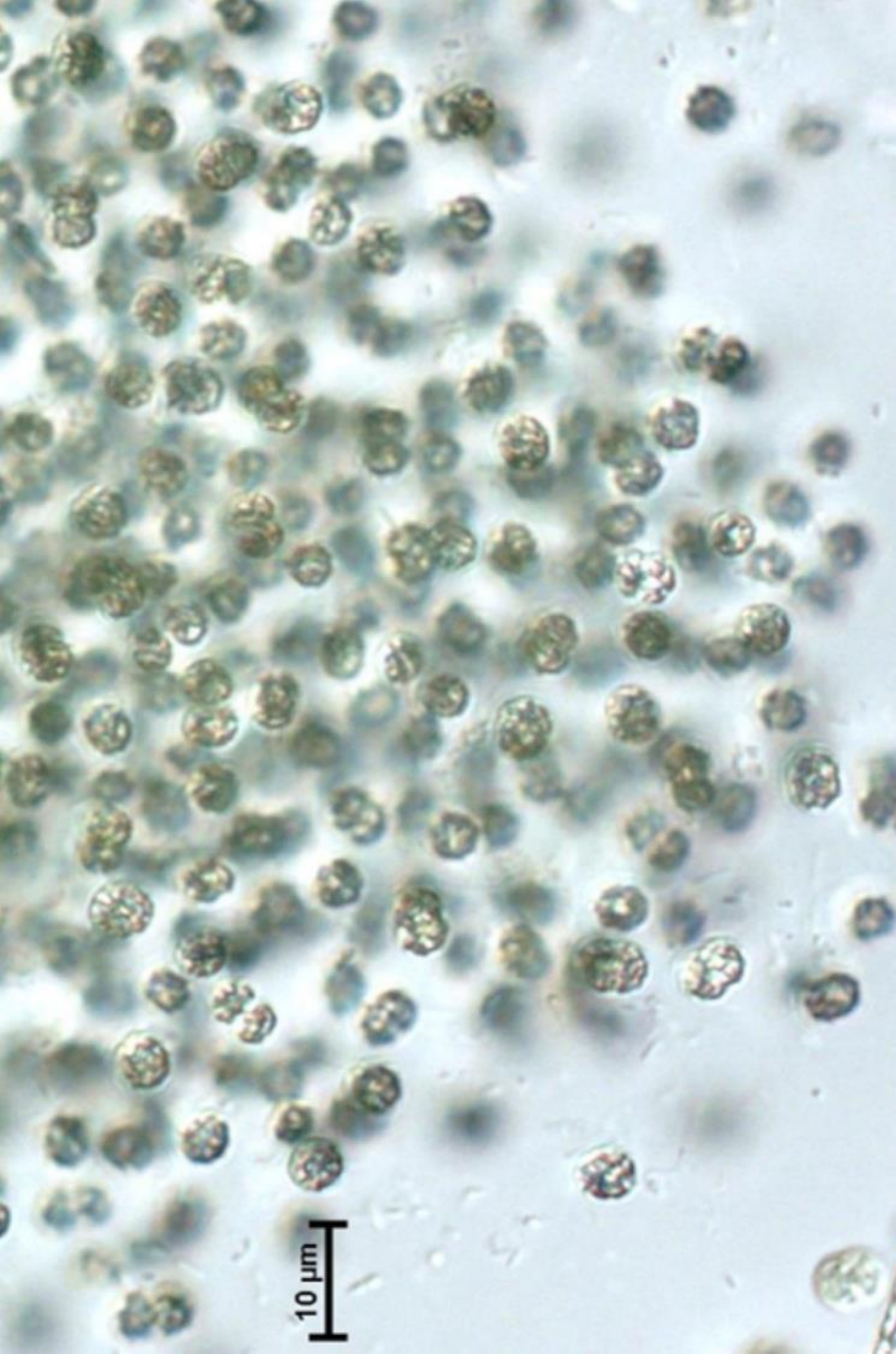
Presented by **Amanda Koch, MPH,**
Waterborne Diseases Epidemiologist



Wisconsin Department of Health Services

Division of Public Health
Bureau of Environmental
and Occupational Health

Human and Animal Health Effects



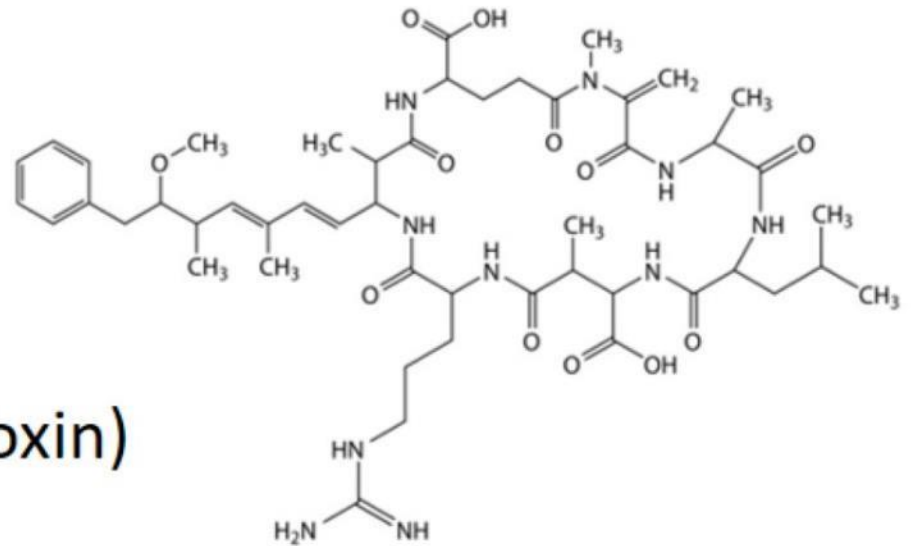
Not all cyanobacteria are harmful.

- Helped create the Earth's atmosphere
- Over 2,600 described species
 - Estimated >6,000 species
 - About 50 are known to be toxin-producers

Cyanobacterial Toxins

Various toxin types

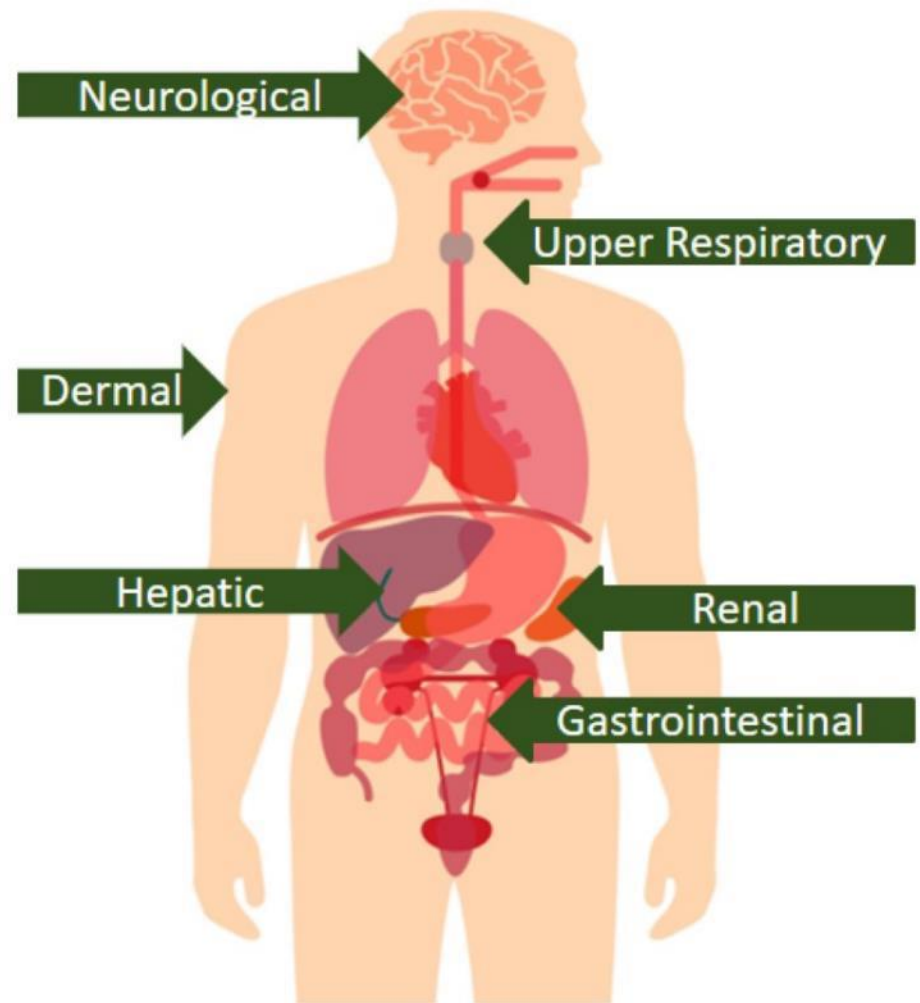
- **Hepatotoxins**
(e.g., microcystin-LR, cylindrospermopsin)
- **Neurotoxins**
(e.g., anatoxin-a, saxitoxin)
- **Dermatotoxins**
(e.g., lipopolysaccharide endotoxins)



Cyanobacterial Toxins

Signs and symptoms depend largely on:

- Route(s) of exposure
- Species and toxin type(s) present
- Cyanobacterial cell and toxin concentrations
- Vulnerability (behaviors, body size, preexisting conditions)





How are people exposed?

- Activities
 - Recreational
 - Personal use
 - Occupational
- Exposure routes
 - Dermal
 - Ingestion
 - Inhalation



Dermal contact

- Rash
- Hives
- Skin blisters
- Lesions most common under swimsuits



Ingestion

- Abdominal pain
- Nausea
- Diarrhea
- Vomiting
- Numb lips
- Tingling fingers and toes
- Dizziness



Inhalation

- Influenza-like illness
- Runny eyes
- Runny nose
- Sore throat
- Asthma-like symptoms



Animals

- Particularly vulnerable due to their behaviors and smaller size
- Often serve as sentinels for human illness



Dogs

- Most common victims
- Deaths are well-documented



Symptoms in Animals

- Lethargy
- Vomiting
- Drooling
- Diarrhea
- Weakness
- Difficulty breathing
- Seizures

DPH HAB Program

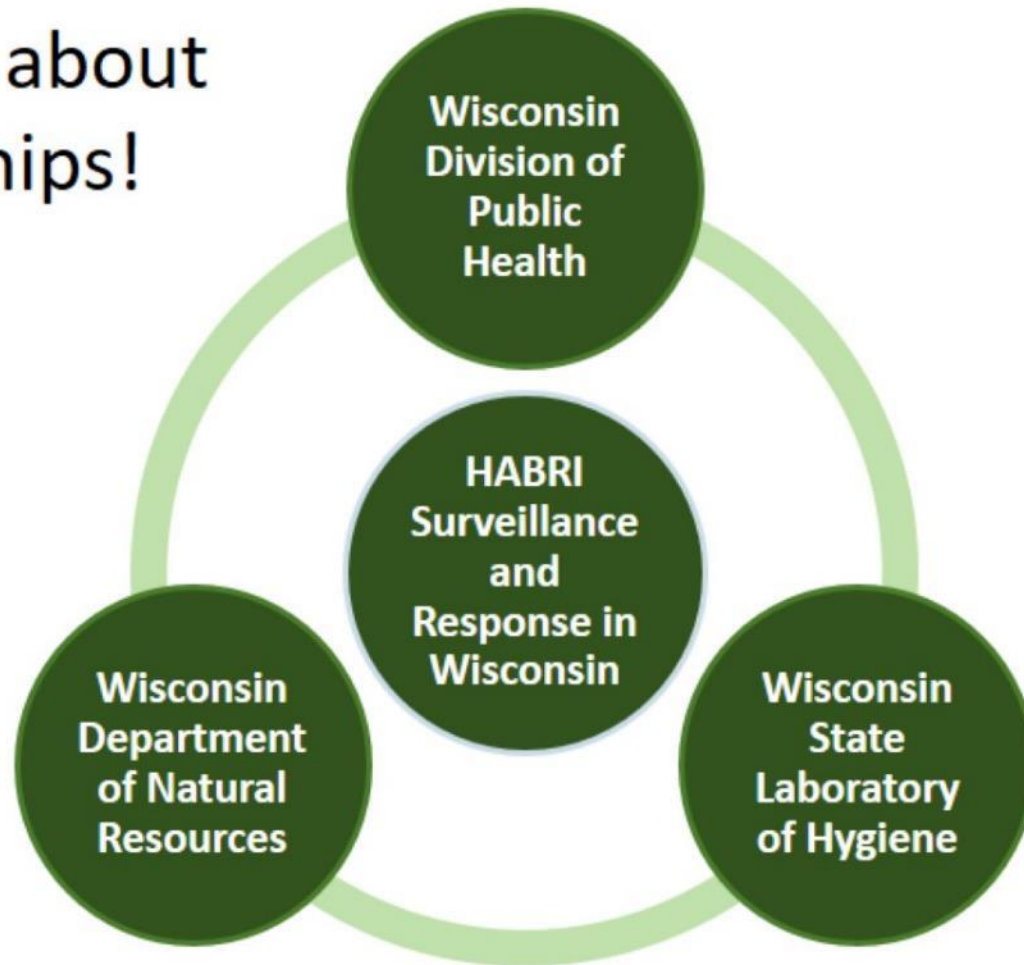
DPH HAB Surveillance Program

- Established in 2008 through the CDC's Harmful Algal Bloom Illness Surveillance System project (HABISS)
- Supported by CDC and the Great Lakes Restoration Initiative
 - Council of State and Territorial Epidemiologists (CSTE) Applied Epidemiology Fellowship Program
 - Other staffing and program support



DPH HAB Surveillance Program

We're all about partnerships!

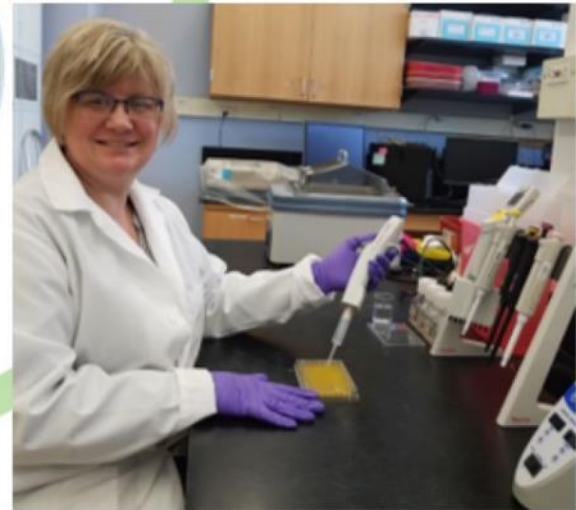


DPH HAB Surveillance Program

We're all about partnerships!



**HABRI
Surveillance
and
Response in
Wisconsin**



DPH HAB Surveillance Program



Conducts surveillance of health effects related to HAB exposure.



Investigates reports of human and animal illnesses.

DPH HAB Surveillance Program



Coordinates water sampling and analysis.



Helps local public health issue health advisories and beach closures.



Provides education and outreach.

DPH HAB Surveillance Program

Illness complaint reporting methods

- Online case-reporting tool on DPH blue-green algae website
- Direct contact with program staff
- Referrals from DNR, local health departments, and lake associations
- Wisconsin Poison Center
- Clinicians and laboratories

DPH HAB Surveillance Program



WISCONSIN DEPARTMENT
of HEALTH SERVICES

Search Wisconsin DHS



About
DHS

Data &
Statistics

Diseases &
Conditions

Health Care &
Coverage

Long-Term Care
& Support

Prevention &
Healthy Living

Partners &
Providers

Certification,
Licenses & Permits

Topics A-Z:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



Prevention & Healthy Living

Environmental Health

Water

Blue-Green Algae

Blue-Green Algae Home



Understanding Algae

Health Concerns

Algal Bloom Photos

Keeping our Lakes Clean

For Health Professionals

Resources and Links

Contact Us

Blue-Green Algae



The Wisconsin Department of Health Services, Division of Public Health (DPH) collects information about human and animal illness resulting from exposure to blue-green algae. Tracking illness information will help DPH measure the problem of blue-green algae in our lakes and rivers.

If you get sick after swimming in a Wisconsin lake or river, please report possible algae-related illness. This program does not provide medical treatment, so if you are experiencing severe symptoms seek medical attention immediately.



When in doubt, stay out!

NEW!

For healthcare providers: beginning 7/1/2018, report any suspected human cases of Cyanobacteria and Cyanotoxin Poisoning electronically through WEDSS or by mailing or faxing a completed **Acute and Communicable Disease Case Report, F-44151** to the address on the form.

For members of the general public and veterinarians: call 608-266-1120 or complete the online form **Harmful Algae Bloom (HAB) Illness or Sighting Survey, F-02152** (this survey) to report any blue-green algae blooms and related human or animal illnesses to the Wisconsin Harmful Algal Blooms Program.

DPH HAB Surveillance Program

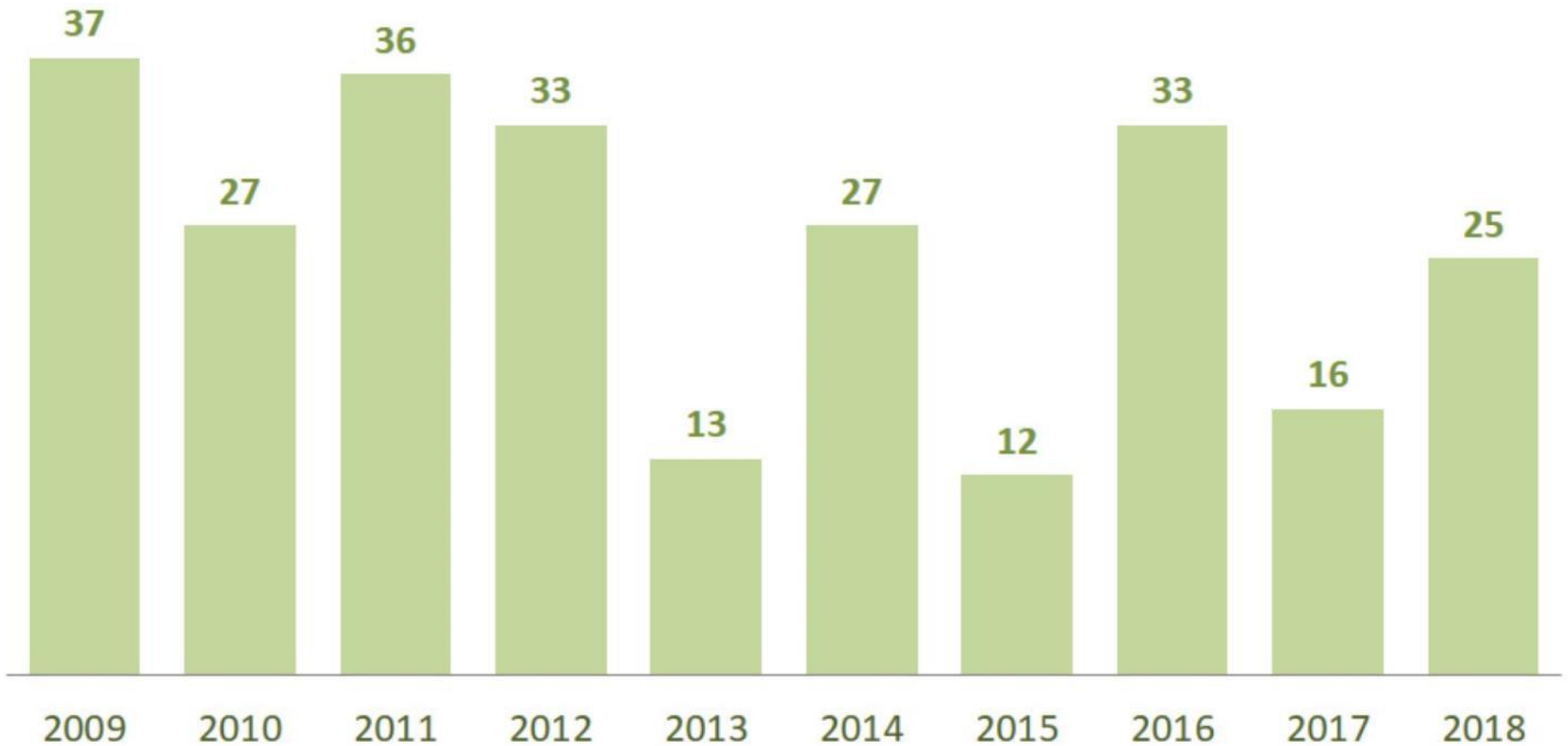
The screenshot shows the Wisconsin Department of Health Services website. At the top left is the logo and name. A search bar is on the top right. A navigation bar below contains links for About DHS, Data & Statistics, Diseases & Conditions, Health Care & Coverage, Long-Term Care & Support, Prevention & Healthy Living, Partners & Providers, and Certification, Licenses & Permits. Below this is a 'Topics A-Z' bar with letters A through Z. The main content area has a breadcrumb trail: Home > Prevention & Healthy Living > Environmental Health > Water > Blue-Green Algae. On the left is a sidebar with 'Blue-Green Algae Home' and a list of links: Understanding Algae, Health Concerns, Algal Bloom Photos, Keeping our Lakes Clean, For Health Professionals, Resources and Links, and Contact Us. The main heading is 'Blue-Green Algae' with social media icons for Facebook, Twitter, LinkedIn, and Google+. The text describes the DPH's role in collecting information on human and animal illness from blue-green algae exposure. It includes a warning: 'If you get sick after swimming in a Wisconsin lake or river, please report possible algae-related illness. This program does not provide medical treatment, so if you are experiencing severe symptoms seek medical attention immediately.' To the right is an aerial photo of a river with a blue-green algal bloom. Below the photo is a dark blue box with the text 'When in doubt, stay out!'.

NEW!

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Annual Health Complaints



DPH HAB Surveillance Program

Human HAB-Related Illness Interview Form

Case classification:
 Confirmed case
 Probable case
 Suspect case
 Not a case

WI Case ID: _____ CDC Case ID: _____
 WI HAB Report ID: _____ CDC HAB Report ID: _____

Date of interview: _____ Time: _____ AM PM
 DPH Staff interviewer name: _____
 Interview completed with: Patient Surrogate (specify): _____

INTERVIEW ATTEMPTS		Outcome (e.g. left message with household member, left voicemail, no answer, wrong number, refused interview)
Date attempted	Time	

DPH Staff Member: _____

DEMOGRAPHIC INFORMATION

Name of patient: _____ Anonymous complaint
 Name of parent/guardian (if child): _____ Zip code: _____
 Home address: _____ State: _____ Home / Mobile / Work
 City: _____ Home / Mobile / Work Sex: M F
 Phone number: _____ Age (years): _____ Are you of Hispanic ethnicity?
 Alternate phone: _____ Yes No
 Date of Birth: _____

With which racial group do you most closely identify?
 White
 Black/African American
 Asian
 Native Hawaiian/other Pacific Islander
 Native American/Alaskan
 Mixed race
 Other
 Unknown/refused

Wisconsin Harmful Algal Blooms Surveillance Program, Rev. 7/1/2015

Animal Illness Interview Form



Case classification:
 Confirmed case
 Probable case
 Suspect case
 Not a case

WI Case ID: _____ CDC Case ID: _____
 WI HAB Report ID: _____ CDC HAB Report ID: _____

Date of interview: _____ Time: _____ AM PM
 DPH staff interviewer name: _____

Please identify who reported this case to DPH
 (Point of Contact):
 Citizen
 Health Care Provider
 State Agency
 County Agency
 Poison Control
 Other agency: _____
 Media

Case reporting method:
 Online form
 Phone
 Email
 Other
 Automatic notification (WPC)
 During patient interview (case finding)

Name of point of contact: _____
 Agency name (if any): _____
 Phone number: (____) _____ ext. _____
 Email: _____

POC's relationship to ill animal(s): _____
 How did the POC hear about this program? _____

OWNER INFORMATION

Name of owner: _____ Anonymous complaint
 Home address: _____
 City: _____
 Phone number: _____ State: _____ Zip code: _____
 Alternate phone: _____ Home / Mobile / Work
 Home / Mobile / Work

DESCRIPTIVE INFORMATION

How many animals are ill? _____
 Single animal
 Multiple animals in same household (complete a separate interview for each animal)
 Group of animals (e.g. herd, flock, school of fish)

DPH HAB Surveillance Program

Human HAB-Related Illness Interview Form

Case classification:
 Confirmed case
 Probable case
 Suspect case
 Not a case

WI Case ID: _____
WI HAB Report ID: _____
Date of interview: ____/____/____ Time ____:____ AM PM

DPH Staff interviewer name: _____
Interview completed with: Patient Surrogate

CDC Case ID: _____
CDC HAB Report ID: _____

INTERVIEW ATTEMPTS	
Date attempted	Time

DEMOGRAPHIC INFORMATION

Name of patient: _____ Zip code: _____
Name of parent/guardian (if child): _____ State: _____ Home / Mobile / Work
Home address: _____ Home / Mobile / Work
City: _____ Sex: M F
Phone number: _____ Age (years): _____ Are you of Hispanic ethnicity?
Alternate phone: _____ Yes No
Date of Birth: ____/____/____

With which racial group do you most closely identify?
 White
 Black/African American
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 Native Hawaiian/other Pacific Islander
 Native American/Alaskan
 Mixed race
 Other
 Unknown/refused

Wisconsin Harmful Algal Blooms Surveillance Program, Rev. 7/1/2015

Animal Illness Interview Form

Case classification:
 Confirmed case
 Probable case
 Suspect case
 Not a case

WI Case ID: _____
WI HAB Report ID: _____
Date of interview: ____/____/____ Time ____:____ AM PM

DPH staff interviewer name: _____
Please identify what animal is ill: _____

CDC Case ID: _____
CDC HAB Report ID: _____

Reporting method:
Form Patient interview (case finding)

Public notification (WPC) _____
Patient interview (case finding) _____

DESCRIPTIVE INFORMATION

Name of owner: _____
Home address: _____
City: _____
Phone number: _____ State: _____ Zip code: _____
Alternate phone: _____ Home / Mobile / Work Anonymous complaint
Home / Mobile / Work


How many animals are ill? _____
 Single animal
 Multiple animals in same household (complete a separate interview for each animal)
 Group of animals (e.g. herd, flock, school of fish)

Could the illness in question possibly be due to exposure to cyanobacteria and/or cyanotoxins?

DPH HAB Surveillance Program



DPH HAB Surveillance Program



Is the water representative of environmental conditions at the time of the exposure?

- What does the water look like now?
- How many days have passed since the person or animal was exposed?
- Have significant environmental events caused or are they suspected to cause changes to the bloom before sampling?



DPH HAB Surveillance Program



Harmful Algal Bloom Surveillance Program Field Staff Sampling Protocol

Wisconsin Division of Public Health
Wisconsin Department of Natural Resources

2018 Update

When to use this kit:

For Response Monitoring by DNR staff when these three criteria are met:

- illnesses suspected to be related to HAB exposure are reported;
- DHS Division of Public Health partners determine the case histories, symptoms, and environmental conditions are consistent with HAB exposure;
- full cyanobacterial identification and enumeration, cyanotoxin analysis, water chemistry, and coliform bacteria testing are required.

Use may be warranted in other situations with public health impact but consult with the Statewide Blue-green Algae Coordinator before using the kit.

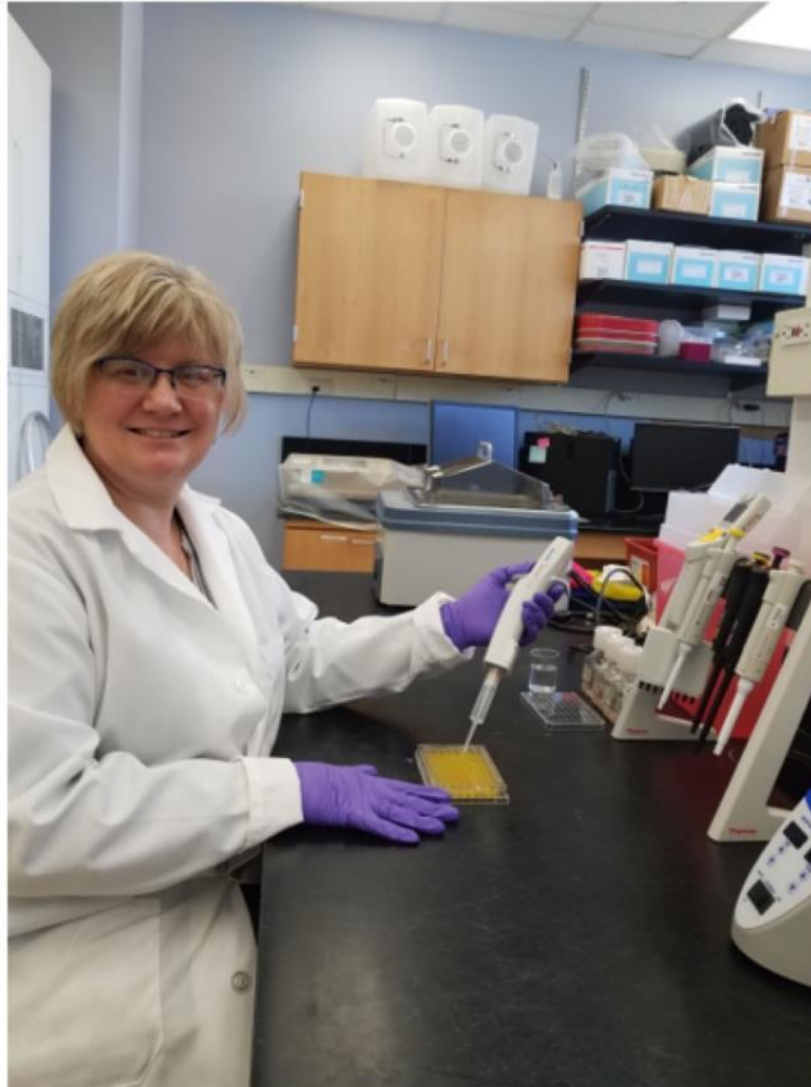
When NOT to use this kit:

- Confirmation of bloom presence only.
- Cyanobacterial identification and/or enumeration without requirement for cyanotoxin analysis, water chemistry, or E. coli testing.

Consult with the Statewide Blue-green Algae Coordinator for photo identification, or seek identification and enumeration services from the Wisconsin State Laboratory of Hygiene (WSLH).

If non-DNR entities (county staff, homeowners) are seeking cyanobacterial testing, please refer them to the Statewide Blue-green Algae Coordinator. They can seek services from WSLH, but if testing results are going to be used for beach monitoring or other public health issues, the coordinator needs to brief them on availability of messaging resources and the need to work with local public health officials.

DPH HAB Surveillance Program



DPH HAB Surveillance Program

Wisconsin Department of Natural Resources
Laboratory Report

08/03/2016 Lab: [REDACTED] Sample: [REDACTED] Page 1 of 2

Laboratory: Wisconsin State Laboratory of Hygiene DNR ID: [REDACTED]
2601 Agriculture Dr
Madison WI 53718
Phone: 800-442-4618 Fax Phone: 608-224-6213

Sample:

Field #: [REDACTED] Sample #: [REDACTED]
Collection Start: [REDACTED] Collection End: [REDACTED] 2:10 pm
Collected by: [REDACTED] Waterbody/Outfall Id: [REDACTED]
ID #: [REDACTED] ID Point #: [REDACTED]
County: [REDACTED] Account #: [REDACTED]

Sample Location: END OF CHANNEL ON LAKE [REDACTED]
Sample Description: END OF PIER
Sample Source: Surface Water Sample Depth: 0.5F
Date Reported: 08/03/2016 Sample Status: COMPLETE
Project No: [REDACTED] Sample Reason: [REDACTED]
Comment: [REDACTED]

Analyses and Results:

Analysis Method	Analysis Date	Lab Comment
SM 10200	08/02/2016	

Code	Description	Result	Units	LOD	Report Limit	LOQ
20	AMBIENT AIR TEMPERATURE - FIELD	25.7	C			
300	DISSOLVED OXYGEN FIELD	10.4	MG/L			
10	TEMPERATURE FIELD	25.1	C			

Analysis Method	Analysis Date	Lab Comment
Microcystin Immunoassay Screen	08/08/2016	

Code	Description	Result	Units	LOD	Report Limit	LOQ
98437	MICROCYSTIN	30	ug/L	2.00		3.00

Code	Description	Result	Units	LOD	Report Limit	LOQ
98851	APHANOCAPSA SP., COUNT	25	NU/mL			
98851	APHANOCAPSA SP., COUNT	941	cells/mL			
98836	CENTRALES DIATOMS, COUNT	458	NU/mL			
98836	CENTRALES DIATOMS, COUNT	458	cells/mL			
71384	CERATIUM HIRUNDINELLA, COUNT	13	cells/mL			
71384	CERATIUM HIRUNDINELLA, COUNT	13	NU/mL			
82092	CHLAMYDOMONAS SP., COUNT	102	NU/mL			
82092	CHLAMYDOMONAS SP., COUNT	102	cells/mL			
98810	CRYPTOMONAS SP., COUNT	153	NU/mL			
98810	CRYPTOMONAS SP., COUNT	153	cells/mL			
98788	DYSMORPHOCOCCUS SP., COUNT	25	cells/mL			
98788	DYSMORPHOCOCCUS SP., COUNT	25	NU/mL			
71380	EUGLENA SP., COUNT	13	cells/mL			
71380	EUGLENA SP., COUNT	13	NU/mL			
98760	KOMMA CAUDATA, COUNT	1423	cells/mL			
98760	KOMMA CAUDATA, COUNT	1423	NU/mL			
98744	MICROCYSTIS AERUGINOSA, COUNT	18683	cells/mL			

Analyses and Results:

Analysis Method	Analysis Date	Lab Comment				
Field Data						
Code	Description	Result	Units	LOD	Report Limit	LOQ
20	AMBIENT AIR TEMPERATURE - FIELD	25.7	C			
300	DISSOLVED OXYGEN FIELD	10.4	MG/L			
10	TEMPERATURE FIELD	25.1	C			

Analysis Method	Analysis Date	Lab Comment				
Microcystin Immunoassay Screen						
Code	Description	Result	Units	LOD	Report Limit	LOQ
98437	MICROCYSTIN	30	ug/L	2.00		3.00

DPH HAB Surveillance Program

Wisconsin Department of Natural Resources
Laboratory Report

08/03/2016 Lab: [REDACTED] Sample: [REDACTED] Page 1 of 2

Laboratory: Wisconsin State Laboratory of Hygiene DNR ID: [REDACTED]
2601 Agriculture Dr
Madison WI 53718
Phone: 800-442-4618 Fax Phone: 608-224-6213

Sample:

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Collection Start: [REDACTED] Collection End: [REDACTED] 2:10 pm
Collected by: [REDACTED] Waterbody/Outfall Id: [REDACTED]
ID #: [REDACTED] ID Point #: [REDACTED]
County: [REDACTED] Account #: [REDACTED]

Sample Location: END OF CHANNEL ON LAKE [REDACTED]
Sample Description: END OF PIER
Sample Source: Surface Water Sample Depth: 0.5F
Date Reported: 08/03/2016 Sample Status: COMPLETE
Project No: [REDACTED] Sample Reason: [REDACTED]
Comment: [REDACTED]

Analyses and Results:

Analysis Method	Analysis Date	Lab Comment
SM 10200	08/02/2016	

Code	Description	Result	Units	LOD	Report Limit	LOQ
98851	APHANOCAPSA SP., COUNT	25	NU/mL			
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98810	CRYPTOMONAS SP., COUNT	153	NU/mL			
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98788	DYSMORPHOCOCCUS SP., COUNT	25	NU/mL			
71380	EUGLENA SP., COUNT	13	cells/mL			
71380	EUGLENA SP., COUNT	13	NU/mL			
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98760	KOMMA CAUDATA, COUNT	1423	NU/mL			
98744	MICROCYSTIS AERUGINOSA, COUNT	18683	cells/mL			

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Field Data						
Code	Description	Result	Units	LOD	Report Limit	LOQ
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Analysis Method	Analysis Date	Lab Comment				
Microcystin Immunoassay Screen	08/08/2016					
Code	Description	Result	Units	LOD	Report Limit	LOQ
98437	MICROCYSTIN	30	ug/L			3.00

DPH HAB Surveillance Program

HEALTH ALERT

Toxic blue-green algae may be present in this area.

Avoid swallowing lake water and do not touch algal scums. Keep pets away from the water.

Do not swim in areas where you cannot see your feet in knee-deep water.



Be alert! Avoid water that:

- Looks like pea soup or spilled paint
- Is discolored or has colored streaks
- Has surface scums, mats, or films
- Has green dots or globs floating below the surface

For more information, call the [county name] Health Department at [phone number] or visit [department website].



ADAMS COUNTY HEALTH & HUMAN SERVICES DEPARTMENT
 108 East North Street
 Friendship, Wisconsin 53934-9443

Phone • 608-339-4505 Fax • 608-339-4585 e-mail • adamshhd@co.adams.wi.us

Confirmed Blue-Green Algae Press Release: 8/8/2016
 For Immediate Release



Warn in Doubt, Stay Out!

The Wisconsin Department of Natural Resources has confirmed the presence of blue-green algae in Lake Potoswell, Carle Rock Lake, Lake Sherwood, Lake Canastota, and Lake Arrowhead in Adams County. Illnesses in humans and animals potentially related to blue-green algae in these lakes have been reported as well.

"Swimming in or swallowing water with high levels of blue-green algae presents health risks to individuals," says Sarah Grossman, Adams County Health Officer. "Awareness and common sense is the key. People and their pets should avoid swimming where water looks like pea soup or smells foul. All recreation swimmers and boaters are urged to avoid direct contact with the affected lake areas.

Algae blooms take on many different appearances and colors. They can look like pea soup or spilled paint on the surface of the water. Although the color is usually blue-green the algae blooms can range from blue to red in color. There is currently no treatment for blue-green algae blooms so it is best to stay out of the water until the bloom dissipates on its own. Although many adults will avoid swimming in such conditions, children and pets are less conscious of where they choose to swim. It is important to protect children and pets from the threat of blue-green algae by making sure they avoid contaminated waters.

According to the U.S. Center for Disease Control and Prevention (CDC), adverse human health effects include difficulty breathing, stomach and intestinal issues such as vomiting and diarrhea, skin irritation, loss of appetite, nausea, or weakness or tingling of the hands and/or feet. These symptoms can show up minutes to hours after exposure. Pets, especially dogs, can experience symptoms such as fatigue, difficulty breathing, vomiting, convulsions, and even death following exposure to blue-green algae. Health officials recommend if you or your pets have been exposed to blue-green algae and are experiencing any of these symptoms to seek medical or veterinary attention.

- The Wisconsin Department of Natural Resources offers tips to protect you and your family:
- Do not swim in water that looks like "pea soup", green or blue paint, or that has a scum layer or puffy blobs floating on the surface
 - Do not bathe, water ski, etc. over such water (people can be exposed through inhalation of aerosolized water droplets)
 - Do not let children play with scum layers, even from shore
 - Do not let pets or livestock swim in, or drink, waters experiencing blue-green algae bloom
 - Do not treat surface waters that are experiencing blue-green algae blooms with any herbicide or algaecide - toxins are released into the water when blue-green algae cells die

Preserving and strengthening individuals, family and community

HAB-Related Illness Case Studies

Human Illness Case Study

In August 2017, DPH received faxed report from the Wisconsin Poison Center (WPC).

- 17-year-old male became ill with abdominal cramping and diarrhea the day after recreating in Lake A for less than 30 minutes
- Illness reported to WPC by mother

Human Illness Case Study

- DPH interviewed the mother the following week
 - Husband and son entered water, mother didn't
 - **Husband also ill**
- Exposure location: near shoreline of county park
- Activities: swimming near shoreline, dunking, playing catch in waist-deep water



Human Illness Case Study

- Signs and symptoms:
 - First sign: headaches within 1 hour of exposure
 - Following morning: abdominal cramping and diarrhea lasting <24 hours
 - No known ill contacts
 - Did not seek medical care
- Environmental conditions:
 - Murky green, “pea soup” water with rotten egg odor
 - Three dead carp present

Human Illness Case Study

- Water Sampling
 - Too late for illness response sampling
 - Other data available?
 - Citizen monitoring at deep hole on day of exposure:
 - Secchi depth:** 2.5 ft
 - Trophic state index:** 64
 - Clarity:** murky
 - Color:** green
 - Unknown conditions at shallower shoreline locations

Human Illness Case Study

Conclusion

- Signs and symptoms characteristic of cases of HAB-related gastrointestinal illness
- There was observational and environmental evidence of a bloom
- Lab-based HAB data unavailable

 ***Probable case***

Animal Illness Case Study

Two dogs died within 1 hour of each other on the same day after swimming in the same lake.

- Dogs had no connection
- Dogs swam at different beaches on Lake B (Beach A, Beach B)
- No blooms were visually observed
- Owner of one dog went to the media

Animal Illness Case Study

Cavalier King Charles Spaniel

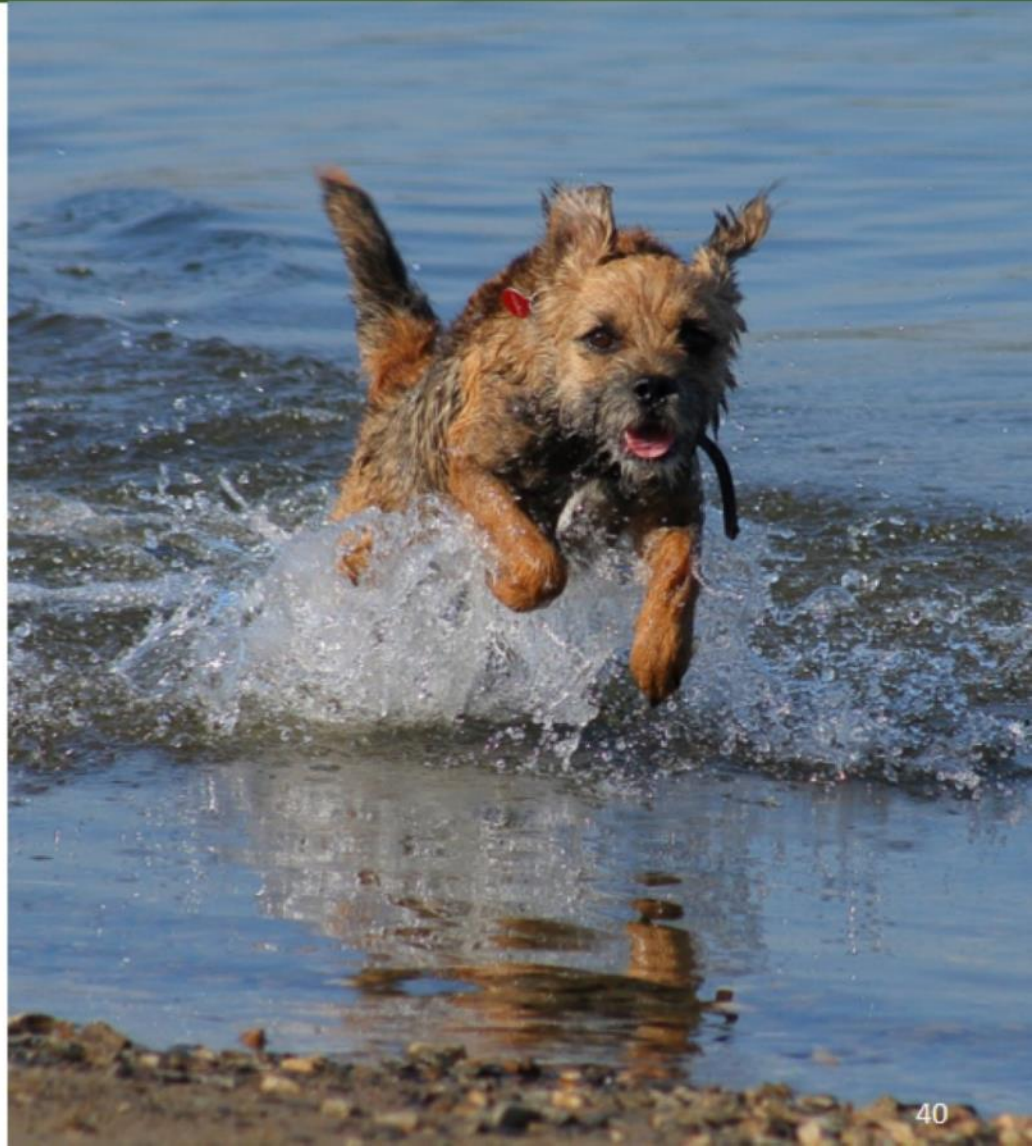
- **Activities at Beach A:**
swimming, playing fetch
- **Exposure duration:** 1 hour
- **Signs of illness:**
 - First sign: loss of balance 40 minutes into swimming
 - During walk home: loose stool and frequent urination
 - At home: salivation and frothing at the mouth, vomiting, panting, head and front leg extension, unconsciousness
- **Environmental conditions:**
brown and murky water; no observed algal bloom



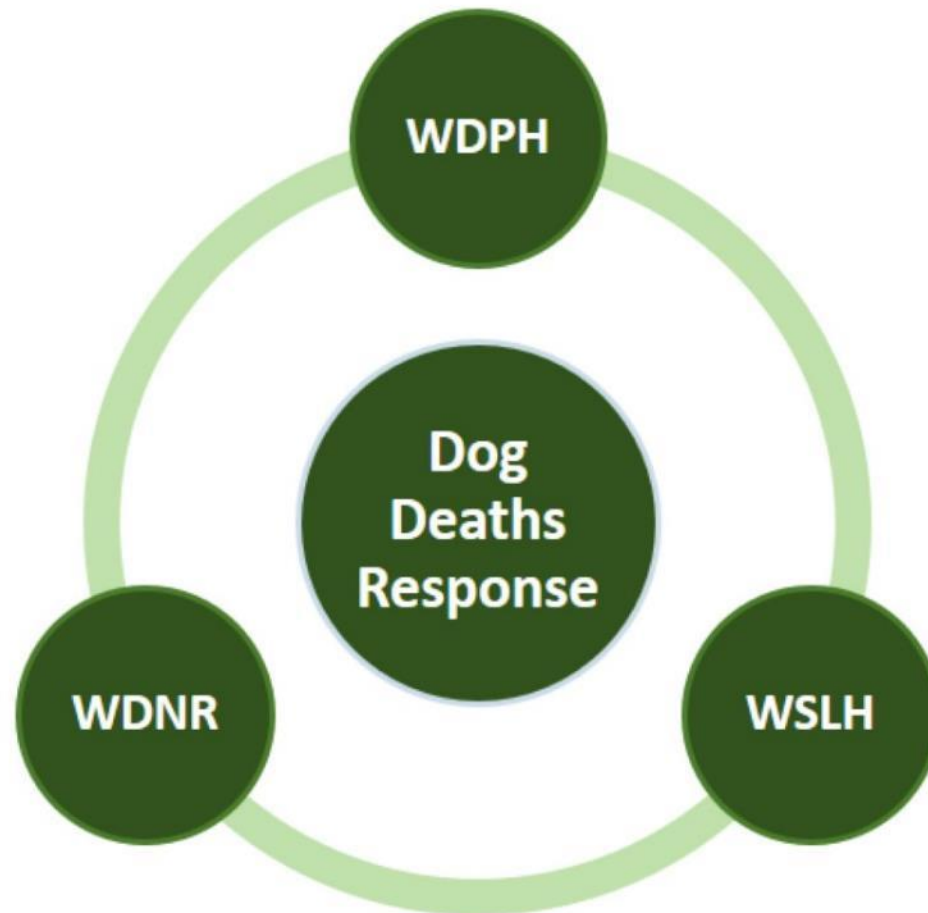
Animal Illness Case Study

Border Terrier

- **Activities at Beach B:**
swimming, playing fetch
- **Exposure duration:** 20-25 min.
- **Signs of illness:**
 - First sign: ataxia/staggering approximately 20 minutes after returning home
 - Other signs/symptoms at home: twisting/turning, convulsions, unconsciousness
- **Environmental conditions:**
brown and murky water; no observed algal bloom



Animal Illness Case Study



Animal Illness Case Study



Animal Illness Case Study

WDPH

Interviewed dog owners and served as point-of-contact between investigation partners

WDNR

Collected and analyzed water samples at Beach A and Beach B where dogs were exposed

WSLH

Analyzed water samples and dogs' stomach contents for cyanobacteria and cyanotoxins

Animal Illness Case Study



**Local
Health
Dept.**

Collected and analyzed water samples for cyanobacteria and cyanotoxins



**Local
Lake
Assoc.**

Shared results from routine monitoring at Beach A on day of dogs' exposures



Vets

Received, examined, and attempted to treat animals during ER visits; performed necropsies and additional post-mortem testing on both dogs

Animal Illness Case Study

Water sample analysis

- **Low** cyanobacterial cell counts with either **non-detectable** or **very low** levels of cyanotoxins

Stomach content analysis

- Cavalier King Charles Spaniel: **non-detectable** cyanotoxins
- Border Terrier: **non-detectable** cyanotoxins

Post-mortem analyses and necropsies

- Ruled out cyanotoxin exposure
- Identified possible other causes of death

Animal Illness Case Study

Water sample analysis

- **Low** cyanobacterial cell counts with either **non-detectable** or **very low** levels of cyanotoxins

Stomach content analysis

- Cavalier King Charles Spaniel: **non-detectable**
- Border Terrier: **non-detectable**

Post-mortem analyses and necropsies

- Ruled out cyanotoxin exposure
- Identified possible other causes of death



Not a case!

Public Health Importance

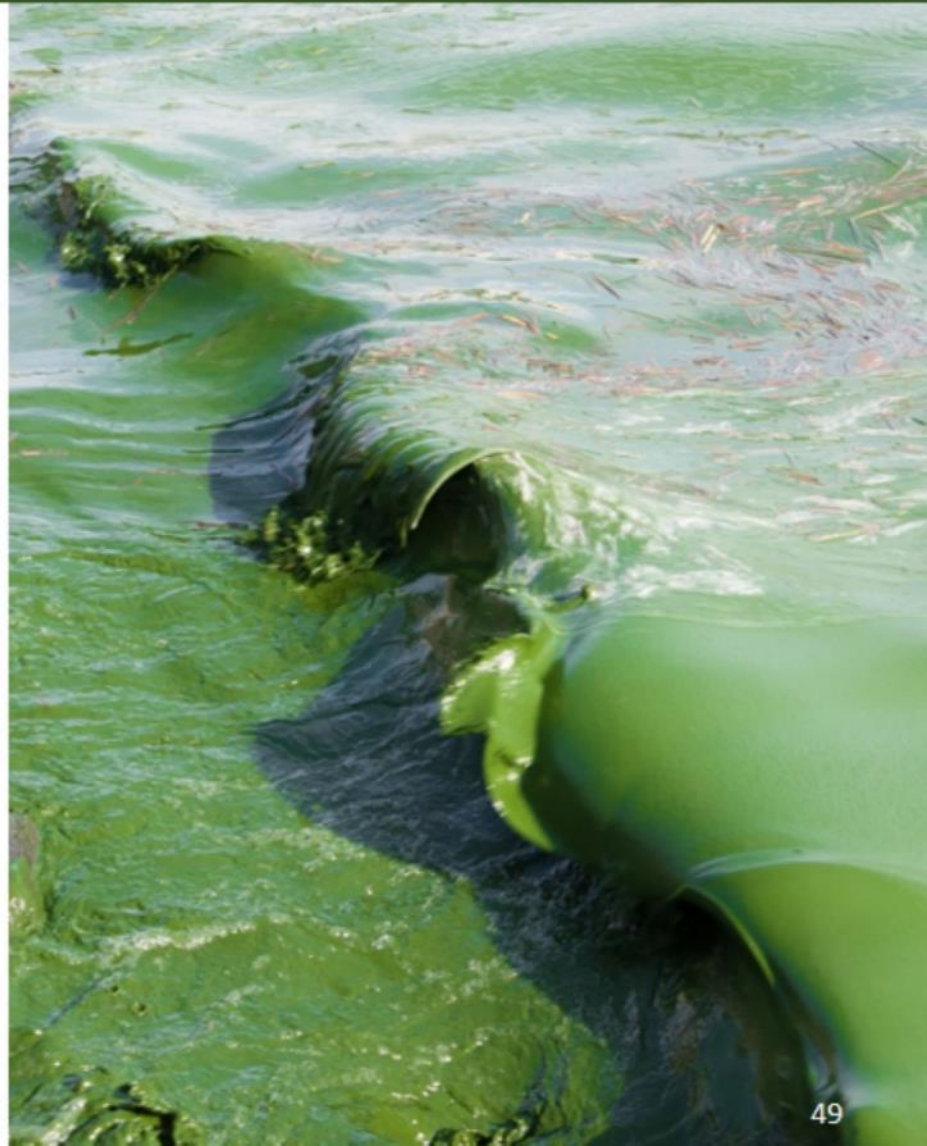
Public Health Importance

- Emerging public health problem worldwide.
- Projected increases in severity and magnitude.
- Health impacts are still poorly understood.



Public Health Challenges

- Poor recognition of cases.
- Failure to associate illness with algal bloom exposure.
- Challenging to diagnose.
 - Non-specific symptoms
 - Medical attention not sought
 - Low case recognition among doctors and vets
 - No clinical diagnostic test



Illness Prevention

How Can I Help?



How Can I Help?

- **Become familiar with the signs and symptoms and water conditions.**

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- Become familiar with the signs and symptoms and water conditions.
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- Report suspected illnesses.
- Encourage others to report suspected illnesses.
- Report obvious blooms to the Wisconsin DNR.

Illness Prevention



Illness Prevention

Do not swim or allow your kids or pets to swim where water is discolored or where you see foam, scum, or algal mats.

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Do not boat, tube, water ski, jet ski, or wakeboard through algal blooms.

Shower after swimming in lakes, rivers, and ponds.

Illness Prevention

Keep pets out of discolored water or where you see foam, scum, or mats of algae.

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Keep pets out of discolored water or where you see foam, scum, or mats of algae.

If dogs swim in scummy water, rinse them off right away—do not let them lick algae off their fur.

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If dogs swim in scummy water, rinse them off right away—do not let them lick algae off their fur.

Respect beach closures and health advisories.

Illness Prevention

When in doubt, stay out!

WISCONSIN DEPARTMENT of HEALTH SERVICES

Search Wisconsin DHS

About DHS | Data & Statistics | Diseases & Conditions | Health Care & Coverage | Long-Term Care & Support | Prevention & Healthy Living | Partners & Providers | Certification, Licenses & Permits

Topics A-Z: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Prevention & Healthy Living | Environmental Health | Water | Blue-Green Algae

Blue-Green Algae Home

Understanding Algae | Health Concerns | Algal Bloom Photos | Keeping out For Health | Resources | Contact Us

Blue-Green Algae

The Wisconsin Department of Health Services

Report illnesses in humans & animals online, or call 608-266-1120

When in doubt, stay out!

NEW!

For healthcare providers: beginning 7/1/2018, report any suspected human cases of Cyanobacteria and Cyanosin Poisoning electronically through WEDSS or by mailing or faxing a completed Acute and Communicable Disease Case Report, F-44153 to the address on the form.

For members of the general public and veterinarians: call 608-266-1120 or complete the online form Harmful Algal Bloom (HAB) Illness or Sighting Survey, F-02152 or visit [www.dhs.gov](#) to report any blue-green algae blooms and related human or animal illnesses to the Wisconsin Harmful Algal Blooms Program.

Business | Licenses & Regulations | Recreation | Env. Protection | Contact | Join DNR

Lake Name:

Lakes

Find a Lake

Blue-green algae

Blue-green algae blooms appeared earlier and on more lakes this summer than usual. Learn more about these blooms and the health risks they can pose.

Contact information
For information on Lakes in Wisconsin, contact:
[Wisconsin DNR Lakes](#)
Division of Water
Bureau of Water Quality
[Blue-Green Algae Contacts](#)

Blue-Green Algae

General | Humans & Animals | Drinking Water | Recreation | Protect Yourself | Resources

Contact and General Information

If you think you are experiencing symptoms related to exposure to blue-green algae (e.g., stomach cramps, diarrhea, vomiting, headache, fever, muscle weakness, difficulty breathing), contact your doctor or the Poison Information Hotline (800-222-1222) right away.

If your pet displays symptoms such as seizures, vomiting, or diarrhea after contact with surface water, contact your veterinarian right away.

Report a Case with potential health effects caused by blue-green algae, visit the [Department of Health Services](#) or contact the Bureau of Environmental and Occupational Health at 608-266-1120.

For more information about contacting your local health department, check the [Department of Health Services Web site](#).

If you are (or your local community is) interested in collecting samples for analysis, please contact the **Wisconsin State Laboratory of Hygiene** at (800)442-4618. The Wisconsin Department of Natural Resources is not currently conducting any routine monitoring for blue-green algae or blue-green algal toxins.

What are blue-green algae?

Blue-green algae, also known as Cyanobacteria, are a group of photosynthetic bacteria that many people refer to as "pond scum." Blue-green algae are most often blue-green in color, but can also be blue, green, reddish-purple, or brown. Blue-green algae generally grow in lakes, ponds, and slow-moving streams when the water is warm and enriched with nutrients like phosphorus or nitrogen.

When environmental conditions are just right, blue-green algae can grow very quickly in number. Most species are buoyant and will float to the surface, where they form scum layers or floating mats. When this happens, we call this a "blue-green algae bloom." In Wisconsin, blue-green algae blooms generally occur between mid-June and late September, although in rare instances, blooms have been observed in winter, even under the ice.

dhs.wisconsin.gov
Search for "algae"

dnr.wi.gov
Search for "algae"

Please let the DNR know about significant bloom events!

DNRHABS@wisconsin.gov

Bloom location with lake, town, & county name, size, duration, photos

DHSDPHHABS@dhs.wisconsin.gov

Gina.LaLiberte@wisconsin.gov