

# 2017/18 Review of Freshwater HAB Programs

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# 2017/2018 Review – To Date

- Updated the summary table for all 50 states through:
  - A lot of internet searches
  - Some direct communication to fill in the gaps
- Provided updated state program websites to [North American Lake Management Society \(NALMS\)](#) and [USEPA](#)
- Provided brief presentation at January CCHAB Network meeting
  - Grouped freshwater HAB programs into 3 relative categories (less, more, and most developed)
  - Identified some common issues or next steps across states
  - Provided initial thoughts about further outreach

# 2017/2018 Review – This Talk

- More detailed summary of:
  - Regulations and funding
  - Planning documents
  - Reporting
  - Recreational water
  - Drinking water
  - Outreach and mapping
- Please Note:
  - Specific states are provided (with hyperlinks) as examples of different characteristics. These lists may not be comprehensive.
  - Websites are subject to change, so please check original sources for current resources.

# REGULATIONS & FUNDING

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# HAB-related Statutes and Regulations

- [OK: Title 74, Section 2301](#) (2012)
  - Identify agency lead for public information for recreational waters in OK
  - State Department of Health to provide information on public health impacts
  - Require waterbody managers to post advisories with exceedance of established action levels (100,000 cells/mL and 20 ug/L microcystin)
- WA: [Aquatic algae control account \(RCW 43.21A.667, 2011\)](#)
  - \$1 from [derelict vessel and invasive species removal fee](#) (\$5 total)
  - Develop freshwater and saltwater aquatic algae control program
  - Fund grant program for managing freshwater and saltwater nuisance algae
  - Provide technical assistance
- OR: Title 36, [Oregon Revised Statute \(ORS\), Chapter 431.035 to 431.530](#) (2013)
  - OPHD has authority to issue and lift advisories for HABs
- FL: Title XXVIII, Chapter 379, Sections [2271](#) and [2272](#) (2017)
  - Establish HAB task force and HAB program for red tides and other HABs in Florida waters (estuarine and marine) under Fish and Wildlife Research Institute

# HAB Program Funding

- Federal funding
  - Initial funding from CDC
    - OR (ended 2013)
- Vessel registration fee
  - WA
    - Annual grant program (\$100-200K per year; maximum grant \$50K)
    - Project types include monitoring plans, pilot projects, research, and sampling equipment (and others)
- State agency funds
  - Limited funds for initial response, follow up by local agencies (CA, RI)

# PLANNING DOCUMENTS

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# Planning Documents

- Terminology
  - Response plans, strategies, toolkit, guidance
- Content
  - Background on cyanobacteria, identification, health impacts
  - Roles and responsibilities, contacts
  - Reporting process
  - Response flow chart, timelines, and action levels
  - Monitoring methods
  - Drinking water intake locations
  - Templates of signage, press releases, and other outreach materials
- Audience
  - Local health departments, local municipalities/communities, state agencies, public
- Scope
  - State
    - [CA](#), [OR](#), MI\*, [NJ](#), [NY](#), [OH](#), [OR](#), [VA](#), [WI](#), [WV](#), WY\*
  - Multi-state waterbody
    - [Upper Mississippi River](#), [Lake Erie](#)

\* received upon request



# Planning Documents – State Examples



## HARMFUL ALGAL BLOOMS (HABS) PROGRAM GUIDE

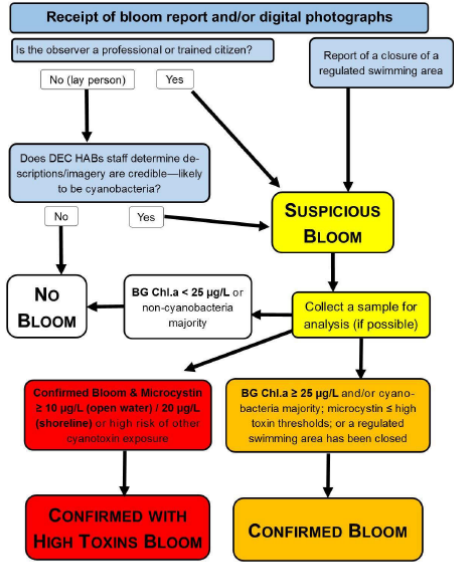
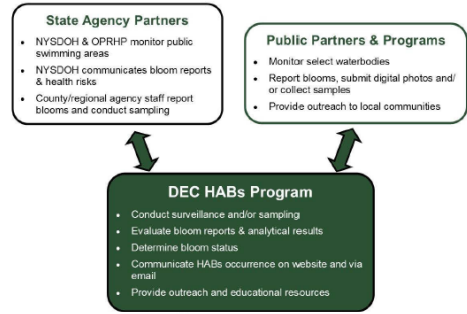


Figure 3.1 Decision tree that indicates the process by which DEC HABs Program staff determine the status of a potential bloom

## Oregon Harmful Algae Bloom Surveillance (HABS) Program

### Public Health Advisory Guidelines Harmful Algae Blooms in Freshwater Bodies



**Oregon Health Authority**  
Public Health Division  
Center for Health Protection  
Environmental Public Health Section



## Cyanobacteria (Blue-green Algae) Guidance for Vermont Communities

VERMONT

### Appendix C: BGA Health Alert Template

Blue-green algae blooms have recently been observed in areas near \_\_\_\_\_ (If toxin testing performed then: Samples from toxin tests indicated levels of toxin which did not exceed Vermont beach health guidelines. Based on conditions in these areas the following recommendations to residents and lake users have been advised:

- Avoid contact with algae contaminated water (swimming, bathing etc.). Pay close attention to children as they are at higher risk.
- Monitor drinking water intakes for private residences, if algae are present near intake, switch to alternate known safe source of water. Do not use algae contaminated water to prepare meals or brush teeth. Note that boiling water will not remove toxins.
- Do not allow pets in algae contaminated water.

Public water suppliers in the area are monitoring water supplies closely. (if appropriate)

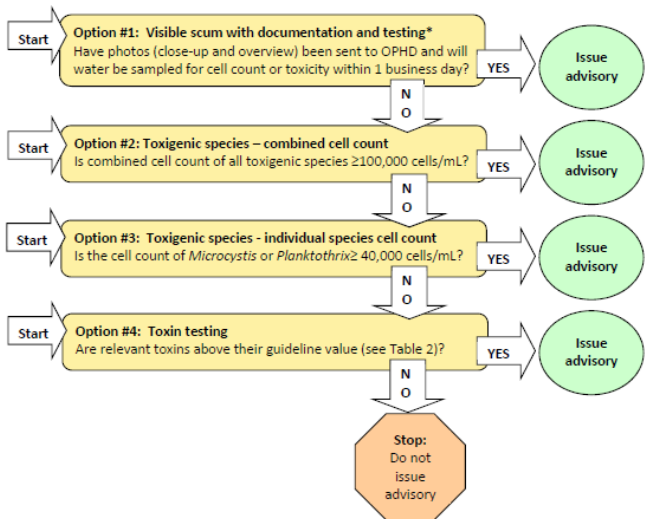
Skin contact with algae contaminated water can cause irritation or rashes. If people or pets come into contact with water, promptly shower or rinse off in uncontaminated water. Swallowing algae contaminated water can result in diarrhea, vomiting, or nausea. Seek medical attention if you feel you have been exposed to blue green algae and are having adverse health effects.

The Vermont Department of Health Laboratory can test for blue green algae toxins. Call 1-800-660-9997 to purchase a kit. (Kit BGA-2A and Kit ANA Drinking Water Supplies or BGA-3 and Kit ANA for Private Swimming Waters)

For photos, information visit the Vermont Department of Health's website at: [http://healthvermont.gov/enviro/bga\\_algae/bgalgae.aspx](http://healthvermont.gov/enviro/bga_algae/bgalgae.aspx).

Also contact the \_\_\_\_\_ for more information.

Figure 2. OPHD process for issuing public health advisories for a cyanoHAB



The following is a message map that could be used when addressing the general public regarding harmful algal blooms.

Key Messages	Supporting Information
<p><b>Three key messages</b></p> <p><b>Message 1</b> Blue-green algae, also known as cyanobacteria, can cause adverse health effects.</p>	<p><b>Three pieces of supporting information for each key message</b></p> <p><b>Supporting Info 1</b> Cyanobacteria, otherwise known as blue-green algae, are photosynthetic (light-using) organisms that are responsible for harmful algal blooms.</p> <p><b>Supporting Info 2</b> Not all cyanobacteria can produce harmful toxins, but those that do can cause rashes, diarrheal disease, and respiratory problems.</p> <p><b>Supporting Info 3</b> In Wisconsin, harmful algal blooms are most common during the warm-weather months between mid-June and mid-September, but they can occur all year.</p>
<p><b>Message 2</b> When in doubt, stay out!</p>	<p><b>Supporting Info 1</b> Humans can be exposed to harmful algal blooms through accidental ingestion while swimming, by inhaling aerosols (spray) during water recreation, or just by being in the water where a bloom is occurring.</p> <p><b>Supporting Info 2</b> If you are unsure about the water, don't go in! Be sure to check for beach postings and water quality notices before swimming.</p> <p><b>Supporting Info 3</b> Rinse yourself off immediately after being in contact with algae-affected waters, and get medical treatment right away if you think you have been poisoned by harmful algal blooms.</p>
<p><b>Message 3</b> Animals and livestock can become very ill after exposure to harmful algal blooms.</p>	<p><b>Supporting Info 1</b> Do not let your pets or livestock drink, graze, or play near water where there could be harmful algal blooms.</p> <p><b>Supporting Info 2</b> If your animal gets into water with a bloom, immediately wash him with clean water, and do not let him lick algae off its fur.</p> <p><b>Supporting Info 3</b> If your pet displays symptoms such as seizures, vomiting, or diarrhea after contact with surface water, contact your veterinarian right away.</p>

# Planning Documents – Multi-state Waterbody Example

Upper Mississippi River (UMR) Harmful Algal Bloom (HAB) Work Group

## Upper Mississippi River Harmful Algal Bloom Response Resource Manual



August 2017



Upper Mississippi River Basin Association

### 3 - Spatial Scope, UMR-Specific Presence, and Staffing/Field Presence

States

Federal Agencies

### 4 – Parameters, Sampling Frequency, Sampling and Analytical Methods, Laboratories Used

States	Illinois EPA	Iowa DNR	Minnesota PCA	Missouri DNR	Wisconsin DNR
States	<p><b>Parameter Focus:</b> Currently, microcystin and piloting cylindrospermopsin. May expand to include phytoplankton identification.</p> <p><b>Sampling Frequency:</b> Routine lake and in response to reports. Routine lake sampling 4x during June through October.</p> <p><b>Sampling Methods:</b> ELISA field test kits, with dilution as necessary.</p> <p><b>Analytical Methods:</b> ELISA</p> <p><b>Laboratories Used:</b> IL EPA laboratory</p>	<p><b>Parameter Focus:</b> <i>Beaches</i> – total microcystins and limited cylindrospermopsin; <i>Lakes</i> – phytoplankton identification and nutrients; <i>Streams</i> – nutrients, chlorophyll a, sediment, and - this year - microcystin in source waters.</p> <p><b>Sampling Frequency:</b> Weekly beach samples during swimming season (one week before Memorial Day to Labor Day); Lakes – 3x during summer; Streams – 3x</p> <p><b>Sampling Methods:</b> Beaches – composite of nine samples and scums in beach area. Sample Monday/Tuesday using Abraxis ELISA kits; plus Abraxis strip tests for select beaches.</p> <p><b>Analytical Methods:</b> ELISA</p> <p><b>Laboratories Used:</b> Iowa DNR water quality lab</p>	<p><b>Parameter Focus:</b> Microcystin. Also did some paired saxitoxin monitoring in July 2007. Study in 2016 includes microcystin and anatoxin.</p> <p><b>Sampling Frequency:</b> In response to reports – limited to animal deaths or human illness. For 2016 study, weekly in 2 metro lakes, monthly in 9 outstate lakes.</p> <p><b>Sampling Methods:</b> Laboratory analysis. Also, experimenting with test strips.</p> <p><b>Analytical Methods:</b> ELISA-for laboratory for both microcystin and anatoxin. Abraxis test strips for microcystin; intend to add test strips for anatoxin when they are available on the market.</p> <p><b>Laboratories Used:</b> MDH laboratory, may add private lab in the future.</p>	<p><b>Parameter Focus:</b> Microcystin, cylindrospermopsin, saxitoxin, anatoxin-a.</p> <p><b>Sampling Frequency:</b> Response only, no continuous monitoring. If toxins are found, monitoring will be determined on a case-by-case basis based upon waterbody use.</p> <p><b>Sampling Methods:</b> Microcystin dipstick test kits and cylindrospermopsin test kits provided to field offices most likely to encounter problems. If screening indicates presence of toxins samples collected and sent to state lab for ELISA testing according to Abraxis collection recommendations.</p> <p><b>Analytical Methods:</b> ELISA – have in-house capacity. Developing cyanobacteria ID and enumeration abilities.</p> <p><b>Laboratories Used:</b> Missouri DNR laboratory. Would utilize contract lab if ID or counts are desired.</p>	<p><b>Parameter Focus:</b> Microcystins, anatoxins, cylindrospermopsin, saxitoxin, phytoplankton enumeration, water chemistry.</p> <p><b>Sampling Frequency:</b> In response to reports, with priority for human and animal illnesses confirmed by Wisconsin Department of Health Services as consistent with cyanobacterial exposure symptoms (no routine ongoing monitoring). Bloom confirmation and/or identification by WI DNR staff via photographs or occasional submitted sample.</p> <p><b>Sampling Methods:</b> Response monitoring sampling kits staged for sample collection by DNR staff and laboratory analysis by Wisconsin State Laboratory of Hygiene. For selected State Parks, enhanced surveillance pilot program using microcystin test strips (funded by Wisconsin Department of Health Services).</p> <p><b>Analytical Methods:</b> Microcystin, cylindrospermopsin, and saxitoxin by ELISA. Anatoxin-a by receptor-binding assay. By HPLC-MS/MS: microcystins (LA, LR, RR, YR), anatoxin-a, homoanatoxin-a, cylindrospermopsin, deoxycylindrospermopsin. Also, cyanobacterial identification and enumeration.</p> <p><b>Laboratories Used:</b> Wisconsin State Laboratory of Hygiene</p>

# REPORTING

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# Reporting Algal Blooms

- Bloom reporting
  - HAB-specific – most states
  - Generic environmental incidents/spills - AZ, NJ, NM, TN, TX, UT, WY
- Phone/email
  - 24-hour hotline (particularly if fish kills or human illness) - MD, MT, TX, UT, VA
  - Single HAB phone # or email
  - Individual staff contact
  - Multiple contacts (health and environmental agencies)

# Reporting Algal Blooms - Forms

- Submittal – online, email, or fax
- Typical content
  - Notifying party contact and/or anonymous option
  - Bloom description – extent, color, timing, location
  - Photos
- Additional content
  - Waterbody use (recreational/drinking water)
  - Waterbody management
  - Sampling
  - Weather conditions
  - Animal and/or human illness
  - Advisory signage posted
- Pros: more detailed info, can auto-populate database with online submittal
- Cons: may be more difficult to submit in the field or on mobile device

## California Freshwater Harmful Algal Bloom Report Form

Please provide information about the harmful algal bloom observed. Click the submit button at the end of the form to send the information to the State Water Resources Control Board. Please submit one report per waterbody.

For more information on harmful algal blooms, visit:

[What are harmful algal blooms?](#)

For more information about the state's activities to address harmful algal blooms, visit:

[Freshwater Cyanobacteria Program \(Blue-Green Algae\)](#)

This form will not support the upload of photographs or other files directly. Please send photographs of the incident and any additional informational documents to the email address provided after the form has been submitted. You will be provided an Incident Tracking ID to include in your email to link the attachments to this report. If you have questions or concerns please email

[CyanoHAB.Reports@waterboards.ca.gov](mailto:CyanoHAB.Reports@waterboards.ca.gov) or call 1-844-729-6466.

\* Only questions marked with bold text and an asterisk are required. However, please provide possible to assist us in investigating the bloom.

Waterbody Information	
<b>Report Type (*)</b>	<input type="radio"/> New Report <input type="radio"/> Follow Up from Previous Report
Incident ID from previous report, if known:	<input type="text"/>
<b>Waterbody Name and Nearest Landmark (*)</b>	<input type="text"/>
County:	<input type="text"/>
Latitude (decimal):	<input type="text"/>
Longitude (decimal):	<input type="text"/>
Datum:	<input type="text"/>
Coordinates were taken from:	<input type="radio"/> GPS <input type="radio"/> Online Map <input type="radio"/> Other
Or Nearest Landmark:	<input type="text"/>
Contact Information	
Name:	<input type="text"/>
Organization:	<input type="text"/>
Email:	<input type="text"/>
Phone:	<input type="text"/>
<b>May we contact you for more information? (*)</b>	<input type="radio"/> Yes <input type="radio"/> No
Would you like to receive a follow-up message regarding this incident?	<input type="radio"/> Yes <input type="radio"/> No

**HARMFUL ALGAL BLOOM REPORTING FORM**  
**NORTH DAKOTA DEPARTMENT OF HEALTH**  
**DIVISION OF WATER QUALITY**

**Pressing Enter key during data entry submits the report and some fields will be cleared!**

Date Reported:

Date Observed:

Time Observed:

Central  Mountain

Air Temperature °F:

Lake Name:

*(start typing and names will appear)*  
*(if name is not in list, type Unknown or lake name and fill in Description)*

County:

Latitude:

*(typically 45.93 - 49)*

Longitude:

*(typically -96.55 - -104.05)*

Accuracy (meters):

Describe location of bloom  
*(e.g. boat landing, swimming beach)*





# Reporting Algal Blooms – Smart Phone Apps

- State-specific app for reporting incidents
  - [AR, NJ](#)
- General app for reporting HABs
  - [BloomWatch](#)
  - [UGA CyanoTRACKER](#)
- Pros: ease of photos, locations, use in the field
- Cons: may be more difficult to follow up with reporting party, generally less detailed



CyanoTracker is a water quality application that uses phone camera to report harmful algal blooms in ponds, lakes, and other water bodies. To learn more about the project, please visit <http://www.cyanotracker.uga.edu/>

**For Environmental Non-Emergencies:**  
Try NJDEP's new mobile application WARN NJDEP



The pilot app utilizes GPS technology for pinpoint location of environmental incidents and also allows users to submit photos as part of their reports to the DEP.

**Use the pilot app to report non-emergency environmental incidents only. Report life-threatening and/or environmental emergencies by calling 9-1-1, local police or the DEP's hotline: 1-877-WARNDEP (1-877-927-6337).**



# Reporting Human Incidents

- 1<sup>st</sup> step - seek medical attention, contact your physician
- Contact for more information:
  - Local health department – most states
  - Poison control center (1-800-222-1222) - [CO](#), [FL](#), [NE](#), [UT](#), [WI](#), [WY](#)
- Reporting form
  - Specific for human illness - [IL](#)
  - Part of bloom reporting form - [CA](#)
- Reporting illness
  - Report to state health agency
    - Report as general “waterborne illness” – [ID](#)
    - Report as “unusual condition or emerging infectious disease” – [WV](#)
    - Report as HAB-specific illness – [IA](#), [MD](#), [WI](#)
    - Encourage voluntary reporting – most states
  - Report to CDC OHHABS
    - Specific link to OHHABS identified - [ID](#), [IA](#), [OR](#), [VA](#)

# Reporting Domestic Animal Incidents

- 1<sup>st</sup> step – contact your veterinarian
- Contact for more information:
  - Poison control center (1-800-222-1222)
  - [Pet poison hotline \(855-764-7661\)](#) – [ID](#)
  - State health agency staff - [OR](#)
- Reporting form
  - Specific for animal illness
    - Separate small and large animal forms - [MN](#)
  - Part of bloom reporting form – [CA](#)
- Report to
  - State public health veterinarian or state agency – [IN](#), [OR](#), [WI](#), [WY](#)
- Report to CDC OHHABs



# Reporting Fish or Wildlife Incidents

- Reporting form
  - Part of bloom reporting form
- Report to
  - State wildlife agency - [CA](#)
  - State public health veterinarian – [WY](#)
  - Hotline for fish and/or wildlife impacts – [FL](#), [MD](#)
  - [USGS Wildlife Health Center](#)
- CDC OHHABs reporting

# RECREATIONAL WATER

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# Monitoring – Timing

- “Reactive monitoring” in response to bloom/illness reports – most states
- Incorporate into ongoing monitoring
  - Ambient water quality monitoring
  - Routine beach/lake fecal bacteria monitoring – [IA](#), [NE](#)
- One-time, special study
  - USGS
  - Academic research
  - University extension

# Monitoring – Participants

- Agency staff
  - Initial response (CA, RI)
  - Routine
- Native American tribes – CA (Clear Lake and Klamath Basin)
- Waterbody/land managers - OR
- Local municipalities
- Drinking water suppliers
- Researchers
- Citizen volunteer programs - [MO](#), [NY](#)

# Monitoring – Analyses

- Relates to what data are used as action levels for response/advisory
- Visual observations – bloom, Secchi depth, stick and jar test
- Cell identification and counts
- Chlorophyll-a
- Phycocyanin
- Cyanotoxins
  - Lab
  - Field tests
  - Deployed instruments (Environmental sample processor)

# Recreational Water Advisories and Signage

- Long-term, general awareness signage - [OH](#), [VA](#), [WV](#), [PA \(Lake Erie\)](#)
- Under investigation signage – [CO](#), WY\*
- Specific advisory/signage
  - Single (non-tiered) advisory
    - 1 level based on presence/duration of bloom - [DE](#), [FL](#), [NM](#)
    - 1 level based on action levels - [CO](#), [IA](#), ID\*, [IL](#), [MA](#), [MD](#), MI\*, MO\*, [NC](#), [NE](#), [NH](#), [OK](#), [OR](#), [RI](#), [WI](#)
  - Tiered advisories based on action levels
    - 2 levels – [CT](#), [IN](#), KY\*, [MN](#), [MT](#), [ND](#), [OH](#), [PA](#), [VA](#), [VT](#), [WV](#), WY\*
    - 3 levels – [CA](#), [KS](#), [NJ](#), [NY](#), [UT](#), [WA](#), [USACE Tulsa](#)

\*Received upon request

# Recreational Water – Awareness / Long-term Signage

- General awareness
  - Pictures and descriptions of HABs
  - General precautions
  - Contact info
  - OH, VA, WV, PA (Lake Erie)
- Permanent
  - OR (S. Umpqua R.)

Have fun on the water, but know that blue-green algae are present in many of West Virginia's recreational waters. Their toxins may be, too.

**Be alert! Avoid water that:**

- looks like spilled paint
- has surface scums, mats or films
- is discolored or has colored streaks
- has green globs floating below the surface



**Avoid swallowing water.**

For more information go to:  
<http://www.wvdhr.org/oehs>  
 or  
<http://www.dep.wv.gov/WWE/Algae>

Have fun on the water, but know that blue-green algae are in many Ohio lakes. Their toxins may be, too.

**Be Alert! Avoid water that:**

- looks like spilled paint
- has surface scums, mats or films
- is discolored or has colored streaks
- has green globs floating below the surface



**Avoid swallowing lake water.**

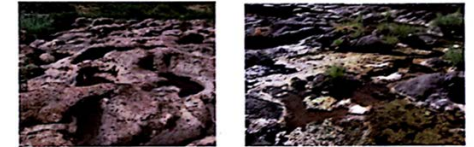
For more information, visit  
[ohioalgaeinfo.com](http://ohioalgaeinfo.com)  
 or call 1-866-644-6224.



## HEALTH ADVISORY

South Umpqua River

**AVOID POOLS OF WATER IN BEDROCK ALONG THIS RIVER**



Cyanobacteria (blue-green algae) can produce toxins that can cause serious illness in pets, animals and humans.

- Dogs have died after drinking water from these potholes. Autopsies showed they swallowed toxic algae.
- Stay out of rock formations along the shore.
- Avoid water contact. Do not drink the water.
  - Children and pets are at greatest risk.

When in doubt, stay out: don't go in water that is scummy, thick like paint, pea-green or blue-green.

For more information contact Douglas County Health Department: 541-440-3574

OHA Public Health Division: 1-877-290-6767 or [www.healthoregon.org/hab](http://www.healthoregon.org/hab)



## IF IN DOUBT, STAY OUT!

Have fun on and in the water, but know that blue-green algae blooms are a global problem in lakes, rivers and other water bodies. Their toxins may be, too. Knowing how to identify harmful algae blooms (HABs) and being alert can keep you, your family and your pets safe!

Avoid contact with water that:

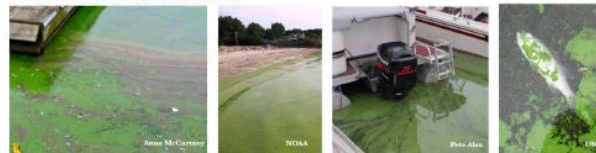
- Looks like spilled paint
- Has surface scum, mats or films
- Is discolored or has colored streaks
- Has green globs floating below the surface

And ALWAYS AVOID...

swallowing water from lakes or other water bodies!

To report a suspicious algae bloom contact the PADEP at 814-332-6839

For more information, visit [www.padep.org](http://www.padep.org)



## BE AWARE OF ALGAE BLOOMS

During an algae bloom, water may have surface scum, mats, or films with red, green, white streaks or globs.

**REPORT BLOOMS TO THE Harmful Algal Bloom Hotline 888-238-6154**



It is safe to eat properly cooked fish caught from waters with an algae bloom. Thoroughly clean the fish. Discard the carcass and guts. Wash hands, surfaces, and utensils with soapy water.

The Virginia Harmful Algal Bloom Task Force works to protect public health during algae blooms.

Learn more at [www.HarmfulAlgaeVA.com](http://www.HarmfulAlgaeVA.com)

Contact Your Local Health Department at:




# Recreational Water – Under Investigation

- Avoid contact with bloom, do not drink water
- CO (“caution”), WY

**CAUTION**  
**Toxic Algae May be Present**

- Do not drink lake water
- Avoid contact with floating algae mats
- Keep pets away
- Fishing Permitted
- Boating Permitted

Call your doctor or veterinarian if you or your animals have nausea, vomiting, diarrhea, rash, irritated eyes, seizures or breathing problems. For more information: <http://1.usa.gov/1oRiyNV>



**UNDER INVESTIGATION**

The water at this location is being tested for toxic algae. As a precaution:

-  Do not swim or come into contact with large amounts of green scum or algae.
-  Do not drink or consume the water. Boiling, filters and other treatments will not make the water safe.
-  Rinse fish with clean water and eat only the fillet portion.
-  Avoid water spray in areas of green scum.
-  Do not allow pets or livestock to drink the water, eat algae, or lick fur after contact with the water.

If you or your pet get sick after using the water, call your doctor, veterinarian or the Wyoming Poison Control Center at 1-800-222-1222.

Waterbodies UNDER INVESTIGATION are not closed. For more information, call the Wyoming Department of Health at 307-777-7656 or the Public Health Emergency Line at 888-996-9104.



Wyoming Department of Health  
Cared for your health.



# Recreational Water – Single (Non-tiered) Advisory Sign

- Typically avoid water contact, particularly pets and children
- Based on presence/ duration of bloom
  - DE, FL
- Based on action levels
  - CO, IA, ID, MA, MD, MI, MO, NC, NE, NH, RI, OK, OR, WI

**WARNING**  
Toxic Algae Present

**AREA IS CLOSED TO FULL-BODY CONTACT**

- Do Not Drink Lake Water
- No Swimming or Body Contact
- No Water Skiing
- No Jet Skiing
- No Paddle Boarding
- No Pets in Water

• Boating Permitted  
• Fishing Permitted - clean fish well and discard guts

Call your doctor or veterinarian if you or your animals have nausea, vomiting, diarrhea, rash, irritated eyes, seizures or breathing problems.  
For more information: <http://1.usa.gov/1oRiyNV>



**NOTICE**

**POTENTIAL HEALTH RISKS FROM BLUE-GREEN ALGAE**

New Mexico lakes and reservoirs have blue-green algae (cyanobacteria). Under certain conditions blue-green algae can produce toxins that have been linked to human and animal illnesses. Blue-green algae blooms can cover anytime, but most often occur in late summer or early fall. Not every algae bloom results in a toxic condition. Toxic events are not predictable and you cannot tell if a bloom is toxic by looking at it.

**SYMPTOMS OF ILLNESS:**

- Rash, hives, or skin blisters.
- Runny eyes and nose, sore throat, asthma-like symptoms, or allergic reactions.
- Acute, severe abdominal pain, diarrhea and/or vomiting, and nervous system effects including dizziness and numbness.
- Symptoms may take minutes to days after exposure to show up in people or animals.

**PREVENTION:**

- Don't swim, water ski, or boat in areas where the water is discolored or where you see foam, scum, or mats of algae on the water.
- If you, your children, pets or livestock do swim in water suspected to contain blue-green algae, rinse off with fresh water as soon as possible.
- Avoid swallowing, ingesting, or inhaling water from algal bloom areas.

**GET MEDICAL TREATMENT IMMEDIATELY IF YOU THINK YOU, YOUR CHILDREN, YOUR PET, OR YOUR LIVESTOCK MIGHT HAVE BEEN EXPOSED.**

**FOR MORE INFORMATION CONTACT:**

New Mexico Department of Health	1-800-979-3421	
New Mexico Environment Department	(505) 827-0314	
New Mexico State Parks Division	(505) 827-1473	
New Mexico Department Game & Fish	(505) 826-8006	

New Mexico Poison Control Center 1-800-222-1222

**ADVISORY**

High levels of potentially toxic  
**CYANOBACTERIA**  
have been identified in this water

**WATER CURRENTLY NOT  
SUITABLE FOR WADING  
OR SWIMMING!**

Exposure to blue-green scums may cause nausea, vomiting, diarrhea, or fever in humans and pets.

Anyone who comes in contact with blue-green scum should rinse off with fresh water

All current advisories posted at [www.des.nh.gov](http://www.des.nh.gov).  
Click "beach advisory" in left column

**CONTACT INFORMATION:**  
NHDES Beach Program  
29 Hazen Dr., Concord, NH  
(603) 271-0698  
[beaches@des.nh.gov](mailto:beaches@des.nh.gov)



## Beach Advisory for Cyanobacteria

**CAUTION**

**PUBLIC HEALTH ADVISORY**

**CYANOBACTERIA BLOOM PRESENT**



**Waterbody Unsafe for  
People and Pets**

-  Do not swim.
-  Do not swallow water.
-  Keep animals away.

If you have any contact with water, rinse off immediately.

Call your local health department with questions:  Additional info on algae can be found at [www.mass.gov/dph/algae](http://www.mass.gov/dph/algae)

**CAUTION**

**Harmful Algal Bloom**

**Do not go in or near water with:**

- an unusual color
- a scummy, thick mat
- an unpleasant odor or stench
- the appearance of paint spilled on it



**AVOID WATER CONTACT**  
Keep pets and livestock away  
Clean fish well and discard guts

**In case of algae contact, call  
your doctor if you have:**


- skin rash
- eye irritation
- nausea
- vomiting
- diarrhea
- numbness

For health questions contact: [Insert Health District Information] For water quality information contact: [Insert Regional IDEQ Information] Date Posted: 

**CAUTION**

**WATER QUALITY ADVISORY**

This water may contain blue-green algae capable of producing toxins that can be dangerous to humans and pets.



**FOR YOUR SAFETY**

- If water is cloudy, looks like green paint or pea soup, or has a floating scum layer or floating clumps
  - Do not swim or swallow water
  - Do not allow pets to swim or drink
  - Do not allow children to play in scum layer from shoreline
- Rinse off after swimming

For more information please contact the  
LOCAL HEALTH DEPARTMENT at ( )

**CAUTION**

DEQ has identified the presence of harmful algae in this lake. For the safety of you and your family:

-  KEEP CHILDREN & PETS AWAY from algae in the water or on the shore.
-  You may swim in this water, but STAY AWAY from ALGAE & SCUM or water that looks like spilled paint.
-  DO NOT drink this water or use it for cooking food.
-  DO NOT water lawns or gardens with water from the lake.
-  For fish caught here, throw away guts & clean filets with tap water or bottled water before cooking.
-  Call a doctor or veterinarian if you or your pet get sick after going in the water.

For more information, contact DEQ Environmental Assistance Center at 800-662-9278.  
Visit [www.oakland.gov/health](http://www.oakland.gov/health) • [www.cdc.gov/habs/index.html](http://www.cdc.gov/habs/index.html)



# Recreational Water - Tier I

- Typically avoid water contact, particularly pets and children
- Advisory: MN, ND, PA, VA, WY
- yellow/low alert: VT,
- Watch: KS, KY, WV,
- Caution: CA, WA
- Recreational use advisory: PA, OH
- Cautionary/Visual Category 2: CT
- Suspicious: NY

**CAUTION**  
TOXIC ALGAE MAY BE PRESENT  
Lake may be unsafe for people and pets

Use the following advice:

- Do not swim or water ski in areas of scum.
- Do not drink lake water.
- Keep pets and livestock away.
- Clean fish well and discard guts.
- Avoid areas of scum when boating.

360-807-6000

**PUBLIC HEALTH WATCH ADVISORY**

A harmful algal bloom (HAB) is present and/or algal toxins have been detected in this area. Swimming and wading are not recommended for children, pregnant or nursing women, those with certain medical conditions and pets.

For more information go to:  
<http://www.dsp.wv.gov/WWE/Algae>  
or  
<http://www.wvdhhr.org/oehs>  
or  
Contact your local health department at [Insert LHD info]

**CAUTION**  
Harmful algae may be present in this water.  
For your family's safety:

- Do not swim in this water, but stay away from algae and scum in the water.
- Keep children away from algae in the water or on the shore.
- For fish caught here, throw away guts and clean fillets with tap water or bottled water before cooking.
- Do not let pets and other animals go into or drink the water, or eat scum on the shore.
- Do not drink this water or use it for cooking.
- Do not eat shellfish from this water.

Call your doctor or veterinarian if you or your pet get sick after going in the water. For information on harmful algae, go to [mywaterquality.ca.gov/monitoring\\_council/cyanobab\\_network](http://mywaterquality.ca.gov/monitoring_council/cyanobab_network). For local information, contact:

**NOTICE**

An increased risk of an algae bloom has made this area potentially unsafe for water contact

Be alert and avoid skin contact with water that:

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

Keep children and pets away from algae blooms and rinse off any exposed skin or fur with clean water.

For more information contact:

Posting produced in collaboration with CT DEEP and CT DPH

**WATER ADVISORY**

This water may contain blue-green algae that can be harmful to humans and pets.

To reduce the risk of illness:

- Do not swim, waterski, or tube if the water looks like spilled green paint or pea soup
- Avoid swallowing water and watch small children and pets who may ingest water
- Rinse off with clean water after swimming
- Stay away from areas of scum when boating



Insert your logo. Contact your healthcare provider or veterinarian if you or your pet become sick after swimming. For more information call: xxx-xxx-xxxx

**HEALTH ALERT**

Keep children and pets away from ALGAE

Water may be green, blue, brown, red or appear cloudy. A thick foam or mat may be on the shoreline. Some algae may cause illness.

To report algae or for more information call **1-800-439-8550** or visit [healthvermont.gov](http://healthvermont.gov)

**TOXIC ALGAE ALERT**

A suspected harmful algal bloom has made this location potentially dangerous for humans and animals

**AVOID ALL CONTACT WITH THIS WATER and SURFACE SCUM**



For more information contact the Pennsylvania Department of Environmental Protection (PADEP) at 814-332-6839 OR [www.dasagrants.org](http://www.dasagrants.org)

**WATCH**

Harmful Algae May Be Present

Blue-Green Algae May Be Harmful To Humans & Animals



- Use caution when contacting lake water and wash with clean water afterward
- Avoid areas of algae accumulation
- Don't let people/pets eat dried algae or drink untreated lake water
- Clean fish well and discard guts

In case of harmful algae contact, call doctor/veterinarian if people/animals have nausea, vomiting, diarrhea, rash, irritated eyes, seizures, breathing problems or other unexplained illness



Report new algae blooms to Kansas Department of Health and Environment: [www.kdhehs.gov/algae-illness](http://www.kdhehs.gov/algae-illness) or call 785-296-1664

Report possible algae-bloom illness to Kansas Department of Health and Environment: [www.kdhehs.gov/algae-illness](http://www.kdhehs.gov/algae-illness) or call 877-427-7317

Kansas Dept. of Health and Environment 1000 SW Jackson, Topeka, Kansas 66612, 785-296-1500 [www.kdhehs.gov](http://www.kdhehs.gov)

# Recreational Water – Tier II



- Typically no water contact
- Warning: CA, KS, KY, MN, ND, NJ, UT, VA, WA, WV
- red/high alert: VT
- Avoid contact: PA
- Condition 2: USACE Tulsa
- Elevated Recreational use advisory: OH
- Beach closure/ Visual Category 3: CT, VT
- Confirmed: NY
- Closed: WY



# Recreational Water - Tier III



- Typically closure
- Danger: CA, NJ, UT, WA
- Closure: KS
- Condition 3: USACE Tulsa
- Confirmed with High Toxin: NY


**DANGER**

**Toxins from algae in this water can harm people and kill animals**

  **Stay out of the water until further notice. Do not touch scum in the water or on shore.**

  **Do not let pets or other animals drink or go into the water or go near the scum.**

  **Do not eat fish or shellfish from this water.**

 **Do not use this water for drinking or cooking. Boiling or filtering will not make the water safe.**

**For people, the toxins can cause:**  
 • Skin rashes, eye irritation  
 • Diarrhea, vomiting

**For animals, the toxins can cause:**  
 • Diarrhea, vomiting  
 • Convulsions and death

**Call your doctor or veterinarian if you or your pet get sick after going in the water.**  
 For information on harmful algae, go to [mywaterquality.ca.gov/monitoring\\_council/cyanohab\\_network](http://mywaterquality.ca.gov/monitoring_council/cyanohab_network)  
 For local information, contact: Enter your contact information in this text box

**DANGER**

**HARMFUL ALGAE BLOOM (HAB) PRESENT**

**HIGH RISK- NO Contact or Ingestion (Humans and Animals)**

A confirmed Harmful Algal Bloom is present with levels quantified as or above the NJ Health Advisory Guidance. There should be no contact with the water including, but not limited to, swimming, wading, and water sports. Fish and livestock should not consume the water.

**DANGER**

**LAKE CLOSED**

**Harmful Algae Present**

**People & Animals May Get Sick**

**STOP**

**KEEP OUT OF LAKE**

In case of harmful algae contact, call doctor/veterinarian if people/animals have nausea, vomiting, diarrhea, rash, irritated eyes, seizures, breathing problems or other unexplained illness

Report new algae-blooms to Kansas Department of Health and Environment: [www.kdheks.gov/algae-illness](http://www.kdheks.gov/algae-illness) or call 785-296-2664

Report possible algae-bloom illness to Kansas Department of Health and Environment: [www.kdheks.gov/algae-illness](http://www.kdheks.gov/algae-illness) or call 877-427-7327

For more information: Scan this code or visit [kdheks.gov/algae-illness](http://kdheks.gov/algae-illness)

Printed by: Kansas Dept. of Health and Environment 1006 SW Jackson, Topeka, Kansas 66612, 785-296-2600 [www.kdheks.gov](http://www.kdheks.gov)

**DANGER**

**LAKE CLOSED**

**due to toxic algae**

**KEEP OUT OF LAKE**

Call your doctor or veterinarian if you or your pet have nausea, vomiting, diarrhea, rash, irritated eyes, seizures, breathing problems or other unexplained illness

Report new algae-blooms to Kansas Department of Health and Environment: [www.kdheks.gov/algae-illness](http://www.kdheks.gov/algae-illness) or call 785-296-2664

Report possible algae-bloom illness to Kansas Department of Health and Environment: [www.kdheks.gov/algae-illness](http://www.kdheks.gov/algae-illness) or call 877-427-7327

# Action Levels for Recreational Waters – Cyanobacterial Cell Counts

CyanHAB (cells/mL)*	Source	General signage	Single advisory	Tier I advisory	Tier II advisory	Tier III advisory
4,000	CCHAB, 2016			CA		
10,000	NC, 2017		NC (+BGA sp. dominant)			
<20,000 **	WHO, 2003 (low)			UT, WY		
20,000	WHO, 2003 (low)		ID (MC sp.)	CT, VA	UT	
40,000	ID, 2017; MO, 2016; OR, 2018		ID (total sp.), MD, MO, OR (MC sp.)			
70,000	MA, 2016		MA, NH, RI			
80,000	KS, 2015			KS		
100,000	WHO, 2003 (moderate)		MO, OK, OR (total sp.), WI	IN	CT, VA	
250,000	KS, 2015				KS	
10 million	KS, 2015					KS, UT

\* Sorted in increasing numerical order

\*\* with presence of bloom

# Action Levels for Recreational Waters – Microcystins

MC (ug/L)*	Source	General signage	Single advisory	Tier I advisory	Tier II advisory	Tier III advisory
0.8	CCHAB, 2016			CA		
<3 **	NJ, 2017				NJ	
3	NJ, 2017					NJ
<4 **	USEPA, 2016			UT		
4	USEPA, 2016; KS, 2015; OR, 2018		CO, ID, OR	CT, IN, KS, MI, NY	UT	
<6 **	OH, 2016	OH, WV				
6	OH, 2016; CCHAB, 2016			KY, OH, PA, WV	CA, VA, VT, WA	
<10 **	WHO, 1999	WI		ND	NY	
10	WHO, 1999		MD, MO, WI	MO, WY	ND	NY (water)
14	MA, 2016		MA, RI			
20	WHO, 1999; OH, 2016; CCHAB 2016; KS, 2015		IA, IL, MI, NE, WI		IN, KS, KY, MI, OH, OK, PA, TX, WV	CA, NY (shore)
2000	WHO, 1999; KS, 2015					KS, UT

\* Sorted in increasing numerical order

\*\* with presence of bloom

# Action Levels for Recreational Waters – Cylindrospermopsin

CYL (ug/L) *	Source	General signage	Single advisory	Tier I advisory	Tier II advisory	Tier III advisory
1	CCHAB, 2016			CA		
4	CCHAB, 2016				CA	
4.5	WA, 2011				WA	
<5 **	OH, 2016	OH, WV				
5	OH, 2016			KY, OH, PA, WV		
<8 **	NJ, 2017				NJ	
8	USEPA, 2016; NJ 2017; OR, 2018		CO, ID, OR	IN		NJ
10	VT, 2015				VT	
17	CCHAB, 2016					CA
20	OH, 2016		MO		KY, OH, PA, WV	

\* Sorted in increasing numerical order

\*\* with presence of bloom

# Action Levels for Recreational Waters – Anatoxin-a

ANA (ug/L)*	Source	General signage	Single advisory	Tier I advisory	Tier II advisory	Tier III advisory
detect	CCHAB, 2016			CA		
1	WA, 2008				WA	
8	OR, 2018		CO, OR			
10					VT	
20	CCHAB, 2016		MO		CA	
<27 **	NJ, 2017				NJ	
27	NJ, 2017					NJ
<80	OH, 2016	OH, WV				
80	OH, 2016			IN, OH, PA, WV		
	USEPA, 2016					
90	CCHAB, 2016					CA
300	OH, 2016				OH, PA, WV	

\* Sorted in increasing numerical order

\*\* with presence of bloom



# Action Levels for Recreational Waters – Saxitoxin

SAX (ug/L) *	Source	General signage	Single advisory	Tier I advisory	Tier II advisory	Tier III advisory
<0.8 **	OH, 2016	OH, WV				
0.8	OH, 2016			OH, PA, WV		
3	OH, 2016				OH, PA, WV	
4	OR, 2018		CO, OR			
10	MO, 2017		MO			
75	WA, 2011				WA	

\* Sorted in increasing numerical order

\*\* with presence of bloom

# Human Fish/Shellfish Consumption Advisories

- General precautions
  - Fish:
    - If you fish, remove guts and rinse in clean water;
    - Do not fish until bloom disappears;
    - OR
    - Wait a couple weeks after the bloom disappears to be “extra safe”
  - Shellfish: do not consume
  - Most states include as part of general signage

- Cyanotoxin tissue levels
  - [CA](#)

Table 4: Cyanotoxin Action Levels for Sport Fish and Shellfish

Chemical	RfD <sup>1</sup>	Action Level <sup>2</sup>
Units	mg/kg-d	ng/g tissue ww <sup>4</sup>
Microcystins <sup>3</sup>	$6.4 \times 10^{-6}$	10
Cylindrospermopsin	$3.3 \times 10^{-5}$	70
Anatoxin-a	$2.5 \times 10^{-3}$	5000

<sup>1</sup> RfDs calculations described in section III above

<sup>2</sup> Based on typical consumption rate of self-caught fish in California (one meal per week) and body weight of 70 kg. See Appendix II for calculations. Children are assumed to eat smaller meals (2 - 4 ounces uncooked).

<sup>3</sup> Apply action levels to the sum of all detected microcystins until subchronic toxicities of the other variants are clarified.

<sup>4</sup> Wet weight. Action level units assume fresh (or wet) weight of the fish tissue.

- [FDA](#)
  - SAX, 800 ng/g (0.8 mg/kg) ww in shellfish

# Dog/Livestock Advisories

- General precautions
  - Avoid contact with water, scum, and mats
  - Provide separate source of drinking water
  - Do not allow them to groom after contact and rinse with clean water
  - Wait to graze pastures if contaminated irrigation water used
- General signage includes dogs
- Specific action levels for domestic animals
  - OR (also used in PA)
  - CA (also used in IN)
  - Drinking water ingestion rate does not account for preferential drinking and eating mat/scum
- Specific signage for domestic animals
  - Lake Erie (PA)



# Dog/Livestock Action Levels

Animal	Type	MC	ANA	CYL	SAX	Source
<b>Water intake (ug/L)</b>						
Dog	Caution level*	0.8	Any detect	1	N/A	CCHAB, 2016
	Use advisory	0.2	0.4	0.4	0.02	OR, 2018
	Swimming	0.8	Any detect	1.0	N/A	<a href="#">IN</a> (adapted from CCHAB, 2016)
	Guidance value	0.2	0.6	0.2	3	PA Lake Erie (adapted from OR)
Cattle (dairy**)	Subchronic	0.9	40	5		OEHHA, 2012
	Acute	50	40	60		OEHHA, 2012
<b>Crust and mat intake (mg/kg dw)</b>						
Dog	subchronic	0.01	0.3	0.04		OEHHA, 2012
	acute	0.5	0.3	0.5		OEHHA, 2012
Cattle (dairy**)	subchronic	0.1	3	0.4		OEHHA, 2012
	acute	5	3	5		OEHHA, 2012

\* Recommended for use in CA to account for preferential ingestion by dogs (vs acute and sub-chronic values based on water ingestion rate only)

\*\* Action levels for beef cattle were also developed but were higher values than for dairy cattle

# DRINKING WATER

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# Drinking Water Monitoring – Federal Resources

- Federal requirement under Unregulated Contaminant Monitoring Rule ([UCMR 4](#); 2016)
  - Monitoring of cyanotoxins in drinking water for 2018-2020
  - Monitoring varies depending on size of drinking water system
  - Surface water or ground water “under the direct influence of surface water” sources only
- Many other tools and resources available
  - <https://www.epa.gov/ground-water-and-drinking-water/cyanotoxins-drinking-water>

Cyanotoxin Tools For Public Water Systems	Additional Information about Cyanotoxins in Drinking Water
<ul style="list-style-type: none"> <li>• <a href="#">Recommendations for Public Water Systems to Manage Cyanotoxins in Drinking Water</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Cyanotoxin Drinking Water Health Advisories</a></li> </ul>
<ul style="list-style-type: none"> <li>• <a href="#">Cyanotoxin Management Plan Template and Example Plans</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Detection and Methods</a></li> </ul>
<ul style="list-style-type: none"> <li>• <a href="#">Water Treatment Optimization for Cyanotoxins</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Control and Treatment</a></li> </ul>
<ul style="list-style-type: none"> <li>• <a href="#">Drinking Water Cyanotoxin Risk Communication Toolbox</a> (English and Spanish versions)</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Cyanotoxins and the Safe Drinking Water Act: Drinking Water Protection Act, Contaminant Candidate List and the Unregulated Contaminant Monitoring Rule</a></li> </ul>
<ul style="list-style-type: none"> <li>• <a href="#">Cyanobacteria and Cyanotoxins: Information for Drinking Water Systems Factsheet</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Algal Toxin Risk Assessment and Management Strategic Plan for Drinking Water</a></li> </ul>
<ul style="list-style-type: none"> <li>• <a href="#">Harmful Algal Blooms and Drinking Water Factsheet</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">U.S. EPA's CyanoHABs Webpage</a></li> </ul>
<ul style="list-style-type: none"> <li>• <a href="#">Fact Sheet: Possible Funding Sources for Managing Cyanobacterial Harmful Algal Blooms and Cyanotoxins in Drinking Water</a></li> </ul>	

# Drinking Water Monitoring – State Resources

- State programs often provide support, resources, technical expertise to drinking water systems. Examples include:
  - [CA](#) – collaborate with water systems on management plan, response, and messaging
  - [IA](#) – 2016-2017 study of microcystins in weekly raw water samples, flow charts for monitoring and public notice templates for MC and CYL
  - [VT](#) - no cost MC and CYL analysis at state lab for 22 systems using Lake Champlain water in summer 2017; weekly results posted online

# Cyanotoxin Levels for Drinking Water - International

- WHO
  - MC - provisional guideline value of 1 ug/L total MC-LR
- 2015 updated summary of international drinking water guidelines ([Soltani, Hess et al. 2017](#))
  - Most incorporate WHO value for MC
  - Australia (1.3 ug/L), Canada (1.5 ug/L) slightly higher for MC
  - Brazil and New Zealand include guideline values for other cyanotoxins



# Cyanotoxin Levels for Drinking Water – United States

- USEPA
  - 2015 Drinking water Health Advisory for MC and CYL
  - ANA
    - No drinking water HA determined
    - [2015 Health Effects Support Document](#)
- States
  - Most reference USEPA and/or WHO
    - Some recommend use of USEPA values for vulnerable populations only (e.g., UT, VA)
  - OH, OR, MN, VT have state-specific values
  - Some reference other state's values (e.g., MI, UT, WV)

# Drinking Water Guidelines – United States

Group	Source*	MC (ug/L)	ANA (ug/L)	CYL (ug/L)	SAX (ug/L)	Type
Vulnerable population (infants and kids under 6 years old)	<a href="#">MN</a>	0.1 (HBV)	0.1 (RAA)	-	-	HBV, health based value; RAA, risk assessment advice
	<a href="#">OH</a>	0.3	20	0.7	0.2	
	<a href="#">OR</a>	0.3	0.7	0.7	0.3	
	<a href="#">USEPA</a>	0.3	-	0.7	-	Heath advisory levels
Non-vulnerable (adults and kids at least 6 years old)	<a href="#">OH</a>	1.6	20	3	0.2	
	<a href="#">OR</a>	1.6	3	3	1.6	
	<a href="#">VT</a>	0.16	0.5	0.5	-	Heath advisory levels
	<a href="#">USEPA</a>	1.6	-	3	-	Heath advisory levels
	<a href="#">WHO</a>	1.0	-	-	-	Provisional guideline value
Do not Use	<a href="#">OH</a>	20	300	20	3	Elevated recreational public health advisory thresholds
	<a href="#">OR</a>	10	20	20	10	

\* In alphabetical order by group

# USEPA Drinking Water Advisories

- Vulnerable: exceed Health Advisory for infant and <6 year old
  - Vulnerable populations should not drink the tap water and should use alternative sources of water
  - Do not boil the tap water
  - Prevent accidental ingestion of water during bathing for infants and young children
  - Individuals not in vulnerable category may drink water
  - Everyone can use tap water for washing hands, bodies, dishes, toilet, cleaning, and laundry
- Everyone: exceed Health Advisory for adult and 6+ year old
  - Do not drink or boil the tap water
  - Use alternative sources of water for drinking, infant formula, ice, preparing food and beverages
  - Provide alternative source of water for animals
  - Prevent accidental ingestion of water during bathing for infants and young children
  - Everyone can use tap water for washing hands, bodies, dishes, toilet, cleaning, and laundry

[USEPA's Risk communication toolbox](#)

[\(also in Spanish\)](#)

**Toolbox Contents**

## Templates

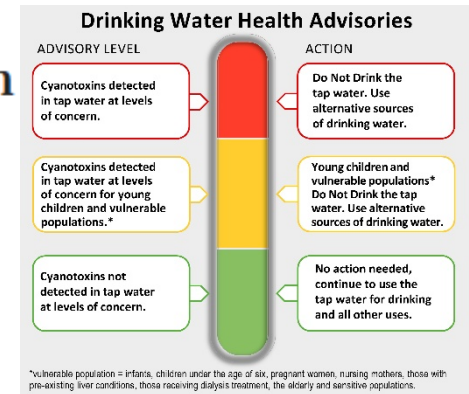
- [Drinking Water Advisory - Everyone](#)
- [Drinking Water Advisory - Vulnerable Populations](#)
- [Drinking Water Advisory - Lifted](#)
- [Press Release - Everyone](#)
- [Press Release - Vulnerable Populations](#)
- [Press Release - Advisory Lifted](#)
- [Social Media - Everyone](#)
- [Social Media - Vulnerable Populations](#)
- [Social Media - Lifted](#)
- [Public Messaging](#)

## General Information

- [Fact Sheets](#)
- [FAQs](#)

## Graphics

- [Icon-Based Style](#)
- [Thermometer and Stoplight Style](#)
- [Speedometer Style](#)



# OUTREACH AND MAPPING

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# Outreach Materials – Human Health

- FAQs
  - Available from most states
  - Generally include overview, general precautions, next steps in case of exposure
- Physician reference
  - [CDC](#) – possible signs and symptoms
  - [KS](#) – also includes overview on monitoring, advisories, and reporting info

# Outreach Materials – Domestic Animals

- Pet safety
  - [CDC](#)
  - [ID](#), [KS](#), [MA](#), [MN](#), [NY](#)
- Vet fact sheet
  - Generally include signs and symptoms, differential diagnosis, laboratory findings
  - [CDC](#)
  - [CA](#) – also includes potential sample analytical process and support
  - [MN](#)
  - [VT](#) – also includes link to current conditions map and overall occurrence in VT
  - [WI](#) – part of overall toolkit
- Cyanobacteria poisoning and livestock
  - [Western Australia](#)
  - [ND](#)



**Protect Your Pets** from Harmful Algae Blooms

Blue-green algae can form harmful blooms in lakes, ponds, and rivers that make the water murky or look like pea soup or paint. These blooms may produce toxins that could kill or sicken pets.

- Do not allow your pet to swim in or drink water that may have a bloom.
- If pets do come into contact with an algae bloom, don't allow pets to groom themselves and rinse them off immediately.
- If any pet toys are exposed to the algae, thoroughly clean them or throw them away.

**Call your vet immediately if your pet has been around an algae bloom and shows symptoms such as vomiting, staggering, drooling, or convulsions.**

For more information about HABs and to report a bloom, go to [www.deq.idaho.gov/recreation-health-advisories](http://www.deq.idaho.gov/recreation-health-advisories).

**If in doubt, stay out!**

[cyanos.org/bloomwatch/](http://cyanos.org/bloomwatch/)

**POISON Help** 1-800-222-1222

bloomWatch

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

# Multilingual Materials

- Spanish
  - Signage: CA, [UT](#), [VA](#), WY
  - FAQ: [VA](#), [MA](#)
  - Safe recreational water use: [VA](#), [MA](#)
  - Pet safety: [MA](#), [OR](#)
- Multiple
  - HABs in freshwater ([MA](#); [7 other languages](#))

DEPARTAMENTO DE SERVICIOS HUMANOS DE OREGÓN: DIVISIÓN DE SALUD PÚBLICA

## Alerta sobre seguridad para perros

Las algas son comunes en agua dulce. Un tipo, alga azul-verdosa, a veces crece hasta ser un florecimiento grande que puede contener toxinas peligrosas.

**Algunos perros se han enfermado mucho e incluso murieron después de nadar y tragar agua afectada por algas tóxicas.**

**Si encuentra espuma o verdin espesos y de color brillante en un lago, laguna o río, ¡no deje que su mascota trague el agua o nade en ella!**

Si su perro entra al agua:

- No deje que su perro lame su pelaje.
- Lave a su mascota con agua limpia tan pronto como sea posible.

Si su perro tiene síntomas tales como babeo, debilidad, vómito, tambaleo y convulsiones después de haber estado en agua afectada por florecimiento de algas, llame a su veterinario de inmediato.

Para más información visite [healthoregon.org/hab](http://healthoregon.org/hab) o llame gratis al 1-877-290-6767 o mándenos un mensaje de correo electrónico a [Hab.health@state.or.us](mailto:Hab.health@state.or.us).

Este documento puede ser leído, bajo petición, en formatos alternativos para personas con discapacidades. Otros formatos pueden incluir (entre otros) letra grande, Braille, grabaciones de audio, comunicaciones basadas en Internet y otros formatos electrónicos. Envíe un mensaje de correo electrónico a [Hab.health@state.or.us](mailto:Hab.health@state.or.us) o llame al 1-877-290-6767 para hacer arreglos para recibir un formato alternativo que funcionará mejor para usted.

DHS | Independiente. Saludable. Seguro.

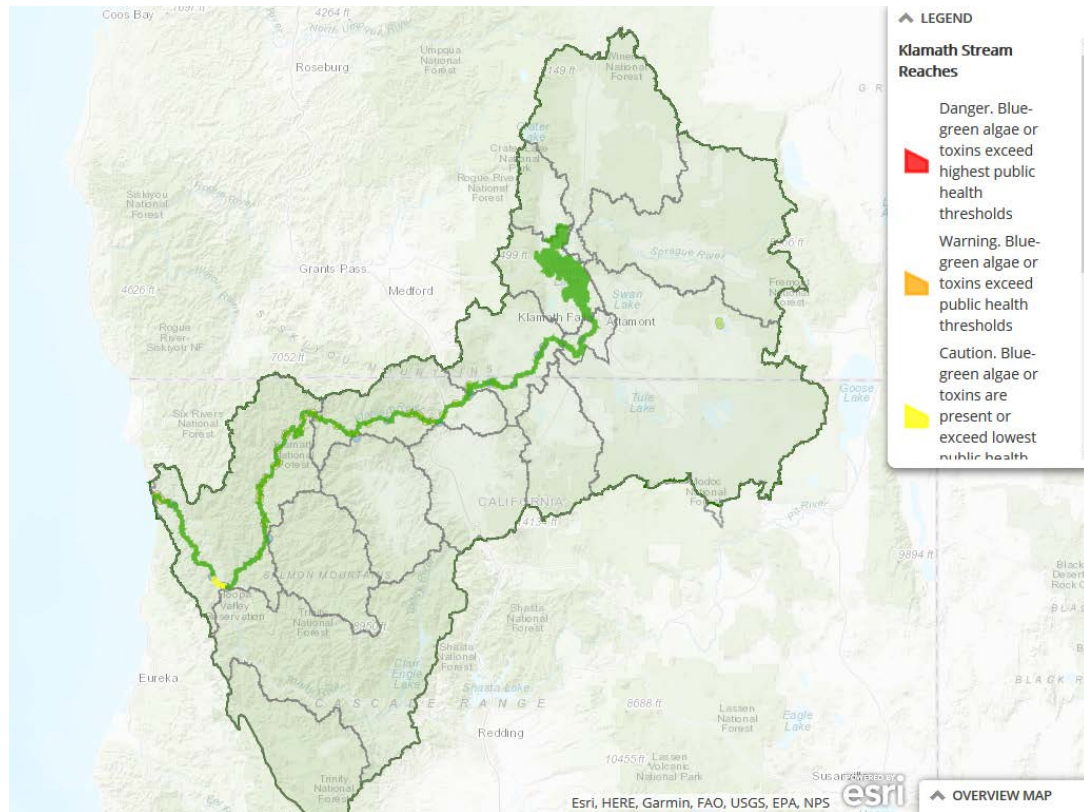
# Mapping

- Incorporated with existing monitoring
  - Beach fecal bacteria monitoring (often seasonal)
  - Ambient water quality monitoring (rivers and/or lakes)
- Posted advisories
  - Recreational water
  - Drinking water
- Toxin data
- Bloom presence/absence

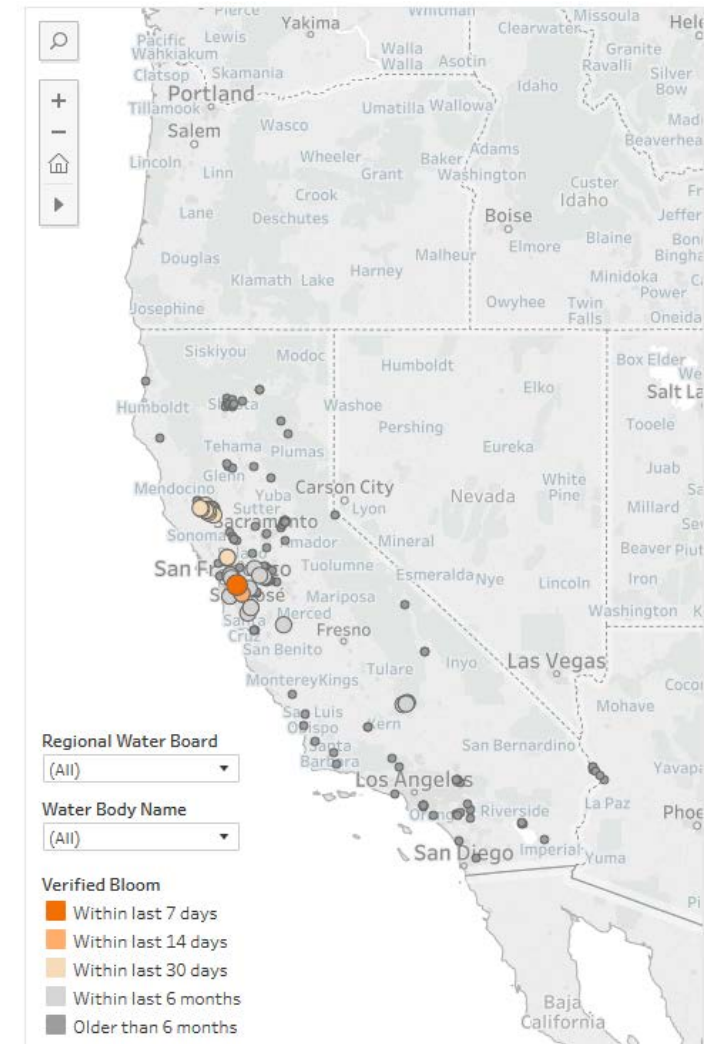


# Mapping Examples - California

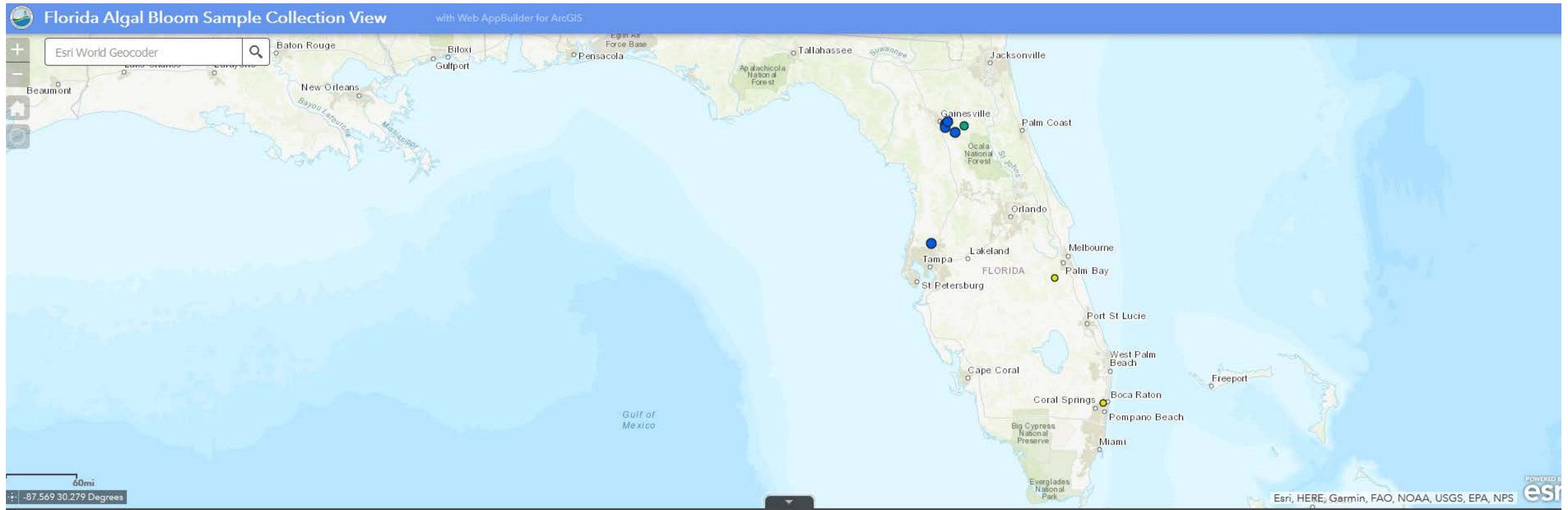
## Klamath Basin



## Statewide



# Mapping Examples - Florida



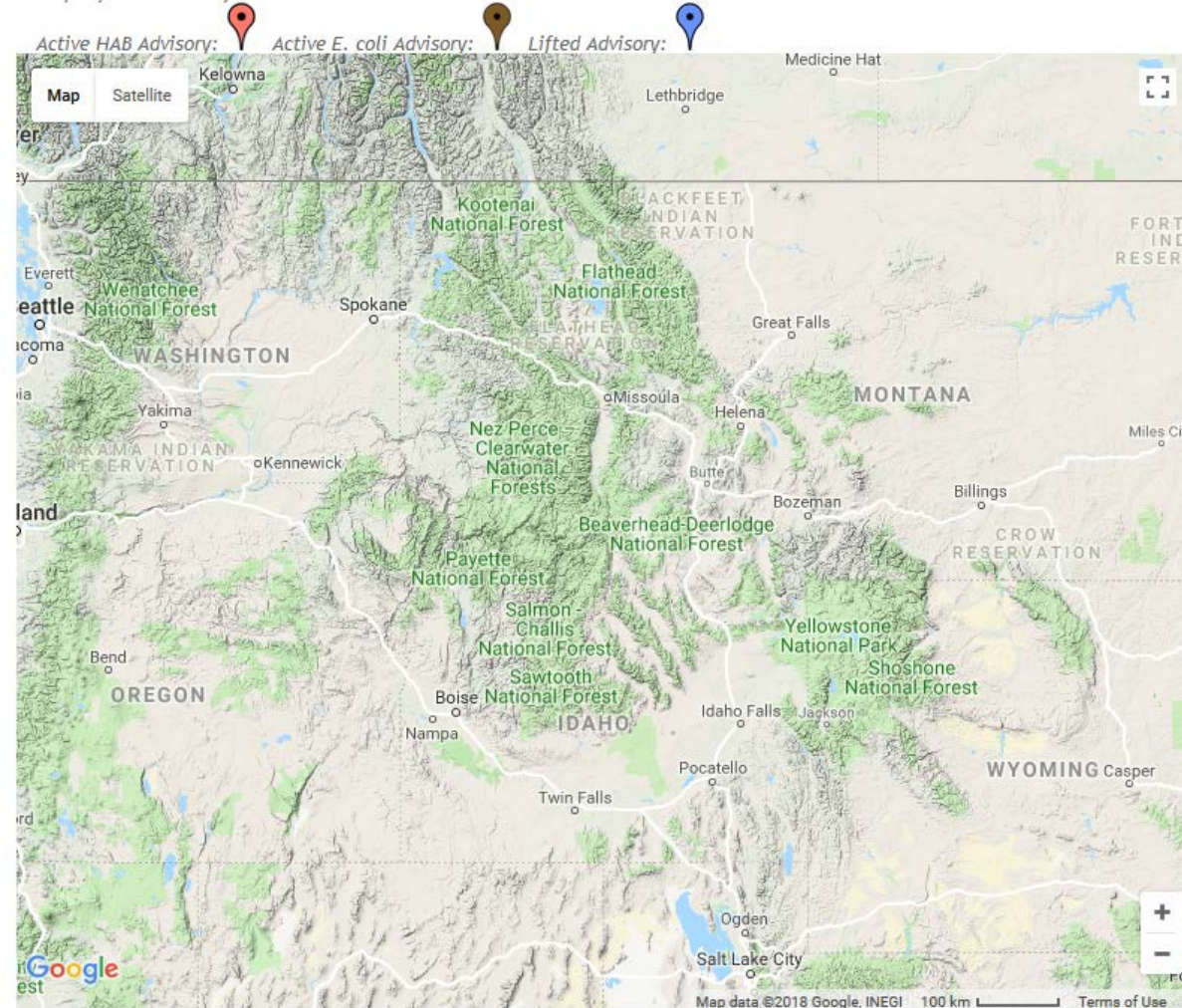
Site Visits - within 30 days | Site Visits - past 31-60 days | Site Visits - past 61-90 days | Site Visits - older than 90 days

Options Filter by map extent Zoom to Clear selection Refresh

Site Visit Date and Time	Sample Location	County	Site Visited By	Sample Taken?	Sample Depth Description	Sample Depth (meters)	Analyzed By	Other Lab name	Comments	Latitude	Longitude	Algal ID	Total Microcystin Toxin (micrograms/L)	Other Toxin (micrograms/L)
3/15/2018, 7:20 AM	Prairie Creek at SR20	Alachua	SJRWMD	Yes	Surface grab	0.30	DEP	Greenwater Labs	Algae identified by DEP; toxin analysis performed by Greenwater	29.6111	-82.2483	Dominant taxon: Aphanizomenon flos-aquae	0.34	Anatoxin-a: not detected; Cylindrospermopsin: not detected; Saxitoxin/Paralytic Shellfish Toxins: not detected

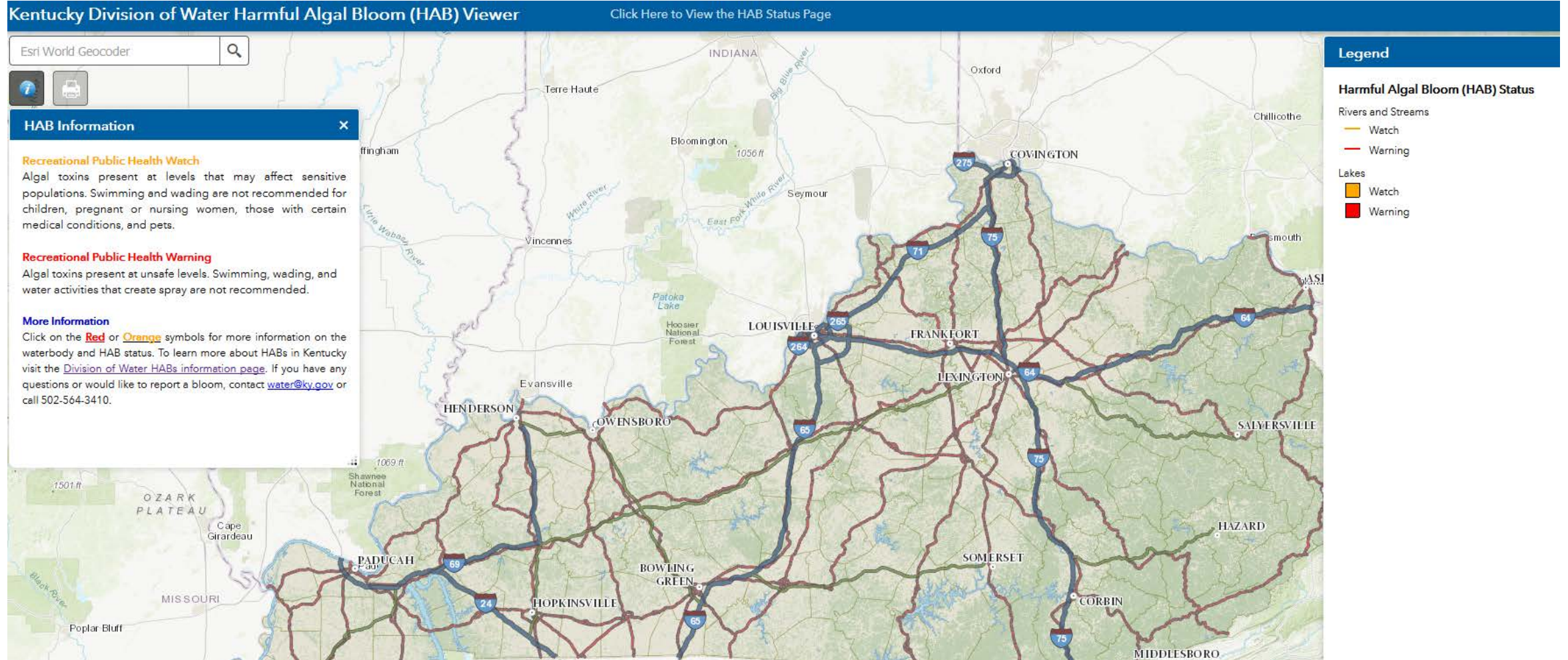
# Mapping Examples - Idaho

Click pin for detailed information.

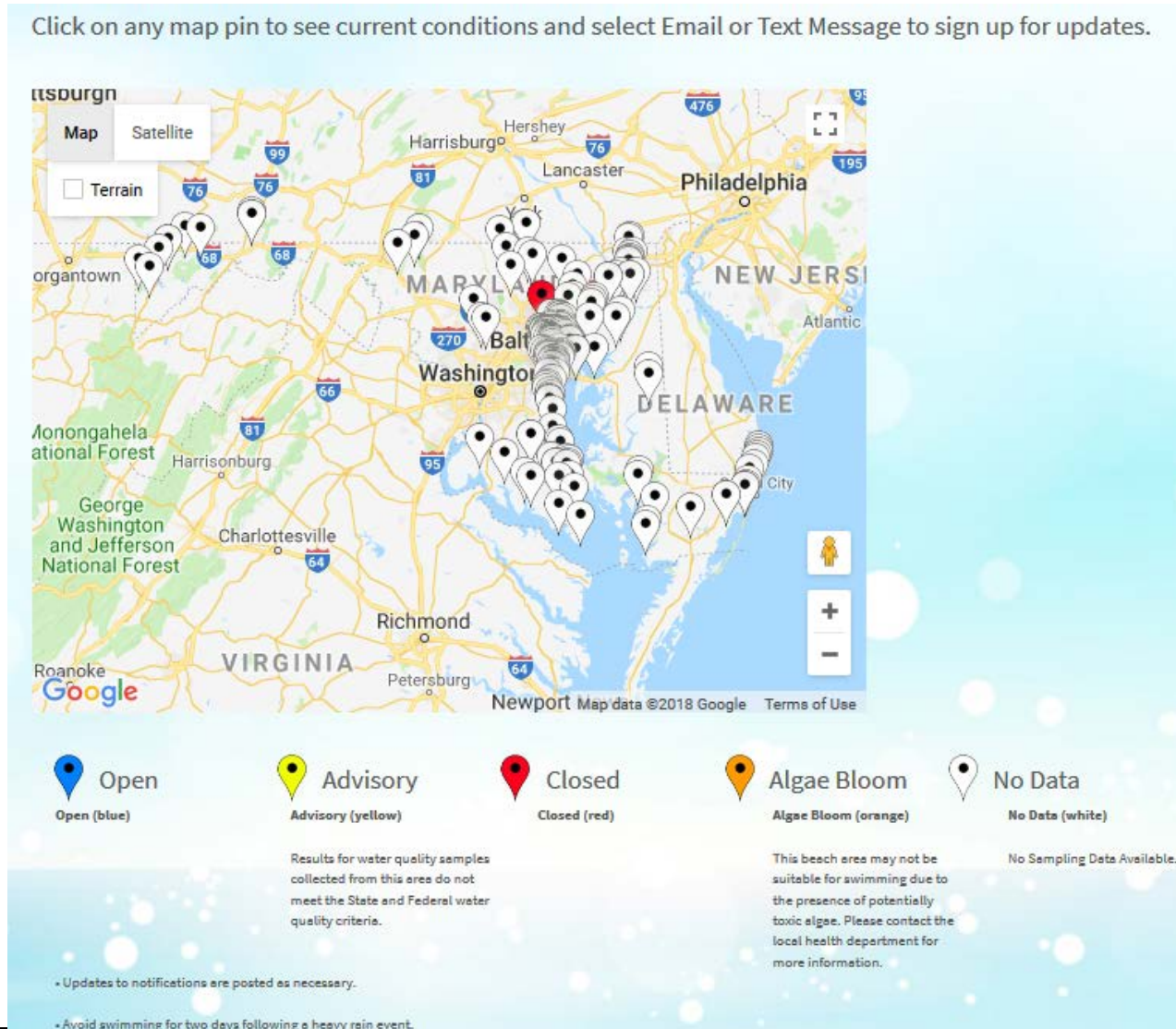


There are no current Harmful Algal Bloom advisories at this time.

# Mapping Examples - Kentucky



# Mapping Example – Maryland (Beaches)



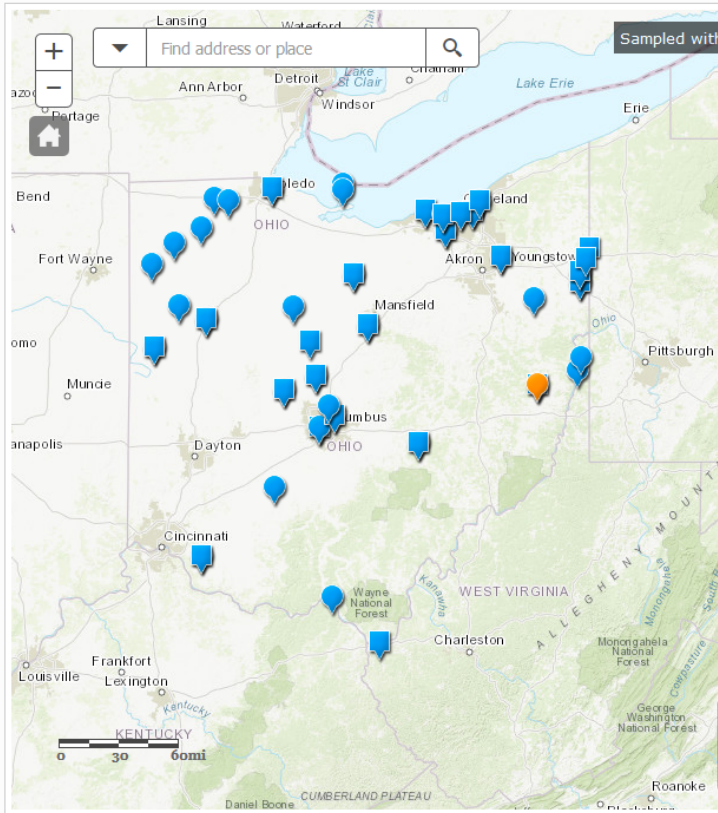
# Mapping Examples

## – Ohio (monitoring and drinking water advisories)



### Harmful Algal Blooms: Public Water System and other Ohio EPA S

(For Harmful Algal Bloom data at Ohio's public beaches, visit [Ohio Department of Health's BeachGuard](#))



### Drinking Water Advisories for Ohio Public Water Systems

Ohio Environmental Protection Agency

[More information on advisories](#) [View advisories as a table](#)

[About](#) [Legend](#) [Query](#) [Filter](#) [Chart](#)

#### How to Find a Drinking Water Advisory

##### Use the Search Tool

Type the public water system's name, its county or its system identification number into the search tool. If the entered characters fully or partially match one or more advisories, then potential matches are shown as a drop down list. Clicking on a potential match will zoom to that site and open a popup with the details of the drinking water advisory.

##### Pick from the List of Active Advisories

The name of each public water system with an advisory is listed in the advisory summary list. Click this button on the map that looks like the image below to make the list visible. Clicking on a name should open a popup with details on the advisory.



##### Zoom To or Click on a Marker

Place the mouse at the area where you want to zoom in and double click. The map will zoom in and recenter at the clicked point. Zoom to a multi-county scale and labels for the public water systems will show. Clicking on the marker will open a popup with the details of the drinking water advisory.

##### Expand the Popup

In the upper right hand corner of the popup is the maximize icon. Maximizing the popup and may improve the readability of the advisory.

##### Query

Click on this icon to open the query tool. The available queries include advisories by county, contaminant, or district. The query result will show as highlighted markers on the map and the details for each selected advisory available in this panel. To clear a query, click on the three dots icon in the results tab, and select *Remove this result* from the menu.

##### Filter

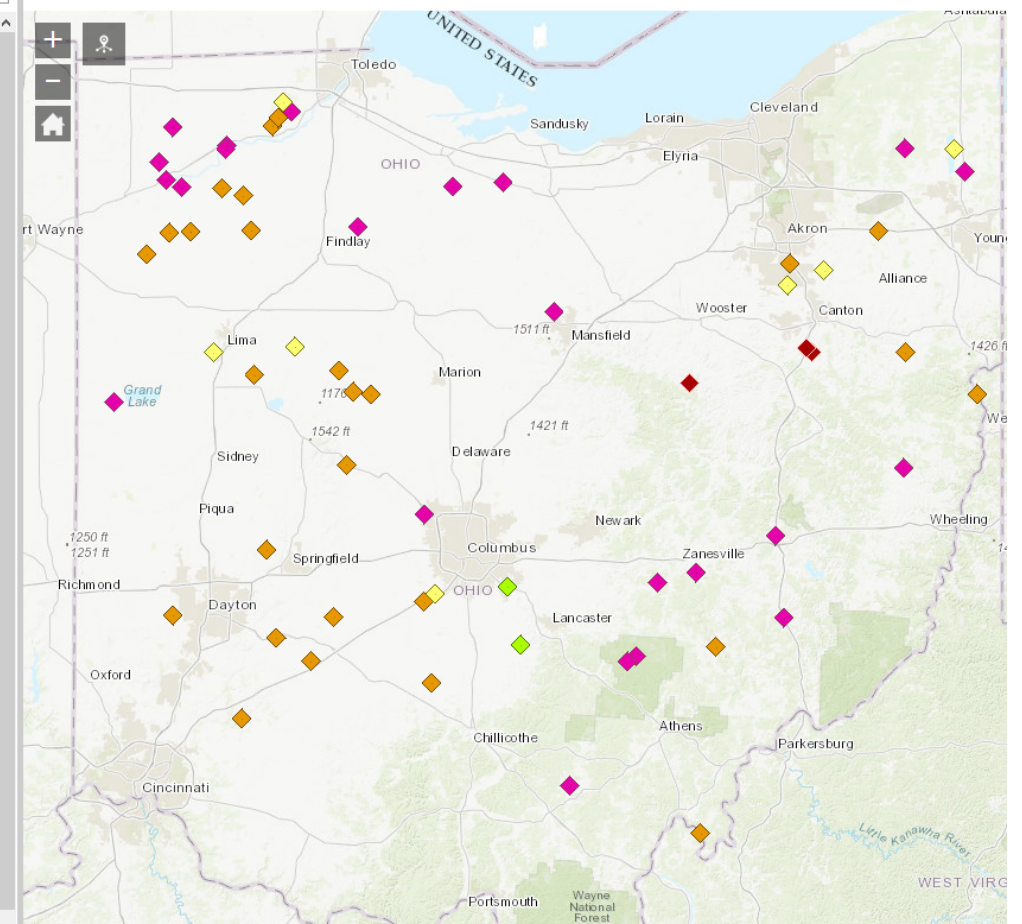
Use the filter to show advisories by contaminant, county, or advisory type. The filter removes all advisories except those matching the filter conditions. To clear a filter click on the green check mark.

##### Chart

The chart tool will show the number of advisories by county, contaminant, advisory type and other parameters. To clear the chart look for the Clear button at the bottom of the panel.

##### Download

Use this [link](#) to download active advisories as a feature class or spreadsheet. Use the data tab to filter advisories by county, district, advisory type or other attribute.



# Summary (1)

- Underlying regulations and funding support well-developed programs
- Response plans help coordinate efforts and provide clear and consistent process
- Reporting processes vary considerably
- Monitoring
  - Many states have reactive monitoring in response to blooms
  - Routine monitoring often tied to existing ambient water quality monitoring or fecal bacterial monitoring for recreation, and may utilize volunteers
  - Current cyanotoxin monitoring of drinking water sources under EPA UCMR<sub>4</sub>

# Summary (2)

- Recreational water advisories and action levels vary considerably
  - Different action levels or same action levels applied differently
  - Different terminology and signage, but generally similar recommendations/precautions
- Outreach materials
  - Many states provide general overview of HABs and health risks, links to CDC materials
  - Some states have materials available in Spanish, few states provide resources in multiple languages
- Mapping resources convey monitoring data and/or advisories for specific locations



# Questions or Suggestions on Further Outreach?

- Future plans
  - Relay information through CCHAB subcommittees
  - Specific information upon request
    - 916-322-2088
    - [Rebecca.Stanton@oehha.ca.gov](mailto:Rebecca.Stanton@oehha.ca.gov)
- Other opportunities?