ALABAMA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 0/8—FAIL

- ☐ Is there a general state agency website that discusses:
- ☐ What harmful algal blooms (HABs) are and why they're harmful?
- ☐ Where and when they are commonly found?
- ☐ What causes the blooms?
- ☐ Who's at risk?
- ☐ Does the website provide photographs of what a harmful algal bloom looks like?
- ☐ Does the website explain what the public should do if they see a bloom?
- ☐ Does the website describe how to contact someone if a constituent does see a bloom?
- ☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: We could not find a state agency website that provides information on freshwater HABs in Alabama.

RESPONSE PROTOCOL AND COORDINATION

SCORE 0/8—FAIL

RESPONSE PROTOCOL

- ☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
  According to personal communication with agency staff, no.
- ☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  No response from agency staff this year. Last year, the answer to the question was: We could not find any such strategy or protocol.
- ☐ Does the state government provide dedicated financial support for HAB response?
  No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.
- ☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  No response from agency staff this year. No response from last year.
- ☐ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  No response from agency staff this year. No response from last year.

AGENCY COORDINATION

- ☐ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  No response from agency staff this year. No response from last year.
- ☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 0/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

According to personal communication with agency staff, no.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☐ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

No response from agency staff this year.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

No response from agency staff this year.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

We couldn't find any evidence of the state proactively sampling recreational freshwater bodies. The Alabama Department of Environmental Management (ADEM) and the Alabama Department of Public Health (ADPH) regularly monitor 25 recreational coastal sites for bacteria, but don't sample for cyanobacteria or cyanotoxins.

☐ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

No response from agency staff this year. No response from agency staff last year.

PUBLIC OUTREACH

SCORE 0/8—FAIL

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The ADEM has an interactive map of water monitoring sites, but the map does not include HAB events.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, there are no data to share.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could find no such data.

☐ Is the state's HAB guidance document or response protocol available online?

We could not find any such strategy or protocol.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We could not find an explanation of metrics or thresholds.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find any examples of a state agency communicating HAB information to the public through press releases, press statements, or social media.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no. The ADEM works with the state university but does not leverage NGOs.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

There is no clear way to submit a complaint. The ADEM website has this general environmental complaint form.

ALASKA

☑ = 1 POINT

Alaska has a robust marine harmful algal bloom (HAB) monitoring program. The state invests in preventing expo- sure to HABs from shellfish consumption and marine water recreation, and based on conversations with agency staff, it would perform well if this assessment covered marine and shellfish HAB monitoring. The state does not perform well in a freshwater assessment. Still, to keep our analysis consistent across all states, we score Alaska on the basis of its freshwater policy.

ACCESSIBILITY OF INFORMATION

SCORE 0/8—FAIL

Is there a general state agency website that discusses:

- ☐ What harmful algal blooms (HABs) are and why they're harmful?
- ☐ Where and when they are commonly found?
- ☐ What causes the blooms?
- ☐ Who's at risk?
- ☐ Does the website provide photographs of what a harmful algal bloom looks like?
- ☐ Does the website explain what the public should do if they see a bloom?
- ☐ Does the website describe how to contact someone if a constituent does see a bloom?
- ☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal is in a com- munity's freshwater bodies?

Reference: We could not find a state agency website that provides information about harmful algal blooms in Alaska.

RESPONSE PROTOCOL AND COORDINATION

SCORE 4/8—SATISFACTORY

RESPONSE PROTOCOL

- ☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
  According to personal communication with agency staff, no. The state is reviewing the EPA's recent recreational threshold recommendations.
- ☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  According to personal communication with agency staff, yes. If a freshwater HAB was reported, the state's Department of Environmental Conservation (DEC) would work with the state's Department of Health and Social Services (DHSS) and local public health providers to respond to the complaint or report.
- ☐ Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, no.
- ☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, yes. The Alaska DHSS can issue advisories.
- ☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to personal communication with agency staff, yes. The state's DHSS and DEC can post information.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  The Alaska Harmful Algal Bloom Network (AHABN) is the primary collaborative effort educating the public on HABs, and the network recently established a freshwater HAB sub-workgroup. The network is composed of federal agency representatives, tribal leaders, and local organizations.

- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  It was only by communicating with staff that we learned how agencies respond to HABs.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 1/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  According to personal communication with agency staff, no.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [ ] (1 point) Does the state provide at least 2 years of historical data?
  - [ ] (1 point) Does the state provide at least 5 years of historical data?
  - [ ] (1 point) Does the state provide at least 10 years of historical data?

- [ ] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to personal communication with agency staff, the state has not issued freshwater HAB advisories.

- [ ] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, the state has not issued freshwater HAB advisories.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, no.

- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, yes.

PUBLIC OUTREACH

SCORE 1/8—FAIL

PUBLIC-FACING INFORMATION

- [ ] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The public can view shellfish advisories here, but the data are limited to shellfish consumption and do not cover recreational activities. Furthermore, according to the AHABN, the data are not verified.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could not find any such data online.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such protocol online.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The public can view thresholds for shellfish harvesting here, but the thresholds do not cover freshwater recreational activities. Furthermore, the data are not verified.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find evidence of a state agency communicating freshwater HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

The Alaska Department of Environmental Conservation works with local partners to share information about freshwater HABs.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find information on how to report a HAB, send a photograph, or request a toxin test.

ARIZONA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 4/8—SATISFACTORY

Is there a general state agency website that discusses:

- ☐ What harmful algal blooms (HABs) are and why they're harmful?
- ☐ Where and when they are commonly found?
- ☐ What causes the blooms?
- ☑ Who's at risk?
  A description is available here.
- ☐ Does the website provide photographs of what a harmful algal bloom looks like?
- ☑ Does the website explain what the public should do if they see a bloom?
  Recommended actions are listed here.
- ☑ Does the website describe how to contact someone if a constituent does see a bloom?
  Contact information is available here.
- ☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
  Information is available here.

Reference: The Arizona Department of Environmental Quality (DEQ) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

- ☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
  According to personal communication with agency staff, yes. The Arizona DEQ looks to current EPA guidelines, which are copied below.

Microcystins	Cylindrospermopsin
4 µg/L[a,b]	8 µg/L[a,b]

a Swimming Advisory: not to be exceeded on any day

b Recreational Criteria for Waterbody Impairment: not exceeded more than 10 percent of days per recreational season up to one calendar year.

- ☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  According to personal communication with agency staff, yes. When a HAB is reported, staff use a decision matrix to determine the appropriate response and to advise stakeholders of potential risks.
- ☑ Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, yes.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, yes. The Arizona DEQ can issue advisories and coordinates through local governments and municipalities as well.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

The Arizona DEQ, a government agency, can issue information.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, the Arizona DEQ coordinates with other state agencies.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

We learned that the Arizona DEQ is the leading HAB agency by communicating with agency staff. Only by communicating with agency staff did we learn that the Arizona State Parks Department also works on HAB issues at Lake Havasu.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not show if an advisory was issued or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?

  Data provided for Lake Havasu go back to 2015.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to personal communication with agency staff, yes. The Arizona DEQ's current protocol relies on using toxicity data to recommend and issue advisories.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, no.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, yes.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, yes. If the Arizona DEQ suspects a HAB event at toxic levels, samples may be collected weekly until the HAB event dissipates.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to email staff to obtain data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We had to email staff to obtain data.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such guidance document or response protocol.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We learned about the thresholds only after communicating with agency staff.

☑ Is there evidence of a state agency communicating HAB information to the public?

We could not find any evidence of ADEQ communicating HAB information to the public. However, an Arizona DEQ spokesperson confirmed blue-green algae's presence in Arizona when contacted by a local news outlet.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The public can file a complaint here. They need to download a mobile app to send photos of suspected harmful algal blooms to the Arizona DEQ.

ARKANSAS

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
One photograph is available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Arkansas Department of Environmental Quality (DEQ) has this general website, which was used to answer the questions in this section. The general website links to this response plan.

RESPONSE PROTOCOL AND COORDINATION

SCORE 4/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to the 2019 HAB Management Plan, the Arkansas DEQ uses the EPA's recommended water quality criteria for microcystins and cylindrospermopsin in recreational waters. The plan suggests swimming advisories should be issued if microcystins exceeds 8 µg/L or cylindrospermopsin exceeds 15 µg/L.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
Information on how the Arkansas DEQ responds to HAB complaints is available here.

☐ Does the state government provide dedicated financial support for HAB response?
No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

☐ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to the 2019 HAB Management Plan, state agencies work through a HAB Workgroup.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

According to the 2019 HAB Management Plan, the Arkansas DEQ oversees HAB reporting and monitoring and acts as a liaison with water body managers.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 3/8—POOR

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the 2019 HAB Management Plan, toxin concentrations and cell counts can be used to issue public advisories and warnings.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to the 2019 HAB Management Plan, water body managers should issue an advisory if a bloom is visually identifiable.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, yes. If a boom is confirmed, ADEQ will sample and monitor weekly until the bloom is no longer present.

PUBLIC OUTREACH

SCORE 5/8—SATISFACTORY

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The Arkansas DEQ has an interactive hydrological map of the state, but it does not include HAB events.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

According to personal communication with agency staff, no.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could not find any such data.

☑ Is the state's HAB guidance document or response protocol available online?

Yes, you can find the guidance document here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

As stated in the 2019 HAB Management Plan, microcystins and cylindrospermopsin thresholds are adopted according to the EPA's 2019 water quality criteria.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2018 Arkansas DEQ Facebook post communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to the 2019 HAB Management Plan, the state's DEQ works with local water body managers to test for cyanotoxins and relies on these managers to communicate HAB risks to the public.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

When one searches for "Arkansas harmful algal bloom," the first result is a link to a web page where a HAB complaint can be filed.

CALIFORNIA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Recommended actions are listed here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
The California State Water Resources Control Board (SWRCB) website provides preventative information here.

Reference: The SWRCB has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this web page, yes. The thresholds are copied below.

TRIGGER LEVELS FOR HUMAN AND ANIMAL HEALTH

CRITERIA*	NO ADVISORY[a]	CAUTION (TIER I)	WARNING (TIER 2)	DANGER (TIER 3)
Total Microcystins[b]	< 0.8 µg/L	0.8 µg/L	6 µg/L	20 µg/L
Anatoxin-a	Non-detect[c]	Detected[c]	20 µg/L	90 µg/L
Cylindrospermopsin	< I µg/L	I µg/L	4 µg/L	I7 µg/L
Cell Density of potential toxin producers	< 4,000 cells/mL	4,000 cells/mL	–	–
Site-specific indicator(s)	No site-specific indicators present	Discoloration, scum, algal mats, soupy or paint-like appearance. Suspected illness	–	–

* Action levels are met when one or more criteria are met.
a For de-posting, all criteria for no advisory must be met for a minimum of 2 weeks. General awareness sign may remain posted and healthy water habits are still recommended.
b Microcystins refers to the sum of all measured Microcystin congeners.
c Must use an analytical method that detects ≤ I µg/L Anatoxin-a.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
The response protocol is available here.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, no.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to this web page, yes. Local (city or county) public or environmental health entities can voluntarily issue advisories and information on recreational waterbodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
Yes. The California Cyanobacteria and Harmful Algal Bloom Network is an interagency (state, local, and tribal) group for HAB research, coordination, and monitoring.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
The SWRCB's guidance document home page states that the SWRCB, the California Office of Environmental Health Hazard and Assessment, and the California Department of Public Health work together.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, yes.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
  This web page summarizes freshwater HABs that have been reported in the state since the fall of 2016.
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to the state's HAB response web page, quantitative metrics are used to issue advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to the state's HAB response web page, visual indicators are used to issue and post caution signs.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to the state's HAB Incidents Report and Map web page, routine monitoring occurs in certain freshwater lakes and reservoirs.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to personal communication with agency staff, yes. The SWRCB works with partners to collect samples during and after a bloom. The actual entity doing the sampling varies on a case-by-case basis.

PUBLIC OUTREACH

SCORE 8/8—EXCELLENT

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
The HAB Incident Reports Map pinpoints the locations of reported HAB events. However, this map is based on data provided voluntarily.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
Data are available here (recent data) and here (historical data).

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?
According to personal communication with agency staff, yes. All data, including sampling data, are made available on the state's interactive web map.

☑ Is the state's HAB guidance document or response protocol available online?
The SWRCB response protocol is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The SWRCB's HAB response page details the thresholds used.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the SWRCB warning the public about a harmful algal bloom.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The SWRCB has numerous partnerships with local organizations and the state Department of Water Resources to provide information to the public.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The public can report HABs here.

COLORADO

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Low quality pictures are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is listed here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
The state HAB website links to a CDC page suggesting ways to prevent harmful algal blooms.

Reference: The Colorado Department of Public Health and Environment (DPHE) has this general website, which was used to answer the questions in this section

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to the state's HAB tool kit, yes. The thresholds are copied below.

ADVISORY VALUE (µg/L)	MICROCYSTIN[a]	CYLINDROSPERMOPSIN	ANATOXIN	SAXITOXIN[a]
No Contact Advisory	4	8	8[b]	4[b]

a Advisories are intended to be applied to the sum of the concentrations of all reported congeners of these toxins.

b Anatoxin and saxitoxin advisories are based on the limited amount of available data, and should be considered provisional.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

This recreational water management protocol thoroughly explains the process the Colorado DPHE uses to educate local health departments and recreational water man- agers, test freshwater bodies for cyanotoxins, and issue public health advisories.

☑ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, yes.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to the recreational water management protocol, the Colorado DPHE provides recommendations to waterbody managers, but it is up to these managers to issue advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, yes. The Colorado DPHE works with local lake managers to post signs; if the lake is a state park, the Colorado DPHE posts signs; and if a lake is managed by a city, the Colorado DPHE works with the city to post signs.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency workinggroup, about new HAB research and findings?

According to personal communication with agency staff, the Colorado DPHE communicates with Colorado Parks and Wildlife (CPW) regularly to discuss new HAB research and findings. Staff from the Colorado DPHE's drinking water section also lead a workgroup made up of people from local municipalities.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

We found information only on the Colorado DPHE's website.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 4/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

The data received did not include if an advisory was issued, nor when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?

  We received data from only 2019.

- ☐ Does the state provide at least 5 years of historical data?

- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the state's HAB toolkit, advisories are issued based on quantitative metrics.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to the state's HAB toolkit, warnings are issued based on visual indicators

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, yes, but the state does not regularly proactively sample.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, yes. The Colorado DPHE tests for cyanotoxins during a bloom as a response to public concern regarding lakes and reservoirs not within a state park. CPW also tests for cyanotoxins during blooms in lakes and reservoirs that it manages. The Colorado DPHE and CPW will continue to test a water body on a regular basis until the toxins are below thresholds of concern.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

- [ ] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  We could not find any such map.
- [ ] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
  According to personal communication with agency staff, no.
- [ ] Are easily interpretable test result summaries made available to the public shortly after sample results are available?
  According to personal communication with agency staff, no.
- [x] Is the state's HAB guidance document or response protocol available online?
  The protocol is available here.

OUTREACH STRATEGY

- [x] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
  Thresholds are publicly explained in the state's HAB toolkit.
- [x] Is there evidence of a state agency communicating HAB information to the public?
  This is an example of a 2019 press release issued by CPW educating the public about harmful algal blooms.
- [ ] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
  According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

- [ ] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
  It is not clear if the contact information provided on the Colorado DPHE's website is also meant to be used by someone wishing to report a HAB. The Colorado DPHE also provides contact information for individuals looking to collect and ship cyanotoxin samples here.

CONNECTICUT

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Connecticut, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is listed here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
The state's web page links to a Department of Public Health (DPH) factsheet that discusses harmful algal bloom prevention and fertilizer use management.

References: The Connecticut Department of Energy and Environmental Protection (DEEP) has this general website, which was used to answer the questions in this section. The Connecticut DPH has this website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to the state's guidance protocol, yes. The state recommends a toxin threshold of 8 ug/L for microcystin. However, the state mainly uses cyanobacteria cell counts instead of cyanotoxin thresholds when issuing advisories. The state's cyanobacteria thresholds are copied below.

OBSERVATIONS	NOTIFICATIONS	FURTHER MONITORING	PUBLIC POSTING
Visual Rank Category I	Not needed	No change	Not needed
Visual Rank Category 2, or blue-green algae cells >20k/ml and <100k	Notify CT DPH, CT DEEP	Increase regular visual surveillance until conditions change.	Consider cautionary postings at public access points. (See Appendix C, Example B)
Visual Rank Category 3, or blue-green algae cells > 100k/ml	Update/inform CT DPH & CT DEEP and expand risk communication efforts. (See Risk Communication section.)	Collect samples for analysis and/ or increase frequency of visual assessment.	POSTED BEACH CLOSURE: If public has beach access, alert water users that a blue-green algae bloom is present. (See Appendix C, Example A) POSTED ADVISORY: At other impacted access points. (See Appendix C, Example C)

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

According to the state's guidance protocol, all reports or complaints from the public or staff require confirmation. Page 8 of the response plan states that "Confirmation can be facilitated by consulting someone with prior field experience. Options for consultation include Connecticut DEEP staff or a professional limnologist. If such help is not available, health officials in Connecticut should consult the resources available from other states' websites or the contacts listed in the Additional Resources section of this document." The response plan also provides a list of labs in the state that can test and confirm the presence of cyanobacteria and cyanotoxins.

☐ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, no. The state provides funding for responding to contamination of drinking water sources, but not for recreational water bodies.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to the guidance protocol, and according to statute, local health departments have the power to issue recreational advisories for freshwater bodies.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to the state's guidance protocol, local health departments can issue information about the risks of recreating on or in freshwater bodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, yes. Agencies participate in the New England Interstate Water Pollution Control Commission Harmful Algal Bloom Workgroup and the EPA Regional Cyanobacteria Monitoring Collaborative on new HAB research and findings.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

Responsibilities are clear in the state's guidance protocol.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 4/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

State agency officials directed us to a US EPA database that does not provide HAB information. The EPA database shows advisories or closures based on metrics other than cyanobacteria or cyanotoxins.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the guidance protocol, local health departments issue cautionary advisories using quantitative cell counts and visual observations.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to the state's guidance protocol, local health departments issue cautionary advisories using quantitative cell counts and visual observations.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, yes. The Connecticut DEEP proactively samples 23 designated state bathing beaches. However, there are other recreational waterbodies that are not designated bathing beaches.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, yes.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could find no such map. Agency staff told us one is under development.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We could find no such data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could find no such data.

☑ Is the state's HAB guidance document or response protocol available online?

The guidance protocol is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The guidance protocol explains what metrics and thresholds it recommends local health departments use in issuing advisories or signage at impacted freshwater bodies.

☑ Is there evidence of a state agency communicating HAB information to the public?

We could only find one Connecticut DEEP social media post communicating HAB information to the public.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The Connecticut DEEP's website includes information on how to report an algal bloom.

DELAWARE

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Delaware, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☐ Does the website describe how to contact someone if a constituent does see a bloom?

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended preventive actions are listed here.

References: The Delaware Department of Natural Resources and Environmental Conservation (DNREC) has this general website, which was used to answer the questions in this section. The Delaware Department of Health and Social Services (DHSS) also has this fact sheet.

RESPONSE PROTOCOL AND COORDINATION

SCORE 2/8—POOR

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, no.

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, no.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, no.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to this web page, the Delaware DNREC posts warning signs at a handful of freshwater bodies in the state.

AGENCY COORDINATION

☐ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, no.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
It is not clear what role the Delaware DNREC plays in managing HABs, and it is not clear if any other agencies play a role in HAB monitoring and response.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, yes. The state provides funding to the Sea Grant fellowship which conducts HAB-related research.

DATA COLLECTION AND USE

SCORE 2/8—POOR

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
According to personal communication with agency staff, no.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☐ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, no.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, no.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to personal communication with agency staff, yes. Staff leverage existing water testing requirements to also test for cyanotoxins.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to personal communication with agency staff, yes. Staff leverage existing water testing requirements to also test for cyanotoxins.

PUBLIC OUTREACH

SCORE 1/8—FAIL

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The only map available is one from 2010, and the map shows only where warning signs are posted.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

According to personal communication with agency staff, no.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, no.

☐ Is the state's HAB guidance document or response protocol available online?

The state does not have a guidance document or response protocol to make available online.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We could not find a public explanation of the state's thresholds because the state has not adopted thresholds.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find any press releases, tweets, or Facebook posts from the Delaware DNREC.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the Delaware DNREC works with several volunteer groups to test and monitor freshwater bodies for HABs. Those volunteer groups also communicate HAB information to the public.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find information on how to submit a complaint, send a photograph, or request a toxin test.

FLORIDA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Florida, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 5/8—SATISFACTORY

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☐ Does the website provide photographs of what a harmful algal bloom looks like?

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

References: The Florida Department of Health (DOH) has this general website which was used to answer the questions in this section. The Florida Department of Environmental Protection (DEP) also has this website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, no. The state uses the presence of cyanobacteria in the water rather than toxin thresholds to trigger recreational advisories or closures. However, agency staff informed us that cyanotoxin criteria/thresholds are under development in the state.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to this document, yes. The Florida DEP reviews reports and then coordinates with other agencies to determine which sampling team to deploy to confirm the report.

- [x] Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, yes. The State Legislature provided funding for HAB response in fiscal year 2019.
- [x] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to DEP's fact sheet, the DOH issues health advisories.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to personal communication with agency staff, yes. Local county health units post information and signage.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to personal communication with agency staff, state agencies coordinate through a Blue-Green Algae Task Force.
- [x] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  According to the Florida DEP's fact sheet, the state's DOH takes the lead on HAB response.

RESEARCH

- [x] Does the state receive or provide dedicated funding to research HAB-related issues?
  In a recent executive order, Florida's governor announced $2.5 billion for water protection activities including HAB research, monitoring, and analysis.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [x] Does the state collect comprehensive HAB data?

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
    Data sent to us by agency staff go back to 2016.
  - [x] Does the state provide at least 5 years of historical data?
    The Florida DOH also has a database with additional HAB data that go back to 2013. This database, however, is not comprehensive because its information comes from voluntary reporting. Not all HABs are recorded in this database.
  - [ ] Does the state provide at least 10 years of historical data?

- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to the Florida DEP's fact sheet, yes. The Florida DOH uses toxin concentrations in deciding whether to issue "Harmful Algal Bloom Health Alert" advisories.
- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, yes. The Florida DOH uses visual signs of cyanobacteria to issue "Harmful Algal Bloom Caution" advisories.

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to the Florida DEP's fact sheet, samples are routinely collected during water quality monitoring visits.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According the Florida DEP's fact sheet, samples are collected during and after a bloom.

PUBLIC OUTREACH

SCORE 7/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

A map is available here.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The public can view sample results here.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

This map shows laboratory results of samples taken from a freshwater body.

☑ Is the state's HAB guidance document or response protocol available online?

The sampling and response protocols are available online.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The state has not adopted metrics or thresholds.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is as example of a 2018 press release issued by the Florida DOH communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The Florida DEP communicates with organizations like Riverkeepers, the Conservancy of Southwest Florida, and more to communicate HAB information.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

A reporting form is available on the Florida DEP's webpage, here.

GEORGIA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
A description is available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☐ Does the website describe how to contact someone if a constituent does see a bloom?

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description is available here.

Reference: The Georgia Environmental Protection Division (EPD) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 1/8—FAIL

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, no.

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, no. Staff shared they are working on developing a protocol.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
There is currently no process for how and when to issue recreational advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to personal communication with agency staff, yes. If the freshwater body is managed by a governmental entity, that entity can issue information about recreational risks.

AGENCY COORDINATION

☐ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
No response from state agency officials.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Only by communicating with agency staff did we learn that Georgia does not have a HAB program. Since there is no state HAB program, it is not clear which agencies oversee HAB- related issues for the state.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 1/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
According to personal communication with agency staff, no.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☐ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
There is currently no process for how and when to issue recreational advisories.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?
There is currently no process for how and when to issue recreational advisories.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to personal communication with agency staff, no.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to personal communication with agency staff, there has been monitoring after a bloom has been reported.

PUBLIC OUTREACH

SCORE 0/8—FAIL

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
We could find no such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
According to personal communication with agency staff, the public must email every lake manager to get HAB data on the water bodies they manage. Advisory data are not available online.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, the public must email every lake manager to get HAB data on the waterbodies they manage.

☐ Is the state's HAB guidance document or response protocol available online?

According to personal communication with agency staff, no.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The state has not adopted any thresholds.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find any examples of the Georgia EPD communicating HAB information to the public. However, the state EPD issued a statement to the US Army Corps of Engineers regarding a potential bloom.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the Georgia Department of Natural Resources would be happy to work with local organizations but has not done so yet.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find a way for the public to file or submit a complaint or photograph or request a toxin test.

HAWAII

☑ = 1 POINT

Hawaii invests in preventing exposure to harmful algal blooms (HABs) on nearshore marine coastlines because the state's economy is heavily dependent on clean and healthy marine beaches. According to conversations with agency staff, Hawaii's marine coastal HAB monitoring program would perform well if this assessment covered marine monitoring. Since this assessment focuses on freshwater HABs, the state does not perform well. Still, to keep our analysis consistent across all states, we score Hawaii on the basis of its freshwater HAB policy.

ACCESSIBILITY OF INFORMATION

SCORE 0/8—FAIL

Is there a general state agency website that discusses:

- ☐ What harmful algal blooms (HABs) are and why they're harmful?
- ☐ Where and when they are commonly found?
- ☐ What causes the blooms?
- ☐ Who's at risk?
- ☐ Does the website provide photographs of what a harmful algal bloom looks like?
- ☐ Does the website explain what the public should do if they see a bloom?
- ☐ Does the website describe how to contact someone if a constituent does see a bloom?
- ☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: We could not find a state agency website that provides information on HABs in Hawaii.

RESPONSE PROTOCOL AND COORDINATION

SCORE 1/8—FAIL

RESPONSE PROTOCOL

- ☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
  According to personal communication with agency staff, no.
- ☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  According to personal communication with agency staff, no.
- ☐ Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, no.
- ☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, the Hawaii Department of Health would issue advisories.
- ☐ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to personal communication with agency staff, no.

AGENCY COORDINATION

☐ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, no.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Only by communicating with agency staff did we learn that Hawaii does not have a freshwater HAB program. As a result, it is not clear which agencies oversee HAB-related issues for Hawaii.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no. The state contracted with a researcher to investigate marine HABs, but resources were not provided for researching freshwater HABs.

DATA COLLECTION AND USE

SCORE 0/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
According to personal communication with agency staff, no.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☐ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, advisories are not currently issued. If they were, they would be based on quantitative metrics.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, advisories are not currently issued.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to personal communication with agency staff, no.

☐ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to personal communication with agency staff, no. If staff were to receive a HAB complaint, the state would likely have the resources to sample only once.

PUBLIC OUTREACH

SCORE 0/8—FAIL

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find a map of HAB events or advisories for Hawaii.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

According to personal communication with agency staff, no.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, no.

☐ Is the state's HAB guidance document or response protocol available online?

Because Hawaii does not have a freshwater HAB program, there is no response protocol available online.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We could not find a publicly available explanation of thresholds.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find evidence of a state agency communicating freshwater HAB information to the public.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no. But the state is looking forward to working with non-state resources as Hawaii invests more in freshwater HAB monitoring and tracking.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find information on how to file a complaint, send a photograph, or request a toxin test.

IDAHO

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Idaho, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A description is available on a brochure, which is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

References: The Idaho Department of Health and Welfare (DHW) has this general website, which was used to answer the questions in this section. The Idaho Department of Environmental Quality (DEQ) also has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to page 3 of Idaho's HAB Response Plan, the state has adopted thresholds. They are copied below.

RECREATIONAL HEALTH ADVISORY RECOMMENDATIONS FOR MICROCYSTINS AND CYLINDROSPERMOPSINS (ADAPTED FROM EPA 2016A)				
Application of Recommended Values	**Microcystin Concentration (µg/L)**	**Microcystis Cell Count (cells/mL)**	**Cylindrospermopsin Concentration (µg/L)**	**Species other than Microcystis Total Cell County (cells/ mL)**
Recreational Water Quality Threshold	4	20,000	8	40,000

Note: The EPA cyanotoxin recreational water recommended values are health advisory recommendations and are not intended to serve as water quality criteria.

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  Idaho has a HAB Response Plan.
- [ ] Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, no.
- [x] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, yes. Public health districts and the Idaho DHW and DEQ have the authority to issue health advisories.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to Idaho's HAB Response Plan, local public health departments can post signage and issue advisories.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to Idaho's HAB Response Plan, state agencies coordinate work with local public health departments to incorporate updated HAB science into the response plan.
- [x] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  Idaho's HAB Response Plan clearly lists which agencies are responsible for which HAB-related tasks.

RESEARCH

- [x] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, yes.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [x] Does the state collect comprehensive HAB data?

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
  - [x] Does the state provide at least 5 years of historical data?
    Data provided go back to 2015.
  - [ ] Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to Idaho's HAB Response Plan, advisories are issued on the basis of quantitative toxin concentrations.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to Idaho's HAB Response Plan, advisories are not issued on the basis of visual indicators.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to Idaho's HAB Response Plan, the Idaho DEQ does not proactively sample. It collects samples only when it receives a notice of a potential bloom.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to Idaho's HAB Response Plan, Idaho DEQ staff sample during and after an bloom. They will monitor contaminated waterbodies at least once every two weeks or every week to determine whether the threat to public health has subsided (pp. 9-10). When samples show cyanobacteria or cyanotoxin concentrations below the threshold for two consecutive weeks, advisories are lifted.

PUBLIC OUTREACH

SCORE 6/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

A map is available here.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to email staff to obtain data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We had to email staff to obtain data.

☑ Is the state's HAB guidance document or response protocol available online?

Idaho's HAB Response Plan is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

Idaho's HAB Response Plan publicly explains the metrics and thresholds used.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the Idaho DEQ.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The state works with the Idaho Conservation League, volunteers, and community groups to promote public awareness of HABs.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

There are instructions for reporting a bloom on the Idaho DHW's web page and on the Idaho DEQ's web page.

ILLINOIS

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Illinois, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☐ What causes the blooms?

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

References: The Illinois Environmental Protection Agency (EPA) has this general website, which was used to answer the questions in this section. The Illinois Department of Public Health (DPH) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this web page, and according to personal communication with agency staff, the Illinois EPA uses the U.S. EPA's threshold to inform local water body managers of elevated levels of cyanotoxins. Those thresholds are copied below.

TABLE I. DRAFT RECREATIONAL AWQC [AMBIENT WATER QUALITY CRITERIA] FOR CYANOTOXINS	
Microcystins	**Cylindrospermopsin**
4 µg/L[a,b]	8 µg/L[a,b]

a Swimming Advisory: not to be exceeded on any day

b Recreational Criteria for Waterbody Impairment: not exceeded more than 10 percent of days per recreational season up to one calendar year

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  This web page describes how the state responds to HAB complaints.
- [ ] Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, no. Agency officials pull funds for sampling and monitoring from discretionary funding sources.
- [ ] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to the algae reporting web page, the Illinois EPA defers to lake managers or homeowners to issue swimming advisories.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to the algae reporting web page, lake managers (which can be governmental entities like municipalities) can issue information and post signage at recreational freshwater bodies.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to personal communication with agency staff, the Illinois EPA works closely with the state's DPH on HAB research.
- [x] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  This website clarifies that the Illinois EPA and the state's DPH work together and oversee HAB issues for the state.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, no. Agency officials pull research funding from discretionary funding sources.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  Data do not show if an advisory was issued, or when the advisory was lifted.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
  - [x] Does the state provide at least 5 years of historical data?
    Data go back to 2013. However, 2014 data are not included because they did not pass the state's quality assurance review process.
  - [ ] Does the state provide at least 10 years of historical data?

- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to this web page, if local waterbody managers issue advisories, the advisories are based on cyanotoxin threshold exceedances.
- [ ] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, no.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to this web page, as funding allows, the state does proactively sample several inland beaches and lakes for cyanobacteria and cyanotoxins.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to this web page, as funding allows, the Illinois EPA conducts follow up sampling.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
We had to email state officials to obtain data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?
We had to email state officials to obtain data.

☑ Is the state's HAB guidance document or response protocol available online?
A summary of the state's response protocol is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
This web page describes what cyanotoxin thresholds can be used to determine whether a bloom is harmful to the public.

☑ Is there evidence of a state agency communicating HAB information to the public?
This is an example of a 2018 news release issued by the Illinois EPA and the Illinois DPH warning the public about an algal bloom.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
According to personal communication with agency staff, no. Local nonprofits look to state agencies as the main drivers of the HAB program. The Illinois EPA does not partner or leverage local nonprofits or local organizations to help with HAB outreach.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
This web page explains how to report a HAB.

INDIANA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Indiana, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended actions are listed here.

References: The Indiana State Department of Health (ISDH) has this general website, which was used to answer the questions in this section. The Indiana Department of Natural Resources (DNR) has this general website, the Indiana Department of Environmental Management (IDEM) has this general website, and the Indiana State Board of Animal Health (BOAH) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this web page, yes. The thresholds are copied below.

TOXIN EXPOSURE THRESHOLDS				
Exposure Reference Values µg/L	**Microcystin**	**Cylindrospermopsin**	**Anatoxin-a**	**Saxitoxin**
Human Recreation Advisory	8.0	15.0	80.0	8.0
Human Recreation Prohibited	20.0	20.0	300	3.0
Dog Recreation Prohibited	0.8	1.0	0.4	0.05

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, no.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, yes. The Indiana DNR has the authority to issue advisories at swimming beaches.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
The following state agencies can all post HAB information here: IDEM, ISDH, DNR, and BOAH. Local health departments may also issue advisories for non-state water bodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to this Indiana DOH fact sheet, agencies communicate and coordinate with each other.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
The Indiana DNR and DOH, and the IDEM all have web pages explaining HABs. However, it is not clear what each agency's responsibilities are; it is also unclear which agency, if any, oversees HAB-related issues for Indiana.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
The IDEM keeps a thorough record of cyanobacteria and cyanotoxin test results here; However, the data do not show precise locations (latitudes and longitudes), if an advisory was issued, and when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
  Data available online date back to 2012.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to this web page, cyanotoxin concentrations are used to issue caution advisories and/or close beaches.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication from agency staff, no.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to this web page, this web page, and this web page, the IDEM proactively samples recreational freshwater bodies.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to this web page, the IDEM samples weekly or biweekly (depending on the level of advisory issued) until the sample shows cyanotoxin concentrations below advisory levels.

PUBLIC OUTREACH

SCORE 7/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

A map is available here. From May to August, the ISDH posts weekly cyanobacteria and cyanotoxin sampling results. The map is also accessible from this ISDH webpage.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

This IDEM web page chronicles weekly HAB advisory and sampling data collected over the past two years.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

The IDEM makes test results available here. The same web page also details how one should interpret the test results.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such protocol online.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The thresholds are explained and available on this website.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 IDEM Facebook post communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

According to the ISDH's website, one must fill out and fax this complaint form. This form is used to report a human illness associated with exposure to a HAB, and this form is used to report an animal illnesses associated with exposure to a HAB.

IOWA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Iowa, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

References: The Iowa Department of Public Health (DPH) has this general website, which was used to answer the questions in this section. The Iowa Department of Natural Resources (DNR) has this general website that provides information on monitoring.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this 2020 beach monitoring update, the state has adopted the EPA's microcystin threshold of 8 µg/L or greater to issue advisories.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes. There is an inter-departmental response protocol.

☐ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, no. Response activities are financially supported through the state's Environmental First funding program, not through a dedicated funding source.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, the Iowa DNR has the ability to issue advisories at state-owned properties.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to the Iowa DNR water quality monitoring website, governments can issue and post warning signs at waterbodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to this web page, the state's DPH, DNR and the CDC work collaboratively to track and report HAB-related illnesses.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

The Iowa DPH website and the Iowa DNR website both discuss interagency collaboration. The DNR is responsible for monitoring blooms and water quality.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, yes.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not include the locations of waterbodies, if an advisory was issued, or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?

  Microcystin data go back to 2008.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

Quantitative microcystin concentrations are used to issue public advisories and warnings and can be found here.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, only quantitative cyanotoxin concentrations are used to issue advisories.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

The Iowa DNR routinely monitors several freshwater lakes from Memorial Day to Labor Day through the state's Beach Monitoring Program.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, if the Iowa DNR issues an advisory on a state park beach, it conducts follow-up sampling until the toxin concentrations are below the advisory threshold.

PUBLIC OUTREACH

SCORE 6/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

According to personal communication with agency staff, yes. A map is available here. Note that even though HABs are not explicitly mentioned on the website, the interactive map is used to pinpoint HAB locations. We were told by agency staff that the Iowa DNR map and website need to be updated to reflect this.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The public must know what to search for to get access to microcystin data. Click on this database, then click on "Data Search—select search parameters to get the data you need." Select "2IIOWA" for the facility, "Results—By Project/Task" for the query, "Beach—Beach Monitoring at State-Owned Beaches" for the project, and "All Available Analytes" for the analytes. Then select the desired data range. Download the CSV file and filter the "colMethod" column for samples using the "BEA002" collection method. The remaining data are what the Iowa DNR uses to make advisory decisions.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, yes. It takes about two weeks for sample data to be made available in the database described in the previous question. The data used to populate the state's DNR's map are updated weekly.

☐ Is the state's HAB guidance document or response protocol available online?

According to personal communication with agency staff, no. However, it is available upon request.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

An explanation of thresholds is available here.

☑ Is there evidence of a state agency communicating HAB information to the public?

We could only find one example of the Iowa DNR communicating HAB information to the public in this 2019 news release.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The Iowa DNR provides several NGOs with the HAB data and lab results it receives.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The public can report a HAB here.

KANSAS

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Kansas, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended actions are available here.

Reference: The Kansas Department of Health and Environment (DHE) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
The 2020 annual Kansas DHE Agency Response Plan shows the thresholds for issuing advisories and notifications. They are copied below.

WATERBODY STATUS DETERMINATION
BLUE-GREEN CELL COUNT AND TOXIN EXPOSURE LEVELS

Condition of Waterbody	Advisory Level	Recommendations
Microcystin concentration ≤4 µg/L AND Cell count of ≤80,000 cells/ml	None—Waterbody clear	None
Microcystin concentration >4 µg/L to ≤8 µg/L OR Cell count of >80,000 cells/ml to ≤250,000 cells/ml OR Visual confirmation of bloom	Waterbody will be placed on a Public Health WATCH	• Post signage • Notify health dept., doctors, vets, health providers, etc. • Post on website • Notify public water suppliers
Microcystin concentration >8 µg/L to ≤2,000 µg/L OR Cell count of >250,000 cells/ml to ≤10,000,000 cells/ml OR Presence of significant Cyanobacterial surface scum	Waterbody will be placed on a Public Health WARNING	• Post signage • Restrict direct contact with water • Notify health dept., doctors, vets, health providers, etc. • Post on website • Issue media release • Notify public water suppliers
Microcystin concentration >2,000 µg/L OR Cell count of >10,000,000 cells/ml	Waterbody will be placed on a Public Health HAZARD	• Recommend that portions of the lake, the entire lake, or zone, be closed. If necessary—close adjacent land up to 100 ft from shoreline. • Post signage • Notify health dept., doctors, vets, health providers, etc. • Post on website • Issue media release • Notify public water suppliers

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
The department's response plan is available here.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no. The Kansas DHE pulls funding from other sources to finance HAB work.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to the 2020 HAB Response Plan, yes. The Kansas DHE coordinates with its public information officer and the Kansas Bureau of Water, Public Water Supply (BOW-PWS) to prepare and release official public health advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to the state's HAB Response Plan, lake managers can post signage on freshwater bodies that they manage. If the recreational freshwater body is operated by a governmental entity (Kansas Department of Wildlife, Parks, and Tourism), that governmental entity can post signage on the waterbodies it manages.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to personal communication with agency staff, yes. The Kansas DHE works with a multitude of local, state, and federal agencies.
- [x] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  The state's HAB Response Plan clearly states that the DHE has primary responsibility for handling complaints, training, tracking, and monitoring.

RESEARCH

- [x] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, yes. The legislature provides funding specifically for HAB-related research.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  Data do not show latitudes or longitudes, if an advisory was issued, or when an advisory was lifted.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
  - [x] Does the state provide at least 5 years of historical data?
  - [x] Does the state provide at least 10 years of historical data?
    DHE's database dates back to 2010.

- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to the Kansas DHE's HAB Response Plan, quantitative metrics are used to issue advisories.
- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to the Kansas DHE's HAB Response Plan, visual indicators can be used to issue warnings.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to the state's HAB policy document, the state DHE samples recreational bodies only when it is alerted to a potential bloom.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to the state's HAB policy document, the state DHE resamples according to the results of the initial sample. For example, higher cyanotoxin concentrations in the initial sample may result in weekly resampling.

PUBLIC OUTREACH

SCORE 8/8—EXCELLENT

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

This map shows where HABs are occurring in the state during the sampling season (April 1–October 31).

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

Yes. Users who click on the HABs Historical Data tab on the green navigation bar on the Kansas DHE's homepage are redirected to several years' worth of HAB data.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, the data on the map are updated weekly.

☑ Is the state's HAB guidance document or response protocol available online?

The Kansas DHE's response plan is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The Kansas DHE explains the thresholds it uses in its HAB Policy document.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the Kansas DHE informing the public about blue-green algae health advisories.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the Kansas DHE communicates with local organizations, but infrequently.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

Users who click on the Reporting Forms tab on the Kansas DHE's website are redirected to this reporting form.

KENTUCKY

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Kentucky, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

References: The Kentucky Energy and Environment Cabinet (EEC) has this general website, which was used to answer the questions in this section. The Kentucky Department of Fish and Wildlife Resources (FWR) has this website that talks about HABs.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, yes. Recreational watch and health advisories are issued when water samples meet or exceed the concentrations written in the table below.

Microcystin	Cylindrospermopsin	Anatoxin-a
8 µg/L	15 µg/L	80 µg/L

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, the Kentucky Division of Water can issue advisories. This Kentucky EEC blog post notes that the state's Department for Public Health (DPH) can also issue advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
Yes. The Kentucky EEC's Division of Water and the Kentucky DPH can issue HAB recreational public health advisories for freshwater bodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, yes. The Kentucky EEC works with the state's Department of Public Health, Fish and Wildlife Resources, Emergency Management, and more on HAB research and response coordination.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Two state agencies (EEC and FWR) have HAB web pages, and it is unclear which agency is responsible for which aspects of HAB management in Kentucky. A third state agency (DPH) also influences how the state manages HABs.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
Data provided do not include whether an advisory was issued or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, yes.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, no.

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, yes. The Kentucky EEC proactively monitors and samples based on remote sensing technology and through the Ambient water monitoring programs.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, yes. If there is a confirmed bloom, the state's EEC collects two samples at least one week apart until the results are below the state thresholds.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

- [x] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  A map is available here.
- [ ] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
  We received data only after submitting a public records request.
- [ ] Are easily interpretable test result summaries made available to the public shortly after sample results are available?
  We received data only after submitting a public records request.
- [ ] Is the state's HAB guidance document or response protocol available online?
  We learned about a response protocol only by communicating with agency staff.

OUTREACH STRATEGY

- [ ] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
  We learned about the thresholds only by communicating with agency staff.
- [x] Is there evidence of a state agency communicating HAB information to the public?
  This is an example of a Kansas EEC tweet informing the public about a HAB advisory.
- [x] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
  According to personal communication with agency staff, yes. The Kansas EEC works with local volunteer groups to collect data and samples from contaminated freshwater bodies.

PUBLIC REPORT PROCESS

- [x] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
  The public can report a HAB by clicking on the "Report a Bloom" button on the right side of the Kansas EEC website.

LOUISIANA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 1/8—FAIL

Is there a general state agency website that discusses:

- ☐ What harmful algal blooms (HABs) are and why they're harmful?
- ☐ Where and when they are commonly found?
- ☐ What causes the blooms?
- ☐ Who's at risk?
- ☐ Does the website provide photographs of what a harmful algal bloom looks like?
- ☑ Does the website explain what the public should do if they see a bloom?
  A description is available here.
- ☐ Does the website describe how to contact someone if a constituent does see a bloom?
- ☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Louisiana Department of Environmental Quality (DEQ) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 2/8—POOR

RESPONSE PROTOCOL

- ☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
  According to personal communication with agency staff, no.
- ☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  According to personal communication with agency staff, no. The Louisiana Department of Health (LDH) has one under development.
- ☐ Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, no.
- ☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, no. This process is being developed.
- ☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to personal communication with agency staff, the LDH and the Louisiana DEQ would issue advisories. LDH would make a recommendation, seek confirmation from the DEQ, and then issue a press release.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to personal communication with agency staff, the state established a Louisiana HAB Task Force composed of state, federal, local, NGO, and university representatives to coordinate on future HAB responses in the state.

- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  Only by communicating with agency staff did we learn that Louisiana recently established a HAB task force. Since there is no information about the task force online, it is not clear which agencies oversee HAB- related issues for the state.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 0/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  According to personal communication with agency staff, no.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [ ] Does the state provide at least 2 years of historical data?
  - [ ] Does the state provide at least 5 years of historical data?
  - [ ] Does the state provide at least 10 years of historical data?

- [ ] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
- [ ] According to personal communication with agency staff, there is no guideline for issuing advisories.
- [ ] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, there is no guideline for issuing advisories.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, no. The Louisiana DEQ is using remote- sensing data from the EPA to identify hot spots for future proactive sampling, but there is currently no proactive sampling of recreational freshwater bodies.

- [ ] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, no.

PUBLIC OUTREACH

SCORE 2/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The Louisiana Beach Monitoring Program at the LDH provides this map informing the public about bacterial conditions and advisories. However, it does not include HAB data (freshwater or otherwise).

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We could find no such data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could find no such data.

☐ Is the state's HAB guidance document or response protocol available online?

The state does not have a response protocol document.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

Since the state hasn't adopted thresholds, there are no thresholds to publicly explain.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the LDH communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the newly established HAB Task Force includes participation from NGOs who will communicate HAB information to the public.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find information on how to report a HAB, send a photograph, or request a toxin test. However, citizens can report fish kills due to algal blooms to Louisiana Wildlife and Fisheries (WLF) here.

MAINE

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Maine, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here. Note that the website refers to HABs as cyanobacteria blooms.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
At the bottom of this page is more information on whom contact.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Maine Department of Environmental Protection (DEP) has this website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 3/8—POOR

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, no. Agency staff are in the process of developing thresholds.

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, no. State agencies do not have the authority to write a strategy or protocol at this time.

☐ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, no. The Maine DEP draws funds from a general source of funding for the Surface Water Ambient Toxins (SWAT) program.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, the Maine DEP and the Maine Center for Disease Control and Prevention (CDC) are deciding what advisory process to adopt for the state.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, yes.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, the Maine DEP works with the state's CDC and additional staff from the Drinking Water Program.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

Since there is only one website that discusses HABs in Maine, it is clear that the Maine DEP manages HABs in the state.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 3/8—POOR

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go? Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☐ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to personal communication with agency staff, no. The process for issuing advisories is still under development.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, the Maine DEP currently uses a Secchi disk transparency test to determine the presence of a HAB. This test is a visual assessment of water clarity, which is diminished during an algal bloom. If a Secchi disk is not visible when placed 2 meters below the surface of a waterbody, then that lake is placed on the list of lakes likely to have a bloom.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, yes. The Maine DEP proactively samples around 30 lakes every year for cyanotoxins.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, yes. The Maine DEP has targeted repeated sampling for a handful of freshwater bodies that have a history of HAB events.

PUBLIC OUTREACH

SCORE 2/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The Maine DEP does not provide a map; it provides a list of lakes that are at risk of experiencing a HAB.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The only publicly available information is this list, which shows recreational freshwater bodies at risk of experiencing a bloom. The Maine DEP describes what the information shows in the "Can You Tell Me About a Specific Lake?" section here.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could not find test result summaries online.

☐ Is the state's HAB guidance document or response protocol available online?

According to personal communication with agency staff, there is no statewide response protocol.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

Thresholds and metrics are still being developed.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find any press releases from the past two years, Facebook posts, or tweets communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the state's DEP partners with Maine's Volunteer Lake Monitoring Program, an effort to educate the public about HABs. The program is run by local volunteers, business leaders, and watershed associations..

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

Instructions at the bottom of this web page tell how to report a HAB.

MARYLAND

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
One image is available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description and link to a U.S. Environmental Protection Agency resource list are available here, under "Factors that contribute to a Harmful Algal Bloom".

Reference: The Maryland Department of the Environment (MDE) has this general website, which provides answers to the questions in this section. The Maryland Department of Natural Resources (DNR) also has this general website, and the Maryland Department of Health (MDH) has this website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, the state adopted the EPA's 2019 recommended thresholds of 8 ug/L microcystin, and 15 ug/L cylindrospermopsin.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, no. Three state agencies—MDE, MDH, and the Maryland DNR—provide recommendations for advisories to be issued, but it's up to the local health authority to issue that advisory.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, local health agencies disseminate information and issue advisories to the public.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to this web page, MDE, MDH, and the Maryland DNR work together in a state-wide HAB surveillance program.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

The HAB management document clarifies that MDE, MDH, and the Maryland DNR all work on HAB-related issues.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not show, if an advisory was issued, when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to personal communication with agency staff, advisories are issued on the basis of excessive cyanotoxin concentrations.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, visual indicators serve as a red flag for sampling. Advisories are issued on the basis of toxin concentrations and not visual indicators

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, yes, but on a limited basis.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to this web page, water quality monitoring continues until toxin levels are below advisory levels or until the bloom is no longer visible.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

- [x] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

  A map is available here, but it only pinpoints freshwater HAB events in the Chesapeake Bay.

- [ ] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

  We had to email staff for data. This website explains how to download historic water quality data. However, it is up to the user to figure out which dataset to download and how to filter datasets for appropriate information. It is not clear to us how to access cyanobacteria or cyanotoxin data from this website.

- [ ] Are easily interpretable test result summaries made available to the public shortly after sample results are available?

  According to personal communication with agency staff, no. The results are sent to local county officials or to the individual or group that alerted the state to the bloom.

- [ ] Is the state's HAB guidance document or response protocol available online?

  According to personal communication with agency staff, the protocol is not available online due to COVID-19 delays. The state's HAB Management plan is available here.

OUTREACH STRATEGY

- [ ] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

  We had to email agency staff to clarify the thresholds used by state agencies.

- [x] Is there evidence of a state agency communicating HAB information to the public?

  This is an example of a 2019 press release issued by the Maryland DNR informing the public about a recent algal bloom.

- [x] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

  According to personal communication with agency staff, the Maryland DNR works with the Maryland Riverkeepers to communicate advisories to the public.

PUBLIC REPORT PROCESS

- [x] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

  Yes. This web page provides information on how to report an algal bloom.

MASSACHUSETTS

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Massachusetts, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
One photograph is available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☐ Does the website describe how to contact someone if a constituent does see a bloom?
A phone number is not provided. Instructions for who to call are listed here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended actions are available here.

References: The Massachusetts Department of Public Health (DPH) has this general website, which was used to answer the questions in this section. The Massachusetts Department of Environmental Protection (MassDEP) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 4/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this general website, yes. The thresholds are a microcystin level equal to or exceeding 14 parts per billion, or a total cyanobacteria cell count exceeding 70,000 cells per milliliter of water.

Massachusetts's cyanotoxin threshold is higher than the EPA's recommended threshold

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

According to personal communication with agency staff, yes. The Massachusetts DPH has an internal HAB response protocol. Staff shared that MassDEP and the state's DPH are developing a standardized response protocol across agencies.

☐ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, no.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, no. State agencies can recommend that advisories be issued, but it's up to local health departments to issue an advisory.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to this web page, local health departments can post signage and advisory information on freshwater bodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, MassDEP, and the Massachusetts DPH, Department of Conservation and Recreation, and Water Resources Authority work together to coordinate response guidance and updates on HAB research.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

The state website is confusing to navigate. It is not clear which department oversees what aspect of HAB work because HAB information is available on multiple state agency websites.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?

  Data go back to 2009.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to this web page, quantitative metrics are used to issue advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to this web page, visual indicators are also used to post advisories.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, MassDEP's Watershed Planning Program conducted routine sampling on waterbodies from 2016 to 2018. That proactive sampling did not take place in 2019.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to this web page, yes. The Massachusetts DPH deploys resources to sample during and after a bloom. Advisories may be lifted after two successive and representative sampling rounds one week apart demonstrate cell counts or toxin levels below the relevant threshold.

PUBLIC OUTREACH

SCORE 2/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find a map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

No. We had to request data from agency staff.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

No. We had to request data from agency staff.

☐ Is the state's HAB guidance document or response protocol available online?

According to personal communication with agency staff, the Massachusetts DPH response protocol is an internal document, and not available online. MassDEP and the state's DPH are finalizing a standardized response protocol that will be made available online.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

This web page details the thresholds for when advisories are issued.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a Massachusetts DPH tweet informing the public how to identify HABs.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

According to this web page, the public must contact their local board of health or health department, but the web page does not say how to find the local health department's contact information.

MICHIGAN

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Michigan, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
One photograph is available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended actions are described here.

Reference: The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, yes. The Michigan EGLE and the Michigan Department of Health and Human Services (DHHS) reference the 2019 EPA guideline of 8 µg/L.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

According to personal communication with agency staff, yes. Once a complaint/report is filed, Michigan EGLE staff will investigate the report. If it is clear the report is referring to a cyanobacteria bloom then staff will make every effort to sample the waterbody.

☑ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, yes.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, no. The authority to close beaches and issue advisories is at the county level.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, county officials can issue recreational advisories, close waterbodies, and post signage at an impacted freshwater body.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency officials, yes. Several agencies meet every month to discuss and coordinate on HAB issues.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

This webpage states the Michigan EGLE works with the state's DHHS, but it is not clear which agency oversees which aspect of HAB management.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication, no. Agencies have received one-off funding for HAB issues, but there are no dedicated funds available.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not indicate if a public health advisory was issued or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?

  Data go back to 2017.

- ☐ Does the state provide at least 5 years of historical data?

- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to personal communication with agency staff, yes. Toxin concentrations are used to issue advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, yes. Visual indicators can be used to issue warnings until water samples confirm a HAB event.

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to the Michigan EGLE's Monitoring Maps and Quality Assurance Project Plans (which can be found in the "Reports" section of the department's website), the agency proactively samples select waterbodies for cyanobacteria and cyanotoxins.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, yes. The Michigan EGLE samples impacted freshwater bodies during a bloom and until it dissipates.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

- [ ] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  We could find no such map. Agency staff informed us that one is being developed.
- [ ] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
  We could find no such data or database.
- [ ] Are easily interpretable test result summaries made available to the public shortly after sample results are available?
  We could find no such data. Test results are sporadically made available in yearly tracking reports, like this one.
- [x] Is the state's HAB guidance document or response protocol available online?
  It is not clear, but the state's response protocol is also its Quality Assurance Project Plan, available here.

OUTREACH STRATEGY

- [ ] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
  We learned about the thresholds only after communicating with agency staff.
- [x] Is there evidence of a state agency communicating HAB information to the public?
  This is an example of a Michigan EGLE tweet informing the public about how algal blooms affect Lake Erie.
- [x] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
  According to personal communication with agency staff, yes. The Michigan EGLE works with local lake associations to disseminate information about HABs to the public.

PUBLIC REPORT PROCESS

- [x] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
  Reporting instructions and information are available here.

MINNESOTA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Minnesota, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description is available here.

References: The Minnesota Pollution Control Agency (MPCA) has this general website, which was used to answer the questions in this section. The Minnesota Department of Health (DOH) also has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 4/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, the MPCA has developed recreational guidance values for anatoxin (7 µg/L) and microcystin (6 µg/L).

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

According to personal communication with agency staff, yes. The MPCA works with the Minnesota DOH to respond to animal illnesses or deaths related to HABs. For routine complaints, the MPCA logs the complaint, and if the water body is listed as being at risk of contamination, the agency sends someone to sample.

☐ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, no.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, no. The state defers to local governments.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, local government units post signage and issue recreational advisory recommendations to protect public health.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, the MPCA has an interagency workgroup that meets annually to update agencies on HAB research, plan for the coming season, coordinate communication, and more.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

We learned about the Minnesota DOH's involvement in HAB issues only by speaking with staff at the MPCA. Furthermore, it is not clear which agency handles what aspects of HAB response and management.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no. The state provides funding through a lottery system, and in previous years, HAB projects were awarded funding.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not indicate if a public health advisory was issued and when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?

  Data sent to us go back to 2004.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to personal communication with agency staff, yes. The MCPA has recreational guidance values for local governments to reference in issuing advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, yes. Local governments can use visual indicators to issue advisories or warnings.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, no. Neither the MPCA nor the Minnesota DOH proactively sample for cyanobacteria or cyanotoxins.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, yes. If an animal illness or death is associated with a HAB event, the MPCA will collect additional samples.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to email agency staff for data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We had to email agency staff for data.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such protocol online.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The state has not adopted thresholds, so there are no thresholds to explain.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of an MPCA tweet communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the state partners with citizen lake and stream volunteers, the Minnesota Lakes & Rivers Advocates, and the Veterinary Health Association.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

There is a phone number listed on the right-hand side of the MPCA's web page that citizens can call to make complaints and receive more information about HABs.

MISSISSIPPI

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
A single photograph can be found here. The website also links to this HAB identification video.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A description is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Mississippi Department of Environmental Quality (DEQ) has this general website, which was used to answer the questions in this section. The Mississippi Department of Marine Resources (DMR) also has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 3/8—POOR

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, no.

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, no. It is still being developed.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, yes. The Mississippi DEQ has the authority to issue water contact advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to personal communication with agency staff, the Mississippi DEQ can post signage at freshwater bodies.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to personal communication with agency staff, yes. The Mississippi DEQ works with the state DMR and they have a Memorandum of Understanding in the works to formalize the partnership.

- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  No. Both the Mississippi DEQ and DMR have HAB web pages, and only by communicating with agency staff did we learn which agencies handle which responsibilities for HAB management.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 2/8—POOR

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  We were not provided any freshwater HAB data.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [ ] Does the state provide at least 2 years of historical data?
  - [ ] Does the state provide at least 5 years of historical data?
  - [ ] Does the state provide at least 10 years of historical data?

- [ ] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to personal communication with agency staff, no. A protocol is still being developed.

- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, yes. The Mississippi DEQ used visual indicators to post advisories in the summer of 2019.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, no.

- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, yes. The Mississippi DEQ samples for cyanobacteria during and after a bloom when funding is available.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

No. The Mississippi DEQ has a map for its Mississippi Beach Monitoring Program that depicts ongoing monitoring and current advisories, but it does not include the state's inland freshwater bodies.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We could find no such data online.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could find no such data online.

☐ Is the state's HAB guidance document or response protocol available online?

According to personal communication with agency staff, no.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the Mississippi DEQ warning the public about a partial river closure due to a harmful algal bloom.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The Mississippi DEQ's Algal Bloom Basics web page advises members of the public to notify the DEQ or local Emergency Management Agencies.

MISSOURI

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Missouri Department of Natural Resources (DNR) has this general website, which was used to answer the questions in this section. The Missouri Department of Health and Senior Services (DHSS) has this brochure regarding HABs in Missouri, but since it is not a website, we did not include it in our analysis.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, yes. The thresholds are copied below.

RECREATIONAL WATER ACTION LEVELS	
Toxin Test (lab analysis or Abraxis® test strip)	
Cyanotoxin	**Recreational Water Action Level**
Microcystin	≥8 µg/L
Cylindrospermopsin	≥15 µg/L
Anatoxin-a	≥20 µg/L
Saxitoxin	≥10 µg/L

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes. There is a response guidance used by multiple agencies.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, the Missouri Department of Health (DOH) has the authority to issue public health advisories in case local waterbody managers do not. The Missouri DNR has the authority to issue recreational advisories in state parks.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to personal communication with agency staff, yes. Local governments, and the state DNR and DOH can post signage.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, yes. The Missouri DNR works within a larger working group that convenes every year on HAB-related issues, and multiple agencies are involved in HAB response efforts.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
A simple Google search shows that the DNR is the only agency in Missouri working on HAB-related issues in the state.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
Data do not include locations, type of cyanobacteria/cyanotoxin, cell counts/toxicity levels, if an advisory was issued, or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?
  Data go back to 2010.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, yes.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, yes.

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, yes. The Statewide Lake Assessment Program includes monitoring around 70 lakes for cyanotoxins.
- [ ] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, no. The Missouri DNR does not have the resources to conduct this kind of sampling.

PUBLIC OUTREACH

SCORE 2/8—POOR

PUBLIC-FACING INFORMATION

- [ ] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  We could not find any such map.
- [ ] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
  One must submit a public records request.
- [ ] Are easily interpretable test result summaries made available to the public shortly after sample results are available?
  One must submit a public records request.
- [ ] Is the state's HAB guidance document or response protocol available online?
  According to personal communication with agency staff, no.

OUTREACH STRATEGY

- [ ] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
  We learned about the thresholds only by communicating with agency staff.
- [x] Is there evidence of a state agency communicating HAB information to the public?
  This is an example of a Missouri DNR tweet explaining what a HAB looks like the public.
- [ ] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
  According to personal communication with agency staff, no. The Missouri DNR does not have the resources it needs to do this kind of partnership.

PUBLIC REPORT PROCESS

- [x] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
  The Missouri DNR's general website links to this "Suspected Harmful Algal Bloom" notification form.

MONTANA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here, and the website links to this video that outlines what the public should do if they see a bloom.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A report form is available at the top of the website here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Steps to reduce the likelihood of algal blooms are available here.

Reference: The Montana Department of Public Health and Human Services (DPHHS) has a general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to the state's guidance document, Montana has adopted a threshold for issuing advisories. The thresholds are copied below.

TABLE I. MONTANA HAB PUBLIC HEALTH ADVISORY TIERS FOR RECREATIONAL WATERS

	Tier I: Caution	Tier 2: Danger	Tier 3: Closure
Relative Probability of Acute Health Effects[1]	Low	Moderate	High
Cyanobacterial Cell Density (cells/mL)[1]	<20,000	20,000 – 100,000	>100,000
Microcystins (µg/L)[1,2]	<4	4 – 20	>20
Anatoxin-a (µg/L)[3]	Non-Detect	Detect – 20	>20
Additional Factors	Visual presence but not reported illness	Reports of animal illness or death	Reports of human illness
Health Risks[1]	Negligible	Short-term effects such as skin irritation, nausea, vomiting, diarrhea. Potential for long-term effects.	Short-term effects such as skin irritation, nausea, vomiting, diarrhea. Potential for long-term effects and acute poisoning.
Recommended Actions	Post caution signs, visually monitor for changes	Post danger signs, notify private water users and media with advisory	Post closure signs, notify private water users and media with advisory, closures

1 WHO, 2003: Algae and cyanobacteria in fresh water. Guidelines for Safe Recreational Water Environments World Health Organization, Geneva. http://www.who.int/water_sanitation_health/publications/srwe1/en/

2 EPA 2015b, Drinking Water Health Advisory for the Cyanobacterial Microcystin Toxins, Office of Water, United States Environmental Protection Agency, EPA 820R15101

3 CSWB, 2016. California Guidelines for Cyanobacteria in Recreational Inland Waters - Voluntary. Available online at: https://mywaterquality.ca.gov/habs/resources/habs_response.html

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
Page 8 of the state's guidance document has a flow chart that details the state's response protocol.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes. The state provides full time staff for the state's HAB program, and staff have funding to purchase testing equipment.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, yes. The Montana DHHS has the authority.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to the state's guidance document, local government authorities can post signage and information about recreational risks.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to the state's guidance document, there is a state HAB team that brings together different state agencies.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
The state's guidance document clearly notes (pp. 13) which agencies collaborate on the state's HAB interagency team.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 3/8—POOR

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data provided do not show the type of cyanobacteria/cyanotoxin detected, cell counts, if an advisory was issued, or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
  Data go back to 2017.
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the state's guidance document, quantitative metrics are used to determine whether to post signs and advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to the state's guidance document, caution signs can be posted in response to a visual indicator of a bloom.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to the state's guidance document, the state does not proactively sample.

☐ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to the state's guidance document, follow-up sampling is recommended but not required.

PUBLIC OUTREACH

SCORE 6/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

This map shows HABs over a two-week period.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to request data from state agency officials.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We had to request data from state agency officials.

☑ Is the state's HAB guidance document or response protocol available online?

The state's guidance document is available online.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The state's guidance document clearly explains the metrics the state uses.

☑ Is there evidence of a state agency communicating HAB information to the public?

However, this is an example of a 2019 news release issued by the Montana Department of Environmental Quality informing the public about the risks associated with HABs.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The Montana DPHHS provides this form for those wishing to report a bloom.

NEBRASKA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
There is one photograph available on this web page.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: Nebraska's Department of Energy and Environment (DEE; previously the Department of Environmental Quality) jointly published this website with the Nebraska Department of Health and Human Services – Division of Public Health (DHHS – DPH), which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 4/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to the Nebraska DEE's Beach Watch web page, the state recently adopted the EPA's cyanotoxin threshold. If a sample shows microcystin concentrations of 8 parts per billion (or above), then the state will issue a public health alert. Previously, Nebraska's cyanotoxin threshold was set at 20 parts per billion of microcystin.

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no. The Nebraska DEE responds to each individual complaint differently.

☐ Does the state government provide dedicated financial support for HAB response?
No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to the Nebraska DEE website, yes. For example, this health alert was issued jointly by the state's DHHS – DPS, DEE, and the Game and Parks Commission (GPC).

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, yes. Signs are usually posted by the Nebraska GPC or by one of the state's Natural Resources Districts.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, The Nebraska DEE works with universities, the EPA, and other states regarding HAB research.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

It is not clear which agencies oversee HAB-related issues for the state. The Nebraska DEE appears to be the leading agency for HAB-related issues, but the state DHHS – DPH also disseminates HAB information (see DEE's website). Additionally, the Nebraska GPC contributes in issuing HAB health alerts.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not show exact HAB locations (latitude and longitude) or when a public health advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?

  The data provided go back to 2011.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to this web page, the Nebraska DEE uses quantitative metrics to issue advisories.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, the Nebraska DEE does not use visual indicators.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to this web page, the Nebraska DEE proactively samples for cyanobacteria at 51 recreational lakes from May through September.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to this web page, the Nebraska DEE repeatedly samples for cyanotoxins. A contaminated waterbody must have two consecutive weeks of sample results below the advisory threshold for an advisory to be lifted.

PUBLIC OUTREACH

SCORE 5/8—SATISFACTORY

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map. However, advisory and beach closure information are available here.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The public can access HAB sampling and advisory data dating back to 2011 at the bottom of this page. Recent advisory data is available here.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to this website, samples are collected on Mondays, and results are available online by the end of the week.

☐ Is the state's HAB guidance document or response protocol available online?

Since the state does not have a response protocol, one is not available online.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The threshold is made clear on the Nebraska DEE's Beach Watch page.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the Nebraska DEE alerting the public to harmful algal blooms.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

No response from agency staff this year. Last year, the answer to the question was: According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The Nebraska DEE's main HAB home page clearly explains how one can report a HAB.

NEVADA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Nevada Department of Wildlife (DOW) has this harmful algal bloom website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, the state is following the EPA's 2019 recommended thresholds, which are copied below.

- ***For microcystins, the recommended recreational value is 8 micrograms (µg)/liter (L).***
- ***For cylindrospermopsin, the recommended recreational value is 15 µg/L.***

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes. The Nevada Department of Environmental Protection (DEP) will investigate the complaint.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, yes. The Nevada DEP will work with the Division of Health and Human Services to post advisories.

☐ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, no.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, yes. The Nevada DEP works with the state's DOW and Department of Health and Human Services (DHHS).

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

It was only by communicating with agency staff that we learned that the Nevada DEP and the state's Division of Public and Behavioral Health work together.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, yes.

DATA COLLECTION AND USE

SCORE 2/8—POOR

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data? Data starts from 2019.
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to personal communication with agency staff, yes.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, no.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to communication with agency staff, no.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, yes. The Nevada DEP will monitor weekly until toxin levels drop, and then bi-weekly until samples show toxin levels below the EPA's recommended criteria thresholds.

PUBLIC OUTREACH

SCORE 2/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to email staff to obtain data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We had to email staff to obtain data.

☐ Is the state's HAB guidance document or response protocol available online?

We learned about the protocol only after communicating with agency staff.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We learned about the thresholds only after communicating with state agency staff.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2018 Nevada DHHS Facebook post communicating HAB information to the public.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

Phone numbers to report HABs are available on the posters on the state's DOW's website, here.

NEW HAMPSHIRE

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available in the "Ecology" section here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is in the "Identification" section of this website.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description is available in the "Prevention" section here.

References: The New Hampshire Department of Environmental Services (DES) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to the Beach Advisories web page, no. The state has adopted a cyanobacteria cell count threshold (50 percent cyanobacteria cells, or 70,000 cyanobacteria cells per milliliter of water), but not a cyanotoxin threshold.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes. There is a protocol available for agencies, and a brief summary of the protocol is available at the end of this document.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to the Beach Advisories web page, the New Hampshire DES has the authority to post advisories on freshwater beaches.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to the Beach Advisories web page, the New Hampshire DES, local water body and beach managers, and municipalities can post information about the risks of recreation in affected waters.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, yes. The New Hampshire DES works other state agencies on cyanobacteria issues.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

A Google search shows that the state DES oversees HAB-related issues in New Hampshire.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no. The state provided some funding years ago to update the Jody Connor Limnology Center. But dedicated funding is not available.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?

  The New Hampshire DES provided a database of all advisories issued since 2004.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the Beach Advisories web page, advisories are issued on the basis of quantitative cell counts.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, yes. The New Hampshire DES will announce "alerts" on recreational waterbodies experiencing HABs based on visual indicators.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to the "What happens during a beach inspection?" section of this web page, the New Hampshire DES only samples when a bloom is suspected.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to the Beach Advisories web page, staff resample and inspect contaminated water bodies weekly.

PUBLIC OUTREACH

SCORE 8/8—EXCELLENT

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

In summer (Memorial Day through Labor Day), advisories are available on this interactive map.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The public can follow instructions on this web page to access historic cyanobacteria/cyanotoxin reports.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, sample data are made available through the OneStop database within 24 hours of a sample being taken. To access test result summaries, the public can follow the instructions under "How do I get all the results from the sampling at my beach" on this web page.

☑ Is the state's HAB guidance document or response protocol available online?

A description of the protocol is available at the end of this document.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The Beach Advisories web page details what the thresholds are.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a New Hampshire DES tweet informing the public about the link between nutrient levels, temperature, and algal blooms.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The New Hampshire DES partners with local lake associations and other local lake groups to provide information.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The "Identification" section of the New Hampshire DES's website provides a phone number and email address to report a HAB.

NEW JERSEY

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended actions are available here.

References: The New Jersey Department of Environmental Protection (DEP) has this website which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 8/8—EXCELLENT

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?

The state's Response Strategy details the state's thresholds. They are copied below.

New Jersey DEP/ DSREH [The DEP Division of Science, Research and Environmental Health] recommends the following guidance values for recreational exposure to individual cyanotoxins. The basis, including derivation of reference doses and explanation of exposure assumptions, is provided in Appendix I.

- ***Microcystins (as total including –LR and other detectable congeners): 3 µg/L***
- ***Cylindrospermopsin: 8 µg/L***
- ***Anatoxin-a: 27 µg/L***

*NOTE: DEP's Proposed 2020 HAB Recreational Response Strategy plans to use the same advisory toxin thresholds that are currently in place. DEP is currently working on an additional advisory toxin threshold for saxitoxin.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

The state's response strategy details the response protocol.

☑ Does the state government provide dedicated financial support for HAB response?

Yes. The New Jersey DEP provides some $13 million in funding to mitigate HABs. Details about the state's Harmful Algal Blooms Initiative can be found here.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, yes. The New Jersey DEP has the authority to issue swimming advisories after a confirmation of a HAB event on recreational freshwater waterbodies, except lakes or public recreation bathing beaches. Only local health departments can issue advisories for bathing beaches (the part of a lake, river, stream, tidal water, pond, or bay that is used for swimming or bathing). The New Jersey DEP cannot post advisories for recreational freshwater bodies that are used for non-bathing recreational activities like boating, kayaking, and fishing. The department can only recommend that an advisory be issued.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to the state's response strategy, the New Jersey DEP, Department of Health (DOH), and State Parks Department, and local health departments can post signage and information on recreational freshwater bodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to the state's response strategy, several agencies work and coordinate with each other through an interagency workgroup.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

The state's response strategy clearly identifies which agencies oversee HAB-related issues and explains which agencies are responsible for what HAB-related activities.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?

Yes. See more details about the state's Harmful Algal Blooms Initiative here.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data provided to us did not include the type of cyanobacteria/cyanotoxin detected or the cell counts/ toxicity levels.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?

  Data go back to 2013.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the state's response strategy, advisories are issued on the basis of quantitative metrics.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to the state's response strategy, a warning advisory may be issued before a bloom is confirmed through laboratory analysis.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency officials, the state does not proactively sample for cyanobacteria or cyanotoxins.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to page 16 of the state's response strategy, freshwater bodies are continually monitored until samples show cyanobacteria/cyanotoxin levels below state thresholds.

PUBLIC OUTREACH

SCORE 8/8—EXCELLENT

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The public can see HAB events on this map.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

Data for 2017 data are available here, 2018 data are available here, and 2019 data are available here. One cannot download the data, and pre-2017 data are not available. We had to request pre-2017 data from the New Jersey DEP.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

The tables provided for 2017, 2018, and 2019 HAB events summarize the test results and are easy to understand.

☑ Is the state's HAB guidance document or response protocol available online?

The current response strategy is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The state's response strategy details what thresholds determine whether or not an algal bloom is harmful.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 news release issued by the New Jersey DEP warning the public about a HAB in Greenwood Lake.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

The state's response strategy states that through the New Jersey Water Monitoring Council—a collection of agency, university, nonprofit, and watershed associations—the state keeps the public educated on latest science and blooms.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The public can click on this link to submit a complaint and file a report.

NEW MEXICO

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 0/8—FAIL

Is there a general state agency website that discusses:

- ☐ What harmful algal blooms (HABs) are and why they're harmful?
- ☐ Where and when they are commonly found?
- ☐ What causes the blooms?
- ☐ Who's at risk?
- ☐ Does the website provide photographs of what a harmful algal bloom looks like?
- ☐ Does the website explain what the public should do if they see a bloom?
- ☐ Does the website describe how to contact someone if a constituent does see a bloom?
- ☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: We could not find a state agency website that informs the public about HABs in New Mexico. The New Mexico Environment Department (NMED) has written a Blue-Green Algae FAQ, but since it is not easily accessible through a Google search, it did not meet our criteria and was not included in our analysis.

RESPONSE PROTOCOL AND COORDINATION

SCORE 2/8—POOR

RESPONSE PROTOCOL

- ☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?

  According to personal communication with agency staff from the NMED, no. The state uses a cyanobacteria cell count concentration to determine if a freshwater body is impaired in terms of nutrients, but it does not have a threshold that determines when a freshwater body is harmful for recreational use.

- ☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

  According to personal communication with agency staff, no.

- ☐ Does the state government provide dedicated financial support for HAB response?

  According to personal communication with agency staff, no.

- ☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

  According to personal communication with agency staff, the New Mexico Department of Health has the authority to issue public health advisories.

- ☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

  According to personal communication with agency staff, yes, governmental entities can post signage and information about the risks of recreating on or in a freshwater body.

AGENCY COORDINATION

☐ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
There are no state agency websites or response protocols available for New Mexico, so it is not clear which agency oversees HAB issues.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Only by communicating with agency staff did we learn that New Mexico does not have a freshwater HAB program. Since there is no state HAB program, it is not clear which agencies oversee HAB- related issues for the state.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
Data sent to us did not include the type of cyanobacteria/cyanotoxin, if an advisory was issued, and when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?
  We received data going back to 1994 regarding cyanophyte concentrations in freshwater samples from the NMED.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, yes. However, these types of advisories are not issued often.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, yes.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to personal communication with agency staff, yes.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to personal communication with agency staff, yes. If the bloom is occurring in a watershed survey area.

PUBLIC OUTREACH

SCORE 1/8—FAIL

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to email agency staff to request data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample resultsare available?

We had to email agency staff to request data.

☐ Is the state's HAB guidance document or response protocol available online?

The state does not have a response protocol.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We could not find an explanation online.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 news release issued by the New Mexico Energy, Minerals and Natural Resources Department warning the public about the potential presence of HABs.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find information on how to file a complaint or a report, send a photograph, or request a toxin test. This Blue-Green Algae FAQ provides contact information for "health-related" and "water-related" questions, but doesn't address HAB reporting.

NEW YORK

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in New York, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here, in the "Preventing HABs" section.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact and reporting information is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description is available here.

References: The New York Department of Environmental Conservation (DEC) has this general website, which was used to answer the questions in this section. The New York Department of Health (DOH) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
The state's HAB Program Guide explains the toxin concentrations, which are copied below.

THE DEC HABS PROGRAM HAS ESTABLISHED FOUR LEVELS OF BLOOM STATUS:

NO BLOOM: Applied to a HAB report evaluated by DEC HABs Program or NYSDOH staff to have a low likelihood of a cyanobacteria bloom present. At least one of the following criteria must be met: (1) visual evidence is not consistent with a cyanobacteria bloom; (2) BG chlorophyll levels ≤ 25 µg/L; (3) microscopic indication that sample is not dominated by cyanobacteria or not present in bloom-like density; or (4) total microcystins ≤ 4 µg/L (only in absence of the previous criteria being met).

SUSPICIOUS BLOOM: Applied to any HAB report received that DEC or NYSDOH staff are unable to determine conclusively as a cyanobacteria bloom because photos were not provided, or the report was otherwise inconclusive.

CONFIRMED BLOOM: Applied to a HAB report received from the public or a trained participant in a HAB reporting program that DEC or NYSDOH staff determine, based on digital photographs or a descriptive field report, is a cyanobacteria bloom; OR

HAB report received by DEC with associated laboratory analytical results from a sampled bloom, that meet the following criteria: (1) BG chlorophyll levels ≥ 25 µg/L; (2) microscopic confirmation that majority of sample is cyanobacteria and in absence of chlorophyll value, at a density indicative of bloom conditions; (3) only in absence of the previous criteria being met: total microcystins ≥ 4 µg/L but < 20 µg/L and digital photographs or a descriptive field report.

CONFIRMED WITH HIGH TOXINS BLOOM: Applied to a HAB report received by DEC with associated laboratory analytical results from a sampled bloom, that meet the criteria of a Confirmed Bloom AND any of the following criteria: (1) total microcystins ≥ 20 µg/L (shoreline samples only); (2) total microcystins ≥ 10 µg/L (open water samples only); (3) DEC and NYSDOH staff determine potential risk of exposure to anatoxin or another cyanotoxin.

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  The state's HAB Program Guide provides a flow chart detailing how the New York DEC responds to HAB complaints/reports.
- [x] Does the state government provide dedicated financial support for HAB response?
  According to this website, the state provides funds to help implement HAB prevention and response activities.
- [ ] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, state agencies do not have the authority to issue public health advisories due to HABs.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  The state's HAB Program Guide explains that state or regional agencies inform communities about the risks of HABs.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to the state's HAB Program Guide, the New York DEC coordinates HAB surveillance, monitoring, and outreach with several other agencies.
- [x] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  The state's HAB Program Guide clarifies that the New York DEC heads multi-agency efforts to combat HABs in New York.

RESEARCH

- [x] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with staff, the New York DEC provides funding to researchers at several New York universities for HAB research. Additionally, according to this web page, the state provides funding to support projects identified in local lakes' HAB Action Plans.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not indicate the type of cyanobacteria/cyanotoxin detected or cell counts/toxicity levels because the samples are still going through a quality assurance test.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
  Data go back to 2012.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to this website, quantitative metrics are used to issue warnings or advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to this website, visual observations are used to issue warnings or advisories.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to this website, the state does routinely and proactively monitor for cyanobacteria through the Lake Classification and Inventory Program, Citizen Statewide Lake Assessment Program, and other state HAB monitoring programs.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to the state's HAB Program Guide, a bloom maintains its warning or advisory status until a follow-up lab report comes back indicating that cyanobacteria are no longer present.

PUBLIC OUTREACH

SCORE 8/8—EXCELLENT

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The New York HAB System (NYHABS) maps the locations of current freshwater cyanobacteria HABs, in addition to HABs that occurred earlier this year.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

Data are available here.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, summaries of laboratory results from sampling are available and updated weekly on this webpage from late May through October.

☑ Is the state's HAB guidance document or response protocol available online?

The state's HAB Program Guide is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The state's HAB Program Guide outlines what thresholds the state uses.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a New York DEC tweet informing the public about HABs.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to the state's HAB Program Guide, the New York DEC partners with watershed associations, lake associations, and other local entities to communicate HAB information to the public.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

There is a clear process on the New York DEC's web page. The public can file a report using this form.

NORTH CAROLINA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in North Carolina, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A description is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The North Carolina Department of Environmental Quality (DEQ) has this general website, which was used to answer the questions in this section. The North Carolina Department of Health and Human Services (DHHS) also this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 3/8—POOR

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, no. Agencies are reviewing the EPA's 2019 recommended thresholds.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, no. Local health departments and municipalities have the authority to issue advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to personal communication with agency staff, local health departments can issue advisories and post signage at contaminated waterbodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, the North Carolina DEQ and DHHS coordinate and work with each other on HAB research.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Only after communicating with staff did we learn that there are two agencies involved in HAB work in North Carolina.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
  Data go back to 2014.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, yes. Quantitative metrics are used to issue advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, visual indicators can be used to issue warnings while waiting for water sample results from laboratories.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to this web page, the North Carolina DEQ conducts routine algal evaluations at water bodies known to experience nutrient enrichment issues and/or frequent algal blooms.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to this web page, the North Carolina DEQ conducts algal evaluations in response to fish kills, algal blooms, and algal growth.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

- [x] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

  A map is available here.

- [ ] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

  The database used to populate the map is not downloadable.

- [x] Are easily interpretable test result summaries made available to the public shortly after sample results are available?

  According to personal communication with agency staff, cyanobacteria cell count results are made available every two weeks. This map shows what the cyanobacteria cell counts are.

- [ ] Is the state's HAB guidance document or response protocol available online?

  We could find no such protocol online.

OUTREACH STRATEGY

- [x] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

  By clicking on the information icon (the small "i") in the top right-hand corner of the publicly available map, the public can learn more about the metrics used in determining when a bloom is harmful.

- [x] Is there evidence of a state agency communicating HAB information to the public?

  This is an example of a 2019 press release issued by the North Carolina DEQ cautioning the public about recent algal blooms in a river.

- [ ] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

  According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

- [ ] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

  The North Carolina DEQ's cyanobacteria FAQ informs the public how they can report a suspected HAB through the Fish Kill/Algal Bloom Reporting App. However, the app does not work unless you have an account with ArcGIS.

NORTH DAKOTA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in North Dakota, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
A single photograph is available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A reporting form is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended prevention actions are available here.

References: The North Dakota Department of Environmental Quality (DEQ) has this general website, which was used to answer the questions in this section. The North Dakota Department of Game and Fish (DGF) has this website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to a press release found on the 2019 tab of this HAB map, North Dakota has a cyanotoxin threshold. If a sample shows a microcystin concentration greater than or equal to 10 ug/L, it is considered harmful to public health.

North Dakota's cyanotoxin threshold is higher than the EPA's recommended threshold

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

  According to personal communication with agency staff, yes, there is a protocol. When the North Dakota Department of Health (DOH) receives a complaint, it sends staff out to visually confirm if that water body is contaminated. If there is visual confirmation, the North Dakota DOH staff will test the cyanotoxin, microcystin. According to the result, the North Dakota DOH determines whether to issue an advisory.

- [ ] Does the state government provide dedicated financial support for HAB response?

  According to personal communication with agency staff, no.

- [x] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

  The "Harmful Algal Bloom Advisories – Links to Listed Lakes" section on the North Dakota DEQ web page indicates that the department can issue advisories for freshwater waterbodies. Outside reports confirm the North Dakota DEQ's authority.

- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

  According to personal communication with agency staff, yes. The North Dakota DEQ, DOH, and DGF, and North Dakota State University can post signage at contaminated waterbodies.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

  According to personal communication with agency staff, yes. State agencies work with Soil and Water Conservation Districts on new HAB research and findings.

- [x] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

  The North Dakota DEQ is responsible for compiling reports and maintaining advisories and warnings. Although there are two state agency HAB websites, the North Dakota DGF website states, "North Dakota specific information can be found at the North Dakota Department of Environmental Quality website."

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?

  According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [x] Does the state collect comprehensive HAB data?

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
  - [x] Does the state provide at least 5 years of historical data?

    Data go back to 2013.

  - [ ] Does the state provide at least 10 years of historical data?

- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

  According to personal communication with agency staff, yes. Quantitative cyanotoxin concentrations are used to issue advisories.

- [ ] Are visual indicators of cyanobacteria used to issue advisories or warnings?

  According to personal communication with agency staff, no. Visual indicators are not used to issue advisories.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, no. Due to limited resources, the state does not proactively sample.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, the North Dakota DOH continues sampling a contaminated waterbody until a sample result shows cyanotoxin concentrations below the adopted thresholds.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The North Dakota DEQ has this map that shows where advisories are issued.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to request data from agency staff.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could find no such data.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such protocol available online.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

A press release found on the 2019 tab of this HAB map explains North Dakota's cyanotoxin threshold. However, this information is not easy to find, and the threshold should be made clearer.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a North Dakota DOH Facebook post informing the public about local algae advisories and warnings.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The North Dakota DEQ's web page informs the public to file a HAB report using this form.

OHIO

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Ohio, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Information is available on the last page of this brochure.

References: The Ohio Environmental Protection Agency (EPA) has this website, which was used to answer the questions in this section. The Ohio Department of Natural Resources (DNR) has this general website, and the Ohio Department of Health (DOH) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 8/8—EXCELLENT

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to page 10 of the state's response strategy, the state has adopted recreational thresholds for cyanotoxins. The thresholds are copied below. Agency staff informed us that the response protocol is being updated.

THRESHOLD (µg/L)	MICROCYSTINS*	ANATOXIN-A	CYLINDROSPERMOPSIN	SAXITOXINS*
Informational Sign	<6	<80	<5	<0.8
Recreational Public Health Advisory	6	80	5	0.8
Elevated Recreational Public Health Advisory	20	300	20	3

*Microcystins and saxitoxin thresholds are intended to be applied to total concentrations of all reported congeners of those cyanotoxins.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

Page 11 of the state's response strategy details the response protocol.

☑ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, yes. The Ohio DNR has dedicated funding for HAB response activities like ongoing testing and monitoring, creating and posting informational signs, and monitoring for HAB events.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to page 13 of the state's response strategy, the state issues advisories for state park beaches and boat ramps.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to pages 13 and 14 of the state's response strategy, the state can post signage and advisories at state park beaches and boat ramps.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, yes. The Ohio EPA coordinates regularly with other state agencies and participates in a number of national HAB workgroups.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

According to the state's response strategy, The Ohio EPA, DNR, and DOH oversee HAB issues for the state. The response strategy also clearly states each state agency's responsibilities (pp. 5-6).

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, yes. The state, through a number of educational institutions and state agencies, funds the Harmful Algal Bloom Research Initiative to specifically research HAB issues.

DATA COLLECTION AND USE

SCORE 8/8—EXCELLENT

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?

- [x] Does the state provide at least 10 years of historical data?
  Data go back to 2000.

- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to page 14 of the state's response strategy, recreational public health advisories are issued at public state park beaches and boat ramp when cyanotoxin levels are equal to in excess of thresholds, whether or not an actual bloom is still present.

- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to page 13 of the state's response strategy, general information signs are posted for recreational waters at public state park beaches and boat ramps with a history of HAB occurrences or upon visual confirmation of a HAB at a beach.

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to the state's response strategy and the Inland Lakes Sampling Procedure Manual, the Ohio EPA does routinely monitor for cyanotoxins.

- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to page 13 of the state's response strategy, the state will remove advisories after two consecutive water samples taken one week apart show cyanotoxin levels below threshold levels.

PUBLIC OUTREACH

SCORE 7/8—GOOD

PUBLIC-FACING INFORMATION

- [x] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  This map shows the locations of current recreational public health advisories for algal blooms.

- [x] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
  Data are available on this database.

- [x] Are easily interpretable test result summaries made available to the public shortly after sample results are available?
  Sampling results are available by clicking on the "Current Algal Toxin Results" link on the right-hand side of this webpage.

- [x] Is the state's HAB guidance document or response protocol available online?
  The state's response protocol is available here.

OUTREACH STRATEGY

- [x] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
  Page 10 of the state's response strategy explains the thresholds. The state is updating its response strategy to accommodate new thresholds.

- [x] Is there evidence of a state agency communicating HAB information to the public?
  This is an example of an Ohio DOH tweet communicating HAB information to the public.

- [ ] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
  According to personal communication with agency staff, no. Agencies primarily coordinate and work with other government entities to disseminate information.

PUBLIC REPORT PROCESS

- [x] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
  The Ohio EPA's website has a resources tab that informs the public of how to report a HAB.

OKLAHOMA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Oklahoma, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
One photograph is available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A phone number is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description is available here.

Reference: The Oklahoma Department of Environmental Quality (DEQ) has this general website which was used to answer all the questions in this section. The Oklahoma Tourism and Recreation Department (TRD) has this general website. The Oklahoma State Department of Health (DOH) also has a website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 4/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this webpage, yes. The thresholds are copied below.

WORLD HEALTH ORGANIZATION GUIDELINES (2013)		
Relative Probability of Health Effects	**Cyanobacteria (cells/milliliter (mL)**	**Microcystin-LR (micrograms(µg)/L)**
Low	<20,000	<10
Moderate	20,000-100,000	10-20
High	100,000-10,000,000	20-2,000
Very Hight	>10,000,000	>2,000

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

According to personal communication with agency staff, individual water body managers have their own unique response protocols. The state does not have an overarching response strategy.

☐ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, no.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to statute, any state or municipal agency with authority to manage a recreational lake or reservoir in Oklahoma may issue advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, waterbody managers can post signage and issue advisories. For some recreational waters, managers are governmental entities. SB 259, which was signed into law in 2012, details the process that the Oklahoma TRD and state and municipal agencies follow. The bill says, "Any state or municipal agency with authority to manage a recreational lake or reservoir in this state shall post signs at major access points for the body of water stating that information on water quality is available."

AGENCY COORDINATION

☐ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to our experience communicating with agency staff, no.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

According to statute, the Oklahoma TRD is responsible for overseeing HAB monitoring, research, and public outreach for the state.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not show locations, if advisories were issued, or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?

  Data for public water supplies that can also be used for recreation date back to 2011.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to statute, quantitative metrics are used to issue advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, visual indicators are the primary vehicle for reporting HAB advisories on freshwater bodies that also serve as public drinking water supplies.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, no. The Oklahoma DEQ and TRD do not proactively test for cyanobacteria or cyanotoxins. The Oklahoma DEQ samples only when a complaint is filed on a water body that supplies drinking water. However, text under the heading "How Often Are the Lakes Tested for Blue-Green Algae?" on the Oklahoma TRD's website describes testing entities and frequencies for nine Oklahoma lakes.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, the Oklahoma DEQ can collect samples within five lake miles of a freshwater body that also serves as a public water source.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The Oklahoma TRD provides a map for each individual waterbody. Residents can click on this link and choose a lake on the dropdown menu to check the advisory status of that water body.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We could find no such data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could find no such data.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such protocol online.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The thresholds are available here.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find any examples of a state agency communicating HAB information to the public through press releases, press statements, or social media.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

A phone number to report a HAB is available here.

OREGON

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Oregon, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 5/8—SATISFACTORY

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photos are available on the main Oregon Health Authority website.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☐ Does the website describe how to contact someone if a constituent does see a bloom?

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Oregon's Health Authority (OHA) has this general website which was used to answer the questions in this section. The Oregon Department of Environmental Quality (DEQ) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
The thresholds are available here, and are copied below.

RECREATIONAL USE VALUES (RUVS) FOR CYANOTOXINS IN RECREATIONAL WATER (IN µg/L)

RUVs*	Microcystin	Anatoxin-a	Saxitoxin	Cylindrospermopsin
	8	15	8	15

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  The strategy is available here.
- [ ] Does the state government provide dedicated financial support for HAB response?
  According to this webpage, no.
- [x] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to the HAB Advisory Guidelines, the OHA is responsible for issuing and lifting public health advisories.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to the HAB Advisory Guidelines, the OHA will post signage and advisories at recreational freshwater bodies.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to this website, the OHA works and coordinates with several water body managers, state agencies, and federal agencies.
- [x] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  The HAB Advisory Guidelines clearly states that the OHA is the agency responsible for HAB-related issues.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, no. The OHA receives federal funding for researching drinking water supply issues.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  Data provided by the state did not provide exact locations (latitude and longitude), or when an advisory was issued and lifted.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
  - [x] Does the state provide at least 5 years of historical data?
  - [x] Does the state provide at least 10 years of historical data?
- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to the HAB Advisory Guidelines, advisories can be issued using quantitative cell counts and toxin concentrations.
- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to the HAB Advisory Guidelines, advisories can be issued using photographs of visible algal scum.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, no. There is no designated funding for state agencies to proactively sample for cyanobacteria or cyanotoxins.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to the HAB Advisory Guidelines, the state does repeatedly sample contaminated water bodies.

PUBLIC OUTREACH

SCORE 4/8—SATISFACTORY

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

There is currently no map available. Current advisories are listed on this webpage, and according to personal communication with agency staff, the OHA is looking into mapping options.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

A database containing HAB advisories issued by the OHA is available here.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

The OHA lists advisories on this webpage. However, test results are not available.

☑ Is the state's HAB guidance document or response protocol available online?

The response protocol is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

Thresholds are provided here.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the OHA cautioning the public about potential HAB outbreaks in a local lake.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the OHA does not have the resources to partner with or leverage non-state resources to communicate recreational freshwater HAB information to the public. The OHA was provided one-time funding to pilot a partnership with one city on nutrient reduction communication.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find information on how to file a complaint, send a photo, or request a toxin test.

PENNSYLVANIA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
This webpage instructs individuals to contact their local Department of Environmental Protection regional office.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Pennsylvania Department of Environmental Protection (DEP) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, yes. The thresholds are copied below.

CYANOTOXIN HUMAN PRIMARY CONTACT RECREATIONAL USE THRESHOLDS, IN µg/L

Advisory	Microcystins	Anatoxin-a	Cylindrospermopsin	Saxitoxins
Recreational Use Advisory (Yellow)	8.0 *	80 †	15 *	0.8 †
Recreational Use Avoid Contact (Red)	20 †	300 †	20 †	3.0 †

* recommended values from USEPA 2019 www.epa.gov/sites/production/files/2019-05/documents/hh-rec-criteria-habs-document-2019.pdf

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes. The Pennsylvania DEP has a draft plan for how to respond to HAB complaints and reports.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes. However, that funding is limited.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, yes. The Pennsylvania Department of Health is the agency primarily responsible for issuing advisories. The Pennsylvania Department of Conservation and Natural Resources Bureau of State Parks, and the Pennsylvania Fish and Boat Commission may also issue advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to personal communication with agency staff, multiple governmental entities can issue information.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, yes. There is an inter-department HAB working group.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Only after communicating with agency staff did we learn about which agencies are involved and lead on HAB issues.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, yes. However that funding is limited.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?
Data do not include whether an advisory was issued or when an advisory was lifted.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?
  Data go back to 2009.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, yes.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, yes.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to personal communication with agency staff, yes. The Pennsylvania DEP routinely monitors waterbodies with a history of HAB events. Unfortunately, due to limited resources, the Pennsylvania DEP cannot monitor all freshwater bodies all the time.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, yes. The Pennsylvania DEP continues to sample impacted waterbodies once an initial sample shows elevated toxins or cells. However, the frequency of resampling depends on the resources available at that moment.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to request data from agency staff.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We had to request data from agency staff.

☐ Is the state's HAB guidance document or response protocol available online?

The state's draft HAB protocol is not available online. The state's plan for Lake Eerie is available here.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We could not find a public explanation of metrics or thresholds online.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a Pennsylvania DEP tweet communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The Pennsylvania DEP works with NGOs and citizen science groups to help with sampling and information sharing.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

There are instructions for how to report a HAB at the bottom of this webpage.

RHODE ISLAND

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Rhode Island, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photos are available on this fact sheet.

☑ Does the website explain what the public should do if they see a bloom?
A recommended list of actions is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Reporting information is available on this fact sheet.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Rhode Island Department of Health (DOH) has this general website, which was used to answer the questions in this section. The Rhode Island Department of Environmental Management (DEM) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, the state has adopted thresholds, which are available on page 3 of this protocol document and are copied below.

Cyanobacteria Cell Count	> 70,000 cells/mL
Cyanotoxin (Microcystin)	> 4 µg/L

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  According to personal communication with agency staff, yes. The Rhode Island DEM and DOH jointly administer HAB response. Their response protocol is available here.
- [ ] Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, no.
- [x] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, yes. The Rhode Island DOH issues recreational health advisories for freshwater HABs.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to personal communication with agency staff, yes. State agencies and municipalities can post signage and information about the risks of recreating on or in contaminated waterbodies.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to personal communication with agency staff, yes. The Rhode Island DEM and DOH work with other state groups to evaluate program goals, review agency roles and responsibilities, coordinate on HAB research, and more.
- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  According to this protocol document, the Rhode Island DEM and DOH work on HAB issues for the state. However, it is not clear which agency oversees what aspects of HAB management and response in Rhode Island.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [x] Does the state collect comprehensive HAB data?

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
  - [x] Does the state provide at least 5 years of historical data?
    Data provided go back to 2011.
  - [ ] Does the state provide at least 10 years of historical data?
- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to this protocol document, quantitative metrics are used to issue advisories.
- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to this protocol document, visual evidence of a bloom is used to issue advisories.

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

  According to personal communication with agency staff, the state proactively samples. However, proactive sampling is limited by the availability of funding.

- [ ] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

  According to personal communication with agency staff, an advisory remains in effect until two successive representative samples collected two weeks apart indicate that cell counts or toxin levels are below threshold levels. Because of funding made available to state agencies in 2017 and 2018, Rhode Island was able to conduct that follow-up monitoring. However, based on personal communication with agency staff, under normal circumstances the state does not conduct follow-up sampling.

PUBLIC OUTREACH

SCORE 5/8—SATISFACTORY

PUBLIC-FACING INFORMATION

- [ ] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

  There is no HAB-specific map.

- [x] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

  Historic HAB advisory data are available here. This document also summarizes previous years' advisories.

- [ ] Are easily interpretable test result summaries made available to the public shortly after sample results are available?

  Sample results are made available through the Rhode Island DEM's annual cyanobacteria monitoring reports, available at the bottom of this webpage. The data are not made available shortly after sample results are available.

- [x] Is the state's HAB guidance document or response protocol available online?

  According to communication with agency staff, the quality assurance project plan, available here, is the state's protocol document.

OUTREACH STRATEGY

- [x] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

  The thresholds are available here. It is not clear that this quality assurance project plan is the state's HAB response protocol. The Rhode Island DEM should explain its thresholds on its website.

- [x] Is there evidence of a state agency communicating HAB information to the public?

  This is an example of a joint Rhode Island DOH and DEM press release cautioning the public about seven waterbodies that pose algae-associated risks.

- [x] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

  According to personal communication with agency staff, yes. The Rhode Island DEM and DOH work with the Watershed Watch Program and the Save the Lake organization to communicate HAB information to the public.

PUBLIC REPORT PROCESS

- [ ] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

  There is no clear way to do so. A member of the public would have to specifically open the fact sheet on the Rhode Island DOH's website and scroll down to the second page to find a way to report a bloom.

SOUTH CAROLINA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 5/8—SATISFACTORY

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
A photograph is available here.

☐ Does the website explain what the public should do if they see a bloom?

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The South Carolina Department of Health and Environmental Control (DHEC) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this webpage, yes. The thresholds are copied below.

RECREATIONAL HEALTH ADVISORIES	
Microcystins	**Cylindrospermospin**
15 µg/L	15 µg/L

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes. The South Carolina DHEC will respond to all HAB complaints that deal with state waterbodies (lakes, streams, rivers, etc.). Based on the HAB complaint, staff will go out to the waterbody and collect a sample for algal identification. If the species is identified as a potential toxin producing species, staff will then move forward with testing the potential toxins.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff, yes. The South Carolina DHEC has the authority to issue a public or recreational health advisory for freshwater bodies.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to personal communication with agency staff, yes.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, yes. In 2018, the South Carolina DHEC started a new group, the South Carolina HABNet, that includes participation from state and federal entities, professors, and more.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Since there is no state agency website and no publicly available response protocol, it is not clear which agency oversees HAB issues for the state.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, no.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
- ☑ Does the state provide at least 10 years of historical data?
  Data provided go back to 2010.

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
According to personal communication with agency staff, yes. The South Carolina DHEC currently uses toxin concentrations in determining whether to issue advisories.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?
According to personal communication with agency staff, no.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
According to personal communication with agency staff, yes. The South Carolina DHEC samples a predetermined set of lakes for microcystin toxins every month from May through October.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
According to personal communication with agency staff, yes.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We had to request data from agency staff.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could not find any such data online.

☐ Is the state's HAB guidance document or response protocol available online?

We had to request a copy of the protocol from agency staff.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

Information about thresholds is available here.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a South Carolina DHEC tweet communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The South Carolina DHEC works with local organizations and stakeholder groups to communicate information to residents who live near waterbodies in which HABs occur frequently.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find a way for someone to report a HAB.

SOUTH DAKOTA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in South Dakota, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 4/8—SATISFACTORY

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
An explanation is available under the question "What is an algal bloom section?" here.

☐ Who's at risk?

☐ Does the website provide photographs of what a harmful algal bloom looks like?

☑ Does the website explain what the public should do if they see a bloom?
Recommendations are available under the question "How do I protect myself from algal toxins?" here.

☐ Does the website describe how to contact someone if a constituent does see a bloom?

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommendations are available under the question "What can be done to prevent HABs?" here.

Reference: The South Dakota Department of Health (DOH) has this website, which was used to answer the questions in this section. The South Dakota Department of Environment and Natural Resources (DENR) has this website, which briefly mentions algal blooms (under "Why is my lake green?"). The South Dakota Department of Game, Fish, and Parks also has this webpage on algal blooms.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff, no. Staff are considering adopting the 2019 EPA recommended thresholds.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff, yes. The protocol should be available on the South Dakota DENR's website in July 2020.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication, yes.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, yes. The South Dakota DOH has the authority to issue public health advisories, however the agency relies on other state and local agencies to make advisory decisions first.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, state and local entities can provide information about the risks of recreating on or in contaminated water bodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, yes. Agencies communicate and work with each other to build new HAB response and management infrastructure for South Dakota.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

It is not clear which agency oversees HAB issues in the state, or which agencies oversee which aspects of HAB management and response. The South Dakota DOH has the most information regarding HABs on its website, but it was only through personal communication that we learned that the South Dakota DENR also plays a role in HAB response.

RESEARCH

☐ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, no. No response from agency staff at the South Dakota DOH.

DATA COLLECTION AND USE

SCORE 1/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

According to personal communication with agency staff, no.

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☐ Does the state provide at least 2 years of historical data?
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☐ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to personal communication with agency staff, no. A process for issuing advisories is still being developed.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, no. A process for issuing advisories is still being developed.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, the South Dakota DENR has incorporated some proactive cyanobacteria sampling into its routine lake monitoring program.

☐ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, no. No response from agency staff at the South Dakota DOH.

PUBLIC OUTREACH

SCORE 1/8—FAIL

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We could find no such data.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could find no such data.

☐ Is the state's HAB guidance document or response protocol available online?

We received the response protocol via email from state agency staff.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We learned about the threshold through communication with agency staff.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a South Dakota DENR Facebook post informing the public about a potential blue-green algae bloom.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no. Agency staff are discussing how to facilitate these partnerships more proactively. No response from agency staff at the South Dakota DOH.

PUBLIC REPORT PROCESS

☐ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

We could not find information on how to file a complaint, send a photograph, or request a toxin test.

TENNESSEE

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 5/8—SATISFACTORY

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
One photograph is available here.

☑ Does the website explain what the public should do if they see a bloom?
Recommended actions are available here, under "How can you protect people and pets?"

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is available here, under "Can you report a bloom?"

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Tennessee Department of Health (DOH)has this webpage, which was used to answer the questions in this section. The Tennessee Department of Agriculture (TDA) has this webpage on blue-green algae.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with agency staff from the Tennessee Department of Environmental Conservation (TDEC), the state defaults to the EPA's recommended thresholds in the event of a documented bloom. The thresholds are copied below.

TABLE 1. DRAFT EPA RECOMMENDED VALUES FOR RECREATIONAL CRITERIA AND SWIMMING ADVISORIES FOR CYANOTOXINS

Microcystins	Cylindrospermospin
8 µg/L	15 µg/L

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  According to personal communication with agency staff, the TDA and the Tennessee DOH have established protocols.
- [ ] Does the state government provide dedicated financial support for HAB response?
  According to personal communication with agency staff, no.
- [x] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, yes. The Tennessee DOH and the TDEC have the authority to issue advisories.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to personal communication with agency staff, yes.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to this webpage, the TDEC works with other state agencies in a Tennessee Interagency HAB Workgroup.
- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  It was only by emailing agency officials that we learned the TDEC is the only agency responsible for HAB-related issues in the state.

RESEARCH

- [x] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff, yes.

DATA COLLECTION AND USE

SCORE 1/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  We received no data.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [ ] Does the state provide at least 2 years of historical data?
  - [ ] Does the state provide at least 5 years of historical data?
  - [ ] Does the state provide at least 10 years of historical data?
- [ ] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings? According to personal communication with agency staff, no. This topic is currently under review by the TDEC.
- [ ] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, no. This topic is currently under review by the TDEC.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, no.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to personal communication with agency staff, yes. However, with limited funding, sampling during and after a bloom is very limited.

PUBLIC OUTREACH

SCORE 3/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

We could not find any data to download.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could not find any data to download.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such protocol online.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

We could not find a public explanation of metrics and thresholds.

☑ Is there evidence of a state agency communicating HAB information to the public?

We could not find any examples of the TDEC communicating HAB information to the public. However, there is one social media post from the Tennessee DOH communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The TDEC initiated partnerships with citizen groups last year.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

Information detailing how to report a HAB is available here, under "Can you report a bloom?"

TEXAS

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 3/8—POOR

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☐ Does the website provide photographs of what a harmful algal bloom looks like?
This web page provides photos of other blooms, but not blooms associated with the cyanobacteria that cause HABs.

☐ Does the website explain what the public should do if they see a bloom?

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A 24-hour emergency phone number is provided here.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

Reference: The Texas Parks and Wildlife Department (TPWD) has this general website, which was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 2/8—POOR

RESPONSE PROTOCOL

☐ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication with Texas Commission on Environmental Quality (TCEQ) agency staff no. No response from agency staff at the TPWD.

☐ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
According to personal communication with agency staff at the TCEQ, no. Agency staff shared that a protocol is under development.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff at the TCEQ, no. No response from agency staff at the TPWD.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to personal communication with agency staff at the TCEQ, no advisories are issued for freshwater HABs. No response from agency staff at the TPWD.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to personal communication with agency staff at theTCEQ, yes. Local health authorities can post information.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to the TPWD's HAB Research webpage, Texas has a Harmful Algal Bloom Work Group that meets quarterly to discuss HAB issues in the state. However, we could not find any information, research, or publications from that work group.

- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  According to the answer to "Who responds to Harmful Algal Blooms" on the agency's website, the TPWD is the lead agency responsible for fish kills. Only after communication with agency staff did we learn about other agencies involved in HAB management.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to personal communication with agency staff at the TCEQ, no. No response from agency staff at the TPWD.

DATA COLLECTION AND USE

SCORE 1/8—FAIL

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  According to personal communication with agency staff, no.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [ ] Does the state provide at least 2 years of historical data?
  - [ ] Does the state provide at least 5 years of historical data?
  - [ ] Does the state provide at least 10 years of historical data?
    The TPWD staff provided fish kill data going back to 1994—however the state does not collect or maintain HAB-data.

- [ ] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to personal communication with agency staff at the TCEQ, there are no advisories issued for freshwater HABs. No response from agency staff at the TPWD.

- [ ] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff at the TCEQ, there are no advisories issued for freshwater HABs. No response from agency staff at the TPWD.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, no.

- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to the TPWD's website, samples are collected when the TPWD receives a complaint of a fish kill. According to personal communication with agency staff, if visual cues of a HAB are present, then staff collect a sample.

PUBLIC OUTREACH

SCORE 2/8—POOR

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The state does not provide a map of blooms.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

NRDC had to call and request fish-kill data from the TPWD. The data provided showed only where fish kill investigations correlated with potential cyanobacteria events.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could not find test summaries online.

☐ Is the state's HAB guidance document or response protocol available online?

We could find no such protocol online.

OUTREACH STRATEGY

☐ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

Since the state has not adopted thresholds, there is no public explanation of thresholds.

☑ Is there evidence of a state agency communicating HAB information to the public?

The TPWD's Harmful Algal Bloom Facebook page provides information to the public on HABs.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff at the TCEQ, no. No response from agency staff at the TPWD.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

A 24-hour emergency phone number is provided here.

UTAH

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Utah, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photographs are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is provided on page 2 of this fact sheet. However, it should be available on the main website.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description is available here.

Reference: The Utah Department of Environmental Quality (DEQ) has this website, which was used to answer the questions in this section. The Utah Department of Health has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
The thresholds are available on page 4 of this document and are copied below.

TABLE 1: UDOH/UDEQ RECOMMENDED HAB ADVISORY THRESHOLDS

Health Watch		Warning Advisory	Danger Advisory
This is not a formal advisory level. Rather, these are indicators that a bloom may exist or may become more severe. Increased monitoring and surveillance are strongly recommended. Indicators may include: • Visual reports • Reports of animal or human illness • Detection of cyanotoxins or toxigenic cyannobacterial cell density below thresholds • Detectable levels should be defined using appropriate QA/QC procedures Consider cautioning users of the waterbody depending on specifics of the event and waterbody.	Toxigenic Cyanobacterial Cell Density (cells/mL)[1,2,3]	100,000[A]	10,000,000
	Microcystins (µg/L)[1,2]	8	2,000
	Cylindrospermopsin (µg/L)[3]		
	Anatoxin-a (µg/L)[3,4,5]	15	90
	Health Risks[1,2,3]	Potential for long-term illness Short-term effects (e.g., skin and eye irritation, nausea, vomiting, diarrhea)	Potential for acute poisoning Potential for long-term illness Short-term effects (e.g., skin and eye irritation, nausea, vomiting, diarrhea)
	Recommended Actions	Issue WARNING advisory to avoid primary contact recreation Post WARNING signs Sampling recommended at least weekly	Issue DANGER advisory to stay away from the waterbody Post DANGER signs Sampling recommended at least weekly

1 WHO, 1999. Toxic cyanobacteria in water.

2 WHO, 2003. Guidelines for safe recreational water environments, Volume 1, Chapter 8: Algae and cyanobacteria in fresh water.

3 EPA, 2019. Recommended human health recreational ambient water quality criteria or swimming advisories for microcystins and cylindrospermopsin.

4 OHA, 2019. Oregon Health Authority. Recreational use public advisory guidelines: cyanobacterial blooms in freshwater bodies.

5 CWQMC, 2016. California Water Quality Monitoring Council. Cyanobacteria guidance for recreational and related water uses (2016 update).

A Human symptoms have been reported between 5,000 – 100,000 cells ml (EPA 2019). At 5,000 – 100,000 cells/mL, LHDs should take into account contextual information and consider issuing an advisory.

B Data are sparse on where cylindrospermopsin advisory break points should be. Consult with UDEQ and UDOH as needed on this issue.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
There is a guidance document available here.

☑ Does the state government provide dedicated financial support for HAB response?
The Utah State Legislature passed a measure to appropriate ongoing funding for HAB response efforts in early 2019. However, due to state budget uncertainty around COVID-19, funding is on hold.

☐ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to Utah's guidance document, state agencies do not have the authority to post health advisories and close water bodies.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to Utah's guidance document, local health departments may post information about the risks of recreating on or in HAB waterbodies and may post advisories.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, yes. The Utah DEQ works closely with 13 statewide partners to coordinate efforts around new HAB research and monitoring.

☐ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
The state's guidance summary states that the Utah DEQ works with the state's Department of Health on HAB management and support, but there is no information showing which agency is responsible for which aspect of HAB management.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, yes. Under normal circumstances, the state provides funds for HAB-related research. However, due to COVID-19, these research funds were eliminated.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☐ Does the state collect comprehensive HAB data?

Data do not have exact location (latitudes and longitudes).

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?

  Data go back to 2014. No recreational advisories were issued in 2015, which is why no data are available for 2015 online.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the state's guidance document, quantitative metrics are used to issue advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to the state's guidance document, local health departments can issue "health watches" based on visual indicators.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, yes. The Utah DEQ proactively samples a handful of "at risk" lakes statewide. These are lakes with high levels of recreation that were previously identified as being likely to experience HABs.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to page 4 of the state's guidance document, sampling and testing continue for at least two weeks after the initial test to verify that the hazard has passed before an advisory is removed.

PUBLIC OUTREACH

SCORE 8/8—EXCELLENT

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

The Utah DEQ posts sampling locations, cyanobacteria cell counts, toxin test results, and health advisories on this web page. A map is made available when sampling begins. However, due to COVID-19 uncertainties, water quality sampling is delayed and a map is not currently available.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

From the Utah DEQ's Harmful Algal Bloom homepage, the public can access the "Past Bloom Events" tab in the left-hand column. Under each year there is information about the water bodies that experienced blooms. While not in database form, the data are available online.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

The Utah DEQ provides the raw data and an interpretation of the data for each water body that experienced a HAB by clicking on the specific waterbody information on the Bloom Events tab on the homepage. For example, here are downloadable data, and their interpretation, for the Echo Reservoir Bloom in 2017.

☑ Is the state's HAB guidance document or response protocol available online?

The state's response guidance document is available online.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The thresholds are available on page 4 of this document.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a joint press release issued by the Utah DEQ and a regional health department warning the public about a potential harmful algal bloom.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. The Utah DEQ works with local health departments.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The Utah DEQ's HAB web page provides a 24-hour Environment Incidents Phone Number to call to report a bloom.

VERMONT

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Vermont, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photos are available here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
An email address is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Information for preventing blooms is available here.

Reference: The Vermont Department of Health (VDH) has this general webpage on cyanobacteria and harmful algal blooms, which was used to answer the questions in this section. This webpage provides information on how the state tracks HABs. The Vermont Department of Environmental Conservation (DEC) has this general webpage.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
The guidance levels are available online here and are copied below. According to personal communication with agency staff, the state is in the process of updating the thresholds to be consistent with the EPA's 2019 recommended thresholds. The thresholds below are what are currently in place.

Recreational Water Values:

Microcystin: 6 µg/L (micrograms per liter)

Anatoxin-a: 10 µg/L

Cylindrospermopsin: 10 µg/L

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

According to personal communication with agency staff, there is a protocol. The VDH will speak with the group or individual who initially reported a bloom to confirm that one exists. If confirmed, the VDH asks beach managers, municipalities, and town health officers to post signs at swimming areas to deter swimming. The department also updates its online cyanobacteria tracker. Additionally, the VDH will take a sample from the contaminated water body and send it to DEC for analysis.

☐ Does the state government provide dedicated financial support for HAB response?

According to personal communication with agency staff, no.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

According to personal communication with agency staff, the VDH has the authority to issue health advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

According to personal communication with agency staff, towns can post signage and recreational advisories.

Agency Coordination

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

According to personal communication with agency staff, yes.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

This webpage clarifies how cyanobacteria are monitored and tracked in the state.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?

According to personal communication with agency staff, yes.

DATA COLLECTION AND USE

SCORE 7/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?

  We received data going back to 2012.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

Appendix D of the state's cyanobacteria guidance document states that advisories and closures can be issued on public beaches based on cyanotoxin concentrations.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

Appendix D of the state's cyanobacteria guidance document states that advisories and closures can be issued on public beaches using visual observations of blue-green algae.

REGULARITY OF DATA COLLECTION

- [x] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, yes.
- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to this webpage, advisories and beach closures can be re-opened once water samples show toxin concentrations below the state's thresholds.

PUBLIC OUTREACH

SCORE 7/8—GOOD

PUBLIC-FACING INFORMATION

- [x] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  The VDH provides this cyanobacteria tracker map, which will be populated starting in early summer.
- [x] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
  Yearly historic data are available here.
- [x] Are easily interpretable test result summaries made available to the public shortly after sample results are available?
  Test summaries are available in the Season Summaries section of the VDH's webpage. Download test results and summary data by clicking on the hyperlink that says, "Download 20[xx] summary data."
- [ ] Is the state's HAB guidance document or response protocol available online?
  According to personal communication with agency staff, no.

OUTREACH STRATEGY

- [x] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
  The guidance levels are available under "What are the guidance levels for cyanotoxins?" on this web page.
- [x] Is there evidence of a state agency communicating HAB information to the public?
  This is an example of a 2019 press release issued by the VDH communicating HAB information to the public.
- [x] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
  According to this web page and the cyanobacteria guidance document, the VDH works with local volunteer groups, local watershed associations, community members, and agricultural representatives to monitor, collect data, and disseminate information regarding the risks of HABs.

PUBLIC REPORT PROCESS

- [x] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
  Information on how to report a HAB is available under "How do I report a cyanobacteria bloom?" on this web page.

VIRGINIA

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 7/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
There is one poor-quality photo here.

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A description is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
The explanation is available in the video provided on this FAQ web page here.

References: The Virginia Department of Health (VDH) has three different web pages that provide information regarding HABs: this website on cyanobacteria, (which was used to answer the questions in this section), this website on harmful algal blooms, and this website on harmful algal blooms.

RESPONSE PROTOCOL AND COORDINATION

SCORE 7/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to personal communication, yes. The thresholds for microcystins and cylindrospermopsin are copied below. Thresholds for anatoxin-a and saxitoxin are still undergoing a review process.

TABLE I. DRAFT HARMFUL ALGAL BLOOM RECREATIONAL ADVISORY THRESHOLDS	
Criteria	**Concentration**
Microcystis species*	40,000 (total cells/mL)
Total toxigenic species**	100,000 (total cells/mL)
Microcystin toxin	8 µg/L (ppb)
Cylindrospermopsin toxin	15 µg/L (ppb)

**Toxigenic species list is subject to change based on most recent research and is available upon request.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
Yes, the protocol is available here.

☐ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, no. Freshwater HAB response funding is supported through marine/brackish HAB funding.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to the state's HAB Response Plan, the state's Commissioner of Health will issue a closure or advisory if a HAB event is dangerous to public health.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to the state's HAB Response Plan, local health districts can issue and remove advisories, and post information at recreational water bodies.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to this web page, Virginia has a HAB Task Force through which a handful of agencies cooperate on research and management.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
The HAB Response Plan clarifies that the Virginia Department of Environmental Quality (DEQ) and the VDH work together to oversee HAB-related issues in the state. Starting at the bottom of page 8, the response plan clearly describes which agency oversees which aspects of HAB management for the state.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, the VDH receives limited funding for HAB research.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
- ☑ Does the state provide at least 5 years of historical data?
  We received cyanobacteria and cyanotoxin data going back to 2011.
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the state's HAB Response Plan, quantitative metrics are used to issue advisories.

☑ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to the state's HAB Response Plan, visual indicators can be used to issue warnings or advisories on waterbodies that have a record of consistent HAB events. However, according to personal communication with agency staff, the VDH's preference is to have water quality tests support those visual cues.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, no. The Virginia DEQ proactively monitors waterbodies for other water quality issues (the presence of E. coli and nutrient impairments), but does not have the resources to do proactive cyanobacteria testing.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to the state's HAB Response Plan, if the Virginia DEQ staff feel that repeated sampling is necessary, a follow-up sample will be collected and analyzed.

PUBLIC OUTREACH

SCORE 7/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

From May through October, this map shows where HABs are surveilled, where advisories may be posted, and the laboratory results for samples taken from that waterbody. The web page notes that the map does not reflect all possible blooms in a state, only those reported and under investigation.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The public must request data from the VDH staff.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

If members of the public click on one of the points on this interactive HAB map, they can read a test result summary written by the VDH.

☑ Is the state's HAB guidance document or response protocol available online?

The protocol is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The state explains the metrics on this web page and on this working document. The webpage and the document note that these thresholds have not been finalized and are still going through a review process.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the VDH informing the public about algae advisories in an inland reservoir.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, the VDH works with local watershed associations and agency officials hope to engage with citizen monitoring groups in the future.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

There is a clear way to report here and here.

WASHINGTON

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Washington, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☐ Does the website provide photographs of what a harmful algal bloom looks like?

☑ Does the website explain what the public should do if they see a bloom?
A description is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
The information is here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Information is provided here.

References: The Washington Department of Health (DOH) has this general website, which was used to answer the questions in this section. The Washington Department of Ecology (ECY) partners with King County to manage this website, and also has an independent general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 6/8—GOOD

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
The thresholds can be found here, and are copied below.
Microcystin: > = 8 µg/L
Anatoxin-a: > = 1 µg/L
Cylindrospermopsin: > = 15 µg/L
Saxitoxin: > = 75 µg/L

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
  According to personal communication with agency staff, yes.
- [x] Does the state government provide dedicated financial support for HAB response?
  According to this web page, the Washington State Legislature established funding for an algae control program, which provides funding to local governments for HAB response and management.
- [ ] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
  According to personal communication with agency staff, no. Local health departments have the authority to issue advisories.
- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
  According to personal communication with agency staff, yes.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
  According to personal communication with agency staff, the Washington ECY works with county and city public and environmental health departments to coordinate around HABs, and also joins in on federal HAB coordination efforts.
- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
  It is not clear which Washington agency, the ECY or the DOH, oversees HAB-related issues for the state, or which agency is responsible for what aspects of HAB management.

RESEARCH

- [x] Does the state receive or provide dedicated funding to research HAB-related issues?
  According to this webpage, the Washington ECY provides funding for HAB research.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?
  Data do not indicate if an advisory was issued, and when an advisory was lifted.

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [x] Does the state provide at least 2 years of historical data?
  - [x] Does the state provide at least 5 years of historical data?
  - [x] Does the state provide at least 10 years of historical data?
- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to page 15 of this cyanotoxin guidance document, warning and danger signs/advisories are issued on the basis of quantitative metrics.
- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, local health departments can use visual indicators to post caution signs on HAB impacted waterbodies.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to personal communication with agency staff, no.

☐ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with agency staff, the state does not sample. However, local municipalities are encouraged to repeatedly sample for at least one week after a bloom.

PUBLIC OUTREACH

SCORE 6/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

This map shows where samples indicated cyanotoxin concentrations above state thresholds.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

The data are available for download here.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to communication with agency staff, sample data are made available every Friday on this website's database. Data are also sent to the individual or group that originally sent in the sample.

☐ Is the state's HAB guidance document or response protocol available online?

We had to email staff to obtain a copy of the response protocol.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The thresholds are available online, here.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a Washington ECY Facebook post communicating HAB information to the public.

☐ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, no.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

There is a clear method for reporting a bloom on the Washington State Toxic Algae web page.

WEST VIRGINIA

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in West Virginia, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
The information is available here.

☐ Who's at risk?
Nothing on the website mentions that children AND pets are more susceptible to the effects of cyanotoxins.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
A photo gallery is available here.

☑ Does the website explain what the public should do if they see a bloom?
The information is available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
The information is available at the top of this web page.

☐ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?

References: The West Virginia Department of Environmental Protection (DEP) has this general website, which was used to answer the questions in this section. The West Virginia Department of Health and Human Resources (DHHR) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 8/8—EXCELLENT

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
The thresholds are available here and on the state's response plan. The thresholds are copied below.

TABLE 2. PUBLIC HEALTH ADVISORY THRESHOLD LEVELS FOR CYANOTOXINS IN RECREATIONAL WATERS

Threshold (µg/L)	Microcystin*	Anatoxin-a	Cylindrospermopsin	Saxitoxins*
General Informational Signage	<6	<80	<5	<0.8
Recreational Public Health Watch Advisory	6	80	5	0.8
Recreational Public Health Warning Advisory	20	300	20	3

*Microcystins and saxitoxin thresholds are intended to be applied to total concentrations of all reported congeners of those cyanotoxins.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
The response plan is available here.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes. The state provides funding for HAB response activities.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to page 13 of the state's response plan, the West Virginia Bureau for Public Health issues advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to the state's response plan, the West Virginia DPH, DEP, and Division of Natural Resources, local health departments, and federal agencies can all issue information about the risks of recreation on or in an impacted water body. It depends on which agency oversees/manages that water body.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, yes. Several agencies coordinate through a joint HAB listserve, and the West Virginia DEP participates in various HAB- related webinars hosted by the EPA. The West Virginia DEP also attends national HAB symposia and gatherings and then shares that information with other West Virginia agencies through its multiagency HAB workgroup.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
Page 12 of the state's response plan clearly describes which agencies are responsible for which aspects of HAB response.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, yes. The state funds agency staff whose job it is to research HABs.

DATA COLLECTION AND USE

SCORE 5/8—SATISFACTORY

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?
  Data goes back to 2017.
- ☐ Does the state provide at least 5 years of historical data?
- ☐ Does the state provide at least 10 years of historical data?

☑ Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

According to the state's response plan, quantitative toxin concentrations are used to issue recreational public health advisories.

☐ Are visual indicators of cyanobacteria used to issue advisories or warnings?

According to personal communication with agency staff, no.

REGULARITY OF DATA COLLECTION

☑ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, in 2019, the state invested in a proactive HAB monitoring effort to develop, in part, a dataset to determine if West Virginia is experiencing an increase in HABs.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to the state's response plan, a public health advisory may be lifted after two consecutive samples taken at least one week apart indicate cyanotoxin concentrations below the advisory thresholds.

PUBLIC OUTREACH

SCORE 7/8—GOOD

PUBLIC-FACING INFORMATION

☑ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

According to the West Virginia DEP's website, if and when a HAB advisories are issued, a map will populate at the bottom of the agency's HAB web page.

☑ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

Archived data are available here and archived HAB reports are available here. We had to email agency staff to obtain pre-2018 data.

☑ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

According to personal communication with agency staff, test result summaries will be available here as soon as they are received by the lab.

☑ Is the state's HAB guidance document or response protocol available online?

The response plan is available here.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The thresholds are available here and on the state's response plan.

☐ Is there evidence of a state agency communicating HAB information to the public?

We could not find any examples of a state agency communicating HAB information to the public through press releases, press statements, or social media within the past two years.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to personal communication with agency staff, yes. There are several pathways of communication between the state, NGOs, and local organizations. The Master Naturalist Program is one example.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

Instructions for how to report a bloom are at the top of the West Virginia DEP's HAB website.

WISCONSIN

☑ = 1 POINT

In some states, several different agencies maintain websites that provide general hazardous algal bloom (HAB) information to the public. For example, a state's health department and its environment and natural resources department may both have HAB websites. Where this was the case, as in Wisconsin, we chose one website to answer all the questions, using the site that allowed us to answer yes to the most questions in the General Information section. The website we used in our assessment is the first one hyperlinked in the "Reference" lines at the end of General Information. However, we have also provided links to all the other websites we found that offer general HAB information for that state. State agencies should reduce confusion and focus resources on a single website that can, at minimum, cover the questions posed in this section.

ACCESSIBILITY OF INFORMATION

SCORE 8/8—EXCELLENT

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☑ Where and when they are commonly found?
A description is available here.

☑ What causes the blooms?
A description is available here.

☑ Who's at risk?
A description is available here.

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Images are available on this poster. The Wisconsin Department of Natural Resources should have photos available on each tab of its web page.

☑ Does the website explain what the public should do if they see a bloom?
Recommendations for how to do to protect oneself are available here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
Contact information is provided at the top of the page here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
A description is available here.

References: The Wisconsin Department of Natural Resources (DNR) has this general website, which was used to answer the questions in this section. The Wisconsin Department of Health Services' (DHS) Division of Public Health (DPH) has this general website.

RESPONSE PROTOCOL AND COORDINATION

SCORE 5/8—SATISFACTORY

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including the U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
According to this webpage, yes. The advisory thresholds are also copied below.

Microcystin: 8 µg/L

Cylindrospermopsin: 15 µg/L

- [x] Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?

  According to personal communication with agency staff, yes. When an illness complaint is filed, the Wisconsin DHS evaluates the complaint, the state DNR staff collect samples, and then information is shared with local health departments.

- [x] Does the state government provide dedicated financial support for HAB response?

  According to personal communication with agency staff, yes. The state funds the Wisconsin DHS and DNR's response activities.

- [ ] Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?

  According to personal communication with agency staff, since Wisconsin is a Home Rule state, state agencies do not have the authority to issue advisories. Only local public health officials can issue advisories.

- [x] Can any governmental entity issue information about the risks of recreating on or in a freshwater body?

  According to personal communication with agency staff, local public health officials can disseminate information and advisories on recreational freshwater bodies.

AGENCY COORDINATION

- [x] Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?

  According to personal communication with agency staff, yes. The Wisconsin DNR works with the state DPH and local public health departments to develop educational workshops and talks and coordinate around new HAB science.

- [ ] Is it clear which agencies or interagency working group oversees HAB-related issues for the state?

  Wisconsin is a Home Rule state, which means local jurisdictions take the lead on issuing advisories. It is not clear which agency is responsible for what aspects of HAB management. It was only after we spoke with agency officials that we learned that the Wisconsin DNR responds only when complaints of illnesses from cyanobacteria/cyanotoxin exposure are received.

RESEARCH

- [ ] Does the state receive or provide dedicated funding to research HAB-related issues?

  According to personal communication with agency staff, agencies have received federal grants, but nothing administered by the state.

DATA COLLECTION AND USE

SCORE 3/8—POOR

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

- [ ] Does the state collect comprehensive HAB data?

  Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
  Points are meant to sum.

  - [ ] Does the state provide at least 2 years of historical data?
  - [ ] Does the state provide at least 5 years of historical data?
  - [ ] Does the state provide at least 10 years of historical data?

- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?

  According to page 4 of this Wisconsin DPH publication, public health advisories can be posted on the basis of quantitative metrics.

- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?

  According to page 4 of this Wisconsin DPH publication, public health advisories can be issued on the basis of visual evidence of a cyanobacteria bloom.

REGULARITY OF DATA COLLECTION

☐ Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?

According to personal communication with agency staff, the Wisconsin DNR samples only when the agency receives a cyanobacteria/cyanotoxin-related illness complaint.

☑ Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?

According to personal communication with the Wisconsin DNR staff, yes. The agency conducts follow up sampling for cases involving cyanotoxin-related illnesses.

PUBLIC OUTREACH

SCORE 5/8—SATISFACTORY

PUBLIC-FACING INFORMATION

☐ Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?

We could not find any such map.

☐ Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?

Data are not made available online.

☐ Are easily interpretable test result summaries made available to the public shortly after sample results are available?

We could not find test result summaries.

☑ Is the state's HAB guidance document or response protocol available online?

The Wisconsin DPH's response protocol is available here. According to personal communication with agency staff, the Wisconsin DNR's protocol is not available online, but it is similar to the DPH's.

OUTREACH STRATEGY

☑ Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?

The criteria used for issuing an advisory are available on page 10 of this HAB Toolkit.

☑ Is there evidence of a state agency communicating HAB information to the public?

This is an example of a 2019 press release issued by the Wisconsin DNR communicating HAB information to the public.

☑ Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?

According to this 2012 document, the Wisconsin DNR works with lake associations, and other local organizations to share information about HABs to the public.

PUBLIC REPORT PROCESS

☑ Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?

The Wisconsin DNR provides phone numbers to report a HAB and instructions for how to contact the state's DHS.

WYOMING

☑ = 1 POINT

ACCESSIBILITY OF INFORMATION

SCORE 6/8—GOOD

Is there a general state agency website that discusses:

☑ What harmful algal blooms (HABs) are and why they're harmful?
A description is available here.

☐ Where and when they are commonly found?

☑ What causes the blooms?
A description is available here.

☐ Who's at risk?

☑ Does the website provide photographs of what a harmful algal bloom looks like?
Photos are available here.

☑ Does the website explain what the public should do if they see a bloom?
The recommended actions are listed here.

☑ Does the website describe how to contact someone if a constituent does see a bloom?
A description is available here.

☑ Does the website discuss what can be done to reduce the likelihood of local harmful algal blooms in a community's freshwater bodies?
Recommended actions for reducing the frequency of HABs are available here.

References: The Wyoming Department of Environmental Quality (DEQ) has this general website, which links to this DEQ managed web page on harmful cyanobacterial blooms. The harmful cyanobacterial blooms page was used to answer the questions in this section.

RESPONSE PROTOCOL AND COORDINATION

SCORE 8/8—EXCELLENT

RESPONSE PROTOCOL

☑ Has the state adopted any kind of threshold for unsafe algal toxin levels (including U.S. Environmental Protection Agency [EPA] recommended recreational thresholds/guidelines)?
Thresholds are available on the state's HAB Action Plan, and are copied below.

TABLE B. CYANOTOXIN AND CYANOBACTERIA CELL DENSITY THRESHOLDS FOR A RECREATIONAL USE		
Threshold	**Threshold Values**	**Responsive Action**
Recreation	≥ 8 µg/L total microcystins[1,2] ≥ 15 µg/L cylindrospermopsin[1,2] ≥ 20,000 cells/mL cyanobacteria Other cyanotoxins or conditions determined by WDH	**Advisory**
WDH determines there is sufficient threat to public health to restrict use of an impacted area or an entire reservoir		**Closure**

Abbreviations: WDH, Wyoming Department of Health; µg/L, micrograms per liter; cells/mL, cells per milliliter.

1 Cyanotoxin thresholds (µg/L) represent total concentrations of all congeners.

2 Based on US Environmental Protection Agency Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin.

☑ Does the state have a strategy or protocol in place that details how to respond to a HAB complaint/report?
The strategy is available here.

☑ Does the state government provide dedicated financial support for HAB response?
According to personal communication with agency staff, yes. The Wyoming DEQ has specifically budgeted funds to support HAB response since 2018.

☑ Does the state have an agency (or agencies) with the authority to issue a public or recreational health advisory for freshwater bodies?
According to the state's HAB Action Plan, the Wyoming Department of Health (DOH) issues advisories.

☑ Can any governmental entity issue information about the risks of recreating on or in a freshwater body?
According to the state's HAB Action Plan, local county coordinators and land and water management agencies can post information about the risks of recreation at a water body.

AGENCY COORDINATION

☑ Do agencies communicate and coordinate with each other, maybe through an interagency working group, about new HAB research and findings?
According to personal communication with agency staff, the Wyoming DEQ coordinates with several agencies and organizations on HAB issues and participates in several regional and national efforts related to HAB research.

☑ Is it clear which agencies or interagency working group oversees HAB-related issues for the state?
The state's HAB Action Plan clearly delineates the HAB management and response responsibilities of each agency.

RESEARCH

☑ Does the state receive or provide dedicated funding to research HAB-related issues?
According to personal communication with agency staff, yes. The state provides funding to research freshwater HABs through the Water Research Program.

DATA COLLECTION AND USE

SCORE 6/8—GOOD

NRDC communicated with HAB scientists, experts, and academics to determine what a comprehensive HAB dataset should, at the very least, contain. With their expertise, we determined that a comprehensive HAB dataset includes: the names of freshwater bodies that have experienced HAB events, locations (latitudes and longitudes) of those water bodies, duration of events, type of cyanobacteria/cyanotoxin detected, cell counts/ toxicity levels, if a public health advisory or notification was issued, and when an advisory was lifted.

☑ Does the state collect comprehensive HAB data?

Knowing that historical data help a state agency better predict, monitor, and respond to HAB trends, how far back do the data go?
Points are meant to sum.

- ☑ Does the state provide at least 2 years of historical data?

- [x] Does the state provide at least 5 years of historical data?
  Data go back to 2015.
- [ ] Does the state provide at least 10 years of historical data?

- [x] Are quantitative cell counts and/or toxin concentrations used to issue public advisories or warnings?
  According to the state's HAB Action Plan, the Wyoming DOH uses quantitative metrics to issue advisories.

- [x] Are visual indicators of cyanobacteria used to issue advisories or warnings?
  According to personal communication with agency staff, local waterbody managers may post warning signs based on visual indicators.

REGULARITY OF DATA COLLECTION

- [ ] Does the state proactively sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins?
  According to the state's HAB Action Plan, recreational freshwater bodies are proactively visually observed weekly during the recreation season (May 1—September 30). However, due to resource constraints, the Wyoming DEQ cannot proactively sample for cyanobacteria or cyanotoxins.

- [x] Does the state sample recreational freshwater bodies for cyanobacteria and/or cyanotoxins during and after a bloom?
  According to the state's HAB Action Plan, the Wyoming DEQ monitors and conducts sampling weekly until the cyanotoxin concentration and/or the cyanobacteria cell count return to safe levels.

PUBLIC OUTREACH

SCORE 7/8—GOOD

PUBLIC-FACING INFORMATION

- [x] Does the state provide a map that allows members of the public to see/learn more about HAB events near their communities or at freshwater bodies they recreate on or in?
  A map is available here.

- [x] Can the public easily access historic and recent HAB advisory data, either through an online database or an open source platform?
  A list of current and former HAB advisories can be found here. To get data from previous years, one must submit a public records request to the Wyoming DEQ.

- [x] Are easily interpretable test result summaries made available to the public shortly after sample results are available?
  Test summaries are available on this map. Clicking on a pinpoint will reveal the testing results from that site.

- [x] Is the state's HAB guidance document or response protocol available online?
  The strategy is available on here.

OUTREACH STRATEGY

- [x] Does the state publicly explain what metrics and thresholds the responsible agency uses in determining whether a bloom is harmful to public health?
  The state's HAB Action Plan outlines the thresholds used.

- [x] Is there evidence of a state agency communicating HAB information to the public?
  This is an example of 2019 press release issued by the Wyoming DEQ informing the public about harmful algae blooms.

- [ ] Does the state leverage non-state resources to communicate HAB information to the public (through NGOs and/or local organizations)?
  According to personal communication with agency staff, no. Freshwater HAB information is distributed through state agencies.

PUBLIC REPORT PROCESS

- [x] Is there a clear way for a member of the public to file a complaint, send a photograph, or request a toxin test if a freshwater body looks like it is experiencing a HAB?
  A link to report a bloom is available here.