

# Response Protocol for Public Reports Regarding Harmful Algal Blooms (HABs)



**DENR**  
SOUTH DAKOTA

South Dakota Department of the Environment and Natural Resources  
Watershed Protection Program  
Surface Water Quality Program

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## Introduction

This document serves as a framework for DENR to effectively respond to public reports regarding Harmful Algae Blooms (HABs). Direct communication with the public provides DENR personnel an opportunity to gain necessary information to direct an appropriate response in the interest of public safety. Public information gained over time also serves to increase the state's HABs awareness capacity. It is important when communicating with the public to not indicate a sense of safety about the condition of the water, especially if it is not warranted. Always associate risk with HABs!

The response protocol involves a three-step process. **First**, information and evidence are collected through an interview process. **Second**, a HAB scenario determination is made based on the information provided. Three independent scenarios are recognized:

- A. A HAB is not evident; the bloom is not associated with blue-green algae.
- B. A potential HAB is evident; recreation (i.e. swimming) or livestock watering is in question, but report indicates humans or animals are not experiencing symptoms of exposure to cyanotoxins.
- C. A HAB event is evident; humans or animals are experiencing symptoms of exposure to cyanotoxins.

**Third**, department personnel will respond to the Reporting Party (RP) following stepwise instructions in accordance with the specific scenario identified. When reports indicate human or animal exposure to cyanotoxin, an onsite field investigation will be implemented.

HABs response personnel from the Watershed Protection Program and Surface Water Quality Program need to be familiar with the response protocol and have it available for quick reference. When a HAB report is received and a response is issued, all information should be filed at [N: Watershed/HABs Response/HABs Reports](#). Once a HAB response is filed the responder must notify all members of the HABs response team. The HABs coordinator (Josh Strobel) will conduct any necessary follow up (i.e. attach pictures) to include updating and managing report files.

## HABs Response Protocol

### Call and Email Routing

DENR has several methods by which the public can communicate environmental concerns. Primary communication paths for reporting general water quality concerns often involve phone calls and email messages. DENR secretaries can encounter a diverse array of public calls on a daily basis. Directing calls to appropriate personnel can be challenging, especially if the subject matter is outside their respective programs. This is also true for DENR personnel that direct website-based communications such as email messages.

DENR secretaries and web communication personnel (Ron Duvall and Brian Walsh) within DENR will be provided guidance for directing public reports concerning HABs. A brief description of a potential HABs report and the appropriate HABs response contact list will be provided. When secretaries receive HABs related calls or an email is received via [DENRINFO@state.sd.us](mailto:DENRINFO@state.sd.us) the Reporting Party (RP) should be immediately directed to one of the following HABs response team members:

HABs Response Team Contact	Program	Telephone Number
Josh Strobel-coordinator	WPP	605-773-6710
Paul Lorenzen	WPP	605-773-4047
Jesse Wilkens	WPP	605-773-4046
Pat Snyder	SWQ	605-773-4729
Sean Kruger	SWQ	605-773-2457
Aaron Leingang	SWQ	605-773-3351

In the unlikely event that all HAB response team members are unavailable, calls and emails should be directed to the Watershed Protection Program.

## Interview and Information Gathering

Initial communication with the RP should focus on information gathering. Ask the following questions and record the answers on the SD DENR HABs Report Form (page 7).

1. Determine the RP's name.
2. Determine water body name and specific location of the potential algae bloom.
3. Describe the water color. Clarity? Odor? Ask RP for pictures of the potential algae bloom of interest. Remember, more pictures are better than a few. Pictures can be received via email ([DENRINTERNET@state.sd.us](mailto:DENRINTERNET@state.sd.us)).

If the description and/or pictures indicate that an algae bloom is evident and recreation (i.e. swimming) or livestock watering potential is in question, proceed to step #4. If the description and/or pictures indicate an algae bloom is **not** evident, proceed to Scenario 1 (page 3).

4. If the RP is inquiring about recreation or livestock watering potential and neither humans nor animals are reporting symptoms of exposure to cyanotoxins, proceed to Scenario 2 (page 3).
5. If indications are humans and/or animals are showing symptoms of exposure to cyanotoxins, proceed to Scenario 3 (page 4).

### Human Symptoms:

- Skin irritation or rash.
- Blistering around the mouth.
- Ear, nose, and throat irritation
- Dry cough, fever
- Abdominal pain, nausea, vomiting, and diarrhea
- Headache, numbness, paresthesia (pins and needles, tingling)
- Drowsiness, incoherence

### Animal (pets, livestock, or wildlife) symptoms:

- Excessive salivation, difficulty breathing, vomiting
- Diarrhea, seizures, death

## Scenario 1

**A HAB is not evident.** Conclusion is reached when information and/or pictures provided by the RP indicate blue-green algae is not the source of the potential bloom. Pictures may be essential to make a Scenario 1 determination. The most common causes of Scenario 1 include the presence of large quantities of duckweed, plants or attached algae/moss. Provide the RP with the following response:

1. Inform the RP that from their description and photos a HAB is **not** likely present.
2. **DO NOT** inform the person that the water is safe for recreation or livestock watering.
3. Share the DENR HABs webpage with the RP for more information about HABs (<https://denr.sd.gov/dfta/wp/habs.aspx>). Tell the RP to use caution and share the phrase, **“When in doubt, stay out.”**
4. Once the response is issued all information should be filed at N: Watershed/HABs Response/HABs Reports. When the report is filed, the responder must notify all members of the HABs response team. The HABs coordinator will conduct any necessary follow up to include updating and managing report files.

## Scenario 2

**A potential HAB is evident.** Humans and/or animals have not displayed symptoms of exposure though risk is a concern. The RP is likely inquiring about whether it is safe to recreate (i.e. swim) or water livestock. Provide the RP the following response:

1. Inform the RP that a HAB may be present.
2. Inform the RP that the only way to know if toxins are present is to test the water for cyanotoxins. Share the phrase, **“When in doubt, stay out.”**
3. Direct RP to the DENR HABs webpage (<https://denr.sd.gov/dfta/wp/habs.aspx>) for more information about HABs.
4. Inform the RP to immediately seek medical attention if they develop symptoms of cyanotoxin exposure and if agreeable, notify DENR of the symptoms once medical needs are met.
5. If the report refers to livestock watering; recommend that livestock not have access to the water until the bloom has subsided. Suggest that an alternate water source be considered, if available. Refer the RP to their local Natural Resources Conservation Service (NRCS) office for information about alternate water sources (<https://www.nrcs.usda.gov/wps/portal/nrcs/main/sd/contact/>). Inform the RP to contact a veterinarian if livestock develop symptoms of cyanotoxin exposure and if agreeable, notify DENR of the symptoms once medical needs are met.
6. Once the response is issued all information should be filed at N: Watershed/HABs Response/HABs Reports. When the report is filed, the responder must notify all members of the HABs response team. The HABs coordinator will conduct any necessary follow up (i.e. attach pictures) to include updating and managing report files.
7. The coordinator will notify Watershed Protection Program’s website coordinator to update the HABs recreation awareness map on the website.

## Scenario 3

**A HAB is evident.** Report indicates person(s) or animal(s) are exhibiting symptoms of cyanotoxin exposure or pictures indicate that a bloom is present. Provide the RP the following response and coordinate a field investigation:

### Human exposure to cyanotoxins

1. Advise the RP to immediately seek medical attention! Provide the RP with your name and contact information. Advise the RP to inform the medical provider that symptoms may be the result of exposure to cyanotoxins from an algae bloom.
2. The RP should be directed to have the medical provider contact DENR HABs personnel for more information about cyanotoxin. If contacted by the attending physician instruct them to visit the DENR HABs web page (<https://denr.sd.gov/dfta/wp/habs.aspx>) for contact information to the SD DOH, CDC, and EPA Region 8 office.
3. Ask the RP if any other people may have been exposed to cyanotoxins. Obtain as much information as possible to determine exposure extent. Acquire names and contact information, if possible.
4. Instruct the RP to advise others to stay away and to keep pets away from the water before departing.
5. Once the response is issued all information should be filed at N: Watershed/HABs Response/HABs Reports. When the report is filed, the responder must notify all members of the HABs response team. The HABs coordinator will conduct any necessary follow up to include updating and managing report files.
6. Coordinate an onsite field investigation following instructions on page 5. Instruct field personnel to invite the RP to participate in the investigation, if willing/available.

### Livestock or pet exposure to cyanotoxins

1. Advise the RP to contact their veterinarian immediately and recommend that all livestock or pets be restricted from accessing the water. Provide the RP with your name and contact information. Advise the RP to inform the veterinarian that symptoms may be the result of exposure to cyanotoxins from an algae bloom.
2. The RP should be directed to have the veterinarian contact DENR HABs personnel for more information about cyanotoxins. If contacted by the attending veterinarian instruct them to visit the DENR HABs web page (<https://denr.sd.gov/dfta/wp/habs.aspx>) for contact information to the SD DOH, CDC, EPA Region 8 office.
3. In the case of livestock, suggest that an alternate water source be considered, if available. Refer the RP to their local Natural Resources Conservation Service (NRCS) office for information about alternate water sources (<https://www.nrcs.usda.gov/wps/portal/nrcs/main/sd/contact/>).
4. Once the response is issued all information should be filed at N: Watershed/HABs Response/HABs Reports. When the report is filed, the responder must notify all members of the HABs response team. The HABs coordinator will conduct any necessary follow up to include updating and managing report files.
5. Coordinate an onsite field investigation following instructions on page 5. Instruct field personnel to invite the RP to participate in the investigation, if possible.

6. **If report involves symptomatic wildlife exposure coordinate with GF&P regional aquatic resource biologists (coordinate with John Lott 773-4508) to conduct the onsite field investigation.**

### Onsite Field Investigation

An onsite field investigation is required under Scenario 3 to document the HAB event. A field investigation should be conducted within 24 hours of the initial report. To facilitate the process, HABs response personnel from Pierre will coordinate with available field office personnel and other potential HABs partners to ensure a timely investigation.

HABs Field Investigation Personnel	Program	Telephone Number
Alan Wittmuss	WPP-Vermillion office	605-677-6163
Jeremy Schelhaas	WPP-Sioux falls office	605-362-3500
Tanner Clauson	WPP-Sioux falls office	605-362-3500
Robert Smith	WPP-Rapid City office	605-394-2229
Clarke Christensen	SWQ-Vermillion office	605-677-5227
WQM person	SWQ-Watertown office	605-882-5111
Aaron Leingang	SWQ-Pierre office	605-773-3351
*Game Fish and Parks	Regional biologists/park managers	GFP website

\*coordination with regional GF&P personnel

Assessment activities for the HAB investigation should be conducted in accordance with DENRs Quality Assurance Project Plan (QAPP) and Standard Operating Procedures. All documents are available at [N: Watershed/HABs Response/QAPP-SOPs](#). HABs field investigation personnel will be responsible for understanding the SOPs and protocols prior to conducting investigations. The following process should be followed by field personnel when responding to Scenario 3 onsite HABs field Investigations.

1. Coordinate with the HABs response coordinator or HABs response team members to obtain contact information for the RP and/or relevant local officials such as GF&P park managers. Make the appropriate contacts and formulate a plan to meet at a specific location to conduct the investigation.
2. Bring a copy of the HABs response protocol for guidance and access to the HABs Site Visit Form and cyanotoxin sample procedures (page 10). The following equipment, supplies and materials are required to investigate the HAB event:
  - EPA cyanotoxin sample collection kit
  - Chlorophyll-a bottle, algae ID bottle and/or algae eDNA sample kit
  - YSI multi sonde, if readily available
  - Camera
  - Multiple HABs brochures
  - Safety equipment: eye protection, latex gloves, hand sanitizer and D.I water.

The HABs Response coordinator will provide equipment, supplies and materials to HABs field investigation personnel seasonally, when available. Overnight shipments can be made if necessary. Refer to the SOPs (page 10) for details on processing and transport methods.

3. Once onsite, examine the site for the presence of blue-green algae, dead or sick animals, or any other signs of the reported HABs event. Take several pictures of the water and any affected people or animals. Ask people to read and sign the HABS photo permission form before photographing (page 9). DO NOT photograph unwilling participants.
4. Collect, process and store the cyanotoxin, algae ID and chlorophyll-a samples following operating procedures. Collect YSI measurements, if available. Complete the HABs Site Visit form (page 8). Immediately wash hands after sampling soap and DI water.
5. Hand out HABs brochures and business cards to interested individuals. Inform people that there is no way to know if the water is safe without testing it. Share the phrase, **“When in doubt, stay out.”** Direct people to the DENR HABs website for more information (<https://denr.sd.gov/dfta/wp/habs.aspx>). Inform people they can call DENR (1-800-GET-DENR) to follow up on the results of the cyanotoxin analysis.
6. When the investigation is complete provide all pictures, forms and any other evidence collected to the HABs coordinator. The HABS coordinator will update the initial response report.
7. Make sure samples are properly stored prior to transport to analysis labs. The HABs coordinator will ship or coordinate sample shipping to analysis labs as directed using required shipping procedures.
8. The HABs coordinator will update the HABs recreation awareness map on the HABs website.

### Local Notifications for HABs

The HABs coordinator will contact state and local officials when Scenario 2 and 3 responses are issued to members of the public for recreation based HAB reports (i.e. swimming concerns/risk). Local officials include GF&P park managers, regional aquatic resource biologists, county emergency managers, city officials, and lake associations. The notification will include information gained from the RP during the interview process (no personal information) and details about the response/investigation conducted by DENR. A link to the HABs website will be provided for more information. The officials will be notified that DENR’s role with HABs is focused on informing the public and providing technical assistance. DENR will not issue a public warning or advisory, but we will provide details of the event on the DENR website and our social media pages. Potential action is best made by the local managing agency/entity for the specific waterbody. DENR will provide further guidance to inform local decisions.

### DENR HABs WEBSITE

The following decisions will need to be made with respect to the HABs website:

- Location on DENR homepage (main page, WPP and SWQ main pages etc.).
- HABs recreation awareness map, design-structure.
- Decisions on whether to present HABs investigation results, and if so, how.
- This section will be updated accordingly as the process evolves.

# SD DENR HABs Call Report Form

Issued To: [Your Name]

Date:

Reporting Party: [Callers Name]

Time:

Waterbody/Location: [ coordinates, name, address, legal description, swim beach or state park)

Highlight or Mark Yes/No and Write Additional Comments Below Question

Is the water an unusual color? YES/NO

Odor Present? YES/NO

Are pictures available? YES/NO

Have any people or animals been in the water? YES/NO

Is any person or animal showing symptoms? YES/NO

**Additional Comments**

# SD DENR HABs Site Visit Form

Samplers Name:

Reporting Party:

Location: [Waterbody, Long/Lat]

## Site Observations

Photos:

Air Temperature:

Wind Speed/Direction:

Water Color:

Odor Present:

## Sample Collection (cyanotoxin, algae ID traditional and/or eDNA, CHLa)

Sample Location [Beach, Boat Ramp]:

Sample Time:

Sample Date:

## YSI Parameters

Conductivity:

pH:

DO:

Water Temperature:

## Additional Comments

# SD DENR HABs Photo Permission Form

I *Print Name* \_\_\_\_\_ hereby (**GRANT**)/(**DENY**) permission to the South Dakota Department of Environment and Natural Resources to access and collect photos of evidence from a HABs event.

Please fill in the following:

- Date of HABs event: \_\_\_\_\_
- Date when/if symptom was observed: \_\_\_\_\_
- Location/Address: \_\_\_\_\_

If you have any specific information about this event that you would like us to know, please explain below:

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**Signature:**

**Date:**

# EPA Region 8 Laboratory

1 Denver Federal Center-Building 25, Entrance E-3 Lakewood, Colorado 80225

## Routine Monitoring

Sample Collection for Algal Toxins, Chlorophyll-a,  
Nitrate/Nitrite/Phosphorous (NNP), and Shipment Quick Reference Guide

### Cooler kit contents:

- Cooler
- 5 pre-labeled 30 mL PETG bottles (algal toxin)
- 5 squares of tinfoil
- 5 pre-labeled 500mL amber plastic bottles (chlorophyll-a)
- 5 pre-labeled 125mL opaque plastic bottles (NNP)
- 5 pairs of large gloves
- 1 gallon Ziploc bag
- 1 Chain of Custody (COC) form
- 1 Prefilled FedEx form and envelope
- 1 Algal toxin routine monitoring quick reference guide (this form)

**Sample Site selection:** Collect samples at up to five locations. Sample locations can vary by waterbody, but typically the following sites should be considered:

- Index (deepest part or center of the lake)
- Public access areas (beaches, boat ramps, marinas, etc.)
- Leeward shores (downwind side of lake)
- Location of the most obvious bloom/area of concern
- Near drinking water intakes (if drinking water supply)

Once sites are established they should be resampled every month with this same sample ID. If sites change annotate the change and new site on the COC form.

**Sample Collection:** Fill the cooler with ice and label bottles before sample collection. Create sample IDs that will be easy to associate with sample locations.

Samples are typically taken just below the surface of the water or at 0.5 meters depth. Handle all samples with a new set of gloves and ice immediately. Each sample site should be taken in the three different bottle types;

- *Algal Toxin 30mL PETG Bottles and 125 mL NNP Bottles:* Fill the sample vessels approximately 2/3 full of sample water. Wrap 30mL algal toxin bottles in foil to prevent light exposure.
- *Chlorophyll-a 500mL Bottle:* Fill sample vessel to the neck of the bottle.

**Chain of Custody form:** Complete the Chain of Custody form (one line for each site and 3-bottle set), sign and date when relinquished, and ship with the samples.

### **Sample storage:**

Keep samples on ice or refrigerated in the dark. Ship according to one of the following methods.

1. **Ship same day of sample collection (preferred):** keep in the dark on ice until shipment (overnight delivery).
2. **Hold samples overnight or longer:**
  - a. Freeze 30mL algal toxin and 125mL NNP until ready for shipment
  - b. Chlorophyll-a 500mL options:
    - i. Filter in-field and freeze (contact lab for details)
    - ii. Hold overnight only on ice or refrigerated (ship next-day)
    - iii. Elect not to take chlorophyll-a samples (they must be filtered and frozen within 72 hours of collection)

### **Sample shipment:**

1. Place samples in cooler.
2. Ice cooler (refresh ice if already on ice).
3. Seal the sample submission form in a ziploc bag and tape underneath the lid of the cooler.

4. Tape cooler shut.
5. Affix shipping label sleeve to the top of the cooler
6. Add sender information to the label and insert label into the pouch.
7. Schedule overnight express delivery of samples. At FedEx.com or by calling 1-800-463-3339 (1-800-GOFEDEX)
8. Samples should be shipped to arrive on a working day (M-F).
9. Call and/or email the laboratory to let them know the coolers have shipped.

Lab contact information:

Marcie Tidd: [tidd.marcie@epa.gov](mailto:tidd.marcie@epa.gov), Phone: 303-462-9476

Mark Murphy: [murphy.mark@epa.gov](mailto:murphy.mark@epa.gov), Phone: 303-462-9474