

# Idaho Harmful Algal Bloom Response Plan

---

A Communication Guideline for Protecting the Health of the  
Public

Version 1



IDAHO DEPARTMENT OF HEALTH & WELFARE  

---

**DIVISION OF PUBLIC HEALTH**

**State of Idaho  
Department of Environmental Quality  
Department of Health and Welfare  
Public Health Districts**

**June 2017**



Printed on recycled paper, DEQ June 2017,  
HABS0503, CA 82127. Costs associated with this  
publication are available from the State of Idaho  
Department of Environmental Quality in accordance  
with Section 60-202, Idaho Code.

# Idaho Harmful Algal Bloom Response Plan

A Communication Guideline for Protecting the Health of the  
Public

Version 1

June 2017



IDAHO DEPARTMENT OF HEALTH & WELFARE

**DIVISION OF PUBLIC HEALTH**

**Prepared by  
Idaho Department of Environmental Quality  
1410 North Hilton  
Boise, Idaho 83706**

**Idaho Department of Health and Welfare  
Division of Public Health  
450 West State St.  
Boise, Idaho 83702**

**Idaho Public Health Districts**

## Table of Contents

1	Purpose Statement .....	1
2	Introduction.....	1
2.1	Health Concerns .....	2
2.1.1	Health Concerns for Livestock and Pets.....	3
2.2	HAB Response Goal and Objectives.....	3
2.2.1	DEQ Objectives .....	3
2.2.2	PHD Objectives .....	4
2.2.3	IDHW Objectives .....	4
2.2.4	Idaho State Department of Agriculture (ISDA) Objectives .....	4
2.2.5	Local Water Body Management Entity Objectives.....	5
3	HAB Response Process .....	5
3.1	Notification.....	7
3.2	Investigation .....	7
3.3	Public Health Risk .....	7
3.4	Communication Plan .....	8
3.4.1	PHD .....	8
3.4.2	DEQ State and Regional Offices .....	8
3.4.3	IDHW .....	9
3.4.4	Public and Media Communication .....	9
3.5	Monitoring and Observation.....	9
3.6	Public Health Advisory Lifted.....	10
4	Plan Revisions .....	10
	References.....	10
	Additional Resources .....	11
	Appendix A. Contact Information .....	12
	Appendix B. Reported Bloom and Investigation Forms.....	16
	Appendix C. Example Press Release .....	19
	Appendix D. Health Advisory Notice.....	21
	Appendix E. Health Advisory Lifted .....	22
	Appendix F. DEQ Caution Signs.....	23

## List of Tables

Table 1. Common cyanobacteria found in Idaho, the toxins they produce, and symptoms  
(adapted from EPA 2016b)..... 2

Table 2. Recreational health advisory recommendations for microcystins and  
cylindrospermopsins (adapted from EPA 2016a)..... 3

## List of Figures

Figure 1. DEQ and PHD HAB response flow chart. .... 6

## Abbreviations, Acronyms, and Symbols

CDC	Centers for Disease Control and Prevention
DEQ	Idaho Department of Environmental Quality
EDAS2	Ecological Data Analysis System
EPA	US Environmental Protection Agency
FAQ	frequently asked question
HAB	harmful algal bloom
IDHW	Idaho Department of Health and Welfare
ISDA	Idaho State Department of Agriculture
µg/L	microgram per liter
mL	milliliter
PHD	public health district

## 1 Purpose Statement

The Idaho Harmful Algal Bloom Response Plan is intended to serve as a coordinated response plan for communication between staff of the Idaho Department of Environmental Quality (DEQ), Idaho public health districts (PHDs), and Idaho Department of Health and Welfare (IDHW) Division of Public Health to protect public health when a potential harmful algal bloom (HAB) is reported. Roles and responsibilities are as follows:

- DEQ conducts scientific investigations of reported blooms and provides data to the PHDs.
- PHDs issue and lift public health advisories based on reported data.
- IDHW provides educational material and consultation on the health effects of cyanobacterial toxins, investigative protocols for responding to reports of human illness, and outbreaks of waterborne illness; tracks trends in human illness and deaths; provides input into the issuance or lifting of health advisories; and communicates with the Centers for Disease Control and Prevention (CDC) regarding Idaho HABs associated with human illness.
- The entity or entities responsible for managing water body access will be asked to assist the PHDs, IDHW, and DEQ in posting public health notices and HAB cautionary signs.

## 2 Introduction

Cyanobacteria are an important, natural component of Idaho lakes and rivers and are also present in home aquariums and the soil in residential lawns and indoor potted plants. Under certain environmental conditions, however, cyanobacteria populations can rapidly increase to levels that interfere with the recreation and domestic beneficial uses of a water body. This rapid increase is often referred to as a bloom.

Many species of cyanobacteria, including those found in Idaho lakes and reservoirs, produce toxic compounds known as cyanotoxins. Holland and Kinnear (2013) report that “Cyanotoxin production is dependent upon a number of environmental conditions: Predominantly, these include nutrient concentration, light intensity, and temperature.” Toxin production may offer cyanobacteria a number of ecological advantages, including grazing defense, allelopathy (inhibiting the growth of competitors), assistance in nutrient uptake, iron scavenging, oxidative stress, carbon-nitrogen metabolism, homeostasis maintenance, and as an infochemical (Holland and Kinnear 2013).

Cyanobacteria blooms can be unsightly and often have variable appearance in the form of foam, scum, or mats on the surface of water—especially near the shoreline. The different cyanobacteria species have a wide range of colors and can be “blue, green, brown, yellow, orange, or red. When organisms in a bloom die and decompose, they can release unpleasant odors (like the smell of rotting plants)” (CDC 2016). Cyanobacteria are often known as blue-green algae and the terms are interchangeable.

Mats and scums can represent thousand-fold to million-fold concentrations of cyanobacterial cell populations, and published microcystin concentrations have ranged up to 24 milligrams/liter from scum material (Chorus and Bartram 1999).

## 2.1 Health Concerns

Through their production of cyanotoxins, cyanobacteria blooms can cause eye, ear, and skin irritation as well as gastrointestinal distress, and they can severely affect neurological systems. Humans who ingest these toxins may develop muscle cramps, twitching, paralysis, cardiac or respiratory failure, and death. Symptoms can occur within an hour of exposure but may take as long as 36 hours to develop depending on the particular toxin and its concentration (CDC 2016). Table 1 provides a summary of common cyanobacteria in Idaho and their acute health effects.

**Table 1. Common cyanobacteria found in Idaho, the toxins they produce, and symptoms (adapted from EPA 2016b).**

Genera	Cyanotoxins	Acute Health Effects in Humans
<i>Microcystis</i> , <i>Dolichospermium</i> (formerly <i>Anabaena</i> ), and <i>Gloeotrichia</i>	Microcystins	Abdominal pain, headache, sore throat, vomiting and nausea, dry cough, diarrhea, blistering around the mouth, and pneumonia
<i>Aphanizomenon</i> , <i>Dolichospermium</i> , and <i>Lyngbya</i>	Cylindrospermopsin	Fever, headache, vomiting, bloody diarrhea, liver inflammation, and kidney damage
<i>Aphanizomenon</i> , <i>Microcystis</i> , <i>Dolichospermium</i> , and <i>Woronichinia</i>	Anatoxin-a group	Tingling, burning, numbness, drowsiness, incoherent speech, salivation, and respiratory paralysis leading to death <sup>a</sup>

<sup>a</sup> Respiratory symptoms observed in animals.

The following are the most common routes of exposures to cyanobacteria and their toxins during recreational activities:

- Oral from accidental or deliberate ingestion of contaminated water.
- Dermal by direct contact of exposed body parts with water containing cyanobacteria cells. Cyanobacteria cells can also accumulate in bathing suits, particularly diving suits, breaking and exposing skin to toxins.
- Inhalation through the aspiration of water containing cyanobacteria cells and their toxins.

IDHW and the PHD environmental health directors of Idaho agree with using EPA's 2016 recommended guidelines for cyanotoxin concentrations and cyanobacterial cell concentrations for recreational waters regarding the congeners of microcystin and cylindrospermopsin and the cyanobacteria *Microcystis* sp. The parameters used to calculate values protective of child health include incidental ingestion values for children under 18 years old, mean body weight for children ages 6 to 11, and recreational exposure duration for children ages 5 to 11. Based on the qualitative nature of the data available for the youngest children and given that the mean values were similar, EPA (2016a) concluded that the values reported in the *Exposure Factors Handbook* are protective of children of all ages, including those younger than 6.

EPA (2016a) reports that "cyanobacterial cell density could be used as an indicator of the potential for a cyanobacterial HAB to produce cyanotoxins at concentrations" that are harmful to

humans. *Microcystis* species tend to produce cyanotoxins at a more consistent rate than other species of cyanobacteria, and a *Microcystis* sp. cell density of 20,000 cells/milliliter (mL) has the potential to result in a microcystin concentration of 4 micrograms per liter ( $\mu\text{g/L}$ ).

Based on data from previous Idaho HAB seasons, *Microcystis* populations in Idaho water bodies often bloom after other species of toxin-producing cyanobacteria. A total cell count of 40,000 cells/mL has the potential to produce harmful cyanotoxin concentrations. IDHW recommends increased monitoring and toxin analysis when cell counts exceed 20,000 cells/mL so the DEQ investigator can anticipate increases in population density and toxin production.

**Table 2. Recreational health advisory recommendations for microcystins and cylindrospermopsins (adapted from EPA 2016a).**

Application of Recommended Values	Microcystin Concentration ( $\mu\text{g/L}$ )	<i>Microcystis</i> Cell Count (cells/mL)	Cylindrospermopsin Concentration ( $\mu\text{g/L}$ )	Species other than <i>Microcystis</i> Total Cell Count (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.

### 2.1.1 Health Concerns for Livestock and Pets

Livestock and pets can potentially be exposed to higher concentrations of, or have increased exposure to, cyanotoxins than humans because they are known to consume cyanobacterial scum and mats and drink cyanobacteria-contaminated water (Backer et al. 2013 in EPA 2016b). Dog fur acts as a filter that collects and concentrates cyanobacterial cells while in the water, and dogs receive a concentrated dose of cells from licking their fur after swimming in a water body with an ongoing bloom (Chorus et al. 2000). Common signs of HAB cyanotoxin poisonings in pets include repeated vomiting, diarrhea, loss of appetite, abdominal swelling, stumbling, seizures, convulsions, disorientation, inactivity, or skin rashes and hives (MacNeill 2014; Trevino-Garrison et al. 2015).

## 2.2 HAB Response Goal and Objectives

DEQ and the PHDs will work together to identify HABs and inform the public, stakeholders, and partner organizations and agencies of their existence to minimize unintentional exposure to associated toxins and irritants.

### 2.2.1 DEQ Objectives

- Accurately and precisely characterize Idaho's waters through observation and monitoring when a suspected HAB is reported to the agency.
- Relay scientific information to the appropriate PHD when a bloom is in progress so the PHD health advisory correctly characterizes the severity of the danger to water body users.

- Assist the PHD, water body managers, and the public in better understanding the aquatic ecology of cyanobacteria and the toxins and irritants they produce.
- Update the DEQ Recreation Water Quality Health Advisories web page ([www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/](http://www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/)) and provide a statewide reference for active or ongoing HABs.
- Stay current with the science of cyanobacteria and HABs.
- Use available limited resources to accomplish the preceding objectives.

### **2.2.2 PHD Objectives**

- Determine if a public health advisory is necessary to protect water users in coordination with DEQ, based on lab analysis of water samples.
- Determine appropriate public notification processes in coordination with DEQ.
- Assist DEQ, water body managers, and the public in better understanding the health risks of cyanobacteria and the toxins and irritants they produce.
  - Each PHD should develop a list of local stakeholders for water bodies with routine algal blooms.
  - PHDs should engage with the stakeholders and water body managers with legal authority to have signs posted.
  - PHDs can assist with posting advisories at water body access locations, pending agreements with property managers and staff resources, in the event that a water body manager does not exist or is unable to help.
- Prepare and issue public health advisories and press releases when it is determined that a health advisory should be issued.
- Provide (via email) IDHW and DEQ communications and outreach (contact info in Appendix A) with a link to the press release to update the DEQ Recreation Water Quality Health Advisories web page to coordinate press releases with other PHDs and IDHW when appropriate.
- Use available limited resources to accomplish the preceding objectives.

### **2.2.3 IDHW Objectives**

- Provide HAB educational materials on website.
- Maintain situational awareness of reported HABs.
- Maintain the IDHW HAB web page (<http://healthandwelfare.idaho.gov/Health/EnvironmentalHealth/HarmfulAlgalBlooms/tabid/2174/Default.aspx>).
- Conduct surveillance for human illness associated with a HAB.
- Provide consultation on health alerts as needed.
- Notify the CDC of human illness outbreaks associated with a HAB.

### **2.2.4 Idaho State Department of Agriculture (ISDA) Objectives**

- Notify livestock owners when a water body contains a suspected HAB and may be a source of animal drinking water.

### **2.2.5 Local Water Body Management Entity Objectives**

This section covers water bodies and facilities managed or operated by a single or few entities (for example, a city or county for a water body within a city or county park and canal and irrigation companies).

- Inform DEQ when a HAB is suspected.
  - Provide photos for PHD, IDHW, and DEQ use in outreach efforts (agency websites, traditional media, and social media).
- Assist PHD efforts to inform users about the risks associated with recreating in a water during a HAB and with posting signs once a health advisory is in place and removing signs when the health advisory is lifted.
- Assist DEQ with observations and monitoring of active HABs.
- Use available limited resources to accomplish the preceding objectives.

## **3 HAB Response Process**

The following sections expand on Figure 1 below. This flowchart describes a process for the DEQ regional offices and PHDs to work together to identify and inform the public when HABs exist in order to prevent unintentional exposure to HAB-associated cyanotoxins.

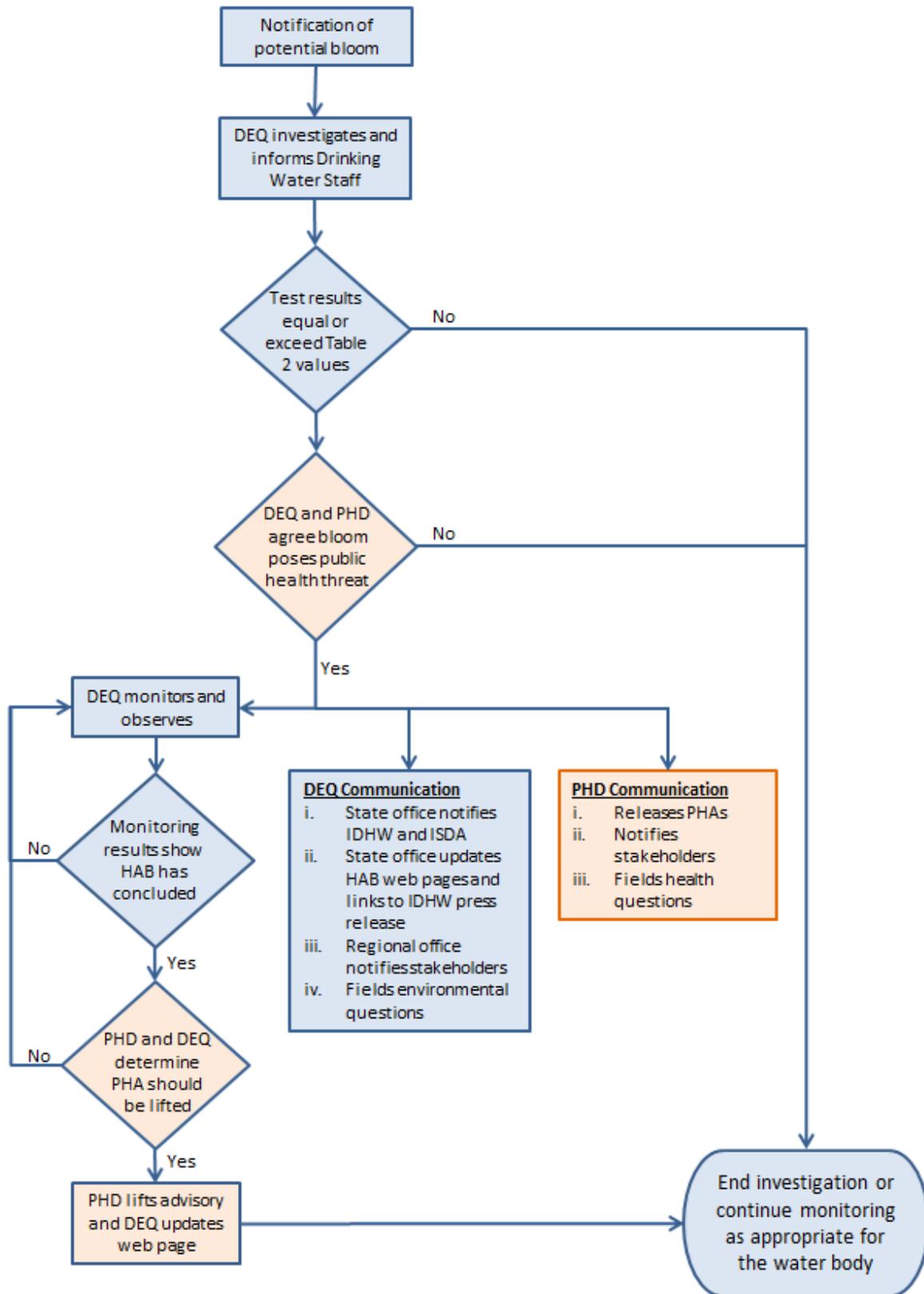


Figure 1. DEQ and PHD HAB response flow chart.

### 3.1 Notification

Complaints of a potential cyanobacteria bloom in progress may be made by the public or referred to DEQ by another agency. Appendix B contains a form for recording the observations of an individual who believes a water body may not be safe for recreation due to algal blooms.

### 3.2 Investigation

DEQ is responsible for investigating potential cyanobacteria blooms, while the PHDs are responsible for issuing public health advisories. Each investigation, in accordance with established sampling protocols and methods, should document the presence or absence of a cyanobacteria bloom by doing the following:

- Testing for the presence and concentration of cyanotoxins to confirm that a bloom is producing concentrations of cyanotoxins above EPA-recommended threshold values (Table 2)
- Identifying the species present
- Enumerating the number of cells or colonies per milliliter of water to confirm that a bloom has population densities above IDHW-recommended threshold values (section 3.3) for increased monitoring or posting health advisories

Any suspected cyanobacteria bloom on a water body with a public water system needs to be reported to regional and state office drinking water staff so they can communicate with the public water systems. The DEQ investigators need to report the results of their investigations through the online HAB Reporting Form (available on the DEQ intranet). When submitted, the form autogenerates an email that is sent to DEQ state office surface water and drinking water contacts and the appropriate regional office contact. Updates to the DEQ interactive advisory map and the DEQ website ([www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/](http://www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/)) are triggered by submitting the HAB Reporting Form. It is not necessary to repeatedly fill every field in the form after the initial investigation is reported. For example, after the latitude and longitude have been submitted with a water body and sampling site description for the affected portion of the water body, the water body name and a site description from the first submission (e.g., Brownlee) can be used in status updates.

DEQ currently uses the Ecological Data Analysis System (EDAS2) database for storing environmental data in a central location, including data collected on cyanobacteria. The data collected on each water body are becoming increasingly valuable as we attempt to better understand the timing, causes, and population dynamics of HABs in Idaho. The DEQ HAB coordinator will enter the data from the HAB Reporting Form-generated emails into the EDAS2 database.

### 3.3 Public Health Risk

When cyanotoxin laboratory results exceed the EPA-recommended threshold values identified in Table 2, the DEQ investigator will contact the appropriate PHD and discuss the analysis results.

## **3.4 Communication Plan**

The following sections outline PHD, DEQ, and IDHW roles once a HAB is identified.

### **3.4.1 PHD**

The PHD develops a public health advisory and issues a press release based on the results of lab analysis. Health advisories convey a moderate level of urgency and provide the public with important information for a heightened awareness about a specific incident or situation that is unlikely to require immediate action. Appendix C, Appendix D, Appendix E, and Appendix F contain templates for issuing and lifting health advisories. Health alerts, on the other hand, convey the highest level of urgency and provide official guidance to the public about a potential health hazard requiring immediate action or attention. A template for health alerts is not available, and specific health alerts will be developed as needed by the appropriate PHD.

When issuing a health advisory or health alert, the PHD will also email the DEQ communications and outreach staff so DEQ can link to the PHD press release on social media and update the map on the DEQ Recreation Water Quality Health Advisories web page. PHD methods of notification will typically consist of the following:

- News releases
- Public service announcements
- Social media
- PHD website
- Idaho Health Alert Network
- Notifications sent to appropriate water body managers, user groups, and community partners as quickly as possible

### **3.4.2 DEQ State and Regional Offices**

The DEQ state office HAB coordinator will follow up with state office drinking water staff to ensure they are aware of the bloom. State office communications and outreach staff will update the HAB web pages and map to include information from submitted HAB Reporting Forms. The HAB coordinator will also contact the IDHW and ISDA.

Each DEQ regional office should identify the water body managers and other relevant stakeholders on water bodies with recurring cyanobacterial blooms (lake associations, Idaho Department of Fish and Game, Idaho Department of Parks and Recreation, Idaho Power, etc.) so they can be aware of blooms, communicate with their stakeholders, and work together to get signs posted.

If a bloom is reported in a city park, county park, or state park water body, the DEQ regional office should notify the city park and recreation department (or equivalent management agency) so the local agency can coordinate public notification with the PHD and either assume responsibility for monitoring or coordinate with the DEQ regional office.

### 3.4.3 IDHW

IDHW maintains and updates a Harmful Algal Blooms FAQ page with links to educational materials at <http://healthandwelfare.idaho.gov/Health/EnvironmentalHealth/HarmfulAlgalBlooms/tabid/2174/Default.aspx>. The IDHW Waterborne Illness web page at <http://healthandwelfare.idaho.gov/default.aspx?TabId=113> contains general information about potential illnesses from recreational waters and drinking water links to additional web-based resources for the general public.

### 3.4.4 Public and Media Communication

Questions from press or media contacts should be referred to the appropriate agency as described below.

#### ***PHD Fields Health-Related Questions***

When a private individual has multiple questions, any environmental questions should be answered to the PHD's ability or referred to the DEQ regional office if more information is needed.

Each PHD will identify key staff to answer HAB-related calls and use prepared talking points/frequently asked questions (FAQs) to respond to inquiries.

#### ***DEQ Fields Environmental-Related Questions***

Phone calls to DEQ from the general public should be referred to the appropriate regional office staff (see contact list in Appendix A). If that person is not available, callers can be referred to the DEQ state office HAB coordinator, or the coordinator will be contacted with the caller's contact information in order to return the call.

Along with providing a map of known active cyanobacterial blooms, DEQ maintains a HAB FAQ document that can be accessed through the Recreation Water Quality Health Advisories web page at [www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/](http://www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/). The Blue-Green Algae and Harmful Algal Blooms web page also answers common questions and lists DEQ contact information for follow-up questions regarding the locations of active blooms ([www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/blue-green-algae/](http://www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/blue-green-algae/)).

The DEQ employee contacted by the media contact will refer to the DEQ documents *FAQs: Blue-Green Algae* (TRIM 2015AJY5), *Tips for Working with the Media* (TRIM 2013AJS50), and *DEQ Contact Procedures: Board, Legislature, and News Media* (found at <http://deq.intranet/policies-procedures-index.aspx>) and report all media contact through the Media Contact email group.

## 3.5 Monitoring and Observation

The frequency of monitoring activities may depend on the location of the water body, the amount of use the water body receives (heavily used urban water body versus a remote location, for example), and the travel time required to reach the site. With the goal of protecting public health,

the investigator should make a reasonable effort to monitor the water body at least once every 2 weeks or every week if it appears the extent and risk associated with a bloom is growing and when toxin samples or other appropriate indicators indicate the bloom is senescing and the threat to public health has subsided. Refer to the DEQ bloom sampling protocol and HAB quality assurance project plan to determine the appropriate sampling frequency and analysis.

The DEQ investigator needs to notify the PHD when lab results indicate that cyanotoxin concentrations have decreased below the threshold. When toxin concentrations have been below the threshold value for 2 consecutive weeks, and if the DEQ and PHD staff members agree the likelihood of the bloom re-forming is past, any health advisory can be removed from the water body.

Because the DEQ HAB map is updated through the information provided by regional office staff submitting HAB Reporting Forms, updated forms should be submitted in a timely manner.

### **3.6 Public Health Advisory Lifted**

Because HABs are complicated and can vary throughout the water body, cautionary language will be included in the press release lifting the advisory. Sample language is provided in Appendix E.

## **4 Plan Revisions**

This response plan is designed to be a living document. The scientific knowledge on cyanobacteria is changing rapidly, and our understanding of the potential consequences of human and animal contact with cyanotoxins is steadily increasing. When a portion of this document is found to reflect a response that is no longer current, no longer protects public health, or no longer serves the needs of DEQ or the PHDs, the DEQ HAB coordinator and the IDHW HAB lead should be consulted regarding proposed changes. Any updates or changes will be implemented by the DEQ HAB coordinator after receiving the approval of the PHD environmental health directors forum chair, with a notice of the change and an explanation sent to the DEQ regional offices. The DEQ sampling protocol and quality assurance project plan are referenced as standalone documents and should also undergo coordinated changes and implementation.

## **References**

- CDC (Centers for Disease Control and Prevention). 2016. Harmful Algal Bloom-Associated Illness. Accessed April 2017. [www.cdc.gov/habs/](http://www.cdc.gov/habs/).
- Chorus, I., I. Falconer, H. Salas, and J. Bartram. 2000. "Health Risks Caused By Freshwater Cyanobacteria In Recreational Waters." *Journal of Toxicology and Environmental Health Part B*, 3(4): 323–347. <http://dx.doi.org/10.1080/109374000436364>.

- EPA (United States Environmental Protection Agency). 2016a. *Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin* (Draft). Washington, DC: EPA, Office of Water. EPA 822-P-16-002. Accessed February 2017. [www.epa.gov/wqc/microbial-pathogenrecreational-water-quality-criteria](http://www.epa.gov/wqc/microbial-pathogenrecreational-water-quality-criteria).
- EPA (United States Environmental Protection Agency). 2016b. How are humans exposed to cyanobacteria and cyanotoxins? Accessed April 2017. [www.epa.gov/nutrient-policy-data/health-and-ecological-effects](http://www.epa.gov/nutrient-policy-data/health-and-ecological-effects).
- Holland, A. and S. Kinnear. 2013. “Review: Interpreting the Possible Ecological Role(s) of Cyanotoxins: Compounds for Competitive Advantage and/or Physiological Aide?” *Mar. Drugs* 11(7): 2239–2258. Accessed April 2017. [www.mdpi.com/1660-3397/11/7/2239](http://www.mdpi.com/1660-3397/11/7/2239).
- MacNeill, D. 2014. “Dogs and Harmful Algal Blooms.” New York Sea Grant. Accessed April 2017. <http://seagrant.sunysb.edu/articles/t/dogs-and-harmful-algal-blooms-harmful-algal-blooms-press-release>.
- Trevino-Garrison, I., J. DeMent, F.S. Ahmed, P. Haines-Lieber, T. Langer, H. Menager, J. Neff, D. van der Merwe, and E. Carney. 2015. “Human Illnesses and Animal Deaths Associated with Freshwater Harmful Algal Blooms – Kansas.” *Toxins* 7(2): 353–366. Accessed April 2017. [www.mdpi.com/2072-6651/7/2/353/htm](http://www.mdpi.com/2072-6651/7/2/353/htm).

## Additional Resources

- BloomWatch mobile app: available through cyanos.org, iTunes, and the Google Play Store.
- Idaho Department of Environmental Quality Bloom Investigation ArcSurvey123 field computer form. Contact Shell Howard and Jim Szpara.
- Jacoby, J.M. and J. Kann. 2007. “The Occurrence and Response to Toxic Cyanobacteria in the Pacific Northwest, North America.” *Lake and Reservoir Management* 23: 123–143.
- Poison Control: Nebraska Poison Control Center. [www.nebraskapoisson.com](http://www.nebraskapoisson.com).
- UDEQ (Utah Department of Environmental Quality). 2016. *Utah Guidance for Local Health Departments: Harmful Algal Blooms and Human Health*. Accessed February 2017. [www.deq.utah.gov/Divisions/dwq/health-advisory/docs/072915-HarmfulAlgalBlooms.pdf](http://www.deq.utah.gov/Divisions/dwq/health-advisory/docs/072915-HarmfulAlgalBlooms.pdf).

## Appendix A. Contact Information

### Idaho Department of Environmental Quality

#### DEQ Surface Water Program

1410 N. Hilton  
Boise, ID 83706  
Phone: (208) 373-0502  
Contact: Brian Reese  
E-mail: [Brian.Reese@deq.idaho.gov](mailto:Brian.Reese@deq.idaho.gov)

#### DEQ Drinking Water Program

1410 N. Hilton  
Boise, ID 83706  
Phone: (208) 373-0502  
Contact: Maureen Pepper  
E-mail: [Maureen.Pepper@deq.idaho.gov](mailto:Maureen.Pepper@deq.idaho.gov)

#### DEQ Toxicology

1410 N. Hilton  
Boise, ID 83706  
Phone: (208) 373-0502  
Contact: Norka Paden  
E-mail: [Norka.Paden@deq.idaho.gov](mailto:Norka.Paden@deq.idaho.gov)

#### DEQ Communications and Outreach

1410 N. Hilton  
Boise, ID 83706  
Phone: (208) 373-0465  
Contact: Sara Cassinelli  
E-mail: [Sara.Cassinelli@deq.idaho.gov](mailto:Sara.Cassinelli@deq.idaho.gov)

#### DEQ Boise Regional Office

1445 N. Orchard St.  
Boise, ID 83706  
Phone: (208) 373-0550  
Contact: Lance Holloway  
E-mail: [Lance.Holloway@deq.idaho.gov](mailto:Lance.Holloway@deq.idaho.gov)

#### DEQ Lewiston Regional Office

1118 F St.  
Lewiston, ID 83501  
Phone: (208) 799-4370  
Contact: Cynthia Barrett  
E-mail: [Cynthia.Barrett@deq.idaho.gov](mailto:Cynthia.Barrett@deq.idaho.gov)

#### DEQ Coeur d'Alene Regional Office

2110 Ironwood Parkway  
Coeur d'Alene, ID 83814  
Phone: (208) 769-1422  
Contact: Thomas Herron  
E-mail: [Thomas.Herron@deq.idaho.gov](mailto:Thomas.Herron@deq.idaho.gov)

#### DEQ Pocatello Regional Office

444 Hospital Way, #300  
Pocatello, ID 83201  
Phone: (208) 236-6160  
Contact: Lynn Vanevery  
E-mail: [Lynn.Vanevery@deq.idaho.gov](mailto:Lynn.Vanevery@deq.idaho.gov)

#### DEQ Idaho Falls Regional Office

900 N. Skyline Drive, Suite B  
Idaho Falls, ID 83402  
Phone: (208) 528-2650  
Contact: Troy Saffle  
E-mail: [Troy.Saffle@deq.idaho.gov](mailto:Troy.Saffle@deq.idaho.gov)

#### DEQ Twin Falls Regional Office

650 Addison Avenue West, Suite 110  
Twin Falls, ID 83301  
Phone: (208) 737-3886  
Contact: Shell Howard  
E-mail: [Shell.Howard@deq.idaho.gov](mailto:Shell.Howard@deq.idaho.gov)

## **Idaho Department of Health and Welfare**

### **IDHW Division of Public Health**

450 W. State Street, 4th Floor  
Boise, ID 83702  
Phone: (208) 334-5939  
Contacts: Kris Carter, Career Epidemiology  
Field Officer/Waterborne Outbreak  
Coordinator; TBD, State Toxicologist;  
TBD, Environmental Health Program  
Manager  
E-mail: [kris.carter@dhw.idaho.gov](mailto:kris.carter@dhw.idaho.gov) and  
[epimail@dhw.idaho.gov](mailto:epimail@dhw.idaho.gov); TBD; TBD

### **Idaho Public Health Districts**

#### ***Panhandle Health District***

8500 N. Atlas Road  
Hayden, ID 83835  
Phone: (208) 415-5100  
Contact: Eric Ketner  
E-mail: [EKetner@phd1.idaho.gov](mailto:EKetner@phd1.idaho.gov)

#### ***South Central Public Health***

1020 Washington St N  
Twin Falls, ID 83301-3156  
Phone: (208) 734-5900  
Contact: Josh Jensen  
E-mail: [jjensen@phd5.idaho.gov](mailto:jjensen@phd5.idaho.gov)

#### ***Southwest District Health***

13307 Miami Lane  
Caldwell, ID 83607  
Phone: (208) 455-5300  
Contact: Brian Crawford  
E-mail: [brian.crawford@phd3.idaho.gov](mailto:brian.crawford@phd3.idaho.gov)

#### ***Southeastern Idaho Public Health***

1901 Alvin Ricken Drive  
Pocatello, ID 83201  
Phone: (208) 233-9080  
Contact: Steve Pew  
E-mail: [spew@siph.idaho.gov](mailto:spew@siph.idaho.gov)

#### ***Central District Health Department***

707 North Armstrong Place  
Boise, ID 83704-0825  
Phone: (208) 375-5211  
Contact: Mike Reno  
E-mail: [mreno@cdhd.idaho.gov](mailto:mreno@cdhd.idaho.gov)

#### ***Eastern Idaho Public Health District***

1250 Hollipark Drive  
Idaho Falls, ID 83401  
Phone: (208) 522-0310  
Contact: Kellye Eager  
E-mail: [keager@eiph.idaho.gov](mailto:keager@eiph.idaho.gov)

#### ***North Central Health District***

215 10th Street  
Lewiston, ID 83501  
Phone: (208) 799-3100  
Contact: Ed Marugg  
E-mail: [emarugg@phd2.idaho.gov](mailto:emarugg@phd2.idaho.gov)

## Idaho Department of Fish and Game Regional Offices

### Panhandle Region

2885 W. Kathleen Ave.  
Coeur d'Alene, ID 83815  
Phone: (208) 759-6229  
Contact: Andy Dux  
E-mail: [andy.dux@idfg.idaho.gov](mailto:andy.dux@idfg.idaho.gov)

### Clearwater Region

3316 16th St.  
Lewiston, ID 83501  
Phone: (208) 750-4208 or (208) 553-8299  
Contact: Joe Dupont  
E-mail: [joe.dupont@idfg.idaho.gov](mailto:joe.dupont@idfg.idaho.gov)

### Southwest Region

3101 S. Powerline Rd.  
Nampa, ID 83686  
Phone: (208) 697-1117  
Contact: Joe Kozfkay  
E-mail: [joe.kozfkay@idfg.idaho.gov](mailto:joe.kozfkay@idfg.idaho.gov)

### McCall Subregion

555 Deinhard Lane  
McCall, ID 83638  
Phone: (208) 630-4634  
Contact: Dale Allen  
E-mail: [dale.allen@idfg.idaho.gov](mailto:dale.allen@idfg.idaho.gov)

### Magic Valley Region

324 South 417 East, Suite 1  
Jerome, ID 83338  
Phone: (208) 539-0286  
Contact: Doug Megargle  
E-mail: [doug.megargle@idfg.idaho.gov](mailto:doug.megargle@idfg.idaho.gov)

### Southeast Region

1345 Barton Road  
Pocatello, ID 83204  
Phone: (208) 251-9401  
Contact: David Teuscher  
E-mail: [david.teuscher@idfg.idaho.gov](mailto:david.teuscher@idfg.idaho.gov)

### Upper Snake Region

4279 Commerce Circle  
Idaho Falls, ID 83401  
Phone: (208) 390-0601  
Contact: Dan Garren  
E-mail: [dan.garren@idfg.idaho.gov](mailto:dan.garren@idfg.idaho.gov)

### Salmon Region

99 Hwy. 93 N.  
Salmon, ID 83467  
Phone: (208) 561-1030  
Contact: Greg Schoby  
E-mail: [greg.schoby@idfg.idaho.gov](mailto:greg.schoby@idfg.idaho.gov)

## Idaho State Department of Agriculture

Bill Barton, DVM  
Administrator / State Veterinarian  
Division of Animal Industries  
Idaho State Department of Agriculture  
2270 Old Penitentiary Rd  
Boise, ID 83712  
Phone: (208) 332-8540  
E-mail: [bill.barton@isda.idaho.gov](mailto:bill.barton@isda.idaho.gov)

Curtis Cooper, PhD  
Water Program Lead  
Division of Agricultural Resources  
Idaho State Department of Agriculture  
2270 Old Penitentiary Rd  
Boise, ID 83712  
Phone: (208) 332-8597  
E-mail: [Curtis.Cooper@agri.idaho.gov](mailto:Curtis.Cooper@agri.idaho.gov)

## **Cyanobacteria Analysis Laboratories**

### **Advanced Eco-Solutions, Inc.**

1324 N. Liberty Lake Rd. #124  
Liberty Lake, WA 99019  
Contact: Darren Brandt  
Phone: (208) 660-8733  
Cell: (208) 660-8733  
E-mail: [Darren.brandt@adveco-sol.com](mailto:Darren.brandt@adveco-sol.com)

### **Bend Genetics, LLC**

87 Scripps Drive, Ste. 108  
Sacramento, CA 95825  
Contact: Timothy Otten, PhD, MPH  
Phone: (916) 550-1048  
Cell: (541) 600-GENE  
E-mail: [ottentim@bendgenetics.com](mailto:ottentim@bendgenetics.com)  
[www.bendgenetics.com](http://www.bendgenetics.com)

### **EcoAnalysts, Inc.**

1420 S. Blaine St., Suite 14  
Moscow, ID 83843  
Phone: (208) 882-2588  
E-mail: [eco@ecoanalysts.com](mailto:eco@ecoanalysts.com)

# Appendix B. Reported Bloom and Investigation Forms

---

**Public Report**

---

**Date**

---

**Water Body**

---

**County**

---

**Name**

---

**Phone Number**

---

**Authorized Release of Name?**      Yes / No / NA

---

**Photo Provided?**                      Yes / No

---

**Description of  
Report**

---

**Received by:**

---

**Responding  
investigator:**

---

---

**Field Investigation**

---

**Date**

**Responder**

**Observations  
(mention any  
nearby structures)**

**Bloom conditions  
visible? Extent and  
location? Color?  
Odor?**

**Scum visible?  
Extent and  
location?**

**Fish kill? Animal  
impacts reported?**

**Sample(s)  
collected—  
Describe and  
record GPS  
location**

**Other measurements (if applicable)**

Temperature

Dissolved Oxygen

Chlorophyll a

Secchi Depth

Other

---

## Appendix C. Example Press Release

During a bloom this example press release may be altered and adjusted to address event specific issues, including site specific photo, PHD logo, PHD contact, location, etc.



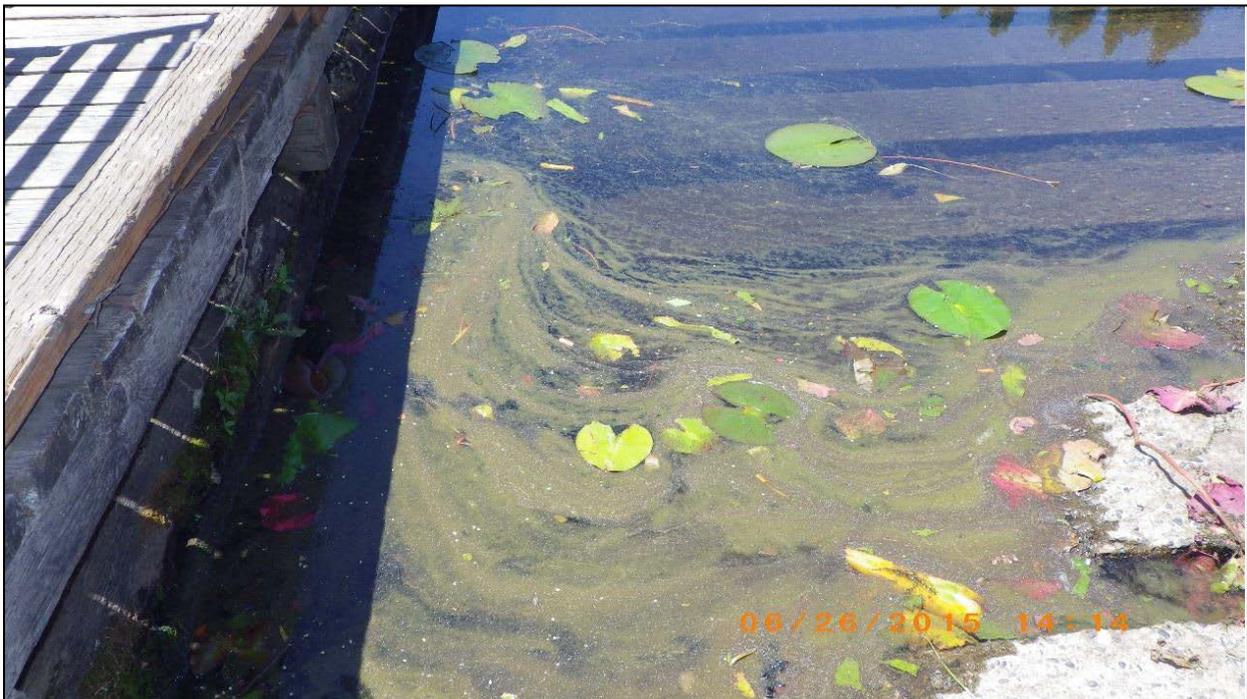
**Panhandle Health District**  
*Healthy People in Healthy Communities*



**FOR IMMEDIATE RELEASE**  
**DATE**, 2017

**Contact: PHD Contact**  
**(208) 415-5108**

### Health Advisory Issued for **LAKE NAME**



**LOCATION**, ID—Panhandle Health District (PHD) and the Idaho Department of Environmental Quality (DEQ) issued a health advisory for **LAKE NAME**, urging residents to

use caution when recreating in or near the water. Water quality monitoring confirmed the presence of cyanobacteria, commonly known as blue-green algae. Blue-green algae have the potential to produce dangerous toxins in areas of the lake. Pets, children, livestock, and persons with existing liver or kidney damage are most at risk.

Blue-green algae are naturally occurring, microscopic bacteria. Harmful algal blooms (HABs) typically occur during the warm summer months, when toxin-producing algae proliferate under certain oxygen and nutrient conditions. The physical appearance of blue-green algal blooms can be unsightly, often causing discolored water, streaks or globs of scum, and thick green mats along lake shorelines.

Anyone recreating near **LAKE NAME** is advised to use precautions and avoid the water to prevent people and pets from ingesting any lake water showing signs of blue-green algae. Property owners that use the lake as a drinking water source are cautioned that potentially present toxins *cannot* be removed by boiling or filtering the water. If contact (swimming, bathing, or showering) has been made with water containing blue-green algae, wash off with fresh water. Recreational contact with water that is not visibly affected by a blue-green algal bloom is not expected to cause adverse health effects.

If people choose to eat fish from this area, it is recommended they remove all fat, skin, and organs before cooking, since toxins are more likely to collect in those tissues.

Symptoms of exposure to algal toxins vary according to exposure. Exposure is most likely through contact with skin, ingestion, and inhalation. Symptoms include rashes, hives, diarrhea, vomiting, coughing, and/or wheezing. More severe symptoms affecting the liver and nervous system may result from ingestion of water. If symptoms persist, consult with your healthcare provider.

The public will be advised when it is likely that the concern no longer exists.

DEQ is working with residents and landowners to implement nutrient reduction projects to improve overall water quality and limit the frequency and duration of these algal blooms.

Updated information on harmful algae blooms in northern Idaho can be found online at [www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/](http://www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/).

###

## Appendix D. Health Advisory Notice

**Southwest District Health  
Idaho Department of Environmental Quality  
Deer Flat National Wildlife Refuge, managed by U. S. Fish and Wildlife Service**

# Public Health Advisory

July 29, 2016

FOR IMMEDIATE RELEASE

In cooperation with the Idaho Department of Environmental Quality (DEQ) and Deer Flat National Wildlife Refuge, Southwest District Health (SWDH) is issuing a health advisory for Lake Lowell, located in Canyon County. Recent samples taken from the lake indicate that concentrations of toxin-producing blue-green algae are present and may cause illness to humans and animals.

Blue-green algae bacteria occur naturally. Blue-green algae blooms occur in waters with high levels of nutrients such as phosphorus and nitrogen. Under certain conditions, some types of algae can release toxins into the water that are harmful to people, pets, and livestock. The blooms are generally green, or blue-green, and may form thick mats along shorelines. These may look like a surface scum, resembling pea soup and can have an unpleasant odor or stench.

SWDH and DEQ advise the following precautions be taken where blue-green algae blooms are known to be present:

- Humans, pets, and livestock should not drink the lake water.
- Humans and animals should stay out of the lake. Swimming, wading, or other activities with full body contact of lake water should be avoided.
- Fish should be cleaned and rinsed with clean water. Only the fillet portion should be consumed. All other parts should be discarded.
- Do not allow pets to eat dried algae.
- If lake water contacts skin or pet fur, wash with clean potable water as soon as possible.
- Areas of visible algae accumulation should be avoided.

Samples taken indicate unsafe bacteria counts, so everyone should heed these precautions and avoid contact with the water.

According to the Centers for Disease Control and Prevention, people who are exposed to water with high concentrations of blue-green algae may experience nausea, vomiting, diarrhea, difficulty breathing, skin irritation, allergic responses, liver damage, or neurotoxic reactions such as tingling fingers and toes. Symptoms in humans are rare, but anyone with symptoms should seek medical attention. Boiling or filtering the water will not remove blue-green algae toxins.

Pets and livestock are vulnerable to blue-green algae and should stay out of water where blooms are visible. Pets and livestock can be exposed to blue-green algae through drinking, swimming, or self-grooming. A reaction will likely require immediate veterinary attention.

Canal users should take precautions for animal water facilities. Canals that may be affected are the Deer Flat Nampa Canal, managed by the Nampa & Meridian Irrigation District, and the Deer Flat Caldwell, Low Line and North Canals, managed by the Boise Project Board of Control.

Lake Lowell is part of the Deer Flat National Wildlife Refuge which is managed by the U. S. Fish and Wildlife Services.

###  
MEDIA CONTACT: Laurie Boston, SWDH 208.455.5325 (cell) 208.899.1268 [laurie.boston@phd3.idaho.gov](mailto:laurie.boston@phd3.idaho.gov)

## **Appendix E. Health Advisory Lifted**

### **BLUE-GREEN ALGAE ADVISORY LIFTED FOR BROWNLEE RESERVOIR**

Southwest District Health—in conjunction with the Idaho Department of Environmental Quality (DEQ)—has lifted the health advisory for Brownlee Reservoir. The advisory was issued in July 2016.

DEQ officials monitor blue-green algae and associated toxins where harmful algal blooms (HABs) are present and have confirmed that blue-green algae levels in Brownlee Reservoir have returned to normal and toxin levels are below the safety threshold.

Other blooms may exist on this water body that have not been reported to DEQ or the health district. Water users should always exercise caution around water bodies with visible slime, surface scum, or a foul odor. High concentrations of toxin-producing blue-green algae may cause illness to both humans and animals. Report any concerns to DEQ at 208.373.0550.

For more information about harmful algal blooms, visit DEQ's website at [www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/](http://www.deq.idaho.gov/water-quality/surface-water/recreation-health-advisories/).

## Appendix F. DEQ Caution Signs

# CAUTION

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

If you notice scum or discoloration of the water or soil:

- **Avoid** drinking or allowing your dog to drink the water. Boiling isn't a solution and won't prevent poisoning.
- **Avoid** eating or allowing your dog to eat the guts, skin, or fat of waterfowl harvested from this area. Properly cooked and trimmed meat is okay to eat.
- **Avoid** human or animal contact with this water. If exposed, wash in clean water as soon as possible. Dogs can be poisoned by licking themselves.
- **Contact your vet immediately** if you suspect your dog was poisoned. Symptoms vary but may include unusual loss of energy and appetite, vomiting, diarrhea, and seizures.



**If in doubt, stay out!**



[www.webpoisoncontrol.org](http://www.webpoisoncontrol.org)



Contact Janet Trumbull at [janet.trumbull@deq.idaho.gov](mailto:janet.trumbull@deq.idaho.gov) to replace the current information with that of your region including the appropriate Health District in your region.

# PRECAUCION

## Algas tóxicas pueden estar presentes El agua puede ser perjudicial para personas y mascotas

Si ve espuma en la superficie del agua, agua o tierra descolorida tome las siguientes precauciones:

- **Evite** tomar o dejar que su perro tome el agua. Hervir el agua no es una solución y no previene envenenamiento.
- **Evite** comer o dejar su perro que coma los órganos internos, el pellejo, o la grasa de aves acuáticas que fueron cazadas en esta zona. Puede consumir la carne molida o cortada de estas aves siempre y cuando este cocida adecuadamente.
- **Evite** contacto de personas y animales con está agua. Si usted o su mascota está en contacto con el agua, lávese o lave su mascota en agua limpia lo más pronto posible. Perros pueden ser envenenados al lamerse.
- **Comuníquese** con su veterinario inmediatamente, si sospecha que su perro fue envenenado. Los síntomas pueden incluir pérdida de energía y apetito, vómitos, diarrea, y convulsiones.



**Si tiene duda, manténgase alejada del agua afectada.**



[www.webpoisoncontrol.org](http://www.webpoisoncontrol.org)



Contact Janet Trumbull at [janet.trumbull@deq.idaho.gov](mailto:janet.trumbull@deq.idaho.gov) to replace the current information with that of your region including the appropriate Health District in your region.