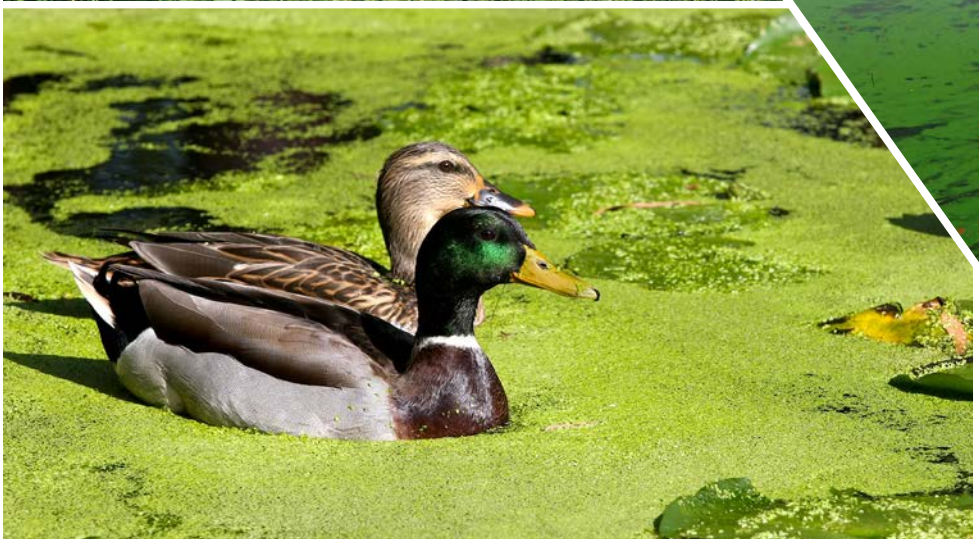
Cyanobacteria Blooms Risk
Communication Plan



A Communication Protocol and Plan

PUBLIC HEALTH DIVISION
Cyanobacteria Harmful — Algae Bloom Program (CHAB)

Oregon Health Authority

This document provides Oregon county public health agencies, municipalities and lakeside communities with a step-by-step plan to communicate the risk of exposure to cyanobacterial blooms for humans, pets and livestock.

Please direct questions and comments to:

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Notice

Acknowledgment

The content of this risk communication plan was reviewed by Oregon Health Authority Management, the Centers for Disease Control and Prevention, and local agencies and interested parties dealing with CHABs and domestic drinking water treatment systems.

Please send any comments about this document to the

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Introduction

Risk communication is the process of telling people about situations that could harm their health, property or community. It is a science-based approach to effective communication in situations of high stress, high concern or controversy.

Risk communication is more than a response to a crisis or emergency. It can allow community members to be involved in decisions around potential community risks. Risk communication gives people available scientific data and public health information so they can make sound choices.

The Oregon Health Authority (OHA) created this plan to help Oregon county public health agencies, municipalities and city administrations communicate the potential harm from cyanobacteria harmful algae blooms (CHABs) to Oregon residents and visitors. This plan follows risk communication guidance from the Interstate Technology and Regulatory Council (ITRC).

For tools, frequently asked questions and step-by-step instructions for making effective CHAB awareness messaging, please visit: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/HARMFULALGAEBLOOMS/Pages/EducationandOutreach.aspx.

Thank you for the part you play in raising CHAB awareness.

Oregon Health Authority
Public Health Division
Cyanobacteria Harmful Algae Bloom Program (CHAB)

Communication plan goals

The goal of this plan is to allow Oregon county public health agencies, municipalities and city administrations to do the following:

1. Discover and understand how their communities evaluate and perceive CHABs and cyanotoxin exposure risk
2. Define terms related to CHABs and toxin exposure so everyone is on the same page when talking about risks or telling clinicians and veterinarians about exposures
3. Understand the basic science of cyanobacteria and the role it plays in our environment
4. Recognize conditions that contribute to blooms that can produce cyanotoxins and how to avoid or reduce exposure
5. Recognize steps homeowners and local businesses can take to reduce conditions that encourage blooms
6. Learn how to build trust and credibility when communicating about exposure risk and the steps people can take to help
7. Learn how to release CHAB information quickly and effectively, and
8. Develop and strengthen methods of talking with affected communities and individuals on private intakes and domestic drinking water treatment systems.

What are cyanobacteria harmful algae blooms (CHABs)?

Image 1: *CHAB at Hill Creek Reservoir looks like spilled paint.*

Cyanobacteria are naturally occurring beneficial bacteria found in fresh waters around the world. Cyanobacteria benefit our environment by:

- Making compounds that promote plant health
- Breaking down organic waste products
- Removing heavy metals, and
- Releasing oxygen into the air through photosynthesis.

Image 2: *Cyanobacteria cells die and burst open, releasing toxins into the water.*

Cyanobacteria are often confused with green algae. Both can produce large blooms that cover the water surface near the shoreline. Unlike green algae, cyanobacteria blooms look scummy and thick, like bright green or blue-green paint or sometimes like bright green globs or brownish red mats.

Certain environmental conditions and increased nutrient loading can support an overgrowth of cyanobacteria. This overgrowth of cells is called a bloom. Some blooms contain toxin-producing cyanobacteria. OHA calls these “cyanobacteria harmful algae blooms” or CHABs.

Why are CHABs a problem?

Some species of cyanobacteria can leak cyanotoxins throughout the life of the bloom. Cyanotoxins within the cells of a CHAB can harm people, pets, livestock and wildlife. The cells release toxins when they are eaten or when they die and burst open. Some cyanotoxins affect the liver and kidneys, others affect the nervous system.

Only sampling and testing can detect the level of toxins in a bloom. Drinking from or swimming in water affected by a bloom is not safe unless testing shows that the toxin levels are below drinking water advisory or recreational use levels. Swallowing water with cyanotoxins can cause symptoms similar to those from food poisoning, the flu and, in some cases, asthma. Other toxins can cause neurological symptoms such as dizziness, numbness and tingling in the arms and legs, or staggering.

Children and pets are at greatest risk due to their size and activity level. Dogs, livestock and wildlife can become very sick and even die if exposed.

Domestic drinking water

Individuals on private intakes and in-home water treatment systems need to know when there is a bloom in their drinking water source. Only a few in-home drinking water treatment systems can reduce microcystins, a common type of cyanotoxin. Currently, no domestic systems can reduce other types of cyanotoxins. OHA recommends that people on these systems use a different source of drinking water when there is a bloom. This is especially important when the water has not been tested.

How is the public currently informed about CHABs and cyanotoxin exposure?

Recreational water

OHA's recreational CHAB program is voluntary. It does not require visual monitoring, sampling or toxin testing of surface waters. Some waterbody managers choose to test blooms in popular recreation areas or when private drinking water systems could be affected by an identified CHAB, but this sampling is not performed routinely.

OHA provides materials and posters online. Warning and advisory sign templates are available through CHAB program staff. Water body managers, local health departments, municipalities and community leaders can post and provide these materials at affected waterbodies in popular areas whether a bloom is sampled or not.

When water is tested, OHA uses the results to determine if a recreational health advisory is needed. Advisories are shared through a statewide press release. Information is also provided:

- On OHA's CHAB website
- Through OHA's message hotline
- As a text message or email through a GovDelivery distribution list
- As a Facebook and Twitter post, and
- Directly to the media through FlashNews.

Drinking water

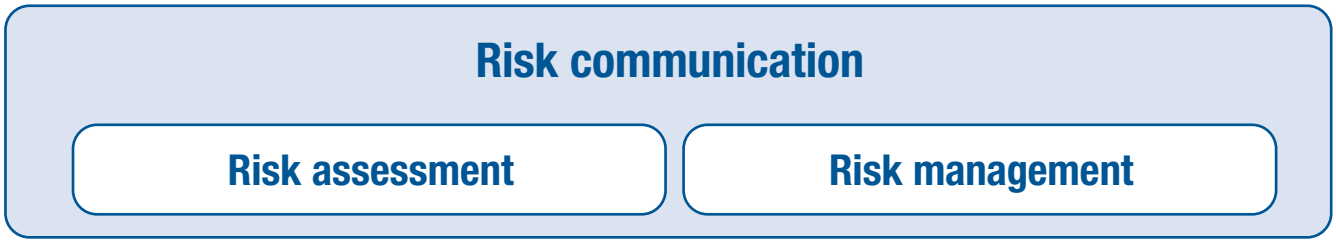
OHA's Drinking Water Services Program requires many, but not all, municipal drinking water systems to sample, test and report cyanotoxin data collected at a facility's raw water intake (pretreatment). Sampling and testing occur from May through October. When testing at the intake finds cyanotoxins above OHA's acute drinking water levels, the facility must test their finished (treated) water. When levels in finished water are above acute levels, the facility or municipality issues a "do not drink" order and recommends consumers use a different source of drinking water.

Although not all drinking water facilities sample and test their source water, most perform these activities as an early warning of issues they may see at their facility downstream. Sampling and testing provide the highest level of protection for the public's drinking water.

OHA also works with rural communities where homeowners pull drinking water through private intakes and use in-home treatment and purification systems. Most of these systems cannot reduce or eliminate cyanotoxins and are not regulated by OHA's Drinking Water Services Program. Because any water body can develop a CHAB, homeowners and renters on these systems need information and tools to reduce exposure and avoid illness during a bloom.

Ways to effectively communicate CHAB and cyanotoxin risk

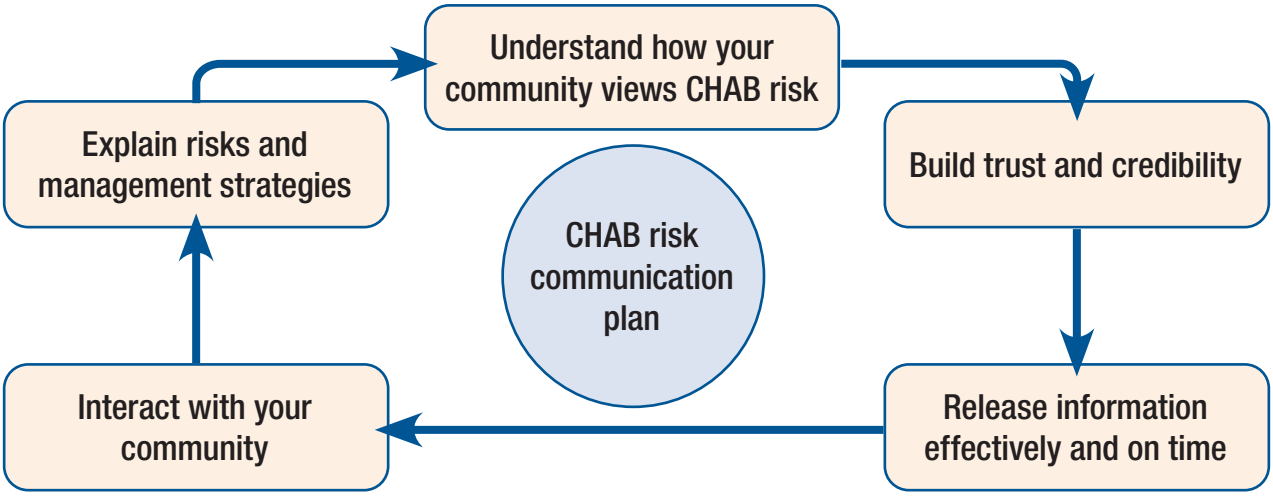
People often think risk communication occurs after a crisis or emergency. In fact, risk communication happens through multiple avenues before public concern develops. It is often done through dialog between risk managers and affected communities and individuals. Risk communication should provide community members with the best available scientific data and public health information about potential harm from cyanotoxins.



There are ***five key aspects*** of creating and carrying out an effective risk communication plan:

1. Understand how your community views CHAB and cyanotoxin risk.
2. Build trust and credibility in the community.
3. Release information effectively and as soon as possible.
4. Interact with your community throughout the process.
5. Explain the risks and your management strategies to reduce risk.

Figure 1. Five key aspects of risk communication



Source: *Adapted from ITRC Five Key Aspects*

Risk communication should be easy-to-understand and come from trusted, credible sources. Having a risk communication plan in place will improve CHAB risk communication before an event and reduce risk and issues during an event. This guide covers strategies to inform and prompt the community to take charge of their health through changes in perspectives and behavior.

Aspect 1: Understand how your community views CHAB and cyanotoxin risk

People evaluate and understand risk differently. The ways you communicate must help people understand how the risk relates to their lives and the issues that are important to them. The more you understand the perspectives of affected people, the better you will be able to address their needs.

For example, individuals or groups who see a risk as unacceptable are more likely to show concern and make changes to reduce the risk. Those who see a risk as acceptable or do not have enough information to see it as a concern may not feel that changes are necessary. Public health outreach must address varying perceptions and enable dialog and change at the individual and community level.

Aspect 2: Build trust and credibility

Trust is a major factor in effective community engagement and risk communication. Creating clear materials is important for building trust. Common pitfalls that often result in a lack of trust include:

- Lack of information
- Inability to reach decision makers
- Inconsistent communication strategies
- Inconsistent or contradictory media, and
- Previous negative interactions with regulatory agencies.

Engaging with community representatives, local health practitioners, academic institutions and trusted city administrators can help build trust in the community.

Aspect 3: Release information effectively

If people are at risk, don't wait to release information. If you do not yet know the level of a potential risk, explain this to the public.

Give information to those directly affected before releasing it to the media. Affected individuals want to hear about concerns in their community from decision makers first, not through the news or social media.

Public health agencies, municipalities and small city administrations communicating CHAB and cyanotoxin exposure risk should try to inform the community and affected parties directly and regularly to build trust. Share both what you do and don't know right away. Don't wait for better information.

Aspect 4: Interact with the community

Involving community members and local groups early in the process can lead to better decisions. Ensure that risk communicators:

- Are good at interacting with the public
- Are informed and have sound technical knowledge, and
- Are skilled at technical assistance, as needed.

Use the following strategies when interacting with the community:

- Involve community members/leaders during the planning, response, and implementation phase.
- Communicate with many different audiences in culturally and linguistically relevant and appropriate ways.
- Respond personally and acknowledge values and feelings expressed.
- Choose the right speakers to share your message.

Aspect 5: Explain risks and management strategies

Explaining risks that affect individuals and a community is challenging and complicated, especially when dealing with environmental hazards and public health risks. Explaining scientific concepts is fundamental to building trust. These concepts include:

- Why CHABs develop

- Why and how they produce toxins
- How toxins affect private intakes and in-home treatment systems
- Current knowledge of health exposures and effects, and
- Any identified knowledge gaps.

The success of a risk communication plan and management strategies depends on good relationships between communicators and key parties. These parties include:

- Local governments
- Community members
- Watershed groups
- Homeowners' associations
- In-home treatment system manufacturers, and
- NSF International, the organization that certifies these in-home systems.

Risk communication is a two-way, ongoing conversation. A communication plan should support ongoing community engagement. A good plan is the first step towards preventing illnesses from CHABs.

Table 1 provides examples of activities that support each of the five key aspects of an effective CHAB risk communication plan.

These key aspects and activities will help risk communicators understand:

- How community members and affected parties view CHABs, cyanotoxins and the health effects caused by ingesting the toxins, and
- How they can provide information, ask the community for help and ensure affected parties have the information they need to reduce their exposure to CHABs.

Table 1. Activities that support effective CHAB risk communication plan development

Five key aspects of plan development
Aspect 1: Understand current community view
Use focus groups and surveys.
Meet with local health and veterinarian professionals.
Aspect 2: Build trust and credibility
Use OHA-reviewed materials.
Make use of current and available data.
Hold presentations and hand out flyers and fact sheets.
Aspect 3: Inform effectively
Distribute information in a timely manner.
Consider barriers to communication such as distance.
Place necessary advisories and signage.
Aspect 4: Interact with the community
Ensure equitable and meaningful community engagement/involvement.
Perform ongoing evaluation of messaging.
Apply community feedback.
Aspect 5: Explain risks
Explain concepts fundamental to building trust.
Explain the risk assessment process.
Explain how to reduce risk.

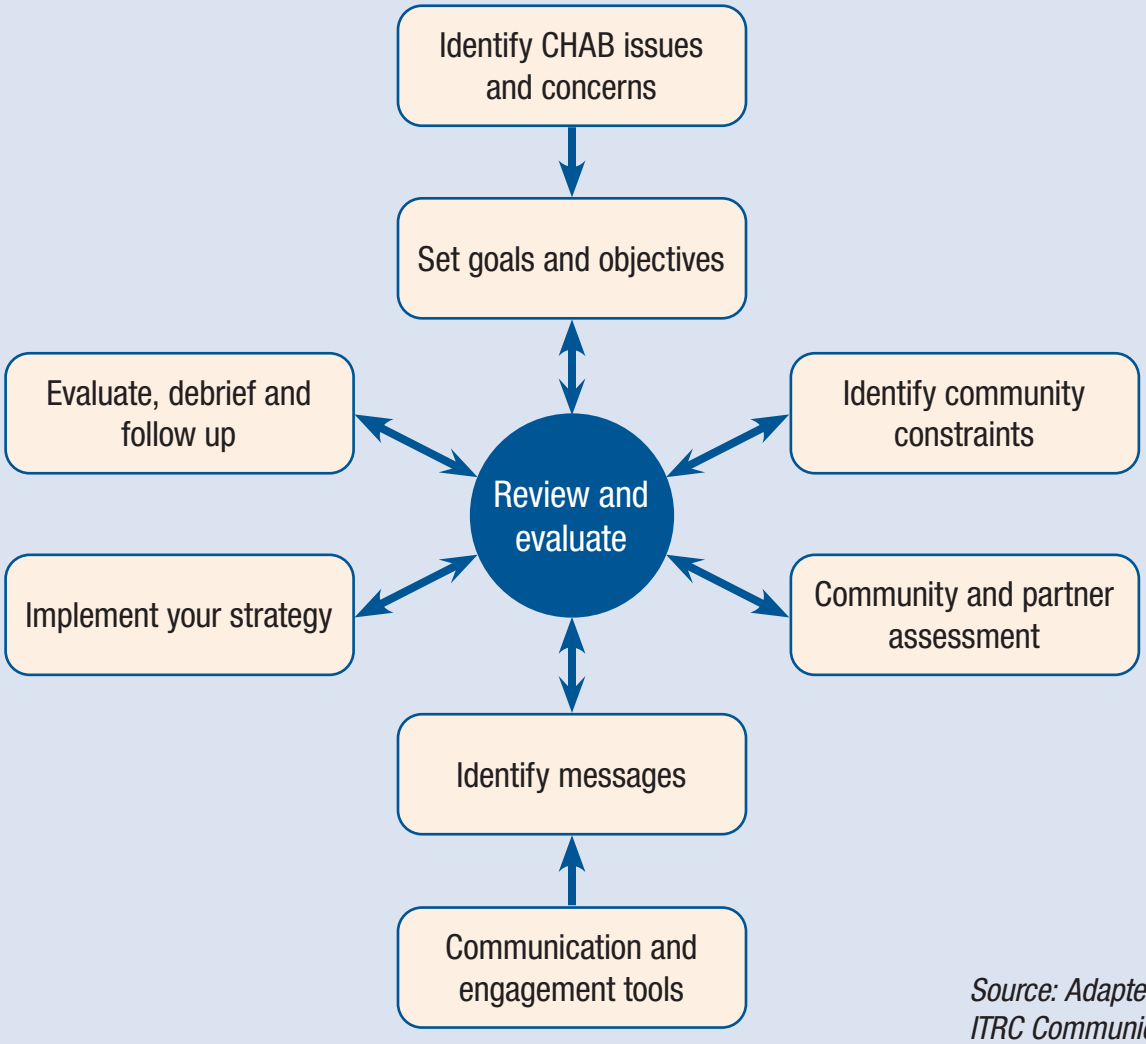
The main goals of your communication plan are to:

- Increase your audience's awareness of CHABs and potential toxins
- Identify ways to reduce how often CHABs happen and how long they last, and
- Understand the personal and economic barriers that can cause resistance to cyanotoxin risk reduction techniques.

Using these goals can improve basic knowledge about cyanotoxins and help motivate the community to explore and carry out solutions.

Risk communicators can use the five key aspects above and the eight steps outlined below to make a successful risk communication plan.

Figure 2. Eight steps to create a CHAB risk communication process



Source: Adapted from ITRC Communication Plan Process Diagram

Risk communication involves:

- Identifying, understanding and engaging your community and your target audience
- Earning trust in the community and with individuals
- Defining clear messages that reflect respect for the concerns of the community and the target audience
- Selecting the right time and place for your message, and
- Finding the right timing for the messaging.

Remediation strategies can cause tension. How community members view the risk communication process and the management plan will depend on several factors:

- The community's trust in the risk communications team
- The nature of the risk or exposure, and
- The community's perception of or experience with the identified risk.

Early community engagement in a culturally appropriate manner is key. It should include timely responses to questions and concerns, transparency and access to all available data.

Step 1: Identify the issue and concerns

Identifying the concerns of the community and your target audience will help you choose the right members for your team. Understanding the issues from many viewpoints will help your team develop a risk communication plan that is respectful and responsive.

When building your risk communications team, include:

- Informed representatives from any involved state and local agencies
- Affected property owners and community representatives
- Local health practitioners
- Members of academic institutions, and
- Other groups or individuals, as necessary.

Step 2: Set SMART goals

SMART goals focus on big picture effects. As you make your plan and project goals, keep your organization's policies in mind.

S — Specific: Be specific about what you want to accomplish. Consider the following questions:

1. Who needs to be involved?
2. What do you need to accomplish?
3. When do you need to act?
4. Where and how do you need to connect with your audience?

M — Measurable:

- What metrics will you use to determine if you have met your goal?
- Will you partner with other local agencies to measure and report incidents or illnesses? These could include local natural resource agencies, environmental agencies and groups, municipalities, health departments and direct providers (clinicians and veterinarians) who may observe CHAB events and in some cases treat symptoms of exposure.
- Will you routinely test reported blooms for toxins?

A — Achievable:

- Are there resources available to achieve your goals?
- Do you have the knowledge and expertise to carry out the strategies needed to achieve your goals?
- Have you identified people who can fill in any gaps in your plan or project?
- Can you adequately engage with the community and share information?

R — Relevant: Remember to focus on what makes sense with your broader goals. If you want to make sure that all lake residents and visitors are aware of potential CHAB risks, then consider the best ways to saturate that audience. If your goal is to identify and inform people on private intakes, your communication will be more focused. Depending on the needs and risks in your community, you may need to tailor messages and distribution channels for more than one audience.

T — Timely: Develop your plan using a realistic timeline. Provide target dates for deliverables. If you expect to reach your goal in three months, then define what should be complete at different phases: months one, two and three.

Step 3: Identify community constraints

Identify the constraints to your community. This includes community or local government assets, economic disadvantages, and actual and perceived constraints.

Step 4: Assess your target audience

Assess your target audience and identify good spokespeople. The goal of assessing your target audience is to gain a deeper understanding of their concerns and values. Knowing the community and your audience will allow you to craft the most effective messaging.

Step 5: Identify messages

Remember that your messaging should be relevant to the community and your target audience based on changing needs and circumstances.

Step 6: Select communication and engagement methods

Understand your target audience. Know what unifies them and what's most important to them around this issue. This will help you understand if your target audience feels at risk, prepared or unconcerned.

- What is their experience with the potential harm?
- Have they ever seen a bloom?
- Have they lost a pet after cyanotoxin exposure?
- Have they ever experienced symptoms after swimming in a water body with a potential bloom or toxins? Symptoms of exposure are often similar to those from food poisoning or the flu.

Where does your audience currently get CHAB information? It could come from state, county or local agencies, local media, groups or organizations, neighbors or social media. Who are the trusted community sources that could help deliver messages? Connecting with trusted sources can amplify your message, give it credibility and broaden your reach.

Examples of trusted sources include:

- Community members and community based organizations
- Local landholders
- Water quality committees or watershed councils
- Rental management companies, and
- Owners and renters.

Step 7: Carry out strategies

Consider what it will take to deliver your message, including:

- How much time
- How many resources
- The work required to distribute your messaging, and
- Who can and will help.

For example, who will distribute flyers, get permission to hang posters, provide resources, email notices or talk with community members and property owners?

Be proactive with your messaging. Community members will question the information you present, so be prepared to explain the information and how the suggested changes will benefit the community.

Be responsive and engage in person when possible. Engagement is not a one-time event; it is an ongoing relationship. Create a calendar for multiple interactions and follow up with your target audience.

Step 8: Evaluate and follow up

Measure and evaluate your communication efforts throughout the process (before, during and after). Consider using a survey.

Right after intervention:

- How many community members and private intake owners did the communication plan reach?
- How motivated are private intake owners to make changes to reduce their exposure to CHABs and toxins? This could include system changes and environmental changes (improvements to property to reduce nutrient runoff, development of bioswales, etc.).
- How much did knowledge of cyanobacteria and cyanotoxins, exposure routes and symptoms increase?
- How confident are community members and private intake owners that they know what steps to take to reduce their exposure to cyanotoxins? How likely are they to take those steps? You can collect this information with a survey.

Continued — Table 2. Activities that support the eight step risk communication plan process

Three months after intervention:

- How have overall attitudes and behaviors changed since the communication efforts?
- Other than continuing to use a different source of drinking water, have any other solutions been identified and/or carried out?
- If a website is available, is this site regularly viewed? Track the number of hits to the site.
- How do you think people responded to the messaging? What needs to change to make it more effective?

Table 2 shows examples of activities that can support the eight steps described above. Risk communication teams are encouraged to add to or change these activities to fit the environmental risks and audience unique to each community.

Table 2. Activities that support the eight step risk communication plan process

Risk communication plan process	
Step 1: Identify the extent of the issue	**Step 2: Set goals and objectives**
What are the concerns?	Define the communication task.
Who is impacted?	Break down goals to specific objectives.
What do you need to learn?	Determine your end point.

Step 3: Identify community and constraints	**Step 4: Assess partners and community**
Who must be made aware?	Review media sources used in the community.
Who is affected by CHABs?	Review stakeholders and partners.
What are the barriers to communication?	Hold focus groups or distribute surveys.
What is your access to relevant data?	Discuss expected audience concerns.

Step 5: Identify messages	**Step 6: Select communication methods**
Review accurate and timely information.	Review the available messaging in the toolkit.
Identify key points to cover.	Select the best messaging for the audience.
Check for consistency in messaging.	Review community venues and organizations.

Continued — Table 2. Activities that support the eight step risk communication plan process

Risk communication plan process	
Step 7: Implement strategies and task planning	**Step 8: Evaluate, debrief and follow up**
List tasks to make or adapt materials.	Assess what went well and what did not.
List activities for communications.	How did messaging inform or affect goals?
Estimate the time to complete tasks and activities.	Is ongoing support or follow-up needed?
Select a community spokesperson.	How will you improve effectiveness?
Identify possible constraints and barriers.	Record for future planning.

For tools, frequently asked questions and step-by-step instructions for making effective CHAB awareness messaging, please visit https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/HARMFULALGAEBLOOMS/Pages/EducationandOutreach.aspx.