

ATTENTION PROPERTY OWNERS

Information you should know about Cyanobacteria

As a private property owner living near a lake, river, stream or pond, you should learn about cyanobacteria (“blue-green algae”)

This is especially true if:

- **You live and/or recreate at a privately-owned waterfront where water may be affected by cyanobacteria**
- **Your privately-operated household drinking water system draws water from a lake, stream or pond that may be affected by cyanobacteria, or your well is very close to an affected body of water**
- **You use untreated water from a lake, stream or pond affected by cyanobacteria to shower, water your garden, wash pets, or clean boats or vehicles**
- **You have pets or livestock that drink from the lake, stream or pond that is affected by cyanobacteria**

How do I know if cyanobacteria are present?

When present in small quantities, cyanobacteria are too small to see. If they accumulate in larger numbers, the water may look like “pea soup,” have an oily surface that looks like green or blue paint, or have a scum layer or puffy blobs floating on the surface. Irregularly shaped green-to-black blobs of various sizes may be suspended in the water. Clumped white-to-dark green matter may accumulate on the shoreline. When cyanobacteria accumulate to the point of being readily visible, the condition is referred to a **Harmful Algal Bloom (HAB)**.

What are the concerns associated with blue-green algae?

Concerns associated with blue-green algae include discolored water, reduced light penetration, taste and odor problems, dissolved oxygen depletions during die-off, and toxin production. *This informational guide will focus on toxin production, which can have effects on the health of people, pets and livestock.*

Cyanotoxins are naturally produced chemical compounds that sometimes are produced inside the cells of certain species of cyanobacteria. These chemicals are not produced all of the time and there is no easy way to tell when cyanobacteria

are producing them and when they are not. When the cells are broken open, the toxins may be released. Sometimes this occurs when the cells die off naturally and they break open as they sink and decay in a lake or pond. Cells may also be broken open when the water is treated with chemicals meant to kill cyanobacteria, and when cells are swallowed and mixed with digestive acids in the stomachs of people or animals. The only way to be sure if the toxins are present is to have water samples analyzed in a laboratory using sophisticated equipment.

What do I do when I see a HAB?

When you see signs of a HAB in the water, do not swim, wade, waterski or tube in, or close to that area. If you engage in recreational water sports such as power boating, wakeboarding and jet skiing, do not inhale aerosolized water.

During a HAB, do not allow pets or children to play in the water. Do not allow dogs to walk along the shoreline; they will readily eat shoreline cyanobacteria clumps, roll in the stinky mass, and then lick their fur. Cyanobacteria on dogs' fur must be removed by washing with clean, fresh water.

Do not let children play with scum layers, even from shore.

Do not let pets or livestock swim in, or drink, waters experiencing cyanobacterial blooms.

Always take a shower after coming into contact with any surface water (whether or not a blue-green algae bloom appears to be present; surface waters may contain other species of potentially harmful bacteria and viruses)

Consider posting cautionary signs at your waterfront when evidence of cyanobacteria is present. Lake County Environmental Health Division can provide assistance with signage.

Never drink untreated lake water. Use caution if untreated lake water is used for landscape or other outdoor use. Do not let lake water collect or pool in areas where pets may drink and avoid creating aerosols by spraying untreated lake water.

Boiling lake water will not make it safe to drink if cyanotoxins are present.

If your household drinking water comes from the lake, be sure you have a professionally installed treatment system that includes activated carbon filtration and keep it well maintained. If your area is particularly impacted by HABs, consider using bottled water for cooking and drinking. *Please see the section below that deals with this subject in greater detail.*

If you have a drinking water well in close proximity to a shoreline where HABs are known to occur, consider installing a water treatment system for an added measure of safety.

If you rent your lakefront property to someone else, or have guests, be sure to inform them about appropriate precautions to take.

Do not treat surface waters that are experiencing blue-green algae blooms with any herbicide or algaecide-- toxins are released into the water when blue-green algae cells die

Measures You Can Take to Help Reduce Future Blue-Green Algae Blooms

Maintain native vegetation along shorelines as buffer areas

Minimize activities that result in soil erosion

Reduce the amount of fertilizer used on lawns

Use only phosphorus-free fertilizer when possible

Fix leaking septic systems

Use only phosphorus-free detergents in dishwashing machines

Property owner responsibilities

Everyone who recreates in lakes, rivers, streams and ponds needs to be aware of potential health hazards associated with untreated surface water. These hazards are not limited to those associated with cyanobacteria, but this document focuses specifically on this topic.

Public agencies have a role in assessing the safety of recreational water and often post health advisories or warnings *in public-access areas*.

Property owners have their own set of responsibilities related to the safe use of their privately-owned land and water front access by family, friends, renters, visitors, pets and livestock.

Cyanobacteria blooms occur in a wide variety of fresh and marine water bodies, including lakes, ponds and rivers. In addition to Clear Lake, examples include parts of the Klamath River in Northern California, Pinto Lake in Watsonville, CA and many other locations throughout the U.S. and overseas. Private stock pods can also experience

issues associated with cyanobacteria, so the relevance of this information is not limited to recognized bodies of water.

As a property owner on or near the shores of Clear Lake or another body of surface water, you should be aware of what cyanobacteria (also referred to as blue-green algae) are and steps to consider when conditions allow rapid growth and thick accumulation, often referred to as a Harmful Algal Bloom (HAB).

Cyanobacteria have existed for millions of years and are not new to Clear Lake. Environmental conditions worldwide are favoring increased cyanobacteria blooms, and Clear Lake is no exception. Warm weather, sunlight and calm water conditions can lead to blooms of the many types of cyanobacteria, separately or as a group.

While the effects of cyanobacteria blooms are often limited to an unpleasant odor and objectionable appearance of the water, certain types of cyanobacteria will occasionally produce toxins. Cyanotoxins can be harmful if ingested, inhaled or, in some cases, if contacted. The health risks and production of cyanotoxins are little understood by scientists and cannot be predicted for any particular bloom. We call all cyanobacteria blooms “Harmful Algal Blooms,” shortened to HABs.

How do I evaluate my risk if I want to get in water?

While there is no hard and fast rule, a general guideline is that, “the worse it looks, the worse the risk is likely to be.” Waters that appear clear to slightly green are likely to carry no more risk than would any form of recreation on or in natural waters. However, the greener the water, the more likely it will be dominated by blue-green algae, and the risk goes up.

Situations to avoid include strong green or dark green water, the presence of observable floating chunks (“algal” colonies), or the presence of a surface scum. In addition, if there is an offensive odor or stench, then it’s best to avoid contact with the area. Under these conditions, the risk of exposure to algae and their toxins increases.

Drinking Water Concerns

Can I be exposed to blue-green algae or blue-green algal toxins through my drinking water?

Exposure to cyanobacteria or cyanotoxins is unlikely if your water is provided by a municipal drinking water agency. The large water districts operating in Lake County are regulated by California’s Drinking Water Program with whom they work closely to address removal of cyanobacteria and associated toxins.

Remember that water that is not treated may pose risks far beyond those associated with blue-green algae. All natural surface waters contain bacteria, algae, viruses, and other pathogens that, if consumed, may pose health risks to humans, pets, and other domestic animals. No one should ingest raw lake or pond water at any time.

How do water treatment plants deal with blue-green algae?

While most municipal drinking water treatment plants with surface water supplies do not necessarily monitor for algal toxins, they do use treatment techniques that would remove the toxins if they were present. Conventional water treatment facilities can remove the cells of algae and other growing organisms by adding chemicals that bind them together. As the cells clump together, they become heavier and fall to the bottom of settling basins. Additional removal is obtained by filtration and through the use of activated charcoal. Studies conducted by California Department of Public Health's Drinking Water program in 2011 and in 2013 did not detect any significant concentrations of one common type of algal toxin (microcystins) in the finished drinking water of all of the regulated water companies using Clear Lake as their water supply.

Can I treat my water at home to remove blue-green algae and their toxins?

There are a number of home water treatment options available to provide filtered water. Some of these systems include an activated charcoal step that will help remove certain chemicals like algal toxins if maintained and operated properly. However, variability in the design of the products on the market and in the operation and maintenance by homeowners prevent health officials from declaring these products fail-safe.

Can I cook using water with blue-green algae in it?

No. Boiling water does not remove blue-green algal toxins. Because it is impossible to detect the presence of toxins in water by taste, odor or appearance, you are better off assuming they may be present.

What about using water with blue-green algae for washing?

Do not use untreated surface water for washing food (i.e., fruits, vegetables, etc.), dishes, and clothes. Also avoid bathing or showering in untreated surface water. Even if the water appears clean, it may contain a variety of substances, including cyanotoxins, that can cause illness or skin rashes.

There are steps that you can take to enjoy Clear Lake and keep your family and visiting friends and pets safe and healthy.

For information about getting water tested for cyanotoxins,

Contact Lake County Environmental Health
707-263-1164

For information about safe recreational use of Clear Lake, please visit
http://www.co.lake.ca.us/Government/Directory/Environmental_Health/Blue-Green_Algae.htm and
http://www.cdph.ca.gov/HEALTHINFO/ENVIRONHEALTH/WATER/Pages/Bluegreen_algae.aspx

As a responsible property owner, you should be able to safely enjoy waterfront living. If you have questions, please contact Lake County Environmental Health Division at 707-263-1164.