



Recreational and Do-Not-Drink Advisories
Frequently asked questions
June 18, 2018

DETROIT LAKE RECREATIONAL ADVISORIES

- **Why did OHA issue its recreational health advisories May 23 and June 13 for Detroit Lake?**

Data from the City of Salem indicated that cyanotoxins found during analysis of water samples taken from the lake were above the recreational advisory values for cyanotoxins. When samples from a waterbody show levels of cyanobacteria or the toxins they can produce above Oregon Health Authority's (OHA) health advisory values for recreation, a recreational advisory is issued.

- **Why did OHA lift its recreational health advisories for Detroit Lake on June 8 and June 15?**

Data from the City of Salem documented the level of cyanotoxins in Detroit Lake had decreased to levels well below the established recreational health advisory values. When cyanotoxins fall below these levels, OHA lifts the recreational advisories.

- **How is a recreational health advisory for cyanobacteria and toxins on a recreational water body different from a health or "do not drink" advisory for cyanotoxins in drinking water?**

Health advisory levels are different for recreational use than for drinking water. The amount of water people incidentally swallow while recreating (swimming, water skiing, etc.) is much lower than when people use it as a primary drinking water source. For this reason, the health advisory values for drinking water are much lower (more stringent) than the values for recreational exposure.

- **Are there different guideline or health advisory levels for recreational water bodies and drinking water? Why, and what are they?**

Yes. The health advisory values are different for recreation and drinking water. The difference between the two is linked to the amount of water children and adults incidentally ingest while recreating (swimming, water skiing, etc.), and the amount of water ingested when drinking from the tap. Since much more water is ingested through drinking water, the health advisory values for drinking water are much lower than for recreational advisories.

Cyanotoxin	Drinking Water Health Advisory Levels <small>Parts Per Billion</small>		Recreational Health Advisory Level <small>Parts Per Billion</small>
	Children 5 and younger	Adults	Everyone
Microcystin	0.3	1.6	4
Cylindrospermopsin	0.7	3	8

- **Can I get the recreational water quality results from OHA’s website?**

The public can access the recreational data that triggers a recreational advisory on the harmful algae bloom website here: <http://healthoregon.org/hab>. Oregon Health Authority does not post data below the recreational health advisory levels on the website.

- **When a recreational advisory for a water body is in place due to harmful algae, can I eat fish or shellfish I catch in that water body?**

Fish caught in affected waters pose unknown health risks. If you choose to eat them, remove all fat, skin and organs before cooking because toxins are more likely to collect in these tissues. Crayfish (crawdads) muscle can be eaten but discard all organs and liquids before preparing. It is illegal to harvest clams or mussels from freshwater lakes.

- **How can advice for recreational and drinking water uses be different from each other?**

Recreational advisories are based on concentrations of cyanotoxins measured in a water body – a reservoir, lake or river. Drinking water advisories are based on concentrations of cyanotoxins measured in the finished water after treatment. Cyanotoxin concentrations are typically much higher on the water body than in finished water. In addition, health advisory levels are different for recreational use than for drinking water. The amount of water people incidentally swallow

while recreating (swimming, water skiing, etc.) is much lower than when people use it as a primary drinking water source.

- **Can the cyanotoxins in the drinking water somehow affect the water in Detroit Lake?**

Drinking water comes from sources downstream from Detroit Lake. Salem's drinking water could not re-contaminate Detroit Lake.

- **How often is testing done to determine whether a recreational advisory is lifted or stays in place?**

This is usually decided by water body managers for individual water bodies. OHA guidance recommends that sampling and analysis for cyanotoxins be conducted every other week after the first incidence of a visible bloom. However, the HABS program is not regulatory, which means OHA cannot require water body managers to sample and analyze waters used for recreation.

- **Who does the sampling, testing and reporting of results for recreational water bodies?**

There is no state-wide monitoring system. In Oregon, monitoring for cyanobacterial blooms on recreational waters is done by whichever agency or organization manages the waterbody on a voluntary basis. Monitoring for recreational purposes is not required by law or rule, and waterbody management agencies and organizations decide whether to test, how often to test, and where to test. They also choose the laboratory that performs sample analysis on the recreational water samples collected. OHA's recreational sampling and advisory guidance documents provide information on best practices for waterbody managers.

- **How long does the process for cyanotoxin analysis take?**

OHA guidance provides waterbody managers with a list of laboratories to choose from. All labs listed in OHA guidance that perform cyanotoxin analysis guarantee a three-day turn-around time. At this time there are no laboratories in the State of Oregon able to offer toxin analysis services.

- **How many water bodies does OHA monitor as part of the Harmful Algae Bloom Surveillance Program?**

OHA does not monitor any waterbodies for cyanobacteria or cyanotoxins. Monitoring and sampling is at the discretion of the designated management agency (DMAs). Those agencies include, but are not limited to, Army Corps of

Engineers, Forest Service, State Parks, cities and counties. In general, these agencies have little to no dedicated financial and staff resources to carry out sampling and analysis throughout the season. Since the HABS program is not a regulatory program, OHA cannot require DMAs to monitor or sample cyanobacteria or cyanotoxins.

- **What causes a harmful algae bloom like the one that led to the Detroit Lake health advisory?**

It is difficult to know the specific cause of any one individual bloom. However, we know that in general, sunlight, warm water temperatures, still water, and high nutrient (nitrogen and phosphorus) concentrations favor the development of cyanobacterial blooms. Nutrients can be naturally occurring (such as from wildlife and decaying vegetation), or arise from human inputs (such as fertilizer runoff, manure, failing septic systems, forest management activities). While cyanobacterial blooms have been occurring since early in Earth's history, global climate change is likely to increase water temperatures in general. This would be expected to increase the frequency and duration of cyanobacterial blooms.

- **How big was the harmful algae bloom on Detroit Lake?**

Cyanobacterial blooms change rapidly over the course of days and weeks. It is therefore difficult to characterize the size of the bloom in terms of acreage covered or volume of water affected. Not all areas of the lake were equally affected. The bloom was most concentrated in Blow Out Arm on the southwestern portion of the lake. Blooms are often most concentrated around the water's edge, and in coves, backwater areas, and arms in lakes and reservoirs.

- **What does a harmful algae bloom look like?**

A bloom's appearance can change over the course of its life. Generally, blooms begin as a thick, bright green mass that looks like pea soup. As the bloom ages, it may turn more bluish green, or brownish-red and begin to disperse in the water. Our website has pictures of different types of blooms based on the species of cyanobacteria involved (www.healthoregon.org/hab).

- **Is OHA investigating specific sources of blooms such as that which occurred at Detroit Lake?**

OHA's role is to advise the public on how to reduce exposures once a bloom has occurred. Natural resource agencies are better suited to investigate the causes of blooms, and to work on actions that may reduce the frequency of conditions that favor cyanobacterial blooms.

- **Are there precautions people should take when using power boats on water bodies where there is a recreational advisory?**

Although inhalation from boat spray is an exposure route, it is a low risk exposure compared to ingestion. That said, high-speed water activities such as water skiing or power boating should be avoided in areas where recreational advisories are in place, as these activities can aerosolize the water, making it easier to be inhaled. Although toxins are not absorbed through the skin, people who have skin sensitivities may experience a puffy red rash at the affected area.

SALEM DRINKING WATER ADVISORY AND HEALTH RECOMMENDATIONS

- **What is a health advisory?**

The Safe Drinking Water Act allows EPA to publish health advisories for contaminants not subject to any national primary drinking water regulation, such as cyanotoxins. Health advisories describe non-regulatory concentrations of drinking water contaminants at or below which adverse health effects are not anticipated to occur. Health advisories are not legally enforceable federal standards and are subject to change as new information becomes available.

To determine these levels, EPA looked at the best studies assessing the toxic effects of cyanotoxins (studies with rodents). It used the lowest level at which there were adverse health effects, then scaled it to apply to humans and built in a large safety buffer to determine the advisory level. (See table in ***“Are there different guideline or health advisory levels for recreational water bodies and drinking water?”*** above, for the actual advisory levels.)

Toxicity data for children and adults are the same. Younger children are included in the group covered by the lower value because, on average, children 5 and younger drink more water per unit body weight, compared to older children and adults.

- **What is the health advisory that’s included in the EPA guidance?**

The EPA’s health advisory for cyanotoxins is considered protective against adverse health effects following exposure to cyanotoxins. The level is set so that action can often be taken before people are at risk.

- **What types of tests for cyanotoxins are available for drinking water systems?**

While our understanding of laboratory methods for testing for cyanotoxins has evolved, there are several tests that drinking water systems can use. Each method has different advantages and disadvantages; one is not necessarily better than the other. The EPA has three standard analytical methods for various cyanotoxins: Method 546-ELISA, which stands for enzyme-linked immunosorbent assay and measures total microcystins; and Method 544 and Method 545, both of which are liquid chromatography-tandem mass spectrometry methods, also known as LC-MS/MS. Method 544 measures cylindrospermopsin and anatoxin-a; Method 545 measures some varieties of microcystins (not all) and nodularin.

The health advisory level for microcystins established by EPA is for total microcystins, which only the Method 546-ELISA measures. EPA recognizes this method as a reliable tool to assess public health risk and compare levels detected to health advisory levels.

EPA maintains a list of labs that are EPA-certified to use these methods. Other methods, modifications of EPA's methods, and labs not certified by EPA but using these methods may also provide useful information upon which drinking water systems can make health-based decisions.

- **Is boiling Salem's drinking water OK?**

When bacteria are in drinking water, boiling the water can be an effective way to get rid of them. However, boiling water does not remove cyanotoxins, and prolonged boiling might result in slightly higher concentrations of the toxins in the water. For healthy people 6 and older, it is safe to boil water to make hot beverages such as coffee or tea, and foods such as pasta and soup. As a precaution, vulnerable individuals should not drink the water, hot or cold. *If the advisory were to be expanded to include healthy individuals older than 6 and adults, the recommendation for vulnerable individuals would also apply to healthy individuals older than 6 and adults.*

- **Why is the City of Salem recommending vulnerable individuals not drink it's drinking water?**

- Infants, pregnant women, the elderly, immune-compromised individuals, a those receiving dialysis or who have underlying liver disease might be more susceptible than the general population to the health effects of cyanotoxins. Younger children are included in the vulnerable populations group because, on average, children 5 and younger drink more water per unit body weight, compared to older children and adults.

- **What about dishwashing?**

Everyone can use tap water for showering, bathing, washing hands, washing dishes, flushing toilets, cleaning and doing laundry. Infants, and young children age 5 and younger should be supervised while bathing and during other tap water-related activities to prevent accidental ingestion of water.

- **What is OHA's response to the City of Salem's decision to extend its do-not-drink water advisory for two weeks?**

Recent results from cyanotoxin testing by the City of Salem are encouraging. Concentrations of the toxins are below EPA health advisory levels. It is important to ensure these initial trends are sustained. The City of Salem is also establishing long-term measures to ensure concentrations of cyanotoxins remain low. For these reasons, the city is extending the drinking water advisory for vulnerable populations for two weeks, and OHA believes this is a reasonable policy decision.

- **Can I eat vegetables after they were irrigated using Salem drinking water?**

While some food plants can absorb cyanotoxins, this would only be of health significance if the concentration in the plant were high enough to deliver a harmful dose at the rate people eat that plant. Starting from the concentrations measured in Salem's water over the time period that these levels have been elevated, it is very unlikely that any plant could have absorbed and concentrated the toxin enough to pose a health risk to anyone eating the plants.

As for residual water on the edible surfaces of plants, currently measured levels of cyanotoxins are low enough to be safe for adults to drink 2.5 liters per day, of which any residual left on the surface of an edible plant would be only a tiny fraction. Because the volume of water likely to be left on the edible surfaces of plants from irrigation at the time of consumption would be very small, it is also very unlikely that a child younger than 6 or other sensitive individual could get a dose from eating the plant that would be harmful.

It is best practice at any time to wash your produce before eating it. This is a precaution people who are concerned about their produce can take to prevent any number of residues that may be found on vegetables.

- ***Is it OK to use pools, waterparks, spas and splash pads that use Salem water?***

Measured levels of cyanotoxins in drinking water are below recreational advisory thresholds even for young children. Therefore, no special precautions for these

facilities need to be taken. Young children should be monitored to make sure they are not drinking the water.

- **How do cyanotoxins (cylindrospermopsin and microcystins) impact livestock and pets where there is a drinking water advisory?**

Both toxins are a risk to livestock and pets. However, the levels that cause a drinking water advisory to be issued are unlikely to impact livestock and healthy pets, but they do pose a potential risk to smaller and compromised pets, similar to people. Most livestock are likely to be large enough in mass that there should not be an issue with them.