EPA United States Environmental Protection Agency

Co-Branding (optional)

PREVENTING HABS

Keeping the lakes and rivers that supply our drinking water clean is key to ensuring clean drinking water. Reducing the amount of nutrients, such as nitrogen and phosphorus, in drinking water sources can decrease the risk of HABs and associated cyanotoxins impacting drinking water. These excess nutrients typically originate from agricultural, industrial and urban sources as well as from atmospheric deposition. Lowering this nutrient pollution will help keep drinking water clean and can generally improve local water quality (see Figure 2).

MORE INFORMATION

For more information about how HABs are managed in your tap water contact your public water system.

For more general information see www.epa.gov/cyanohabs.

For more information about HAB-associated illnesses, see www.cdc.gov/habs.

EPA: 810-F-16-005

Figure 2. Lake without a harmful algal bloom (Lake Crescent, WA)

HARMFUL ALGAL BLOOMS AND DRINKING WATER

EPA United States Environmental Protect Agency

Co-Branding (optional)

SUMMARY

Freshwater harmful algal blooms (HABs) are a growing concern in the United States and worldwide (see Figure 1). Negative impacts from HABs on water quality, human and animal health and the economy can be significant. Some HABs can produce toxins that are harmful to humans and animals. These toxins can pose challenges to drinking water supplies. Given this risk, many drinking water systems are taking actions to manage cyanotoxins in drinking water and notify the public if levels become a public health concern. Reducing nutrient pollution, such as excess nitrogen and phosphorus, in drinking water sources is important for the long-term management of the risks HABs pose to public health and water quality.

BACKGROUND

Cyanobacteria, formerly referred to as blue-green algae, are found naturally in lakes, rivers, ponds and other surface waters. When certain conditions exist, such as in warm water containing an abundance of nutrients, they can rapidly form harmful algal blooms (HABs). Some HABs are capable of producing toxins, called cyanotoxins, which can pose health risks to humans and animals. Conventional water treatment (consisting of coagulation, sedimentation, filtration and chlorination) can generally remove cyanobacterial cells and low levels of toxins. However, water systems may face challenges in providing drinking water during a severe bloom event when there are high levels of cyanobacteria and cyanotoxins in drinking water sources. If cyanotoxins occur in tap water over a 10-day time period at levels above the national drinking water Health Advisories, people are at risk of various adverse health effects including upset stomach, vomiting and diarrhea as well as liver and kidney damage.

ADDRESSING HABS IN DRINKING WATER

The U.S. Environmental Protection Agency (U.S. EPA) published national drinking water Health Advisories for the cyanotoxins microcystins and cylindrospermopsin (see Table 1). The Health Advisories provide the cyanotoxins levels at and under which negative human health impacts are unlikely over a 10-day period of time. Health Advisories are developed to help states and water systems assess local situations and during emergency situations and spills. They are not a federally enforceable, regulatory limit.

10-DAY HEALTH ADVISORIES	LEVEL
Microcystins	
Children pre-school age and younger (under 6 years old)	**0.3 µg/L**
School-age children (6 years and older)	**1.6 µg/L**
Cylindrospermopsin	
Children pre-school age and younger (under 6 years old)	**0.7 µg/L**
School-age children (6 years and older)	**3.0 µg/L**

Table 1. U.S. EPA's National 10-Day Health Advisories

Given the health concerns that can occur from cyanotoxins in drinking water, many water systems are taking actions to manage and reduce the risks from cyanotoxin contamination in drinking water. These actions can include steps for monitoring for cyanotoxins, adjusting treatment to address contamination before levels are of concern and notifying the public through a Drinking Water Advisory when tap water toxin levels are a possible public health concern.

Figure 1. Harmful algal bloom