

U.S. Army Corps of Engineers Lakes Questions and Answers Harmful Algae Blooms (HAB)

MONITORING FOR HAB

What do the current testing results indicate and how do the results affect me?

Counts above 100,000 cells per milliliter require a caution to be issued to the public with caution alert information physically posted. A caution advisory indicates a HAB is present and a moderate probability of experiencing adverse health effects. The public must exercise caution and consider adverse health effects of a HAB while boating or swimming, for example.

How are the algae levels determined?

The Army Corps of Engineers bases decisions regarding HABs according to World Health Organization (WHO) guidelines. The WHO guidelines are based on cell counts. While there are tests available that examine the amount of *toxins* produced, there aren't any widely accepted guidelines that establish safe levels of toxins for recreational waters. In addition, these tests can measure liver and nerve toxins but there aren't any tests that measure levels of skin toxins, which most BGA (blue green algae/cyanobacteria) produce.

What is the monitoring schedule for the Lake?

Since the higher algae counts were found, Corps personnel take water samples weekly of lakes which have had known algae counts above 20,000 cells per milliliter and send to a private laboratory for analysis. Testing continues until the algae cell counts fall and stay below 20,000 cells per milliliter for two consecutive sample collections.

Who does the analysis from the water samples? CT Laboratories in Wisconsin. This laboratory specializes in harmful algae bacteria.

ADVERSE HEALTH AFFECTS

Is it safe to have contact with the water?

At this time, the algae levels are at a higher risk of causing health concerns for all people and animals who come in contact with the water. Visitors to the lake must consider risks before participating in water-related activities. The public who swim, boat or enter the water is now at higher risk to experience adverse health effects if they come in contact with water from the lake.

What are the risks if I am exposed to water with an HAB?

Exposure to blue-green algae during recreational activities such as swimming, wading, and water-skiing or boating – for example -- may lead to rashes, skin, eye irritation, and other uncomfortable effects such as nausea, stomach aches, and tingling in fingers and toes. Affects to

the skin can develop fairly quickly. Most produce skin toxins which may cause rash, nausea, diarrhea, vomiting, upper respiratory symptoms, and other flu-like symptoms. Some but not all blue-green algae blooms produce nerve and liver toxins, which are extremely dangerous.

If I get my water through a public utility, is it safe to drink if the water is drawn from the lake?

If a lake provides water to local water/utility companies, the utility companies are notified of the HAB so

that they can take precautionary measures in treating the drinking water. For specific inquiries about your drinking water quality, contact your utility office.

What about clothing, life jackets and equipment used in lake water impacted by algal blooms?

Wash all clothing and equipment including life jackets after contact with algal blooms and scum. Use at least fresh water to wash life jackets but for additional precaution use soap.

What are some precautionary measures I can take?

Precautionary measures include:

- Avoiding contact with visible algae and not swallowing water while swimming.
 - Taking a bath or shower with warm, soapy water after coming in contact with water in ponds and lakes, especially before preparing or consuming food.
 - Pets and livestock should not be allowed to swim in or drink untreated water from these sources. Livestock, pets and wild animals can be poisoned by the toxins produced by some algal blooms. Small animals can ingest a toxic dose quickly.
 - Dogs are particularly susceptible to blue-green algae poisoning because the scum can attach to their coats and be swallowed during self-cleaning.
 - Remove fish skin and organs before cooking, do not consume or allow pets/animals to consume the organs or skin.
 - Wash all clothing and equipment including life jackets after contact with algal blooms and scum. Use at least fresh water to wash life jackets but for additional precaution use soap.

Who does a HAB affect?

Discomfort and illness can happen to people, pets, livestock and all animals. Children, pets, and individuals susceptible or already experiencing illness or a rash are at a much higher risk of affects of blue-green algae than others.

What if I or (my) animals feel sick after contact with the water?

First, seek immediate care if you feel you or your family have been impacted by algal blooms through your physician or care center. You may also contact or report a diagnosed illness to the State of Kentucky Department of Health.

What health affects in animals should we watch for?

Clinical signs of blue green algae poisoning in animals include vomiting, diarrhea, decreased

appetite, weakness, seizures and sudden death, especially in livestock. If you see a blue-green algae bloom in the water or where you visit, do not allow pets or livestock swim in or drink from areas where blooms are seen. If pets swim in scummy water, rinse them off with soap and water immediately to remove the toxin. Do not let them lick the algae off their fur. Direct livestock to water sources away from algal infected waters. If your animal shows any of the clinical signs listed above, contact your veterinarian immediately.

HABs Background

What is algae?

Blue-green algae are a type of bacteria present in all lakes, but during certain conditions, they can become concentrated at levels which can cause adverse health effect.

Can you see the algae blooms?

At this time, the blue-green algae cannot be seen with the eye and requires testing at the current level. If the cell counts increase during the recreation season, the blooms could grow and be visible.

Do HABS mean the lake will be closed to recreation?

Reservoirs with advisories or cautions are NOT closed. Boating and swimming are still permitted and businesses are still open. Visitors are encouraged to enjoy the lake, but be aware of the possibility of adverse health impacts associated with contact with the water.

What water quality tests are done and for what purpose?

- The Corps of Engineers Louisville District monitors the health of our lakes to ensure it is a safe and healthy resource.
- Bacteria samples are taken at all Louisville District lake beaches for human health and safety.
- We look at dissolved oxygen content to determine and assess amounts of releases from lakes downstream (Corps lakes are flood damage reduction reservoirs).
- Some Corps Lakes are also used for water supply, so testing is done around intake structures.

WORLD LEADERS - HAB GUIDANCE

Why use the World Health Organization for HAB criteria and public information?

The World Health Organization is the leader in a broad consortium of global expert agents and scientists and biologists on HAB.

What are the World Health Organization levels and why are they relevant?

Low risk - 20-100 to 100,000 cells per milliliter

Low probability of adverse health effects including skin irritations, gastrointestinal illness

Moderate risk - Above 100,000 cells per milliliter

Moderate probability of adverse health effects including the potential for long-term illness based on the type of cyanobacterial species. These levels are based on the cyanobacterial cell counts per milliliter.

What agencies does the Army Corps of Engineers work with to determine water quality conditions?

State divisions or departments of water, parks, fish and wildlife, natural resources and the Corps of Engineers Water Quality and the lake project offices impacted by algal blooms.

Is this part of global warming?

We do not know. What we do know is lower water levels and higher water temperatures impact algae levels and higher level of nutrients including phosphorous from runoff.

What does interagency cooperation accomplish in terms of assessing and improving water quality?

Interagency cooperation provides for better communication between federal, state, and local governmental agencies, and non-governmental agencies all having vested interests and responsibilities for care of the environment including our water resources. To protect our lakes

and streams, a holistic watershed approach to develop best management practices is needed. Because different agencies have different authorities and specific areas of focus, and because of the complexity and interdependency of urban development, infrastructure, agriculture, recreational and economic interests, cooperation among all stakeholders is needed for an effective response plan for HAB.

THE WAY AHEAD

How does a lake get “cleaned up” from an overabundance of nutrients or algae or bacteria?

The health of a watershed is related to many factors: environmental, human, global conditions, etc. Through natural processes, organic elements will break down over time entering watersheds. It is so critical that agencies work together to employ and educate stakeholders and generate interagency partnerships. Equally critical are establishing and teaching about boundaries, erosion, farm ponding, and conservationist policies.

What can the Corps do to fix this problem?

It will take a cooperative interagency effort to develop and implement best watershed management strategies to address this problem. Improvement in water quality will require a rather extensive time period for system stabilization once in place. Getting one in place with participation on the part of all parties involved (farmers, developers, cities, towns, municipalities, economic offices, and the general public) in itself will take some time.

Where can I find information on algal blooms?

U.S. Army Corps of Engineers, Louisville District Lake Conditions

<http://www.lrl.usace.army.mil/Missions/CivilWorks/WaterInformation/HABs.aspx>

U.S. EPA CyanoHABs

<http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/cyanohabs.cfm>

World Health Organization Guidelines

<http://www.epa.state.oh.us/dsw/HAB.aspx>

The State of Kentucky Department of Water - website under construction - (502) 564-3410

Ohio algae information

<http://www.epa.state.oh.us/dsw/HAB.aspx>

Indiana Blue-Green Algae

<http://www.in.gov/idem/algae/>