



Echo Lake Cyanobacteria Management Plan Fact Sheet



Community volunteers collect water samples from the deepest part of Echo lake. These samples are used to test for phosphorus and nitrogen levels.

Echo Lake is a popular place to fish, boat, and swim in Shoreline. Like many urban lakes, it experiences algae blooms. While most algae blooms are harmless, some produce toxins that are dangerous to people and animals. The City of Shoreline works with King County to monitor Echo Lake and closes the swimming beach if toxin levels are dangerously high. Since 2009, there have been 11 cases of toxic algae blooms in Echo Lake. In 2022, the City received a grant from the Department of Ecology to create a cyanobacteria management plan to understand and reduce harmful blooms. This fact sheet outlines the findings and recommendations.

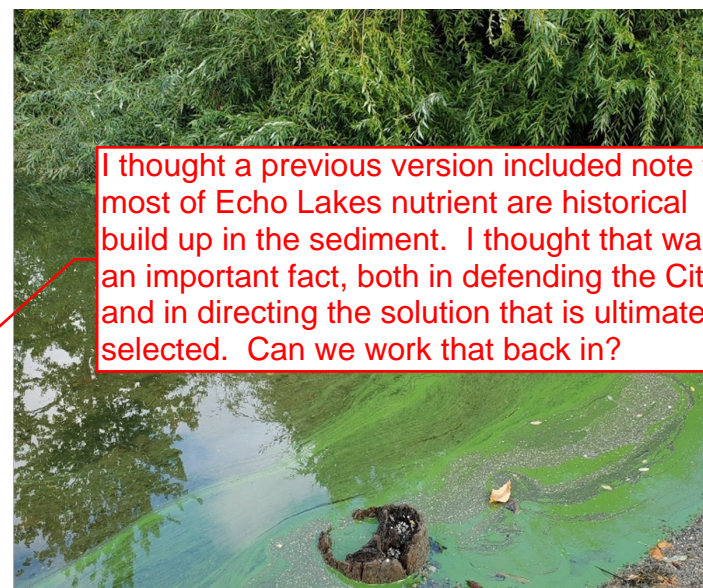
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Cyanobacteria, also called blue-green algae, are microscopic organisms. They are a normal part of lake ecosystems. Under certain conditions, however, they can grow quickly and form thick surface scums, known as blooms. Cyanobacteria can produce two dangerous toxins: Microcystin, which can damage the liver, and Anatoxin-a, which affects the nervous system. Microcystin and Anatoxin-a can harm people and animals if swallowed, touched, or inhaled.

Dangerous cyanobacteria blooms in Echo Lake are mostly caused by too many nutrients, like phosphorus and nitrogen, in the water.

Nutrients enter the lake through rainwater runoff. When it rains, rainwater picks up whatever it touches, including fertilizers, weed killer, and weed and feed from lawns and gardens, and flows into the nearest storm drain. Many of the storm drains in the Echo Lake neighborhood flow through underground pipes directly into the lake.

Once nutrients enter the lake, they can settle down into the lake soils. Warm weather can create low-oxygen conditions that cause nutrients to release from the lake soils. Nutrients feed the cyanobacteria. Because warmer weather releases nutrients from the soil, cyanobacteria blooms are most likely to occur in the summer.



I thought a previous version included note that most of Echo Lakes nutrient are historical build up in the sediment. I thought that was an important fact, both in defending the City and in directing the solution that is ultimately selected. Can we work that back in?

Cyanobacteria algae bloom on Echo Lake, September 21, 2021

To reduce cyanobacteria blooms in Echo Lake, we need to reduce the amount of nutrients in the lake.

The Echo Lake Cyanobacteria Management Plan recommends the following actions to reduce nutrients:



The City helps people plant gardens and trees that soak up rainwater and reduce pollution in our streams, lakes, and Puget Sound. Learn more at shorelinewa.gov/soakitup and shorelinewa.gov/communitrees

- **Install Oxygen Saturation Technology (OST).** OST adds oxygen to the lake, which helps prevent phosphorus release from the lake soils. OST alone would not completely prevent cyanobacteria blooms, but it would significantly reduce them.
- **Consider chemical treatments,** such as alum or lanthanum, instead of or with OST. Chemical treatments bind to phosphorus, making it unavailable for cyanobacteria to feed on.
- **Continue pollution prevention practices and programs** that help prevent nutrients from entering Echo Lake. This includes:
 - **Community education** programs that help people adopt practices that reduce nutrient pollution, such as practicing natural yard care, picking up pet waste, and creating gardens that soak up rainwater.
 - **City codes** that require phosphorus treatment for developments in the Echo Lake basin.
 - **Retrofit projects** in the Echo Lake watershed that reduce the amount of polluted rainwater runoff that flows into Echo Lake.

"potential"

"existing"

To view the full Echo Lake Cyanobacteria Management Plan, please visit shorelinewa.gov/waterquality. For questions, contact Stefan Grozev at sgrozev@shorelinewa.gov.