Bear Creek Watershed

The Bear Creek Watershed Association protects and restores water and environmental quality within the Bear Creek Watershed from the effects of land use.

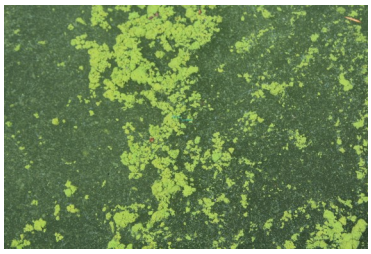
2018 Membership
Clear Creek County
Jefferson County
City of Lakewood
Town of Morrison
Aspen Park Metropolitan District
Conifer Sanitation Association
Conifer Metropolitan District
Denver Water Department
Evergreen Metropolitan District
Forrest Hills Metropolitan District
Genesee Sanitation & Water District
Geneva Glen
Jefferson County School District
Kittredge Water & Sanitation District
Tiny Town Foundation, Inc.
West Jefferson County Metro District

Harmful Algal Blooms

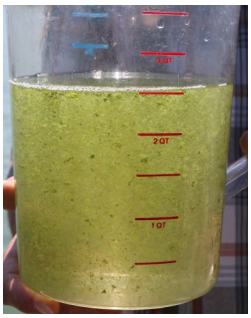
- Aphanizomenon – Forms dense mat-like blue-green surface aggregations or blooms on shoreline or surface of water. Appears like grass clippings on surface water.
- Microcystis - Small cells usually organized as colonies that begin in a spherical shape, appear as dark blue-green or brown scum.
- Anabaena - Nitrogen fixing filamentous blue-green, forms long bead-like or barrel chains with interspersed enlarged spores (heterocysts).
- Oscillatoria – Unbranched filamentous blue-green or grey-green, occurring singly or in tangled mats, forms long thread-like filaments.

Fact Sheet 60 Managing Harmful Algal Blooms (HABs)
September 12, 2018

BCWA Fact Sheet 57 Cyanobacteria and Cyanotoxins lists four common genera of blue-green algae found in Bear Creek Reservoir and elsewhere in the watershed: Microcystis, Anabaena, Oscillatoria, and Aphanizomenon. *BCWA Fact Sheet 58 Cyanobacteria Guide BCR* shows pictures of these potential harmful algal blooms (HABs). Potential HABs can occur in ponds, lakes and reservoirs in the watershed from June through October. Algae growth depends on sunlight, water quality and nutrients like phosphorous and nitrogen. An overload of nutrients causes algae to develop faster than normal.



Dense blooms of blue-green algal can produce toxins, which may cause an array of health problems or harm for users of the waterbody including livestock, wildlife, pets and people. The pathways for toxin impacts include physical contact, ingestion and particle inhalation from water activities like swimming, wading, pets playing in the water, fishing, boating or other aquatic recreation. Direct contact with cyanotoxins can result in reactions ranging from topical irritation to physical discomfort. HABs can cause undesirable taste and odor compounds in drinking water.



The BCWA embraces an "Action Threshold" based management philosophy to address HABs. Not all algal blooms will produce a HABs. Some blooms can rapidly form and last only a few days. Since the blue-green algae are free-floating and not attached to the waterbody substrate, blooms can get piled up by wind and wave action around features like docks or piers. While it may look bad, this probably isn't an action threshold. Blue-green blooms that last over a week and cover most or all of the waterbody surface are potential HABs. A waterbody that turns bluish, blue-green, brownish-green, golden brown and has a scummy appearance with wide-spread algal growth should be considered having a HABs.

The BCWA proscribes adaptive management as the preferred long-term strategy to limit watershed and waterbody conditions favorable for the growth of toxic blooms.

1. Assessment and ongoing water quality and biological monitoring
2. Adaptive water quality goals and strategies to reduce nutrients and track potential pollutants
3. Education of public and users, including signage, alerts, informational material, workshops and training
4. Limit point source and nonpoint source nutrients in watershed
5. Shoreline and waterway buffers and active erosion controls
6. Filter trash, debris and limit direct input of nutrient-rich runoff
7. Floating silt screens, barriers or baffles around areas with potential human contact
8. Waterbody aeration systems
9. Biological augmentation or impede photosynthesis
10. Deactivate existing nutrients within waterbodies
11. Physically remove organic matter (e.g., hydro-raking)
12. Algaecides (treatment)