

Freshwater Harmful Algal Blooms {HABs}



Lake Margaret, photo by Jason Perez



King County

Department of
Natural Resources and Parks

Water and Land Resources Division



The King County
Lake Stewardship Program

An aerial photograph of a large, vibrant green algal bloom in the ocean. The water is a deep, dark green, and the bloom is a lighter, bright green. A red 'XD' is drawn over the word 'BLOOM' in the title.

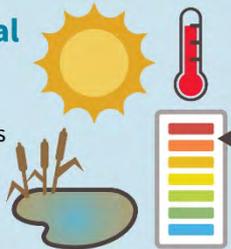
ALGAL ~~BLOOM~~

WHAT CAUSES HARMFUL ALGAL BLOOMS?

Causes of Algae Blooms

Environmental Conditions

- Abundant light
- High temperatures
- High pH levels
- Stagnant water
- Excess nutrients



Sources of Excess Nutrients

Agriculture:

Fertilizer runoff (nitrogen & phosphorus) and animal waste

Industry:

Chemical discharge and waste

Urban Life:

Sewage and waste runoff



Climate Change

Climate change is increasing the frequency and severity of blooms due to:

- Increases in water and air temperature
- Increases in droughts and flooding
- Changes in salinity
- Increased amount of CO₂
- Sea level rise and coastal upswelling



What causes algal TOXICITY?



WHEN IN DOUBT, STAY OUT!

Cyanobacteria only *sometimes* produce cyanotoxins –
only lab tests can confirm toxicity.

CAUTION

TOXIC ALGAE MAY BE PRESENT

Lake may be unsafe for people and pets

Until further notice:

- **Do not swim or water ski in areas of scum.**
No nade o practique el esquí acuático en áreas con espuma o verdín.
- **Do not drink lake water.**
No tome el agua del lago.
- **Keep pets and livestock away.**
Mantenga alejados las mascotas y el ganado.
- **Clean fish well and discard guts.**
Limpie bien el pescado y deseche las tripas.
- **Avoid areas of scum when boating.**
Evite las áreas con espuma o verdín cuando ande en lancha.

Call your doctor or veterinarian if you or your animals have sudden or unexplained sickness or signs of poisoning.

Report new algae blooms to Department of Ecology: 360-407-6000	Call your local health department:
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For more information: www.doh.wa.gov/info/algae/
www.acyns.gov/programs/wq/plastic/algae/index.html

WARNING

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DANGER

LAKE CLOSED

due to toxic algae

KEEP OUT OF LAKE

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TOXIC ALGAE

Stay Alert!

Toxic algae in this lake accumulate in areas along the shoreline.

Harmful algae are a health risk to you, your family, and your pets.

DO NOT go into water where there are visible algae. Areas of clear water are open for activities.

People with allergies or sensitive reactions to substances may experience rashes or skin irritation after exposure.

If in doubt, stay safe and stay out!

For more information on toxic algae and symptoms of poisoning, you can visit www.toxicalgae.org. If you feel ill after being in the water, consult your physician as soon as possible.

Animal Safety Alert

TOXIC

Blue-Green Algae

When in Doubt... Stay Out!

If you see a bloom, do not let your pet in the water.

- Toxic algal blooms can poison animals, wildlife, and people.
- Toxic blooms can be different colors: green, blue, red, or brown.
- Blooms appear as foam, scum, or streaks on the surface of water.
- Look for blooms in lakes, ponds, and rivers.

If your pets go in the water:

- Do not let them lick their fur.
- Rinse them with clean water.
- Rinse your hands and any exposed skin.

Dogs can have severe signs within minutes to hours.

Look for these signs:

- Low energy
- Not eating
- Vomiting
- Stumbling
- Seizures
- Weakness
- Drooling
- Diarrhea
- Paralysis
- Tremors

If your pet becomes ill - Call your veterinarian immediately.

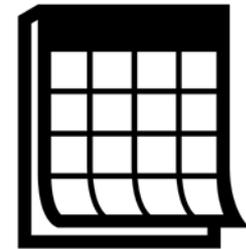
Report animal poisonings to your local health department:

Washington State Department of Health
1001 100117 June 2011

WA Dept of Health 360-336-3330
www.doh.wa.gov/algae
www.nwtoxicalgae.gov

Microcystin

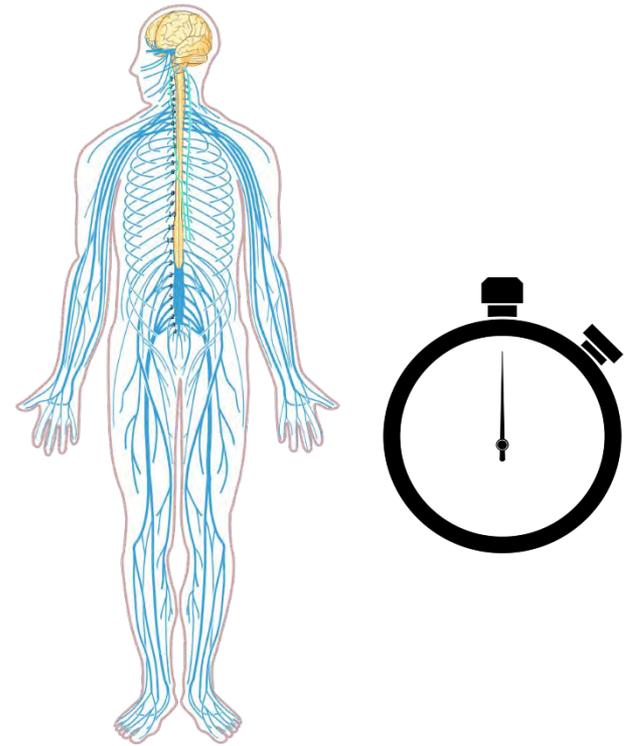
- Liver toxin, potential carcinogen.
- Chronic and acute effects.
- Animals may show symptoms of poisoning from 30 minutes up to 24 hours after exposure.
- Symptoms include weakness, abdominal pain, nausea/vomiting, jaundice, shock, rapid/weak pulse, liver inflammation.



Microcystis

Anatoxin-a

- Neurotoxin.
- Acute and potent.
- Illness and/or death to an animal may occur within a few minutes up to a few hours after exposure.
- Symptoms include muscle twitching, staggering, convulsions, and paralysis. Humans may exhibit incoherent speech and experience tingling or numbness.



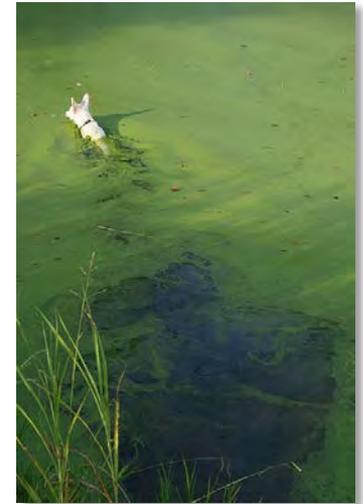
Dolichospermum
(Anabaena)

Pathways for toxin exposure

Ingestion

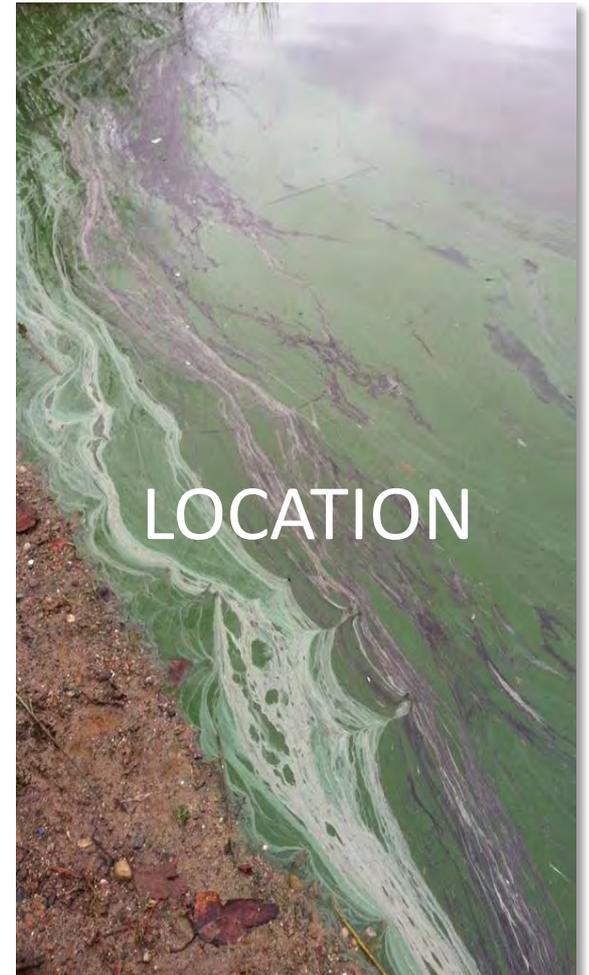
Skin
Contact

Inhalation

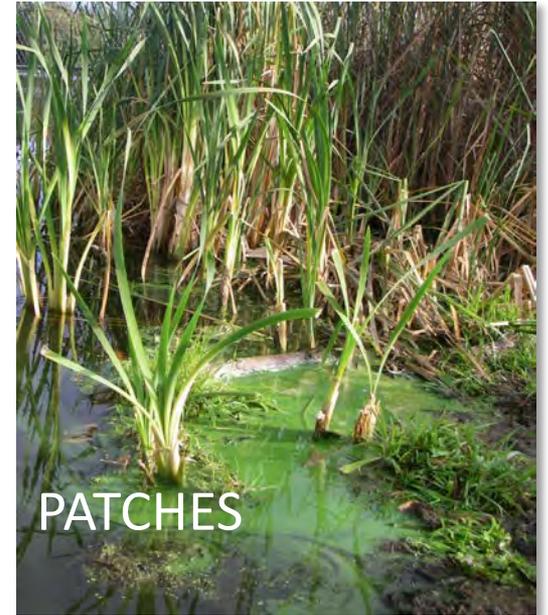


What can HABs look like?

Cyanobacteria



How to describe an algae bloom



What can HABs look like?

Not cyanobacteria



Green Algae



Pollen



Green Algae



Green Algae



Green Algae



Golden Algae

How to submit for toxin testing:



Monday
pick-up

- Leave out for pick-up with regular samples

- Contact Lake Stewardship staff
- 48 hours
- Keep COLD

Mail-in

- Use mail kit provided (you pay for shipping)

- Contact Lake Stewardship staff
- 48 hours
- Keep COLD

Deliver
to KCEL

- Print out a data sheet and generate a sample number at nwtoxicalgae.org

- Contact Lake Stewardship staff
- 48 hours
- Keep COLD

HABs monitoring in King County

The screenshot shows a web browser window displaying the Washington State Toxic Algae website. The browser's address bar shows 'R SiteCore KC Websites'. The website header features a green background with a yellow maple leaf and the text 'Washington State Toxic Algae Freshwater algae bloom monitoring program'. A navigation menu includes 'Home', 'Find lake', 'Report a bloom', 'Health risks', 'About toxic algae', 'Summaries', and 'Program'.

Welcome to the freshwater algae site
The purpose of this site is to provide toxin data related to cyanobacteria blooms in Washington lakes, ponds and streams. Washington State Department of Ecology (Ecology) uses this site to share the data from their ongoing freshwater algae monitoring program.

Cyanobacteria (or blue-green algae) can produce toxins at levels that are harmful to humans, pets, domestic animals, and wildlife. There is no way to detect toxins in an algae bloom except through laboratory analysis. This website provides access to Ecology's results.

Current lakes with values above guidelines

Location	Last Sample Date
Kitsap Lake, Kitsap	03/20/2018

Find your lake
Use our database to locate a lake and find out the most recent testing. Or find your lake >

Report a bloom
If you think that your lake has an algae bloom and you want to have the algae identified: Report a bloom.

See lakes with algae bloom
Examples of local lakes experiencing algae blooms. View our gallery and descriptions.

Health risks
Learn about the potential health risks to people and pets exposed to algae blooms through swimming or consuming the water.

News and announcements

- 5/19/2017 The Olympian: Did leaky septic systems or goose poop contribute to Summit Lake's toxic algae?
- 5/13/2017 The Olympian: Residents pack meeting to learn about Summit Lake's toxic algae
- 5/9/2017 The Olympian: Extremely high levels of toxic algae confirmed at Summit Lake
- 8/12/2015 MyNorthwest.com: Green Lake: When in doubt, stay out
- 7/10/2015 Seattle Times: High temperatures, sunny skies could aggravate algal bloom in lakes

Logos for Washington State Department of Health, DEPARTMENT OF ECOLOGY State of Washington, and King County are displayed at the bottom. A disclaimer states: 'Links to external sites do not constitute endorsements by King County. By visiting this and other King County web pages, you expressly agree to be bound by terms and conditions of the site. For questions on the Freshwater Algae Program please contact Lizbeth Seebacher. For questions on the content or functionality of the site please contact Chris Knutson. For information or concerns about a current Algal Bloom please contact your local Health Department.'

www.nwtoxicalgae.org

2017 HABs

Lake	# Samples Submitted	# Exceedences	Toxin	Values
Ames	6	1	Anatoxin-a	7.91
Beaver	2			
Bitter	2			
Boren	4			
Burien	2			
Cottage	11	1	Microcystin	6
Desire	7	2	Microcystin	9.99, 28.2
Dolloff	2			
Fenwick	2			
Green	5			
Haller	6			
Hicklin	8	1	Microcystin	166
Jeane	5	1	Microcystin	1170
Kathleen	2			
Killarney	2			
Marcel	2			
Margaret	2			
North	2			
Pine	4			
Sawyer	4			
Tuck	4			
Washington	3			
Wilderness	2			

web resources

- Northwest Toxic Algae

<https://www.nwtoxicalgae.org/>

- King County Swim Beaches

<http://green2.kingcounty.gov/swimbeach/default.aspx>

- Washington State Department of Public Health

<http://www.doh.wa.gov/ehp/algae>