



Water Quality

Blue-Green Algal Blooms in Lakes

This brochure has been produced to answer the more frequent enquiries received by the Ministry of Environment, Lands and Parks (now called Ministry of Water, Land and Air Protection) on blue-green algal blooms in lakes and to provide you with general information on related water management concerns.



What Are Blue-Green Algae?

Blue-green algae are not true algae, but are more properly photosynthetic bacteria and can also be called cyanobacteria. They are commonly found in lakes, ponds and wetlands. They usually occur in small numbers and are invisible to the casual observer.

What Are Blooms?

When conditions are favourable (most often during hot, calm weather), algae increase dramatically and they become easy to see. This condition is generally called a ***bloom***.

When blue-green algal blooms occur, huge numbers of algae accumulate on the surface of lakes and ponds resembling thick ***pea soup*** and are often blue-green in colour. Although blooms occur naturally, water bodies which have been enriched with plant nutrients from municipal, industrial and agricultural sources are particularly susceptible.

Why are Blooms Important?

Blooms are unsightly; and blue-green algal blooms may be toxic if ingested by wildlife, livestock or humans.

How are Blue-Green Algal Blooms Toxic?

There are two types of toxins produced by strains of blue-green algae:

- **Neurotoxins** affect the nervous and respiratory systems and can cause muscle tremors, stupor, staggering, rapid paralysis, respiratory failure and — often within 30 minutes — death. Most frequently, animals are found dead close to the lake or pond.
- **Hepato-toxins** affect the liver and cause a slow death, up to 36 hours or longer after drinking water contaminated with toxic strains of blue-green algae. The animals appear ill, may show jaundice (yellowing of the mucous membranes or the white of the eye), photo-sensitization (swelling and fluid under the skin, which may peel, especially in the unpigmented areas), or severe scouring.

What are the Effects on Animals?

If livestock or other domestic animals have no other source of drinking water, they may be poisoned by drinking water contaminated with toxic strains of blue-green algae. The most common occurrences of blue-green algal poisoning concern cattle.

Every year some cattle deaths are associated with blue-green algal blooms, particularly in the interior of British Columbia. Wind may concentrate the algae on the shoreline to increase the concentration of the poison in that area. Older stock may be able to wade into the lake beyond the bloom to drink and are not affected, whereas young stock are forced to drink closer to shore and may be poisoned.

What are the Effects on People?

Humans are as susceptible as animals to the toxic effects of certain strains of blue-green algae in untreated drinking water.

Water during a bloom is both objectionable in appearance and odour. It is unlikely that older children or adults will drink it voluntarily. However, younger children may be less careful.

After ingesting water containing toxic blue-green algae, symptoms such as fever, dizziness, stomach cramps, vomiting or sore throat may persist for several days.

How can We Prevent Poisoning from Blue-Green Algal Blooms?

Some blue-green algal blooms are more toxic than others and therefore all blooms should be treated with caution.

One of the first signs of toxin contamination in a water body is the presence of distressed and dead wildlife, waterfowl or livestock along the shoreline.

If you observe dead or distressed animals along a shoreline where a bloom is obvious, immediately contact the nearest Regional Health office or the nearest BC Ministry of Water, Land and Air Protection regional office.

If livestock is affected, also contact a veterinarian or the nearest office of the BC Ministry of Agriculture, Food and Fisheries.

Water suspected of being contaminated with toxic strains of blue-green algae can be sampled and tested for toxicity.

Do not drink untreated water from water bodies regardless of whether noticeable blooms are present. In addition to possible health risks from algal blooms, there are other gastrointestinal illnesses which can also be contracted by drinking untreated water, including **Giardiasis** or **Beaver Fever**.

Key Points to Remember...

- Do not wade or swim in water containing visible blooms.
- If blooms are present, do not allow livestock or pets access to the affected water. Alternative sources of drinking water for livestock and pets should be provided.
- Blooms intensify in non-moving or stagnant water. If possible, natural blockages in creeks flowing into or out of the water body should be removed to encourage the free flow of water.
- Divert surface runoff from livestock feedlots away from streams and lakes. Blooms flourish from runoff flowing through animal waste.

If a Bloom is Detected, How Long Will it Last?

Fortunately, most blooms are short-lived and an affected area will likely be safe again in a number of days or within a one to two week period. If unsure, contact your local health office, or the nearest Ministry of Water, Land and Air Protection office.

If your concerns are related to livestock, contact the nearest office of the BC Ministry of Agriculture, Food and Fisheries. Government office telephone numbers are listed in the blue pages of your telephone directory