FACT SHEET: PROTECTING PETS FROM HARMFUL ALGAL AND CYANOBACTERIA BLOOMS

Over the past number of years Hamilton Harbour has experienced some dense ‘blue-green algae’ (cyanobacteria) blooms in the summer and fall, especially along the shorelines. Some of these blooms may produce toxins that can be harmful to people and animals if ingested. This issue is not unique to Hamilton Harbour; it is a widespread phenomenon in waterbodies like the Harbour that receive fertilizers and sewage from human inputs.

Although typically people observe the signs posted by Hamilton Public Health to not go into the water, the same cannot be said for preventing their dogs from going in. This fact sheet was prepared by Environment Canada to provide local veterinarians with some basics about the issue to help them better inform their clientele about the potential hazards to their pets. A complementary piece is also being provided with more details including references to further your knowledge on this issue.

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CYANOBACTERIA

- Cyanobacteria are often called ‘blue-green algae’, although this term is incorrect because they are bacteria, not algae and they range considerably in colour (black, yellow-green, pea green, blue-green, red).
- Some blooms resemble blue-green paint spilled on the water, but others grow on the bottom; however, other algae and even pollen can form unsightly scums which can visually be mistaken for toxic blooms.
- Blooms occur across the world including Canada, in lakes, reservoirs, ponds, rivers, dugouts, sloughs and estuaries, notably where there is extensive urban/agricultural basin development or wastewater influx.
- Mid-late summer blooms are frequently seen in cottage country and the Great Lakes, notably Lake Erie, and nutrient rich embayments in Lake Ontario, including Hamilton Harbour and the Bay of Quinte.

TOXINS

- Toxic cyanobacteria blooms have been reported in large and small waterbodies from every province and state of North America and across the world
- Cyanotoxins are produced by some species of cyanobacteria and are stored in the cells, released when cells rupture through damage or death
- There are three general types of cyanotoxins: hepatotoxins (liver toxins), neurotoxins, and dermotoxins /irritants
- Hepatotoxins are most common, especially the group of toxins called microcystins which account for most toxins we detect in North America in inland waters. These compounds can cause massive liver hemorrhaging if ingested at high concentrations, and can act as carcinogens at lower doses.
- The drinking water industry in Ontario tests and treats their water to meet the Health Canada and Ontario standard and guidelines for Safe Drinking Water.
- There is no way of knowing by visual or microscopic inspection whether blooms are toxic and some toxins like microcystins can persist in the water for several weeks after all evidence of the bloom has disappeared
- Hamilton Public Health maintains vigilance and toxin testing throughout and after a bloom and only lift advisories once toxins are not detected
Toxins are tasteless, odourless, and colourless; therefore the absence or presence of taste and odour in water is not a measure of toxicity.

Toxins are not readily absorbed through the skin – typical exposure routes are via ingestion or inhalation (e.g. spray or steam from affected water).

Other toxins (dermotoxins) produced by these blooms can also cause ear, skin and eye irritation or mild flu-like symptoms.

**PETS AND ANIMALS**

Toxins are dangerous to pets and there is a long history of cattle deaths attributed to toxic algae dating back to the 1800s. Animals such as dogs are particularly susceptible because many will drink from contaminated water indiscriminately or swim in contaminated areas where the bloom material and water is caught on their coat or skin, which they may lick and clean. See references in the complementary piece for a list of articles and more details on clinical toxicology, diagnosis and treatment.

**PREVENTATIVE ACTIONS FOR PET OWNERS**

- Do not let pets or livestock drink or swim near areas where the water is discolored or there are noticeable algal mats, foam, or scum in the water, muzzle if necessary.
- Try to prevent pets from sniffing or coming into any contact with beached algal material. If pets (especially dogs) swim in affected water, do not let them lick their fur or paws and try to rinse them off immediately with clean water. Do not let the pet lick themselves.
- Wash pet with clean water as soon as possible and towel off any visible algae (avoiding contact).
- Do not use bleach or disinfectant to clean the animal. This may break open toxin-containing cells and release toxins. The toxins are easier to wash off if they are contained in the cells.
- If the pet has ingested toxic algae, induced vomiting may help.
- Contact your vet or an emergency veterinarian soon as possible if you think your pet might have been poisoned by algal toxins. Potential symptoms following exposure can include:
  - lethargy
  - lack of coordination
  - convulsions
  - difficulty breathing
  - vomiting
  - excessive salivation
  - diarrhea

**SYMPTOMS OF EXPOSURE IN PETS**

Dogs or other pets exposed to a neurotoxin may develop symptoms rapidly, i.e. 15-20 minutes later. The neurotoxin will act rapidly, with mortality within 30 to 60 minutes. Hepatotoxins will attack the liver and death can occur within 4 to 24 hours after exposure. Pets may be fine after swimming in contaminated waters, but may develop symptoms later if they clean themselves later. Some vets may administer atropine to regulate the animal’s seizures. Toxins are excreted rapidly within a few days and animals that survive the initial tissue damage have a good chance for recovery.

This fact sheet summarizes a more detailed piece prepared for the Hamilton Harbour Beach Management Group by Sue B. Watson PhD. WHERD, Environment Canada, CCIW, Burlington, ON. The committee thanks Dr. Watson for her continued local support and work in this field of research.

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