Cyanobacter Questions and Answers

What are Cyanobacteria?

Cyanobacteria (commonly known as “blue-green algae”) are amongst the oldest and most primitive forms of life known. They are found in fresh water throughout the world, usually in low concentrations, and the individual cells are not visible without the use of a microscope.

However, during favourable conditions including the right combination of warm temperatures, sunlight, low or stable river flows, or a calm lake, and elevated nutrient levels, especially of phosphorus and nitrogen, they multiply at such a rate that they dominate the local aquatic environment. This is referred to as a ‘bloom’. Wind action can blow the bloom into shallow inlets, bays and along the shoreline of lakes resulting in the characteristic greenish scum or general discolouration of the water we often see.

Algal blooms are a natural phenomenon but human activities, such as taking water from rivers or adding nutrients to waterways, can make things worse.

What are cyanotoxins?

Most types of Cyanobacteria are capable of producing toxins, known as cyanotoxins. The factors that trigger toxin production in Cyanobacteria are not completely understood. These toxins can be a threat to people and animals if present in drinking water, or if people and animals come into contact with the water or algal scum collections during recreational activities. Animal deaths and fish kills have been reported and in New Zealand there have been numerous reports of people getting skin rashes, an upset stomach, flu like symptoms and the aggravation of allergies such as hay fever and asthma.

What do cyanobacteria look like?

Cyanobacteria blooms usually result in the water becoming a dense green or brown colour.

How do I know if the water contains toxin-producing cyanobacteria?

Identification of Cyanobacteria requires a microscope, and their presence alone does not confirm cyanotoxin production, as the toxins are not produced or released continuously. Cyanotoxins are identified using a range of laboratory tests.

Regional Councils regularly test fresh water (rivers as well as lakes) for cyanobacteria concentrations. If the levels found exceed current health guidelines, the Medical Officer of Health will issue a Health Warning advising the public not to drink the water and to refrain from any contact recreational use of the affected lake or river.

Who should I call if I think I have found cyanobacteria?
Contact the Auckland Regional Council on 0800 366 2000.

Human Health Risks

What are the health risks to humans from toxin-producing cyanobacteria?
People can be exposed to these toxins by swallowing or drinking the water, and through skin contact with the water. Exposure can also occur through contact with or ingestion of scums.

Swallowing water containing the toxins can lead to vomiting, diarrhoea, abdominal pain, cramps, and nausea. Skin contact with the toxins can cause irritation of the skin, eyes, nose, and mouth, which may appear as an itch, redness, and dermatitis.

Conditions such as hay fever, and eczema or dermatitis, may also worsen and toxins may trigger an acute attack of asthma.

Toxins can also affect the liver and the nervous system. Those at greatest risk of a reaction are children, pregnant women, the elderly, and those with pre-existing medical conditions.

Any reaction depends on the type of cyanobacteria, the type of cyanotoxins present, and the concentration of the toxin in the water. The higher the concentration of cyanobacteria and cyanotoxins and the longer contact with the water, the more severe the symptoms are likely to be. Scums may have very high concentrations of toxins and this may represent a specific risk to children who might be attracted to play with scums on the shoreline or in shallow areas of a lake.

Who should I call if I think I have experienced a reaction?

If you think you have experienced a reaction after exposure to water containing cyanobacteria, see your GP or visit the Emergency Department and tell them that you think you have been exposed to potentially toxic cyanobacteria. Your doctor has been asked to notify the Medical Officer of Health of any people with possible reactions.

Is it safe to drink water containing high levels of cyanobacteria?

No. Normal filtration or disinfection systems (e.g. the adding of household chlorine based disinfectants) will also be of no help. Boiling the water will cause the cyanobacteria cells to break open and actually increase the toxin concentration.

What do I do if my water supply comes from a stream, river or lake affected by Cyanobacteria

Check your intake (and also upstream) for the presence of cyanobacteria algae and contact your local council or a Health Protection Officer at Auckland Regional Public Health Service if you think your water supply may be affected. To ensure safety, close off your intake and find an alternative water supply. In the longer term you should look for an alternative source for your water supply.

Is it safe to swim in water with high levels of cyanobacteria?

No. You should avoid any skin contact with the water and avoid swallowing the water. The higher the concentration of cyanobacteria and cyanotoxins and the longer time in the water, the more severe the symptoms are likely to be.

Can I eat shellfish from water with toxin-producing cyanobacteria?

No. Eating freshwater mussels and other freshwater shellfish from affected areas should be avoided as they can concentrate the cyanotoxins produced by the Cyanobacteria.

Can I eat fish from water with toxin-producing Cyanobacteria?

You can eat live fish caught, but avoid eating the liver and kidney of the fish, as this is where accumulation of cyanotoxins may be the greatest. Avoid contact with the water while fishing and wash all fish in clean water.

Avoid eating any fish that are found dead.

Is it safe to boat or canoe in water with toxin-producing cyanobacteria?

How safe boating and canoeing are depends on the amount of direct contact with the affected water and scums. If you swallow the water or your skin is in contact with the water while boating or canoeing, you are at risk from a reaction to any cyanotoxins that may be present. The higher the concentrations of cyanobacteria and cyanotoxins and the longer that people are in contact with the water, the more likely a reaction is to occur.

Will wearing a wetsuit protect me?

No, wearing a wetsuit (or other swimming gear such as a rash vest) will not protect you and could make any reaction worse. The cyanobacteria may accumulate in the collar and cuff areas and rub against your skin. This may cause a strong skin reaction in these areas.

Can I water my garden with water that contains toxin-producing cyanobacteria?

Yes. Fruit and vegetables do not appear to absorb the toxins. However, fruit and vegetables should be washed in clean water as the cyanobacteria may form a residue on the surface, which can remain toxic even when dry.

Can I use water containing toxin-producing cyanobacteria to put out fires?

Avoid taking water from affected areas. If you do take water, stand away from sprays to avoid contact with, or inhalation of aerosols.

Animal Health Risks

What risk do the cyanobacteria toxin producing algae pose to stock and domestic pets?

Domestic pets, such as dogs, appear to be particularly susceptible to poisoning from Cyanobacteria algae, as they enjoy being in the water and can consume the algae and more concentrated scum material, intentionally or by accident.

Livestock are also at risk from poisoning from cyanobacteria algae toxins and should be provided with alternative drinking water.

Symptoms of poisoning in animals exposed to the type of Cyanobacteria commonly present in the Auckland region include; lethargy, muscle tremors, fast breathing,

twitching, paralysis, convulsions. In extreme cases death can occur within 30 minutes after signs first appear. If you are concerned, contact a veterinarian immediately.

Who should I call if I think my animal is sick?

If you are concerned about your animals, you should contact a veterinarian immediately.

You or your vet can report any animal illness resulting from contact with the Cyanobacteria to your local council.

Where can I get more information?

Contact Environmental Health Officer at Rodney District Council Phone 0800 426 5169.

Contact a Health Protection Officer at Auckland Regional Public Health Service for queries relating to human health and drinking water.
Auckland Regional Public Health Service- 09- 623-4600.

Contact the Auckland Regional Council if you think you have found cyanobacteria on 0800 366 2000.