guardians of drinking water quality
DRINKING WATER INSPECTORATE

Algal blooms in sources of drinking water

What are they?

Rivers and lakes support a wide range of aquatic life and this includes microscopic plants known as algae and also Cyanobacteria. Some species become visible to the naked eye when cells collect together in filaments or clumps and form large floating mats or scum on the surface of water. The scum tends to accumulate at the margins of lakes and in low flowing regions of rivers. When algae become visible in this way it is known as a “bloom”. The phenomenon is seasonal because growth of algae is controlled by hours of sunlight and water temperature. Blooms may occur in the UK from mid to late summer through into autumn. During a bloom in rivers or reservoirs the water will take on a bright blue-green colour. Algal blooms may also occur in sea water and these marine blooms tend to result in a red-brown colour.

Are they dangerous?

A blue-green colour indicates the presence of species of Cyanobacteria which release toxins that may cause serious irritations by skin contact. Deaths of animals such as dogs and sheep have been recorded when they have been allowed to eat the scum. To avoid this hazard, those responsible for water bodies such as the Environment Agency and water companies post warning notices on footpaths around rivers and reservoirs where recreational activities are permitted. These notices warn of the need to avoid direct contact with the water. At such times various water contact activities may be prohibited such as diving, sailing, kayaking and canoeing.

Do Algal blooms affect the safety of drinking water?

Poisoning due to ingestion of algal toxins is a very rare event and those that are recorded occurred in other parts of the world such as South America, Australia and the Far East. These harmful events were linked to extreme climatic conditions or unsuitable private water supplies without adequate management or treatment.

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In the UK following significant algal blooms in the aquatic environment in 1989 and 1990 much research was carried out by the water industry and the Government into the toxicity of blue-green algae and the effectiveness of water treatment. The findings of these studies were reassuring. They confirmed that conventional water treatment was effective at removing algae and their toxins. Also extensive testing of drinking water throughout the country during the seasonal risk period demonstrated the absence of algae and their toxins.

Do water companies test drinking water for algal toxins?

By law, water companies must identify all water sources at risk from algal blooms. These sources must have adequate treatment in place to safeguard the quality of drinking water in the event of an algal bloom. Water companies monitor river and reservoir water for the presence of algae by counting cells under a microscope and measuring the amount of chlorophyll in the water. These tests give early warning of bloom conditions. Water companies have the capability to test for common toxins such as Microcystin – LR and the World Health Organisation has set a provisional health related guideline value of 1 µg/l. Toxins are not routinely tested for in drinking water but testing can be carried out to check that water treatment is effective under bloom conditions.

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