

What are blue-green algae?

There's a wide range of blue-green algae (cyanobacteria). In fresh waters, they're suspended within the water or attached to rocks and other surfaces. They include singlecelled species and others whose cells are arranged in colonies and filaments. It's difficult to see individual cells, colonies and filaments, but you usually can when they're concentrated into clumps. These clumps can look like green flakes, greenish bundles or brownish dots.

Blue-green algae and other algal groups are important contributors to the aquatic biology of fresh and marine waters. They're primary producers that:

- convert sunlight to energy by photosynthesis
- release oxygen and carbon dioxide into water
- take up minerals
- produce food chain supporting substances

Blue-green algae need nutrients to grow which exist in various forms in freshwater. The algae use them directly.

Identifying bloom and scums

Where high levels of phosphorus exist, and other requirements for growth are met – for example, adequate light, mixing, flow and temperature - then the numbers of blue-green algae can increase. Increased periods of growth are called blooms.

Blooms can have a negative effect on the appearance, quality and use of the water. It may become green, blue-green or greenish/brown and several species can produce musty, earthy or grassy odours. Blooms can also cause foaming on the shoreline - sometimes confused with sewage pollution.

During a bloom, the water also becomes less clear, blocking sunlight and stopping plants in the water from growing.

Blue-green algae photosynthesise during the day - adding oxygen to the water – but consume it at night. This means oxygen levels can be very low in the early morning and can suffocate fish and other creatures. When the bloom has subsided, bacteria causing the decay can also remove large amounts of oxygen.

Scums form during calm weather when several bloom-forming species rise to the water surface. This can look like paint, jelly or form small clumps. Scum colour varies because algal pigments differ between species, and even within single species, depending on the nutrient supply, light intensity and age of the bloom. Scums may be blue-green, grey-green, greenish-brown or occasionally reddish-brown.

The persistence of scums also depends on which species are present. Some form quickly on calm days, but are rapidly dispersed if wind and wave action increases.

How can blue-green algae affect you?

Bloom and scum forming blue-green algae can produce toxins. Toxin producing blooms are called Harmful Algal Blooms (HABs). These toxins can kill wild animals, farm livestock and domestic pets. In humans, they can cause rashes after skin contact and illnesses if swallowed. Not all blue-green algae blooms and scums are toxic, but you can't tell just by looking at them, so it's best to assume they are. Algal toxins can cause a number of ill effects **if swallowed in large enough quantities**.

Contact with heavy blooms or scums of blue-green algae can also cause skin rashes which may be due to toxins. These could also be due to an allergic response similar to that experienced by many people after contact with certain plants and detergents etc.

Warning

Canoeists, wind surfers and swimmers who have either swum through algal scum or swallowed it have suffered from skin rashes, eye irritation, vomiting, diarrhoea and pains in muscles and joints. Illnesses can be severe, particularly where affected water has been **swallowed**. These haven't led to long-term effects or death but, in some cases, the illnesses were severe.

Anglers are thought to be at a lesser risk than the above as direct contact with the water is very limited but they must however take precautions.

- Do not fish into the wind (an algae scum will form on the shoreline of the swim), fish with the wind coming over your back.
- Use antibacterial wipes after touching fish, nets or water.
- Do not eat drink or smoke unless you have thoroughly cleaned your hands first.
- Although algal scum isn't always harmful, avoid contact with it and the water close to it.
- Thoroughly clean and dry your nets after use.

The toxins the algae may produce are also toxic to animals and can cause severe illness and death. Farmers and pet owners should keep their animals away from affected waters.

Essentially the more likely you are to come into direct contact with the bloom, the greater the risk of effects of exposure. Symptoms of those affected could be easily confused with a range of other illnesses so it is important to be aware of the risk of Blue-Green algae as a contributory factor. Swallowing/inhalation can result in abdominal pain, nausea, vomiting, diarrhoea, sore throat, dry cough and headaches as well as hay fever symptoms, dizziness, fatigue and skin and eye irritations. Exposure of the skin can result in allergic or irritated reactions in the form of a rash which can be itchy and uncomfortable.

The basic principle to be borne in mind is that if anglers of sufficient maturity understand and accept the dangers involved and decide that they wish to continue to fish at their own risk, they may be permitted to do so.