



Animal deaths

Fish, birds and mammals can all be killed by algal toxins. A significant number of domestic animals are reported to have died as a result of algal blooms in lakes and seas around Sweden. In other sea areas, blooms have also claimed human lives. In Sweden, it is unusual for algal toxins to be transmitted from fish, for example, to humans.

The main reason why fish and other aquatic animals die in the wake of a bloom is the shortage of oxygen that arises when the large masses of algae decompose.

What to do if an algal bloom occurs

- Avoid bathing.
- Never drink water containing high concentrations of algae. Boiling the water doesn't help – it doesn't get rid of the toxins.
- Don't let children bathe or play near the shore.
- Keep pets and livestock away from affected shores and waters.

If you see an algal bloom, report it to:

- The local authority's environmental health department (miljö- och hälsoskyddskontor), or
- The environment department of the nearest county administrative board (Länsstyrelsen) or one of the Information Offices listed overleaf.

Dead animals found in or near water affected by a bloom can be sent to the National Veterinary Institute (SVA) for post-mortem examination; please contact the Institute's Wildlife, Fish and Environment Department first.

For more information on health risks

- Information Office for the Baltic Proper, County Administrative Board of Stockholm, tel. 010-223 11 60, www.infobaltic.se
- Information Office for the Gulf of Bothnia (Informationscentralen för Bottniska viken), County Administrative Board of Västerbotten, tel. 010-225 41 11
- National Veterinary Institute (SVA), tel. 018-67 40 00 (switchboard), www.sva.se
- Mussel Information Line (Swedish only, information on algal toxin levels in mussels from the west coast), tel. 010-224 43 20
- Your local health advice and information service (1177 Vårdguiden, www.1177.se)
- Swedish Poisons Information Centre, tel. 08-33 12 31. In an emergency, dial 112



Informationscentralen för Bottniska viken

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Algal Blooms

What are they?

When phytoplankton – microscopic aquatic plants – occur in very large quantities, an algal bloom is said to arise. The water becomes cloudy and changes colour, and the algae form a layer on the surface, varying in thickness depending on the intensity of the bloom. This algal mass may be toxic, so you should avoid bathing in the water until the bloom is over.

Algal blooms are common in lakes and seas. Massive blooms are often due to high levels of nutrients, such as phosphorus and nitrogen. In lakes and in the Baltic Sea, blooms that cause problems usually consist of cyanobacteria, also known as 'blue-green algae'.

On warm, calm, sunny days, the risk of blooms is greater. The algal scum can remain visible for anything from a few minutes to several weeks, depending on the weather. In windy conditions, blooms generally break up and disappear.



Colour and appearance vary

Algal blooms differ in colour and appearance, depending on the quantities and species involved. The water can turn green, blue-green, yellowish or red to reddish brown, and the effect can vary from clouding of the water to thick masses of algae on the surface. Blooms tend to be concentrated along shores and in bays and inlets. A bloom of one of the commoner Baltic species looks like a greenish yellow to yellowish white rhubarb soup, and sometimes like a thick pea soup.

The accumulations of algae that arise may be limited to small areas, but they can also cover entire lakes, bays or large areas of open sea. Some blooms, moreover, have an unpleasant smell.

Cloudy, coloured water is not always a result of an algal bloom: it may be due to other factors, such as pollen, disturbed sediments or detached larger algae.

Often toxic

Some algal blooms consist of species that can produce poisonous substances known as toxins. Toxic blooms of cyanobacteria mainly occur at the height of summer (July–Aug), but also in the autumn, when limited blooms of certain species can arise. Since you can't tell by the naked eye whether a bloom is toxic, you should always play safe: assume algal blooms to be toxic and avoid contact with them.

Be careful!

The best thing is to avoid waters where algae are blooming. Take particular care with young children and animals, and keep them away from affected waters and shores. Young children can easily swallow large amounts of water by accident when swimming. You can also end up with an itching rash if you sit on a beach where algae have been washed ashore.

Domestic animals can't tell safe water from toxic. As a result, they may ingest lethal doses of algal toxins if they drink contaminated water or lick their fur after swimming in it.

Some algal toxins are taken up by shellfish, making them poisonous to humans. In Sweden, this is mainly a problem on the west coast, where eating mussels after a bloom can pose a health risk.

Remember that toxins can linger for some time after the algae have disappeared.

Common symptoms

Symptoms of poisoning include nausea, irritated skin and eyes, gastrointestinal problems and fever. If you notice such symptoms, contact a doctor. If you have bathed in water affected by an algal bloom, take a shower afterwards.

The first symptoms in animals that have swallowed toxic water are vomiting and diarrhoea. A pet showing symptoms must be treated by a vet without delay. If the animal has been in the water, it must be rinsed off and dried as soon as possible.

Algal toxins known for over 100 years

The first reports of toxic algae were published in Australia as early as 1878. They described how livestock died shortly after drinking water contaminated with algal toxins.

Cyanobacteria are nothing new. In the Baltic, heavy blooms of them have occurred from time to time for at least 8,000 years.

Algae and algal blooms – basic facts

- Algae range from microscopically small to very large, up to 60 m long. Small algae (known as phytoplankton) float freely in the water, while larger ones are often attached to the bottom. It is small algae which, in the right conditions, can give rise to blooms.
- Algae are an important link in the food chain. As well as providing food for many other organisms, they are, like plants growing on land, important producers of oxygen.
- Certain bacteria, known as cyanobacteria or 'blue-green algae', are similar to algae in their structure and the way they reproduce. Cyanobacteria, some of which can produce dangerous toxins, are behind many of the 'algal' blooms that occur in lakes and in the Baltic.
- Some algae and cyanobacteria have tiny gas vesicles, enabling them to float and spread easily with currents.

