



## Cyanobacteria and its Effect on Health

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Cyanobacteria blooms, popularly known as blue-green algae, are wreaking havoc on inland and coastal populations worldwide. Coastal state, according to NOAA. Cyanobacteria are aquatic bacteria that are among the world's earliest living organisms. These water-dwelling microorganisms are also known as "blue-green algae" because they photosynthesize. Cyanobacteria can be found in a variety of habitats, including both freshwater and marine ecosystems. Despite the moniker "blue-green algae," blooms can be a variety of colours, including red, yellow, brown, blue, and green, and frequently create a scum on the water's surface. Microcystin and anatoxin are two of the most common toxins generated by Cyanobacteria, and they can be extremely damaging to other animals living in the same aquatic habitat when present in high concentrations. Cyanobacteria can grow in isolated blooms under ideal conditions such as warm temperatures, sunlight, and plenty of resources like nitrogen and phosphorus. When these blooms produce toxins, which is becoming increasingly problematic in areas with high nitrogen concentrations, there are a slew of public health concerns, including drinking contaminated water (for more information, see the Drinking Water Guide), eating shellfish, and even swimming in affected waterways.

### Factors that cause bloom

It's vital to remember that cyanobacteria proliferate quickly in water with excessive nutrient levels, hot temperatures, and still water to understand how and why dangerous algal blooms arise. Agricultural, urban, and residential runoffs, as well as poorly managed wastewater from sewage or septic systems, are all sources of nitrogen that harm streams. Water quality around the world is being jeopardized by nitrogen pollution. View this movie about nitrogen pollution in Long Island, New York, for a thorough example of how nitrogen impacts waterways and adjacent towns.

Scientists are also beginning to link climate change and human activity to the increased frequency of dangerous algal blooms. The size,

frequency, and geographic distribution of these blooms are all growing around the world. Cyanobacteria are growing at more northern latitudes as a result of rising temperatures linked to climate change. Storm water delivers nitrogen and phosphorus into surface waterways as a result of climate change-induced high-intensity rainfall. Blooms are becoming increasingly common in rivers that have been dammed to create reservoirs because cyanobacteria thrive in motionless water.

### Health consequences

Toxic cyanobacteria blooms have a variety of health and environmental consequences. Humans are at danger of exposure while swimming in contaminated waters due to ingestion, skin contact, and inhalation of airborne droplets containing the poisons. When humans consume shellfish from bodies of water with high levels of cyano toxins, they are exposed to cyanobacteria. "Microgram for microgram, the toxin is more deadly than cobra venom," according to Markain Hawryluk of the Bend Bulletin.

Despite the fact that humans are at risk, regulators have a difficult time tracking occurrences of human sickness caused by hazardous algal blooms since small symptoms are often disregarded. The impact of cyanobacteria on human health is dependent on the type of toxin present, its concentration, and the length of time spent exposed. The more severe the symptoms may be, the greater the cyan toxin content and the longer the exposure. When exposed to a high quantity, health problems normally occur, however certain people may be more sensitive to developing symptoms. Contact with cyan toxins on the skin can produce irritation (rash or skin blisters), as well as irritation of the eyes, nose, and throat, as well as inflammation of the respiratory tract. Drinking high-concentration water can cause nausea, vomiting, abdominal pain, and diarrhea. In severe situations, effects on the liver and nervous system of animals and humans have been observed.

### Solutions

Increased local and national coverage of the growing threat cyanobacteria blooms and their toxins represent to recreation, public health, and local economy has raised public awareness and political will in many areas to begin addressing water pollution issues. There are other things that each of us can do at home to help protect clean water and prevent nutrient pollution from entering local rivers and generating cyanobacteria blooms.

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