



Detailed Note on Algal Bloom

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SUMMARY

An algal bloom is a photosynthetic organism, can be seen rapid growth in the population of algae in an aquatic system within a short period of time. It can occur in fresh water and marine water bodies and is recognized by the discoloration in the water from their pigments. The intense algal growth, or algal bloom, will become visible and may be green, blue-green, red, or brown, relying at the form of algae. An alga is present in natural water bodies like oceans, lakes, and rivers, but only some types can produce toxins. In these algae, toxin production can be restored by effective factors such as light, temperature, and nutrient levels. Algal toxins are released into surrounding water or air can seriously harm human, animals, fish, and other parts of the ecosystem. Cyanobacteria were mistaken for algae in the past so bacterial blooms are sometimes also called algal blooms.

Blooms which can injure animals or the ecology which are “Harmful algal blooms” (HAB), which occur in freshwater, lakes and other drinking water sources are dominated by the cyanobacteria *Microcystis*. This organism can cause a liver toxin that creates gastrointestinal infection as well as liver damage. Populations primarily based totally on seafood also are susceptible to long time health consequences from potentially frequent, low stage exposures to HAB toxins. HABs can damage the ecosystem by depleting oxygen in the water, which can cause death of aquatic animals, or simply by blocking sunlight which passes through the water organisms deeper in the water. The important impacts of HABs to fisheries and some areas can also be extensive. People rarely get week from HAB-related toxin, algal bloom occurs when there is excessive amount of artificial nutrient enrichment discharged into the water and factors such as; Temperature, Turbidity, Oxygen level and light are available in the correct amount thereby creating a set of favorable conditions specific for certain algae species.

Algal blooms are caused which referred to as the artificial nutrient

enrichment of water bodies. Nutrients promote the growth of cyanobacteria and algae. The essential nutrients contributing to eutrophication are Phosphorus and Nitrogen. Such nutrients are absorbed from drainage systems into waterways. Untreated, raw sewage finds their own way into water bodies due to poor sewage treatment and because it is rich in nitrogen compounds like ammonia and nitrates, it leads to algal bloom. Generally there are many types of bacteria present both in the water and atmosphere. They are all looking for proper growth and nutrition media. So, like other bacteria, by the involvement of each dead species in water, the algae bacterium gets activated. The dead organic matter, together with the nutrients in the water, finally ends up spread the growth of algae in water leading to the blooming of algae. Optimal temperature for the growth of cyanobacteria in water is about 25°C and thus has an ambitious advantage over other types. Harmful algae commonly bloom throughout the summer time or when water temperatures are rises than usual.

Fresh water ecosystem is negatively impacted by algal bloom where the effects includes depletion of dissolved oxygen - Bacterial decomposition of dying blooms may lead to oxygen depletion (Hypoxia and Anoxia) and subsequent fish kills, Reduction of water quality and Distortion of food chain. Reduced light penetration leading to reduced primary productivity where an over - abundance of algae can block out the light to other plants, such as sea grasses. Bioaccumulation along food chain - Due to slow metabolism, toxins produced by certain algae which taken by zooplankton then the toxins may build up within the organism. Dumping of industrial and domestic waste into water bodies should be prohibited and waste recycling encouraged. Algal bloom results in increased growth in the algal population due to nutrient enrichment which leads to effects such as depletion of dissolved oxygen, reduction of water quality, reduction in light penetration and others, and negative impacts on freshwater ecosystem.

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