

Algae: A Naturally-Occurring Phenomena

The Department of Environmental Quality often receives complaints of the presence of scum on a lake or that someone has dumped red, bright green, black or bluish-green paint, paint oil, or even antifreeze, into a lake, river, or stream. This phenomenon is often due to the presence of algae rather than the discharge of some type of substance.

Algae are simple plants that live in oceans, lakes, rivers, ponds, and moist soil. Algae grow in many forms. Some are microscopic and consist of just one cell and others are made up of many cells that form strands or colonies. Algae are less evolved than aquatic plants as they lack a true root, leaf, and stem system. Some algae species drift or swim, while others are attached to stones or aquatic plants in the water. All algae contain chlorophyll (a green pigment). They help purify the air and water by the process of photosynthesis.



Some algae multiply rapidly in polluted lakes and rivers. Thick layers of algae, called algal blooms, may form when nutrients (mainly phosphorus and nitrogen) are added to the water in amounts in excess of naturally-occurring nutrients. Fertilizers, pet waste, improperly functioning septic tanks, grass clippings, leaves, and other yard wastes are all sources of nutrients. The increased algae population sometimes upset the natural balance of life in water because during algae decomposition, oxygen is removed from the water and this may cause fish to die.



Algae are generally grouped according to color. The color is based upon the chlorophyll and other pigments found in the algae cells. Blooms of algae can give the water an unpleasant taste or odor, reduce clarity, and color the water body a vivid green, brown, yellow, or even red, depending on the species of algae.

Blue-Green Algae

The cells of blue-green algae are different from the other algae. Most blue-green algae can be seen only with a microscope and often smells badly. Besides chlorophyll, they contain blue or red pigments. Although lakes with large numbers of blue-green algae usually appear blue-green in color, the combination of pigments can cause some blooms to appear reddish, brownish, or even black. Unlike other algae which use nitrogen available in the water, many blue-green algae species can use nitrogen from the air as a nutrient source. Due to this ability, blue-green algae blooms most often occur in late summer when the nitrogen in the water is usually lower. A few species of blue-green algae form slippery, dark coatings on rocks along rivers and lakeshores, while other species of blue-green algae are toxic and can poison animals that drink water containing these organisms.



Notice the different color appearances due to pigments.



Green Algae

Green algae occur in fresh water in a free-floating form. Most species are microscopic and live in lakes, ponds, and streams. Large quantities of such algae may color an entire lake and appear like green paint. Green algae blooms are often found during early to mid-summer months. However, some lakes have been known to reflect a green color during a “whiting event” not related to algae bloom. This event does not produce thick surface algae mats.

If you find pollution and believe it is human-induced, please report it to the State of Michigan’s Pollution Emergency Alerting System (PEAS) hotline: 1-800-292-4706.

For more information, including tips to help reduce the amount of nutrients that can enter a lake from your home activities, please contact any Water Bureau district office or call the State of Michigan's Environmental Assistance Center at 1-800-662-9278.

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