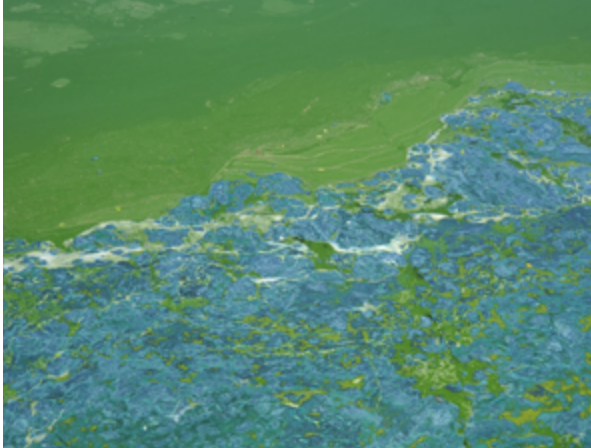


Planktonic Algae



Blue-green algae surface scum showing paint-like accumulations.



Green water is the sign of a productive pond.



Reddish *Euglena* bloom.

There are several hundred species of planktonic algae that comprise the algal communities in Mississippi. Most problems are caused by planktonic algae that's classified as cyanobacteria, green, or Euglenoid. All are an important part of the ecosystem, but when conditions are optimal for growth, they can experience population explosions known as "blooms." Blooms can have a nuisance odor and appearance. They may lead to serious water-quality problems.

Cyanobacteria (Blue-Green Algae)

This group of simple organisms is a common component in most waters. Blooms may be lime-green, blue-green, red, or brownish. Individual alga will aggregate together into small "flakes" that may turn into thick surface "scums" on calm days. Blooms are especially common during hot summer days and **can form bright blue, gelatinous clumps with a putrid odor.**

Green Algae

Green algae **are a critical part of the aquatic food chain,** and blooms are often encouraged using fertilization. Blooms (population explosion) appear bright green to olive-green. They are most common in late-spring or early summer.

Euglenoid Algae

Euglena is a genus of algae that includes many species. Blooms form a surface scum that may vary in color from lime-green to dark red. Individual cells are motile and **may migrate down in the water column during the afternoon.** Intense blooms indicate organic enrichment. Blooms occur year-round but are most common in summer and fall.

Planktonic Algae

Management Value

Planktonic algae, particularly diatoms and green algae, are the base of the aquatic food web and promote a healthy ecosystem. In moderation, these species are essential.

Fish management often includes the use of fertilizer to promote a healthy bloom of plankton. Ideally, the visibility of the water with a healthy plankton bloom should be about 18 inches. Less than 12 inches indicates a higher risk of an oxygen crash, and greater than 24 inches suggests productivity is too low and can allow submersed vascular plants to establish.

Species of planktonic algae cycle during the year. Often, diatoms bloom in late winter, followed by green algae, and then cyanobacteria dominate during the warm summer. Red Euglena blooms can happen any time but are less common.

Cyanobacteria can release toxins that are harmful or fatal to fish, reptiles, mammals, birds, and humans. Occurrence of toxic conditions is rare, but it is best to avoid swimming in ponds when a cyanobacteria bloom is present.

Recommended Controls

It is not normally necessary to treat planktonic blooms, as they will go away on their own and treatment can cause other issues. For chronic blooms that require control, partial control can be achieved using the following recommendations.

Option 1: Copper sulfate (pentahydrate) is the most economical solution for ponds with alkalinity at least 50 ppm. Treatment rate varies by species and alkalinity. Five pounds per acre-foot controls most planktonic species. Determine pond volume prior to algaecide application. Dissolve at a rate of 1 pound per 5 gallons of water and spray uniformly over the pond surface. Not recommended for cyanobacteria. Do not use copper sulfate in ponds when alkalinity is less than 50 ppm. Do not exceed annual herbicide rate limits as stated on the product label.

Option 2: Chelated copper. Apply a liquid chelated copper (0.9-pound formulation) at a rate of 1.5 gallons per acre-foot. Determine pond volume prior to algaecide application. Dilute 1 part chelated copper with 9 parts water and spray uniformly over the pond surface. Copper can be toxic to fish when water alkalinity is low. Do not use copper in catfish or koi ponds when alkalinity is less than 50 ppm. Do not exceed annual herbicide rate limits as stated on the product label.

NOTE: Acre-foot = average depth of pond multiplied by pond acreage; average depth is calculated by taking the depth at 20 points across a water body and averaging the values.

Apply on sunny days when water temperature is above 60°F. Use of copper when alkalinity is less than 50 ppm may kill fish. For heavy blooms, treat only one-third of the pond at a time during the early morning hours. Wait 2-3 days between treatments of plankton.

■ Read and follow all chemical label instructions, especially the section on the use of personal protection equipment.

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By **Wes Neal**, PhD, Extension/Research Professor, Wildlife, Fisheries, and Aquaculture; **Dennis Riecke**, Fisheries Coordinator, Mississippi Department of Wildlife, Fisheries, and Parks; and **Gray Turnage**, PhD, Assistant Research/Extension Professor, GeoSystems Research Institute.

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