Arkansas Pond Bulletin

March 2023

Quick Hit: So… algae?

If you are a new agent tasked with handling pond issues, you're going to hear algae a lot. And I mean a lot. Veteran agents, we're in for an early emergence of algae (and other weeds) in 2023 due to the warm February and our ice/snowfall over the winter. For most of the state, algae is already growing. Here's a quick overview.

Algae are a diverse group including hundreds-of-thousands of species of eukaryotic and prokaryotic forms. In the pond environment we see three primary forms of algae; planktonic, filamentous and macrophytic.

Beneficial planktonic green algae bloom.

Planktonic algae includes beneficial green algae and diatoms that produce oxygen, feed zooplankton (which are extremely important diet components of young, and filter-feeding adult, fishes), and make water appear a transparent to opaque green. These algae "blooms" are necessary for good fish production but they can become troublesome if they grow too dense. A general rule of thumb is to maintain 18-36 inches of visibility through nutrient management (a tale for another day). The algae bloom's species composition changes throughout the year based on environmental conditions. In the hottest months, July-September, blue-green algae (photosynthetic bacteria called cyanobacteria) can become dominant. These blue-green algae are typically involved in harmful algal blooms (HAB's), they are not consumed by zooplankton (which is detrimental to the pond food chain), and many are capable of producing toxins that can irritate animals/humans and even kill when consumed at high doses. Nutrient sequestration using flocculants like aluminum sulfate or commercially-available products like Phoslock, Phosclear, and others are usually required to strip nutrients from systems experiencing HAB's.

Harmful blue-green algal bloom.

Filamentous algae.

Filamentous algae are single-celled species that stick together to form webs or filaments. These algae begin growing on the bottom and float to the surface once mature to create unsightly and burdensome mats. A combination of herbicide, aquatic dye, nutrient sequestration, and even tilapia can help manage filamentous algae issues. Be aware that herbicide treatments to filamentous algae are usually only temporarily effective; clearing in days followed by re-emergence within 2-3 weeks just as bad or worse than before. Herbicides alone will not provide long-term control. Recommend an effective herbicide, copper sulfate is generally the most cost-effective active ingredient (see MP44 and MP556 for more detail), followed by nutrient sequestration with a flocculant 1 to 2 weeks after herbicide treatment. Continue this pattern until plants are under control. Filamentous algae is one of the most difficult aquatic weeds to control.

Macrophytic algae (chara).

Macrophytic (macro) algae are species that form networks/structures that resemble higher plants. Chara, for example, looks extremely similar to the common aquatic plant, coontail. Macro algae grow on the pond bottom and form clumps or meadows usually less than one to two feet tall. They are occasionally problematic and can be treated with copper-sulfate based herbicides and are effectively controlled by grass carp.

Several publications can provide further information on algae and management techniques, click the following links for publications:

FSA9094 - Algal Blooms, Scums and Mats in Ponds

FSA9540 - Recognizing Understanding and Treating Harmful Algal Blooms

SRAC 4605 Algal Toxins in Pond Aquaculture

MP556 - Aquatic Vegetation Control in Arkansas

MP44 Recommended Chemicals for Weed and Brush Control - Aquatics Section

SRAC 0360 Aquatic Weed Management - Control Methods

SRAC 0361 Aquatic Weed Management - Herbicides

SRAC 3602 Aquatic Herbicide Mode of Action and Use Implications

SRAC 3600 Using Grass Carp in Aquaculture and Private Impoundments

What to Watch Out for in March:

Aquatic weeds will emerge in early March this year, a bit earlier than normal for Arkansas. Prepare yourself by reading through especially the MP 556 and SRAC 0360, and have the MP 44 handy for detailed information on specific herbicides. The easiest plant ID tool available now is Texas A&M's Aquaplant "Identify a Plant" directory https://aquaplant.tamu.edu/ (which is apparently broken at the time of this document's writing… I'll contact the website manager). The MP 556 and MP 360 contain photos of many of the common problematic weeds in Arkansas. You can also text or email me photos of the plant you're dealing with and I can advise.

Pond Management Tasks for March:

Fertilization and feeding programs will begin this month when the water reaches about 65°. It is time for aquatic dye for weed/algae control. Be aware that during the rainy season dyes will need to be reapplied regularly to maintain effective concentration. Herbicide applications for algae will begin this month. This is a favorable time for fish stocking (species and numbers depend on the client's situation and pond conditions).

Message me with any questions or workshop planning ideas. Ponds are about to get busy.

Take care,

Scott Jones
Small Impoundment Extension Specialist / Instructor II
Department of Aquaculture and Fisheries
University of Arkansas Pine Bluff
870.575.8185 (Office)
joness@uapb.edu
AFS - Certified Fisheries Professional