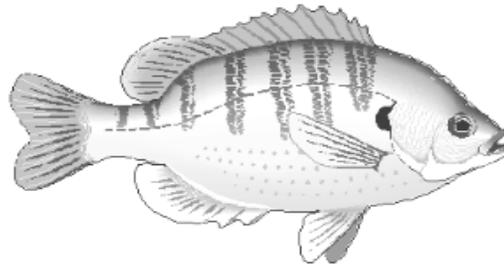


Ohio Pond News



The Ohio State University



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Managing Aquatic Vegetation Without Chemicals

Aquatic plants and algae are common to many of Ohio's ponds and quite often attain abundances that cause problems for owners. Excessive plants and algae can interfere with swimming and fishing, upset the fish community's balance, clog pumps if present, and ruin the aesthetic value of the pond. Many pond owners have expressed a desire to manage their pond without the use of chemicals. Also, pending new federal rules may make using herbicides and algaecides in aquatic systems more difficult and expensive. So it seems relevant to consider how a pond's plant community might be managed without chemicals.

Setting goals and tolerances - Many pond owners do not realize that low amounts of aquatic plants are beneficial to the pond's ecosystem. They can provide critical food and nesting habitat to a wide variety of fish and wildlife. Additionally, plants store nutrients long-term making them unavailable to algae and duckweeds. How much is too much? Research has clearly demonstrated that when plant abundance exceeds 20%, the balance between largemouth bass and bluegills begins to skew in favor of bluegills. The end result can be a stunted bluegill population because bluegill have too many hiding places and bass cannot find them. The pond owner should set or re-assess his or her pond management goals and determine how much vegetation will be tolerated. In many ponds, little additional management

activity may be needed.

Nutrient management - When a pond has excessive levels of aquatic plants and algae, it is almost a certainty nitrogen and phosphorus levels are or have been too high. Just like growing grass in your front yard, if a pond is fertilized with outside inputs of nutrients, more aquatic greenery will grow. The more nutrients, the bigger the problem. Common sources of unwanted nutrients are Canada geese, fertilizing grass around a pond, a septic system too close to the pond, domesticated animals in the watershed (even a few can be problematic), and agricultural runoff. It is recommended that pond owners experiencing plant or algae problems assess the potential of whether excessive nutrients can enter the pond and take corrective measures if possible.

Watershed characteristics are an important component of nutrient management. A pond whose watershed is largely composed of natural vegetation will have fewer problems than a pond with an agricultural watershed. While nearby agriculture or domesticated animals may not be able to be relocated, the pond owner can take action. Reconfiguring the adjacent land so that agricultural runoff goes around the pond instead of into the pond can be a big help. Also, replacing mown, cool season grass between

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Did You Know?

- Swallows and their graceful flights are a bonus for the pond owner. Three species regularly use ponds for capturing insects: tree swallow, barn swallow, and purple martin. During migration, rough-winged and bank swallows may visit your pond. All are voracious eaters of insects.

Managing Aquatic Vegetation Without Chemicals Cont.

the pond and agricultural areas with native warm season grasses and prairie flowers can reduce nutrient inputs. Their deeper root systems hold water longer, allowing the grasses and flowers to absorb the nutrients that otherwise would go into the pond. These warm season grasses and prairie flowers are fantastic wildlife habitat!

Pond colorants - Many pond owners who prefer not to use chemicals are willing to use pond colorants. Pond colorants are nothing more than food grade blue dyes. Some products have other colors mixed in. When used correctly, the colorants darken the water and reduce sunlight penetration. Reduced light reduces the amount of aquatic plants and algae that will grow, often to levels acceptable to the pond owner. Pond colorants are most effective in ponds receiving very little runoff and flushing during rain events. Ponds with a large watershed or have a little creek entering them often lose their "blue color" after every rain and additional colorant is needed. This can get expensive. Pond colorants are most effective when initially applied in March and small supplemental additions are made as needed during the growing season.

Aeration - Outside sources of nutrients are a major problem for many Ohio ponds, but ponds with a lot of bottom muck (especially old ponds) can have phosphorus cycled internally which can cause algae and duckweed/watermeal blooms. What causes phosphorus to be cycled internally? Pond stratification. Most Ohio ponds stratify, meaning a warm layer of water sits atop a cold layer of water during the summer and early fall.

Because these layers typically do not mix until mid-fall, the cold bottom layer loses its oxygen as decomposition of dying materials and bottom muck occurs. In the absence of oxygen, phosphorus from the bottom muck is released into the water where it can grow algae and duckweeds. An effective way to eliminate this internal release of phosphorus is to make sure oxygen is present along the bottom all summer. This can be easily accomplished with a bottom bubble aeration system. In such a system, bubbles push up bottom water to the surface while highly oxygenated water from shallow areas moves along the bottom to replace the rising deep water. Stratification cannot occur and deep water remains oxygenated, causing phosphorus to remain in the bottom sediment.

Mechanical removal - Manual removal of plants and algae is labor intensive and generally is not practical in ponds already choked with greenery. However, it is quite effective when the problem is small, like the initial appearance of cattails or the initial development of algae mats along shore.

Many ponds in Ohio are effectively managed without chemicals each year. Typically bottom aeration and pond colorants are used, and the pond's watershed retains most nutrients prior to water going into the pond. Canada geese are chased away, grass is not fertilized near the pond, and runoff from agricultural areas is directed around the pond. Many of the owners are willing to tolerate small amount of aquatic plants. Many more ponds could be managed as such with a little planning.

Fish Spawning in Ponds

The primary two species stocked into Ohio's ponds are largemouth bass and bluegills. Why are they so well suited for these small warm water bodies? A major reason is how they reproduce or spawn. Both species are nest builders meaning a parent (male for these two species) builds a nest in shallow water as waters warm in spring. Bluegills are colonial spawners with many saucer shaped nests being located in a small area. They are generally easy to find. Largemouth bass are more solitary nesters and typically nest in a little deeper water. Males of both species continually tend to the nest and defend the eggs against intruders desiring an easy meal of eggs. Incubation time is dependent on water temperature with hatching taking only a week or so if water

temperatures are in the 70's.

The advantage nest builders have in ponds with soft bottom materials is that males continually fan away sediments that could cover the eggs and cause egg mortality due to oxygen deprivation. Many fish species that simply disperse their eggs randomly along the bottom and provide no parental care do very poorly in ponds and lakes with soft bottoms. The eggs simply sink into the soft bottom muck and become smothered. Species who disperse their eggs typically require rocky or rock/sand bottoms where soft sediments are absent and oxygen deprivation will not occur.

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Harmful Algal Bloom (HAB) Update

Blooms of cyanobacteria (formerly called blue-green algae) are beginning to occur in Ohio's water bodies. While still a relatively rare occurrence in Ohio ponds and small lakes, their ability to produce toxins and sicken pets and humans should cause all pond owners to be vigilante. If your pond or lake exhibits a green scum, like green paint was thrown on the surface, or takes on an unusual color, you should limit the use of the pond until the problem abates. Swimming should be halted and pets kept out of the water. Many folks want to treat

a HAB but research has shown that stressing the cyanobacteria with an algaecide will cause the toxins to be released. The best strategies to prevent the occurrence of a HAB in your pond are to minimize inputs of nutrients from outside the pond and to install a bottom bubble aeration system. Additional information can be found by typing the phrase ***Harmful Algal Blooms in Ohio Waters*** into any search engine like Google. This four-page factsheet is full of information that pond owners will find useful in keeping the family and pets safe.

Pond Factsheet Update

Available at ohioline.osu.edu

Placing Artificial Fish Attractors in Ponds and Reservoirs: OSUE Factsheet A-1.

Pond Measurements: OSUE Factsheet A-2.

Controlling Filamentous Algae in Ponds: OSUE Factsheet A-3.

Chemical Control of Aquatic Weeds: OSUE Factsheet A-4.

Muddy Water in Ponds: Causes, Prevention, and Remedies: OSUE Factsheet A-6.

Understanding Pond Stratification: OSUE Factsheet A-7.

Winter and Summer Fish Kills in Ponds: OSUE Factsheet A-8.

Planktonic Algae in Ponds: OSUE Factsheet A-9.

Fish Species Selection for Pond Stocking: OSUE Factsheet A-10.

Cattail Management: OSUE Factsheet A-11.

Algae Control with Barley Straw: OSUE Factsheet A-12.

Ponds and Legal Liability in Ohio:

OSUE Factsheet ALS-1006.

Ice Safety: OSUE Factsheet AEX-392.

Farm Pond Safety: OSU Factsheet AEX-390.

Notifying the Ohio EPA Prior to Applying Aquatic Herbicides: OSUE Factsheet A-13.

Duckweed and Watermeal: Prevention & Control: OSUE Factsheet A-14.

When to Apply Aquatic Herbicides: OSUE Factsheet A-15.

Pond Dyes and Aquatic Plant Management: OSUE Factsheet A-16.

Benefits & Problems of Aquatic Plants in Ponds: OSUE Factsheet A-17.

Using Grass Carp to Control Aquatic Plants: OSUE Factsheet A-19.

Coping With Canada Geese: Conflict Management and Damage Prevention Strategies: OSUE Factsheet W-3.

2010 Pond Clinic Schedule

These are currently the pond clinics scheduled for 2010. If you want a pond clinic scheduled in your county during 2010, contact your county OSU Extension or SWCD office and let them know of your desire. They are always appreciative of folks who offer their pond as a clinic site.

July 24, Saturday - Gwynne Conservation Area (Ponds With a Purpose: 9 AM - 4 PM)

Sept. 21, Tuesday - Farm Science Review—numerous presentations

Sept. 22, Wednesday - Farm Science Review—numerous presentations

Sept. 23, Thursday - Farm Science Review—numerous presentations

Note: clinic or workshop details can be obtained by checking your county's SWCD or OSU Extension web pages. Registration for "Ponds with a Purpose" can be done at the Ohio Woodland Stewards website.

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Fish Spawning in Ponds

So what about channel catfish? They are also nest builders, survive well in ponds, but generally do not reproduce successfully in ponds. Why? Channel catfish are cavity nesters and require a dark cavity in which to enter and lay their eggs. They do not build nests out in the open like bass and bluegills do. Most ponds and small lakes do not have such cavities. Occasionally, smaller channel catfish will spawn in a muskrat run or hole in a small water body and a few small catfish might be seen. In larger lakes where large rock rip rap is placed on a dam, larger cavities are created and catfish use them. If channel catfish did

spawn effectively in ponds, it could cause a problem. Too many channel catfish can muddy the water, creating problems for the sight-feeding bass and bluegills.

Yellow perch can do well in small, warm lakes and ponds but often do not reproduce successfully. They lay egg ribbons on aquatic vegetation or brush. Egg ribbons that fall onto the soft bottom will become covered in sediments and die. Also, perch lay their ribbons early and are often exposed to weather extremes, causing many spawning failures.

Visit Ohio State University Extension's WWW site "Ohioline" at <http://ohioline.ag.ohio-state.edu>

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