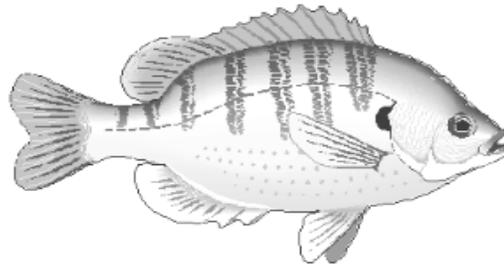


# Ohio Pond News



The Ohio State University



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## Hazardous Algae Blooms—A 2009 Epidemic

Readers may have read or heard about hazardous algae blooms (HABs) in Lake Erie and Grand Lake St. Mary's. They've received a lot of attention by the press. Interestingly, there has also been a dramatic increase in HAB's in ponds and small lakes as well. Until 2007, I hardly received any calls or emails from pond and lake owners about HAB's. In 2008, I worked with about a dozen owners who were experiencing these blooms. In 2009, it was the most frequent email and phone call subject in August and September. In 2009 to date, I've educated and worked with 76 pond and lake owners who are having blooms of these algae - nearly all of which encountered no problem previously with HAB's. I'm sure the number of actual blooms going unreported is much larger.

**What are HAB's?** The taxa of planktonic algae that are causing these blooms of hazardous algae were once known as blue-green algae but are now correctly called cyanobacteria. These cyanobacteria are bacteria that contain chlorophyll and therefore can make their own food from sugars and sunlight. The concern with cyanobacteria is that they form toxins inside their cells and under certain conditions can release those toxins into the water. This can pose a health hazard if toxin levels are high enough. There are up to eight cyanobacteria taxa that can cause HAB's in Ohio, but the primary taxa causing blooms in ponds and small lakes is *Microcystis*.

**How to Tell if You Have a HAB?** The only way to definitively determine whether a water body has cyanobacteria is to take a sample

and view it under a microscope. A person familiar with the various HAB taxa can make the exact identification. However, HAB's (particularly *Microcystis*) have certain characteristics that should raise a red flag for the pond or lake owner. Blooms often look like someone threw bright green paint on the water, particularly when the wind blows the floating cyanobacteria into slicks along the shore. Often, patches of white foaminess or turquoise algae are present within the slick. The worst blooms not only have the floating slicks, but the water itself is green throughout.

**What Causes HAB's?** No one is exactly sure why we have such an explosive increase in HAB's the last several years. In the HAB infested ponds and lakes I've visited recently, the following conditions were evident at all:

- High measured nutrient levels, especially phosphorus.
- Protected water, with very little water movement.
- Low water levels.

Historically, high water temperatures have always been considered a contributing factor, but that does appear to be true this past summer. A cool summer led to lower than average water temperatures. I believe elevated nutrient levels and a higher than normal phosphorus level are the primary causes of HAB's in ponds and small lakes. Major sources of unwanted nutrient additions to small water bodies include Canada geese visitation, lawn fertilization, poorly operating septic systems, and run off from

## Did You Know?

- Albino herons? Pond owners occasionally see what they call albino (all white) great blue herons at their ponds. What they are seeing are great egrets, which are closely related to great blue herons but are slightly smaller and indeed are totally white. Normally, great egrets visit large wetland complexes, but this fall seems to be one of those falls where small water bodies are being visited.

# Assessing Your Fish Populations—Part III

In the past spring and summer issues, I explained how a pond owner could collect his own fish data and generate length frequencies to assess the status of his fish community. I focused on four types of management strategies: “do nothing” strategy; the balanced fishery strategy, the big bluegill strategy; and the big bass strategy. In this issue I want to provide insight into how to maintain each strategy.

**The “Do Nothing” Strategy** - This is an easy set of recommendations. Continue to do nothing. Couldn't be simpler. However, the pond owner must be willing to accept what could be very poor fish populations and / or ponds potentially choked with aquatic plants and algae.

**Maintaining a Balanced Fishery** - Some owners refer to this as the all around, general fishery where anglers might catch a bass or bluegill of any size. What they don't realize is that aquatic plant management is central to maintaining a balanced fishery. Too much or too little aquatic vegetation can in a few years skew a fish community into a different situation. In general, the following recommendations will help maintain a balanced fishery for bass and bluegills:

- Maintain submerged aquatic plants and algae at 15-20% of the pond surface area.
- Harvest up to 10-12 bass, 8-12 inches long per acre per year.
- Harvest up 3-5 bass over 15 inches per acre per year.
- No harvest of 12 - 15 inch bass. Commonly known as a slot length limit.
- Harvest up to 300, 5-9 inch bluegill per acre per year. Most of these will not be desirable to fillet, so consider other alternatives for their use. Think garden.

**Growing Big Bluegills** - This is by far the best fishery for children and family fishing as the strategy yields good numbers of large bluegills and numerous 8-12 inch bass which children love to catch. The following recommendations will help maintain a large bluegill fishery:

- Maintain submerged aquatic plants and algae at 5-10% of the pond surface area.
- Do not harvest bass less than 15 inches long (15 inch minimum length limit). If bass begin to appear thin and emaciated, selective harvest of 8-12 inch

bass may be needed until bass begin to look more robust.

- Harvest up to 3 bass over 15 inches per acre per year.
- Harvest up to 150, 7-10 inch bluegills per acre per year.

**Growing Big Bass** - Some pond owners want to focus their fish management activities on growing big bass, fish in excess of 3-4 pounds with the reasonable expectation of catching the occasional 5-6 pound fish. Adopting this strategy means the owner is willing to forgo having numerous harvestable bluegills. Why? Because having big bass means bass numbers are low, insufficient to control the large numbers of bluegill present. The key to growing big bass is to make sure the bass that are present never go hungry. The following recommendations will help maintain a large bass fishery:

- Maintain submerged aquatic plants and algae at no more than 5% of the pond surface area.
- Harvest up to five bass over 15 inches per acre per year.
- No harvest of 12 - 15 inch bass. Commonly known as a slot length limit.
- Harvest up to 10-12 bass, 8-12 inches long per acre per year.
- No bluegill harvest except for the very few larger bluegills over 8 inches. There may be none. Our goal is to create a slow-growing bluegill population so that bass have lots of prey to consume.

The above are merely management recommendations for each strategy. The pond owner should continuously monitor bass and bluegill length frequencies to determine if fine-tuning is needed. For example, sometimes in ponds managed for big bluegills, a stockpiling of too many bass under 12 inches occurs. This in turn leads to a bluegill population comprised solely of large fish, those over 8 inches. Virtually no 3-8 inch bluegills exist. I've seen this many times. In this instance, we would, for several years, allow more bass to be harvested to reduce predation on small bluegills. The owner can go back to the general guidelines above once bass look healthier and anglers again catch some 3-8 inch bluegills. Similar adjustments to the recommendations may be needed for the big bass or balanced fishery strategies.

# Hazardous Algae Blooms—A 2009 Epidemic (*continued*)

agricultural activities (particularly animal husbandry areas).

**What are the Health Concerns?** If cyanobacteria release their toxins and toxin levels are high enough, humans and pets can be negatively affected. In humans, symptoms could include: numbness of lips, tingling in the extremities, dizziness, headache, rash, abdominal pain, diarrhea, and vomiting. Fortunately, deaths are very rare! In pets, symptoms are weakness, staggering, convulsions, vomiting, and difficulty breathing. Deaths of pets and wild mammals have been reported.

**How to Keep Your Family and Pets Safe?** The following are general guidelines to keep families safe from any adverse effects:

- Avoid contact with water that is pea green, has a floating bright green scum, or is generally discolored.
- Always immediately rinse yourself, family members or pets after swimming in natural waters. HAB's cannot always be seen, smelled, or tasted.
- If anyone or a pet becomes ill after exposure to pond or lake water, seek medical or veterinary attention immediately.
- Never drink pond or lake water, including pets.
- It is not wise to use natural waters as a residential source. Lax attention to a filtration system can cause periods of exposure to pathogens and HAB's.

- Never cook with water from areas suspected to have a HAB bloom. Boiling the water does not eliminate HAB toxins.
- Consider minimal consumption of fish fillets from water bodies experiencing a HAB event. Research has indicated most toxins are in the internal organs, but small amounts can be in the fillets.
- Do not treat HAB's with algaecides, as toxins can be suddenly released from dying cells.

**How to Avoid Having a HAB.** In ponds and small lakes, it is possible to avoid having a HAB or having it again in subsequent years by doing all of the following:

- Use lawn fertilizers sparingly, being sure not to over-fertilize or over-water after applying.
- Do not allow large numbers of Canada geese to set up residence. Scare them away.
- Prevent surface run-off from agricultural and livestock areas.
- Maintain native plants in as much of the watershed as possible to filter out nutrients before they reach the pond.
- Perhaps most importantly, install a bottom aeration system (electric or windmill). Bottom diffuser systems reduce internal phosphorus cycling and can reduce the severity of and often prevent HAB's.

## Pond Factsheet Update

### Available

*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:* Factsheet A-17.

*Note: these factsheets are available at [ohioline.osu.edu](http://ohioline.osu.edu).*

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## New Grass Carp Factsheet

A new factsheet titled “**Using Grass Carp to Control Plants**” has recently been released and should be available for download shortly at [ohioline.osu.edu](http://ohioline.osu.edu). Grass carp are one tool for the control of nuisance aquatic plants, but are not the “silver bullet” so many pond owners hope for. These fish have plant preferences and their usefulness depends largely on the species of plants causing the problem. A summary of their preference is provided. How many to stock and when to stock is a question often asked and information is provided to help owners on these subjects. There are a number of concerns the pond or lake owner should consider prior to stocking grass carp.

The new factsheet provides information on the following concerns:

- Habitat impacts
- Impacts on other fish species
- Stocking new ponds
- When to expect results
- Supplemental stockings
- Algal blooms
- Swimming
- Removal if desired

Visit Ohio State University Extension’s WWW site “*Ohioline*” at <http://ohioline.ag.ohio-state.edu>

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