Test your pond savvy with our Pond Management Quick Facts Test

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Bet you haven't taken a test in a while! Jackie and I have been tackling pond problems for about seven years and frequently get asked the questions in the "test" below. You'll probably have more questions, but this gives you a jump-start. Please contact us if we can answer any other pond management questions.

In what season should a pond be managed?

All seasons. Ponds require regular year-round maintenance to retain their original characteristics and function.

Name the four areas of pond management.

1. Pond & Watershed Mgmt – Understanding design & construction concepts and maintaining the watershed.
2. Water Mgmt – Understanding & manipulating the physical and chemical components of water.
3. Crop Mgmt – Balancing fish populations for sustainable harvest.
4. Pest Management – Controlling unwanted visitors to the pond.

Does a pond owner need to keep records?

Yes. Keeping accurate records allows the pond owner and others to evaluate pond management decisions.Typical records kept include the application of lime, fertilizer or herbicides, addition or harvest of fish, and fish population analyses.

Area One – Pond & Watershed Management

If someone was interested in digging a new pond, whom should they contact for permitting and technical assistance?

Prior to digging or re-digging a pond, landowners need to contact their local Natural Resources Conservation Service Office to obtain the appropriate permits. In most counties, these offices can offer assistance in pond citing and design.

What is the primary source of pollutants (nutrients) to a pond?

Name two ways to control this from happening.

Run-off. Some "Bay Friendly" landscape practices that can be used to minimize run-off of nutrients into a pond include: Minimizing paved areas, Controlling water flow, Proper lawn maintenance, Not mowing to up to the edges of the pond, Planting flower/scrub beds, and Planting buffer strips.

Area Two – Water Management

What is the primary source of oxygen to a pond?

Photosynthesis by Algae

The two sources of oxygen to a pond are:

- Diffusion: direct exchange of oxygen at the water/air interface
- Photosynthesis: process by which plants manufacture food (oxygen is a water product)

The amount of oxygen in a pond and the ability of water to retain oxygen is influenced by time of day, weather, altitude, and water temperature.

Name one sign that might indicate that there is an oxygen problem in a pond.

Fish congregate at the surface gulping for air

Fish stop actively feeding

Animals (i.e., crawfish) crawl out of the pond

Water turns gray or brown in color

Name one way of preventing oxygen depletion in a pond?

Keep pollutants & sediment from entering the pond

Reduce aquatic vegetation growth

Deepen shallow ponds

Mechanical aeration

What is happening to a pond during a "turnover" event?

Temperature stratified layers of a pond mix rapidly (these layers are usually oxygen stratified as well).

What can cause a "turnover"?

Heavy winds blowing across a pond

Thunderstorms (rains cold water that sinks to bottom – pushing bottom waters upward)

Rapid cooling (summer) or warming (winter) of surface waters

What detrimental effect can a "turnover" have in a pond?

In situations where oxygen-poor bottom layers are larger than the oxygen-rich upper layers, a turnover event (which results in the two layers being mixed) can lead to oxygen levels that are too low to support aquatic life = fish die.

Area Three – Crop Management

What is the major cause of fish death in ponds?

Low/no oxygen is the primary cause of fish death in most ponds, however fish death can also occur as a result of disease or chemical toxicity.

Do you need a permit to stock fish in a pond? If so, where would you obtain a permit?

Yes, you need a permit to stock most fish. You do not need a permit to

stock channel catfish, bluegills, fathead minnows or golden shiners. Any other species of fish requires a permit for stocking (even in a private pond). Permits can be obtained by contacting Richard Bohn.

Should fish caught from the wild be used to stock a pond?

Fish from rivers, streams or other ponds should not be used for stocking due to the possible introduction of disease or other undesirable organisms to the pond.

Area Four – Pest Management

Name three of the five categories of aquatic plants.

Algae – non-vascular plants that are found in 3 basic forms (microscopic, filamentous, or macrophytic) throughout the water column.

Floating – vascular plants whose roots are not anchored in the sediment and are found floating on the water's surface.

Submerged – vascular plants that are rooted in the sediment, found completely submerged underwater, and lack a rigid structure.

Emergent – vascular plants that are rooted in the sediments, found floating at and extending above the surface of the water, and have a rigid structure.

Marginal – vascular plants that are rooting in the sediments, found along the fringes of a pond typically in less than 2 feet of water, and have a rigid structure.

Name two positive aspects about having plants in a pond.

Aquatic plants are an important part of the natural ecology of a pond. Along with being at the base of the food web, plants provide shelter for aquatic organisms, are the major producers of oxygen in an aquatic system, can aid in the removal of suspended sediments from the water column, and can stabilize bottom sediments.

Name the four methods of aquatic plant control and give one example for each.

Mechanical – the use of physical mechanisms (man or machine) to control aquatic plants. Examples: raking, seining, pulling, cutting, mowing, use of liners, dyes, drawdowns, and dredging.

Biological – the use of living organisms to control aquatic plants. Examples: fertilization, fish, and barley straw.

Chemical – the use of herbicides to control aquatic plants. Examples: diquat and copper sulfate.

Preventative – the use of an integrated pest management program that utilizes a combination of mechanical, biological and chemical control methods.

Can grass carp be used effectively to control for aquatic plants in Maryland ponds?

No. The use of grass carp in Maryland is ILLEGAL. It is true that they have been used successfully to control aquatic plants in ponds throughout most of the country. However, the escapement of grass carp from ponds to the Chesapeake Bay would have negative effects on the environment. Management concerns center around this fish's ability to consume large amounts of vegetation in light of the State's efforts to restore grass beds throughout Maryland's portion of the Bay.

What is the first step a pond owner should do before using an aquatic herbicide to control for aquatic plants?

Properly identify the plant.

There are 12 steps that a pond owner should follow when using an herbicide to control for aquatic plants. The first step is the proper identification of the plant to be controlled. Misidentification can lead to the use of the wrong herbicide, which in turn could have detrimental environmental and economic affects. The most common mistakes are incorrectly identifying filamentous algae as a submerged plant and duckweed as an algae.

Is a permit required to use aquatic herbicides? If so, where would you obtain a permit?

Yes. Prior to applying an aquatic herbicide, landowners need to contact the Maryland Department of Environment to obtain the appropriate permits.

Hopefully this gives you some basic information and answers some questions that you may have had. Check out all of the links for more information. Remember ponds require regular attention! In other words, you can't just dig 'em then forget 'em. Hope you have a great pond season with just the right amount of algae