

Pond Health and Fish Kills in Residential Ponds

We live in a county with a lot of ponds. As a county that was largely wetland prior to development – that has a high water table and poor soil drainage – ponds are often a by-product of harvesting fill dirt for housing developments. As such, we have a lot of residents that live adjacent to ponds but don't have a lot of experience with pond management. I get a lot of questions each year about pond issues, and most management problems come down to a few simple issues.

Perhaps the most important thing to remember is that a pond is, and should be, a functional ecosystem. Every ecosystem is built on complex interactions between species, and needs a diversity of plant and animal species for health. This is important to remember when we think about predators which are vital to pond health. Most ponds in Camden County aren't actively managed as sport fishing ponds and don't have adequate predation from human fishing. Without adequate predation, fish populations can become too large and exceed the demands for resources such as food, space, and oxygen that the pond can meet. This leads to diseased and malnourished fish, as well as fish kills. Predators such as wading birds, snakes, alligators, and turtles are important to maintaining pond health.

The most common pond health issue is nutrient loading. Nutrient runoff can come from a number of sources including lawn fertilizer, grass clippings, pet waste (and livestock waste), supplemental fish food, and erosion. Nutrient loading causes overgrowth of algae and pond weeds which can choke out a pond and cause oxygen depletions. Aquatic plants produce oxygen when they photosynthesize, but when plant matter dies it uses oxygen in decomposition. This oxygen depletion can cause fish kills as well as the death of other aquatic organisms. There are a number of ways to prevent nutrient loading – and prevention is the best management strategy. Use fertilizer only when necessary and at the appropriate rates in a properly calibrated spreader. Test your soil to ensure that you need to fertilize and to see what nutrients you need. Don't spread fertilizer on or near pond banks. Pick up after your pets. Bag grass clippings near the pond and spread or compost them elsewhere. One of the most important strategies in preventing nutrient loading, as well as bank erosion, is to establish a vegetative buffer around the edges of the pond. Vegetative buffers filter nutrient runoff, stabilize banks, mediate pond edge temperatures, provide shade, and provide habitat for wildlife and pollinators. Native moisture loving plants are the best option, and there are a number to choose from – whether you prefer trees, shrubs, flowers, bunchgrasses, or a combination.

Another important consideration is aeration. All aquatic life needs oxygen for survival and the hotter water is, the less dissolved oxygen it can hold. This is especially important in shallow ponds which absorb more heat and sunlight. Aeration can come from a number of methods and pieces of equipment: fountains, bubblers, free flowing wells, pipes. Some are more effective than others, but any extra movement in the pond will increase dissolved oxygen.

If plant overgrowth is a problem in your pond, the first step is figuring out the cause. The overgrowth is just a symptom, the nutrient loading is the problem. It would be foolish to treat the symptom without addressing the cause. Once the cause is addressed a treatment can be prescribed. There are a number of different treatments depending on the pond, level of infestation, your budget, and your patience. The first step is identifying what plant or algae is causing the issue, as different treatments have different levels of efficacy against different species. After the culprit is identified, treatment may include dye, aquatic herbicides, and/or sterile grass carp. As with any landscape issue, it won't be resolved overnight. Killing off too much overgrowth too fast will cause an oxygen depletion. The goal isn't to kill off all pond

plants and algae – they're important as the base of the food chain in the pond ecosystem. As in any ecosystem, the goal is balance.