
Approaching Pond Water Quality from a Management Perspective

Jim Morris

August. It's the time of year when ponds and other water features frequently become choked with algae, turn slime-green or black, emit offensive odors, or display similar embarrassing bad habits. It is also the time of year when superintendents are inundated by salesmen and marketing materials proffering various expensive products and equipment that will make all these problems magically disappear. Until next August.

Why does this happen to ponds? The process that is occurring in the affected pond is called *eutrophication*, which basically means that the pond is accumulating significant quantities of nutrients, organic matter and sediments, causing high photosynthetic activity and low transparency. Unpleasant odors associated with this condition are the result of decay of this organic material under anaerobic conditions, which occurs in the pond when all of the available dissolved oxygen is consumed by the biological processes run-amok resulting from eutrophication.

Is your pond eutrophic because of course management practices? Maybe. Maybe not. But it is important to recognize that eutrophication is a natural process, and, while it can certainly be accelerated by human activities, many ponds in the mid-Atlantic region would be eutrophic even if their watersheds were virgin forest. Eutrophication is basically an example of entropy at work, and human activities can either hasten the process or slow it down.

"The greatest bias of pond users, in general, is confusing the symptoms of problems with their causes." This quote from a US Environmental Protection Agency guidance manual succinctly sums up the basic flaw behind most pond management efforts. The various aerators, dyes, and other pond water-quality products and equipment offered to address these problems generally attempt to treat specific symptoms without curing the underlying water-quality problems. Even the recent addition of biological-control products, while promising, is still focused on treating the symptoms.

This is not to say that these products are not effective; they generally are very effective within their design limitations and specific intended application. Nor is this intended to imply that treating a specific symptom is inappropriate pond management, only that this approach is one of many different management tools available for addressing pond water-quality issues. A good pond manager, like a good turf manager, makes informed management decisions using site-specific data, a clear understanding of management goals, and objective information regarding the effectiveness, applicability, and cost of the various management options available. For instance, you would hardly order increased irrigation for an area of turf exhibiting signs of wilt without first consulting site-specific data such as soil moisture and any available history of similar problems in the same area to determine whether the apparent wilt was the result of water stress, or some other problem such as heat stress, disease, or infestation of grubs or other pests.

The analogy to turf management holds true for the actual implementation of a pond management plan as well. Course maintenance staff can collect water-quality data needed for making appropriate pond management decisions, just as they collect the various soil, climate, and pest and disease data needed for making sound turf management decisions. When a problem occurs, the superintendent may need professional advice and assistance to assess the data, determine the cause(s) of the problem, and develop an appropriate and cost-effective remedial plan.

This is the first in a series of articles addressing pond management concepts, methodologies and resources and other water-quality issues.

Jim Morris is Senior Ecologist at Chesapeake Environmental Management, Inc. in Bel Air, Maryland.

Picnic Left Overs

Gordy Caldwell, C.G.C.F.

With it being a tough summer, the picnic had a relatively light turnout, but it didn't seem to hamper the fun of those who did turn up at Bretton Woods for the MAAGCS Annual Family Picnic. I would like to thank the staff at Bretton Woods for getting everything ready for us and a special thanks to Ken Ingram. Egypt Farms did a great job keeping everyone supplied with corn on the cob, thanks Ray and Dave. As always, Ben Stagg was in charge of bringing us the best crabs he could find and I must say everyone enjoyed them. The kids enjoyed swimming and just running around, not to mention the smiles on their faces when Ding-Bat the clown showed up. I would also like to thank Mike Barrett and Dan Hofemeister along with Marsha Caldwell for the help in cooking the food we all enjoyed. Hope to see everyone next year!