Buffer Zones: Nutrient and Sediment Traps

-Dave Ellison, Virginia Lake Management Company

Keeping some high vegetation around your pond can be extremely beneficial to the water quality. This area is commonly referred to as a buffer zone. Plants in this area take up nutrients from fertilized lawns directly adjacent to the pond, and help filter the nutrient rich rainfall runoff that flows into the pond or lake from the surrounding watershed. Buffer zone vegetation does not need to be excessively high and occasional cutting is a good idea to maintain the aesthetic appeal of the pond. However, too much clearing of the vegetation can cause nutrient loading of the water and lead to future algae blooms.

In addition to acting as a natural filter for runoff, a buffer zone can also help prevent shoreline erosion. The plants along the shoreline help stabilize the soil and prevent large amounts of sediment from flowing into the pond. Over time the excessive inflow of sediment could greatly reduce the depth of your pond or lake and produce significant problems. The cost to correct these problems through dredging and other similar measures can be quite costly.

Winter is an excellent time to consider cutting back or clearing any unwanted shoreline vegetation. Water temperatures are very low and shoreline growth has ceased for the time being, thus debris that may fall into your pond or lake would have limited adverse effect. However, even in the winter, every effort should be made to keep cuttings from falling into the pond and sinking to the bottom. This influx of organic matter will result in the potential for future algae blooms as it breaks down and releases utilizable nutrients into the water column. It is these nutrients that are the primary fuel for algae growth.

Buffer zones can go a long way in helping to prevent problems for your pond. The best part of all, establishing these buffer zones around the edge of your pond takes very little effort, requires little maintenance, will likely reduce the costs associated with mowing and trimming along the edge of the pond on a weekly basis, and will produce significant beneficial results for your pond.

PLANNING FOR YOUR POND’S FUTURE

-Keven Tucker, Virginia Lake Management Company

Many homeowners, association managers, and even pond management professionals spend time and resources each year maintaining their storm water retention ponds and dealing with the immediate problems such as algae, nuisance aquatic weeds, poor water quality, etc. It seems that far fewer people allocate time or resources to the future planning and budgeting necessary to deal with potentially more significant issues that might arise with these ponds.

One of the “scarcest” and most costly expenses that may ever be faced by a homeowner association is that of dredging. Typically, pond owners are told that they should expect to dredge a pond every 20 years. This rule of thumb is OK, but often not accurate enough to be counted on for budgeting purposes.

Have you started to budget for the cost of dredging? Do you have any idea what it will cost you to dredge when that fateful day arrives? Will your pond need to be dredged in 20 years? Maybe it will only be 10 years or maybe you will do better than average and your pond will not need to be dredged for 30 years.

The point is, unless you do some research, evaluate the condition of your pond, and start the planning, you will never know the answer to any of these questions.

The good news for all pond owners is there are some simple steps that can be undertaken to begin the planning process.

The most important first step is to perform a bathymetric study of your pond. This is a process by which we use GPS technology combined with depth scanning technology to map the surface of the pond and associated depths of the pond to determine the current bottom contour and depth. This will give you the actual water storage capacity of your pond at the current time.

Once you have obtained this information, you can then compare this to the original “as built” plans and see how much sediment and debris has accumulated in the pond since original construction. After making this comparison, you can figure what the average yearly sedimentation rate for the pond has been since it was first constructed, and project into the future how much longer you will have before the pond will need to be dredged.

This information is also crucial to your budgeting process. Once you can quantify the amount of sediment that is in your pond to date and how much is anticipated to accumulate in your pond in the future, you will then be able to obtain exact quotations from qualified dredging contractors for removing this sediment. This will take all of the guess work out of your budgeting process, and help to insure that you are prepared for the future.

Inside this issue:

2 Pond Blues -Gregory Blackham VLMC
3 Miss Understood -Dustin Kennedy VLMC
4 Let’s Improve the Bay in 2008 - Randy Bolin VLMC
5 Aquatic Pesticides: Medicine for Your Pond -Kyle Finerfrock VLMC
6 Buffer Zones: Nutrient and Sediment Traps -Dave Ellison VLMC
The key to implementing this strategy in your lake management program is maintaining a constant UV screen, not just in the spring, when the majority of growth begins. We accomplish this by applying the dye regularly throughout the year, even in the winter months. This also creates a constant color for your lake or pond that is pleasing to the eye year round. Who would have thought the most effective color in the management of sunlight in your lake or pond would look great too! Finding the correct amount of dye to add initially and in subsequent applications throughout the year can be tricky at first. Generally starting with the manufacturer’s recommendations per acre foot are best. From there, track and monitor further applications on a regular basis. If the lake or pond has few or no outflows, less will be needed to maintain a constant color. Also, various shades of blue and black dye can be mixed to achieve just the right color for each individual body of water. Most plants and algae require sunlight for growth through photosynthesis. In the electromagnetic spectrum, some wavelengths are more valuable than others. The strongest inhibitor of these UV penetrations is the col or blue, hence the most common lake dyes used are blue, although black and other colors have been successful under the right conditions. Even if the lake or pond is not particularly shallow, one may be surprised how far down the column of water UV penetration can occur.

The Chesapeake Bay Foundation monitors the state of the Bay each year, “Scoring” the Bay’s health based on the best available scientific information.

Since 1998 the Bay has improved each year with a small victory in restoring a balanced ecosystem. But this year, 2007, the Bay’s health dropped due to significantly increased levels of phosphorus pollution flowing into the Bay from our rivers and streams. So your pond looks green and scummy with foul odors emanating from it, or maybe your pond is choked out with so many weeds that you can no longer get your boat to your favorite fishing hole. You just might be asking yourself questions about the system of the correct product in order to obtain the desired results. Over the years pesticides have developed a negative image to the public eye. Today’s pesticides have been heavily tested to ensure a low environmental impact, and if used correctly they can help restore a pond to a healthy state. Algae and aquatic weeds left to grow uncontrolled can lead to a severe decline in the health of the ponds ecosystem. To return your pond to a healthy state you should consult your lake management specialist to prescribe a treatment for your “sick” pond. Something to think about! Pesticides generally get a bad rap. Unfortunately, in most cases this negative stigma associated to pesticides is highly undeserved. The vast majority of pesticides go a long way towards improving the quality of our lives, and are environmentally friendly if used properly.

Triva Question: What known carcinogen is the most widely used pesticide in the world?

Answer: Chlorine (Amongst many other uses, it is found in most of the drinking water in the United States and throughout the developed world. Where would we be without it?)