



Lake Stewardship
by
Frederick A. Amalfi, Ph.D., C.L.M.
Aquatic Consulting & Testing, Inc.

Keeping the lake clean, attractive, and healthy is not an easy task in the arid southwest. High temperatures and lots of sunlight foster the growth of algae and aquatic weeds that can eventually lead to a green lake, odor formation, and physical obstructions to boating. The chemical fertilizers (nutrients) that stimulate our lawns, namely nitrogen and phosphorus, also stimulate the growth of aquatic plants. When microscopic algae become too abundant, the water turns green and turbid. The process also causes the pH of the water to rise. Poor clarity and high pH jeopardize the use of the water for full contact recreation (the water must meet pH and visibility requirements of the County Health Department). When suspended (planktonic) algae eventually die and settle to the bottom of the lake, bacterial decomposition of the cells can cause hydrogen sulfide (rotten egg) odors. Herbicides and pesticides that we use on our lawns and gardens can also be toxic to aquatic animals including fish and fish food organisms. Even yard clippings that enter the lake cause a buildup of organic matter that provides potential habitat for nuisance insects such as midge flies (aquatic gnats) and additional food for odor causing bacteria. Collection of debris on the lake bottom eventually causes shoaling; the loss of lake depth as a result of sediment accumulation. Applying chemicals to the lake to manage algae, insects, sediment accumulation, and odors is time consuming and expensive.

Each homeowner can help in maintaining water quality. Some landscaping modifications, wise irrigation practices, and good housekeeping can prevent the development of dense algae growths (blooms), submerged aquatic weeds, mats of filamentous (string) algae, odors, and fish kills. Follow these simple rules.

1. Do not over water. Runoff from your property can enter the lake, transporting fertilizers, organic debris, and pesticides from your property.
- 2, Do not over fertilize. Overuse increases the chance for nutrient addition to the lake.
3. Limit the use herbicides and pesticides near the shore. Always follow the label instructions and watch for special restrictions regarding contamination of water bodies and hazards to aquatic life.
4. Collect and properly discard yard clippings. Do not use the lake as means of quick disposal of these materials. Organic debris is unsightly, contains nutrients, creates organic deposits on the lake bottom, and may have residual herbicides or pesticides.

5. Do not feed waterfowl. If you feed them, they will stay. Birds and ducks can add incredible amounts of nitrogen and phosphorus to a lake. Additionally, waterfowl will transfer fecal matter containing *E. coli* bacteria to the water, potentially jeopardizing the recreational use of the lake.
6. Plant non-deciduous trees and shrubs near the water. Deciduous species will add organic debris to the lake.
7. Remove any grasses or other plants that are growing into the water. Filamentous (string) algae love to attach to any object in the water. Even a strand of Bermuda grass can become the starting point for stringers. The stringers can grow up to several feet in length in just a week or two.
8. Plant ground covers near the lake edge to help prevent irrigation and precipitation runoff from draining into the lake. Remember to keep the vegetation from growing into the water. Alternatively, you can install an elevated border (brick or curbing), or grade your property to create a berm to hold back runoff or a swale to redirect water away from the shoreline.

Your assistance can help maintain water quality and reduce unnecessary costs associated with managing the lake.