

REVIVE YOUR POND WITH AERATION

Summer's heat can turn a pond into a smelly, slimy well. Aeration equipment can revive them and provide an interesting landscape element in the process.



Beneath the calm, vitreous surface of your pond a battle will rage this summer. The fight is over limited oxygen, and the casualty may be the pond itself.

Ponds become the eventual home of organic pollutants, such as fertilizers, which leach in and deprive it of essential oxygen.

Then there is algae, which can stake a claim on the water's surface for a time. From there it works its way into your irrigation equipment, causing clogs and/or premature wear, before dying off and forming a thick layer of sludge on the pond bottom.

Year after year muck layers build and, unless checked, may fill up and kill a pond or lake through a process called eutrophication (see diagram).

Danger signals

The onset of warmer summer temperatures brings on increased concern of pond water quality. An early indicator of problems is fish kills, a sudden change in water color and/or the appearance of algal blooms.

"I can assure you that if a pond is in an area that has fertilized ground around it, it will develop algae, no ifs, ands or buts about it," says Doug Cramer, vice president of Air-O-Lator Inc.

Algae are photosynthetic plants that need nutrients, sunshine and warm water for growth. When nutrient-rich waters, like those on golf courses or other maintained landscapes, are warmed by the summer sun, they become an ideal environment for algal explosion.

Heavy algal blooms can limit sunlight penetration, thereby restricting biological oxygen demand (BOD) in deeper water. It also limits water cir-



By returning oxygen to water, fountain aerators combine aesthetic appeal and utility.

culcation and can remove large amounts of oxygen before it dies off.

The catch-22 in this situation is that the most efficient way for a pond or lake to decompose dead algae is via aerobic digestion. Aerobic digestion occurs when wastes are biodegraded by aerobic bacteria. However, for aerobic bacteria to function, it needs— you guessed it—oxygen. So while aerobic digestion is fast, efficient and odorless, its effect is limited in an oxygen-depleted water source.

Smell that smell

The other option is anaerobic digestion, a slow, inefficient process that exudes the "rotten egg" odor of its byproduct, hydrogen sulfide.

Traditionally, algae has been kept in check with chemical controls, specifically absorbents and algicides. However, some effective chemicals, such as copper sulfide, can harm ornamentals. Also, a waiting period of several days is recommended before treated water should be tapped for irrigation.

Add to these considerations today's heightened awareness of judicious chemical use and it becomes clear that an alternative or at least complementary method of controlling water quality is needed. It is a void being filled nicely by the fine array of mechanical aerators on the market today.

Many landscape managers incorporate a titration kit to determine oxygen content of a pond. If the water is

suffocating, floating mechanical aerators can be used to add necessary oxygen. The aerators introduce atmospheric oxygen into the pond or lake, spurring aerobic digestion. The pumping also creates a gentle circulation that mixes the water, thus preventing stratification.

"Mechanical aeration is coming into play more and more, particularly due to oncoming local and federal guidelines regarding chemical treatment of ponds," adds Cramer.

Aeration manufacturers

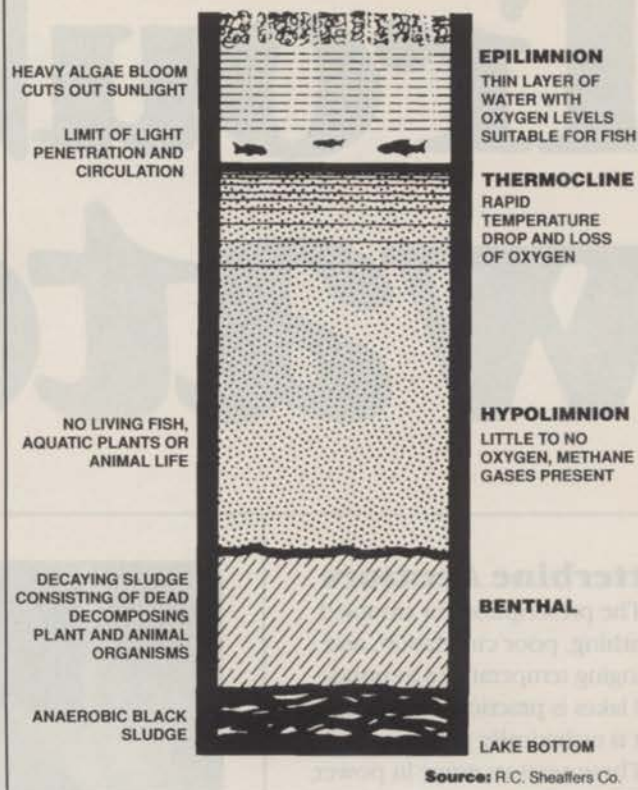
Two companies supplying floating fountain aerators to the green industry are Otterbine Barebo of Emmaus, Penn., and Air-O-Lator of Kansas City. Otterbine offers six models to choose from that offer above-surface spray heights ranging from 2 to 28 feet. The company notes that a key element in their fountain/aerators is that they move large volumes of water under low pressure, not vice versa.

According to Chris Barebo, vice president of manufacturing, it's important that landscapers shopping for aeration/fountains pay attention to a unit's oxygen transfer rate.

"The whole idea behind an aerator is how much water it can turn over, how much water it can pump," says Barebo. "By pumping a lot of water at low pressure you achieve oxygen transference more efficiently. It may not be as pretty as a high pressure fountain, but you're going to do a lot more for the water."

EUTROPHIC LAKE CONDITIONS

FLOATING SCUM AND ALGAE



Source: R.C. Sheaffers Co.

Air-O-Lator's floating surface aerators, the AF-55 and SC-51D, feature a .5 hp (370 gallons/min.) to 1 hp (1,475 gallons/min.) "Franklin" Submersible Motor in a water-cooled, water lubricated unit made of corrosion-free stainless steel. Like Otterbine, its propellers are weedless and there are lighting systems to complement their Propeller Pump Units, which combine aeration with fountain capabilities.

Below the surface

Toro Company's Irrigation Division recently announced its entry into the water aeration industry with a line of surface-mounted aerators. These products, supplied by Aeration Industries International of Chaska, Minn., are currently available in three models of one, two and three horsepower. The units introduce 2.5 lbs. of oxygen per horsepower hour below the water surface, establishing a horizontal flow pattern much like the wake created behind a boat.

Five years ago Ron Sheaffer introduced his Restoration System, which utilizes land-based air compressors and oxygen generators to introduce activated oxygen and aeration to a water source through lead weighted aeration tubing at the lake bottom. The rise of air through the water circulates and mixes the water.

The R.C. Sheaffers Restoration System has successfully restored lakes ranging in size from 326 to under One-half surface acres with depths of over 35 to under three feet. **LM**