

War on algae

Superintendents struggle to keep their ponds clean, even with aeration, biological strategies and hand removal in their arsenals. By David McPherson

The list of specialized knowledge a superintendent needs to maintain a golf course keeps growing. Not only must superintendents understand agronomy and manage the inner workings of growing turf, but for those whose courses include water hazards, they must also understand how to manage ponds.

Ponds are not only a hazard for golfers, but these bodies of water present a host of problems for superintendents. High levels of nutrients from Canada geese droppings, fertilizer, septic systems and other sources

In 2006, Keller Golf Club in St. Paul, Minn., implemented a native shoreline restoration program on the pond that sits between the tee and green on its 15th hole. The buffer zone has helped the algae problem, but duckweed continues to be a nuisance.



often cause algae problems, which are aesthetically unappealing, smell and, if not treated properly, often lead to other concerns, such as creating a breeding ground for insects.

When maintained properly, ponds add to a golfer's experience. As Paul Scenna, superintendent at Beacon Hall Golf Club in Aurora, Ontario, says, "We're in the business of looking good."

Superintendents struggle to find the right solution to keep these ponds looking good, especially in tough economic times when many course managers are faced with shrinking operating budgets.

Since turf comes first, managing ponds is low on the priority list. As this problem persists, some facilities have begun allocating specific funds for pond management. Superintendents estimate the average cost to manage a pond effectively is \$5,000 per year per pond, minimum, but it depends on the size of the pond and the scope of the problem.

Many superintendents have tried everything, including aeration/fountains, bioaugmentation (adding bacteria cultures or compounds like

alum), hand removal by raking, cutting, etc. and biological strategies (adding grass carp or dying the pond).

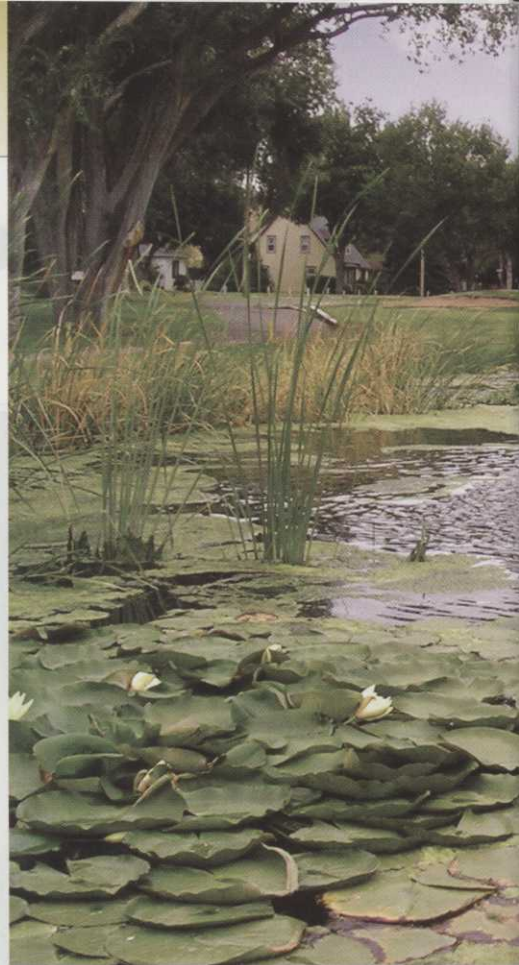
While each of these strategies provides a temporary stopgap, none completely solve the problem.

"I wish I could say these practices have provided us perfect water features, but the quest for high-quality ponds is a continuous struggle," says James Beebe, golf course manager at Priddis Greens Golf & Country Club, a private course outside Calgary, Alberta. "We've won some battles but the war isn't going well."

Thankfully, there are experts in this growing field to help superintendents win this war.

Bernie Hertzman is one of these specialists; he operates AMA Sales, a pond-management business in Toronto. The 53-year-old is a lifelong golfer who had an epiphany about seven years ago while he was chasing the little white ball.

"I was paying a lot of money to play at various courses and seeing gigantic globs of algae all over ponds," he recalls. "The season ended and I said to one superintendent, 'You have a



Stops esQapes dead.



Golf courses commonly add aerators and surface fountains to ponds to improve circulation and mitigate algae problems.

lot of algae in your pond, is there anyone in this business?' He said no. I looked into it and one thing lead to another. I got really involved and studied what algae is, what water is, to better comprehend what superintendents faced."

Today, he services ponds at many of the private and public courses throughout the Toronto area, including Glen Abbey Golf Course, host to the 2009 PGA Canadian Open. He takes a strategic approach to pond management, customizing the solution for each course and for each pond.

"I sell a pond service," he explains. "It's a yearly service. With all the heavy restrictions we have these days, there are a number of reasons why algae happens. The No. 1 reason algae

GRAPHMASTER MEDIA AND DESIGN

EsQape-proof your weed control.

Even hard case weeds like crabgrass can't get away from Quincept® herbicide. With three active ingredients in rates that optimize performance, Quincept nails grass and broadleaf weeds that have escaped pre-emerge applications. See your distributor or www.nufarm.com/turf for more on how to put a stop to escapes.

Better Choices. Better Business.

© 2004 Nufarm. Important: Always read and follow label instructions. Quincept® is a registered trademark of Nufarm.



www.nufarm.com/us

exists is because of phosphorous nitrogen. I offer a service of adjusting the water, balancing the water properly without any miracles. I use a liquid organic product and have the tools and knowledge, but it's more about working with the superintendents."

The vast majority of ponds on golf courses exhibit what Hertzman calls the "beach" scenario. The ponds have not been dug down deep

enough on the edges, so the slope is too gradual and the water is as little as 2 or 3 inches deep at the shore. When the sun hits the shallow water, it helps anything under the surface grow.

"In this case, you don't need chemicals, you don't need to blow the pond up, you just need to dig that out and clean the sides up," Hertzman explains.

Keller Golf Club in St. Paul, Minn., offers

a good case study. As a certified Audubon Cooperative Sanctuary, the course tries to minimize its use of pesticides, including aquatic herbicides.

For years, superintendent Paul Diegnau struggled to find the right solution to manage his ponds. Since he came to the course 13 years ago, he's tried many techniques, with mixed results.

"We have five ponds on the property ranging in size between 0.75 and 0.1 acres," Diegnau says. "Three of the ponds are original to the 1929 design and have trees in the vicinity. Leaf drop in the fall adds tremendous amounts of organic material and phosphorous to these surface waters, which tends to overwhelm the aquatic system and results in heavy accumulations of bottom muck, or loon shit as it's called in these parts. Muck levels vary between 1 and 3 feet in depth and the ponds are less than 5 feet deep. This excessive bottom sediment is a never-ending source of phosphorous."

When Diegnau arrived at Keller, all turf was mowed to the water line. In his second year, he decided to create grass buffer strips around the water features. Buffer zones can have physical characteristics (such as varied height or pockets of shrubs) that serve as a point of reference for where a player's ball tends to enter the water. Native plants contribute to the overall habitat value of the property. In Diegnau's case, the buffer zone initially helped improve the water quality and the look of the pond, but the algal blooms were still a problem.

Next, the Diegnau installed surface fountains in four of the five ponds; they were ineffective and eventually removed. Over the next five-plus years, Diegnau experimented with biological control products.

"I tried many different products on the market with limited success," he says. "I tried doing alum applications in house, but never achieved the results we experienced years previous. I experimented with pond dyes also, but the watershed district frowns on this method due to its effect on submergent vegetation. By this time the filamentous algae outbreaks were diminishing in severity and duckweed was increasing. Duckweed is much more tolerable visually and our mallard and wood duck populations thrived."

In 2006, in conjunction with his local watershed district, Diegnau implemented a successful native shoreline restoration program on the 0.75 acre pond that sits between tee and green on its par-3 15th hole.

"Approximately 2,700 native prairie plants and 700 wetland plants were planted," says

Value in your pocket. Quality on the course.



JRM Inc.
Innovative Turf Technology

www.jrmonline.com

JRM Inc. · P.O. Box 1689 · Welcome, NC 27374
888-576-7007 or 336-354-1243

www.golfcourseindustry.com/readerservice - #36

Diegnau. "Then, in 2008, a cedar split-rail fence was added for visual appeal and to keep golfers out. This area is now one of the focal points of the golf course and the water quality is good. Duckweed continues to be the primary nuisance weeds, but it's kept in check most of the summer by the duck population."

This year, the superintendent is planning to restore another pond shoreline on the 6th hole. Prior to planting, Diegnau is investigating the feasibility of vacuuming the muck off the bottom. He says estimates the price of this job at \$3,000 to \$4,000 for a 0.2 acre pond, depending on the depth of the muck.

Other options he's considering include: experimenting with a bottom bubbler system in one of his deeper ponds and looking at floating vacuum systems that collect floating plant material and pump it to land.

EVALUATING BIOAUGMENTATION

Bioaugmentation, the process of adding bacteria cultures to form compounds, is a new business. Hertzman is leery of these services.

"I compare the golf course pond business

now to the bottled water industry when it first launched," he says. "One day Perrier came out and the next day every food broker was offering bottled water and was an expert. Everyone claims to be a professional offering new bacteria for your pond water, but what people don't understand is these are products developed by golf distributors who don't care about what they are – it's just a product line in their gamut of products they try to sell while hitting the super to buy fertilizer.

"There's no effective biological/enzyme in the marketplace in North America anywhere registered that is really effective to cure algae problems," Hertzman adds. "It's not a hoax, but people are presenting these products as a natural substitute for harsh, toxic chemicals – throw your products away and use this natural stuff. In reality, it is a slow digestive – it breaks down small amounts of algae at a slow rate, but in the enzyme world, enzymes become dormant within a 72-hour span therefore you have to repeat that process endlessly."

Other techniques superintendents have tried include: dying ponds and introducing carp to

eat the algae. Again, these provide short-term solutions, but are not long-term cures.

"The reason people dye the ponds or use carp is because it's a simplistic solution," says Hertzman. "The reality though is it just covered up or masked the problem. Dying ponds shades the surface area of the sunlight, but it can't penetrate all the way down to the bottom of the pond, so the weeds just keep growing. Carp can only eat so much and the more they eat the more they excrete acidic poo."

So, what's a superintendent to do with no clear-cut solution in sight?

"Every pond is different," says Hertzman. It's important, no matter what strategy you choose, to look at the root of the problem, rather than just reacting to the surface algae.

"You may get rid of the surface algae, but it doesn't do anything to eradicate what is going to come back up," he says. "You need to take a strategic approach and find the solution that is right for your course." GCI

David McPherson is a freelance writer based in Toronto.

INGENUITY. POWER. BEAUTY. AT ITS BEST. Demanded by You. Mastered by Us.



www.aquamasterfountains.com

1.800.693.3144

AquaMaster®
FOUNTAINS AND AERATORS
MASTER THE POWER AND BEAUTY OF WATER

The Industry Leader for quality and dependable Fountains, Aerators and MasterClear Natural Microbial Products.

Aeration is a natural, environmentally safe and highly effective water quality management tool. It addresses a wide range of water quality problems, including algae build-up, aquatic weeds, bottom sludge, foul odors, insect infestation, and stagnation in lakes and ponds.

AquaMaster® products are available in 60 and 50 Hz, from 1/3 to 25 HP with AquaMaster's quality warranties.



AquaMaster
Advantage

All MasterClear Natural Microbial Products are environmentally safe and supportive of a healthy balanced Ecosystem.