

added inputs, be it storm water, irrigation runoff, clippings, fish and bird "contributions" or fertilizer, will speed up the growth of algae and aquatic weeds, which will die, decompose and feed more algae and aquatic weeds and....well, you get the picture.

"Mother Nature has many rules," says Cary Martin, manager at Crop Protection Services. Martin has spent years studying lake maintenance, aeration and aquatic vegetation management. "One of those is that when any kind of nutrient comes into water, it won't just sit. It will grow something, somehow, some time."

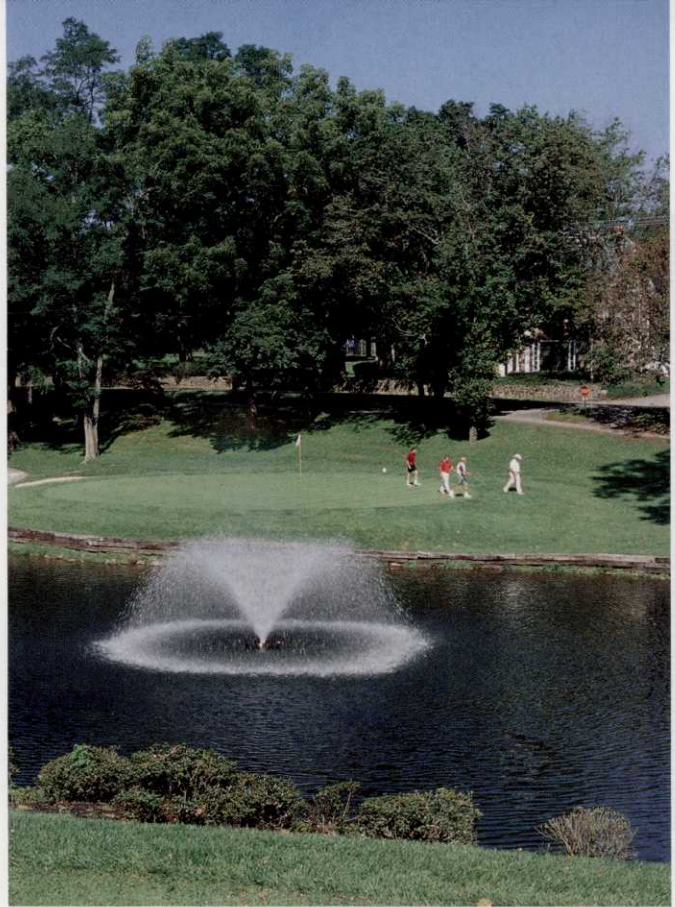
"The first investment should go into nutrient management, which would actually be driving the problem," says Dr. Rob Richardson, Assistant Professor of

Crop Science at North Carolina State University in Raleigh. "You can get a solution analysis that will say exactly what the nutrient levels and pH of the water is. Anyone that wants to manage their water body should start with a solution analysis and go from there."

Lakes also have temperature layers, which correspond to the amount of oxygen and nutrients in the water.

Algae thrives in warmer temperatures on the water's surface and shades the water below. The warm water on top is lighter and floats on the cooler, heavier water. The problem is that the cool water is lower in oxygen. And, as with human beings, oxygen is essential to healthy pond life.

Warm surface water naturally contains lower levels of oxygen



A fountain aerates a golf course pond.

PHOTO COURTESY OTTERRINE BAREBO

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Years of research has resulted in effective, relatively inexpensive and even beautiful ways to keep your course's water features clean and clear.

than cooler water. However, in the cooler water below, oxygen is depleted because the decomposing organic captures it.

When there is plenty of oxygen, decomposing organic matter breaks down completely through a process called "aerobic digestion." This digestion also breaks down excess nutrients. Dissolved oxygen also supports oxidation and other biological and chemical processes that keep the water clean and clear.

Although aquatic plants and algae produce large quantities of oxygen, its movement through the lake is limited. Winds that ruffle the surface of the lake contribute to its oxygen level, as well as rainfall. But in a highly managed environment such as a golf course, that's just not enough.

Fortunately, years of research

has resulted in effective, relatively inexpensive and even beautiful ways to keep your course water features clean and clear.

There are two basic types of lake aerators: floating fountains or surface aerators. These aerators are undeniably beautiful.

"The prettier they are the less effective they are for water quality management because the pumping rates are the lowest," Laidlaw says. "With higher pumping rates you get higher oxygen transfer rates." For example, the typical decorative fountain with a 1 hp motor might pump 150 gallons per minute, while an industrial model will pump 920 gallons per minute and barely ruffle the surface.

"Floating fountains are about 90 percent aesthetic and 10 percent biological," says Paten.

PHOTO COURTESY PLATINUM PONDS

**HOTTER**  
ON WEEDS



**COOLER**  
ON TURF





"Bottom aeration has revolutionized the industry in the last decade. Floating fountains are in demand, but biologically bottom aerators are the ones that work."

Also known as "diffused air," these systems are a pipe at the bottom of the lake with holes that send air bubbles up to the surface. You may think the bubbles transfer oxygen to the water, but Martin explains otherwise.

"Actually, less than five percent of oxygen is transferred this way," he says. "As bubbles rise, they expand. Cascading bubbles entrain cold dense water below the thermocline and lift it to the surface." This not only allows hydrogen sulfide and carbon dioxide to escape, but it also allows the oxygen to be absorbed and circulated through the entire water column that is created.

**"Mother Nature has many rules. One of those is that when any kind of nutrient comes into water, it won't just sit. It will grow something, somehow, some time."**

– Cary Martin, *Crop Protection Services*

"The long and short of it is that bottom aeration creates a chimney effect that rids the pond or lake of the thermocline, which basically keeps the lake from being healthy," Panten says. "Fish live in the upper 20 percent of a lake's water, and usually a floating fountain pulls water from that oxygen layer and throws it in the air and increases evaporation. Where a bottom aeration creates an enormous amount of lift, kind of the equivalent of three or four fire hydrants all spraying at the same time."

Surface aerators can also be energy hogs. "I have one client

in a very high-end area of Greenville who has two units on a one acre pond that cost about \$500 a month to run half a day," Panten says. To make a floating fountain more effective, an adapter can draw water from the bottom of the pond, but energy costs will remain high."

Don't be led into thinking that diffused air is the only solution, though. "It's 100 percent efficient at 15 feet or more," cautions Laidlow. "The shallower the lake, the less effective it is."

Lake science, or limnology, is a lifetime devotion for scientists. Although the basics may empha-

size nutrient management and oxygen, each body of water is a complete ecosystem of its own. Don't be afraid to ask for help. Consultants are as passionate about their work as you are about yours. Major manufacturers also have knowledgeable staff who can help you size, install and maintain aeration equipment.

"Aeration may be the best ticket to turn your pond back into the one you remember or want it to be," concludes Martin. **GCI**

*Helen M. Stone is a freelance writer based on the West Coast and a frequent GCI contributor.*

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# Grinding the DATA

GCI takes a deeper look at its reel and blade maintenance research.

**C**ut is king.

It's a simple mantra among golf course superintendents. It plays a major factor behind their approach to reel and blade maintenance and is at the core of their philosophy toward these practices.

GCI, in partnership with Foley United, developed a reel and blade maintenance questionnaire that was distributed to GCI's readership in the U.S. via the online survey portal, SurveyMonkey. Among those who participated in the research, more than half (62 percent) worked at non-private courses and nearly half reported an annual operating budget of less than \$500,000 (48 percent). GCI sat down with Jim Letourneau, president and COO of Foley United to provide some analysis based on a more detailed look at the data. This month we dialed down on this data, specifically looking at trends among facility types (private vs. non-private) and operating budget (less than \$500,000 vs. \$500,000 to \$1M vs. more than \$1M).

"Without a doubt, quality of cut seems to be a major factor regarding these maintenance practices," Letourneau says, pointing to the fact that, consistently, nearly three quarters of respondents, regardless the breakdown, indicated they maintain reels and blades when the quality of cuts visually begins to suffer. "And this sentiment is consistent regardless of the type of facility or the size of budget that the superintendent (or maintenance technician) is working with... you have to maintain the best cut possible."

While some of the detailed survey results remained consistent against the overall findings, Letourneau did provide some analysis on the following data points.

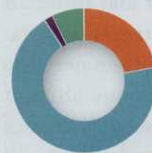
**SPIN AND RELIEF GRINDING.** While the majority of respondents (63 percent) practiced spin and relief grinding, the highest percentage were among private facilities (72 percent) with budgets of \$1 million or more (73 percent). This certainly reflects the notion that, after quality of cut, the depth of reel and blade maintenance practices becomes a question of time and resources, Letourneau says. "Some courses can just afford to make this happen," he says.

**NEW BEDKNIVES.** While the majority of respondents (83 percent) said they do grind new bedknives, nearly a quarter (22 percent) of small-budget courses were not.

"It's another reflection of time and resources for some superintendents and/or maintenance technicians," Letourneau says. "Outside of using tournament bedknives, we recommend that you always grind new bedknives because a new bedknife typically will not mount 100 percent accurately and needs to be ground to fit correctly."

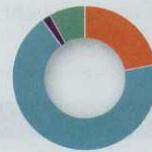
**LAPPING.** Respondents from nearly three quarters of non-private facilities (71 percent) indicated they lap, while 75 percent of those

## Do you subscribe to the "no contact/no relief" or "light contact with light relief" grinding philosophy?



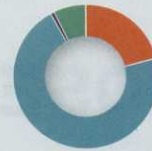
- 22% No contact/no relief philosophy
- 69% Light contact with relief philosophy
- 2% Don't know
- 7% Other

### Non-Private



- 22% No contact/no relief philosophy
- 68% Light contact with relief philosophy
- 2% Don't know
- 8% Other

### Private



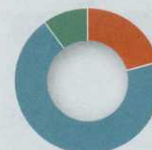
- 21% No contact/no relief philosophy
- 71% Light contact with relief philosophy
- 1% Don't know
- 7% Other

### >\$500K



- 20% No contact/no relief philosophy
- 70% Light contact with relief philosophy
- 3% Don't know
- 7% Other

### \$500K-\$1M



- 21% No contact/no relief philosophy
- 69% Light contact with relief philosophy
- 0% Don't know
- 10% Other

### >\$1M



- 27% No contact/no relief philosophy
- 64% Light contact with relief philosophy
- 0% Don't know
- 9% Other



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courses with less than a \$500,000 budget will lap.

“It’s simply a cost factor,” Letourneau says. “Also, you most likely need to take geography into account, as well. Northern courses will have shorter seasons. Typically, we see more guys lap in the North vs. the South because the season is shorter.

**GRINDING PRACTICES AND PHILOSOPHIES.** Interestingly, survey respondents indicated they were not necessarily set in their ways when it came to their reel and blade maintenance philosophies. For example, 83 percent of respondents from non-private courses and 79 percent from courses operating on less than \$1 million budget said they were open to hear-

ing other opinions and practices.

“The responses to this section of the survey were definitely interesting, especially when you consider that many of respondents indicated they learned reel and blade maintenance from their courses’ equipment technician (45 percent) or another superintendent (40 percent),” Letourneau says. “This could be interpreted that these are practices that are being passed down from one person to another, perhaps from one generation to the next. While they may be passing down things that are correct, they may also be passing down information that is no longer relevant or even wrong.

“This particular data tells me that we, as manufacturers, need to be putting more emphasis on providing training on reel and blade maintenance and making sure the correct practices are being taught, especially in light of the fact that respondents indicated they’re open to new ideas,” he added. **GCI**

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**Do you spin grind only?**



**Non-Private**



**Private**



**>\$500K**



**\$500K-\$1M**

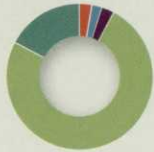


**>\$1M**





## How do you determine when to grind?



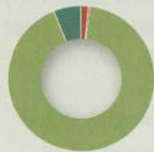
- 3% Based on hours
- 2% Based on days
- 3% Based on weeks
- 75% Whenever it needs it
- 17% Other

## Non-Private



- 1% Based on hours
- 3% Based on days
- 3% Based on weeks
- 76% Whenever it needs it
- 17% Other

## Private



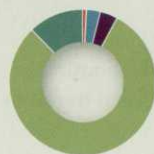
- 5% Based on hours
- 1% Based on days
- 2% Based on weeks
- 74% Whenever it needs it
- 18% Other

## >\$500K



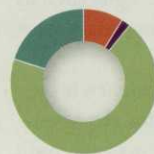
- 2% Based on hours
- 2% Based on days
- 2% Based on weeks
- 75% Whenever it needs it
- 19% Other

## \$500K-\$1M



- 1% Based on hours
- 3% Based on days
- 4% Based on weeks
- 80% Whenever it needs it
- 12% Other

## >\$1M



- 9% Based on hours
- 0% Based on days
- 2% Based on weeks
- 69% Whenever it needs it
- 20% Other



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## For more...

For more information about reel grinding and blade sharpening trends, check out GCI's June article "Back to the Grind" which examined the research findings as a whole. Access this article by entering [bit.ly/16KrrEI](http://bit.ly/16KrrEI) into your browser.



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**Henry DeLozier** is a principal in the Global Golf Advisors consultancy. DeLozier joined Global Golf Advisors in 2008 after nine years as the vice president of golf for Pulte Homes. He is a past president of the National Golf Course Owners Association's board of directors and serves on the PGA of America's Employers Advisory Council.

## BUILDING WITH THE HOUSING MARKET

Other than weather patterns, no single influence has a greater impact on golf and its related businesses than housing. The housing engine drives demographic changes, which, in turn, create new markets and change the face of established ones.

As housing recovers from a recessionary body blow, its impact on golf will be favorable. Developers and homebuilders, as they have for decades, will continue to view golf courses and country clubs as primary

mixed-use properties are starting new projects. Tonette Echols, a financial advisor at Wells Fargo Advisors in Phoenix, observes that the combination of declining unemployment and moderating inflation is helping the economy find a “sweet spot” of opportunity.

Homebuilders seem to agree. Rick Judson, chair of the National Association of Home Builders and a Charlotte-based builder, said recently, “Builders are noting an increased sense of urgency among potential buy-

past decade Baby Boomers have felt another tug: proximity to children and grandchildren. The markets benefiting most are along the coasts and in population centers of Arizona, California, Florida, the Carolinas, Georgia, Tennessee and Texas. Generally speaking, states with favorable climate and more affordable health care will prosper; states without those advantages and those with high taxes will be less attractive to current and prospective residents.

Some markets – especially those where the recession brought new construction to a standstill – are now seeing the effects of a supply shortage. After several years of near-zero growth, sellers have corrected prices and builders have relocated their tool belts. Until inventory levels stabilize, home values on resales are increasing and it's once again a seller's market. Nationally, prices have increased 5.2 percent since January, with several California markets, Phoenix and Las Vegas leading the way.

If you're wondering if or when your market will join the housing resurgence, here are several trends to watch:

- Consumer confidence is growing and fueling activity nationally. But housing a local market dynamic, so look for close-to-home signs such as continued layoffs or new businesses moving in.
- Homebuilder confidence is growing as builders scurry to take advantage of market conditions and credit availability.
- Building permits (usually six to nine months ahead of the cycle) are increasing in hot markets.
- Housing starts (usually four to six months ahead of sales) are up 35.8 percent from April 2012 to May

(DELOZIER continues on page 58)

After several years of record slow growth in new home starts, the pressure of pent-up demand is driving a **new surge in construction**. Where this new activity shows up first and remains strongest will help determine golf's future health.

amenities for many of their projects. However, predicting the vagaries of the housing cycle is an imprecise process. It's this symbiotic relationship between golf and housing that makes it important to keep a careful eye on this recovery.

As the housing market heats up, it's interesting to remember the dire prognostications of some market watchers from only a few years ago. “The glory days of the housing economy are gone forever,” predicted some of the least informed. As often happens, many failed to remember the fundamentals that drive the housing cycle: developers' access to capital, homeowners' access to mortgage debt and the confidence levels of both buyers and sellers. The doomsday prophets also forgot their history and the reason that cycles are so named: they come and they go.

As the economy slowly and fitfully recovers, developers of residential and

ers as a result of thinning inventories of homes for sale, continuing affordable mortgage rates and strengthening local economies.”

After several years of record slow growth in new home starts, the pressure of pent-up demand is driving a new surge in construction. Where this new activity shows up first and remains strongest will help determine golf's future health.

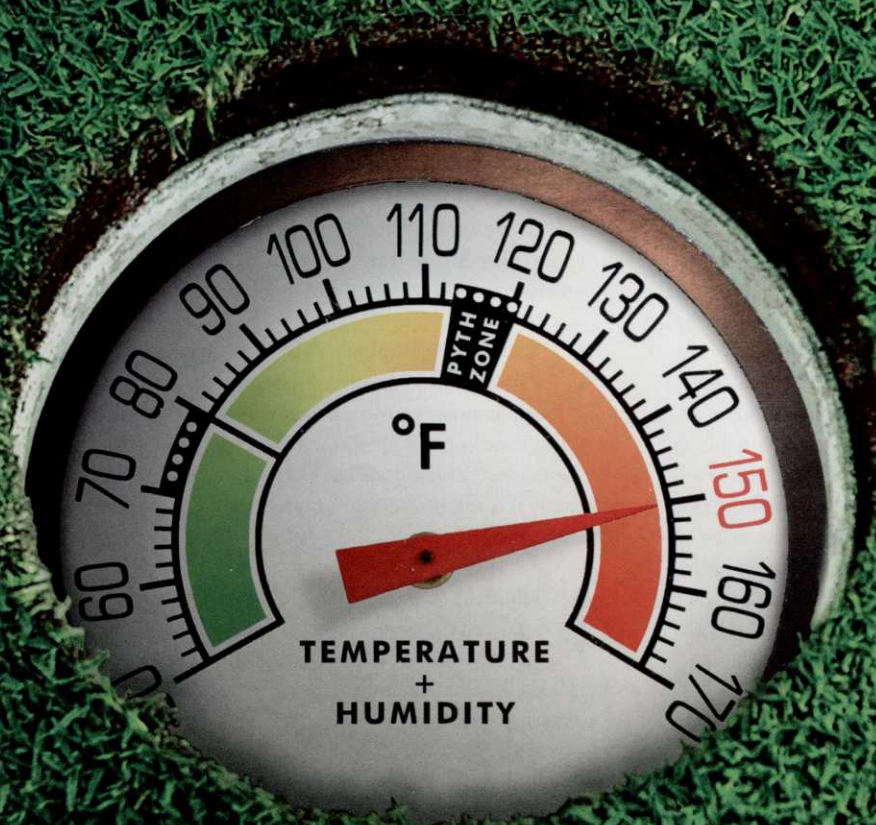
Demographically, the greatest demand for new homes is driven by more than 70 million Baby Boomers. This is a population segment that has what home mortgage companies love to see: cash and credit worthiness. According to John Burns, the respected California-based real estate observer, people over the age of 50 have purchased 39 percent of new homes thus far this year.

Traditional wisdom held that the Sun Belt held the greatest allure for the over-50 crowd. However, for the



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# Making a *private club* SUCCESSFUL

Nine key factors that push clubs forward and enable them to weather hardships. by Laurence A. Hirsh

A veteran course superintendent recently asked me a broad question: What makes clubs successful? With so many clubs struggling, it was, and certainly remains, a fair question. And it was meant to be broad. The courses this superintendent and his peers manage are the biggest assets club have — but he deals with a power structure that oversees the course, the membership, the entire club staff, the F&B operation, and the infrastructure. He was talking big picture, as that picture affects everything he does, in the context of club “success.”

Without question, the most significant observation I’ve made during the recent recession is this: Those clubs that continued to move forward, that kept enhancing their facilities and improving their clubs intelligently were able to weather the storm. Conversely, those clubs that played “Rope-A-Dope” and did nothing more than cut expenses, after a while became unattractive and unable to keep or attract members. They had diminished their value, in essence. There was, thanks to this undirected cost-cutting, inherently less value in membership and many such clubs simply failed, or at the very least began allowing public play and dining, much to the chagrin of the members who stayed on.

A broad discussion should include many specifics. Here are a few specific things that successful clubs have in common.

**1 GOOD, STABLE LEADERSHIP.** How many successful businesses change leaders every year and have as many as 15 bosses? Not many. The best and most stable clubs have presidents for three, four or more years. Many of those clubs have benevolent dictators who unilaterally make decisions and don’t have to answer to a board of directors with multiple agendas (and too many board members, in my view). That’s the ideal, and let’s be clear: Benevolent dictators are tough to find. However, it has always struck me, and continues to strike me, how many successful clubs have found them and keep them around as long as possible.

**2 PRUDENT, REALISTIC PLANNING.** It’s often said that a failure to plan is a plan for failure. This is very true with clubs, especially since oft-changing leadership means oft-changing philosophies. Without a plan that is adopted and embraced from one regime to the next, it’s difficult, if not impossible to continue moving forward. It’s also difficult to develop membership on a continuing basis. Every club should have a plan and club statute should mandate the regular review of that plan.

**3 LOCATION.** Location is a key element for most clubs. Even those in more remote locations, if they are designed as destinations or retreats, require locations suitable to their mission. We all know in real estate the three most important things are location, location and location. With clubs, the nature of the club must fit its location and be market sensitive. What club leaders don’t often recognize is that mission can be adjusted. If a mission doesn’t match the location, adjust the mission accordingly. See planning above.

**4 FACILITIES MANAGEMENT.** Nobody wants to join a club with lousy, outdated facilities. Even the best quality facilities require maintenance and periodic refreshment. As part of any long-term plan, clubs need to ensure that not only is the continuum of club leadership (i.e. multiple future regimes) willing to update and upgrade facilities as necessary, but that it’s prepared to pay for those updates and upgrades, without fail, over time.