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Water Usage

What You Can Learn from California's Supers

By Richard J. Skelly

No matter where in the U.S. or Canada your golf course is located, all superintendents at one time or another must deal with periods of little, less than anticipated or flat out no precipitation. Golf course superintendents in California have been grappling with all kinds of water restrictions on their sacred turf since the 1970's. The labor costs of complying with local, county and state regulations regarding use of water on golf courses is significant. All of the superintendents we spoke with agreed golf courses are an easy target during times of drought, but in California at least, they're pretty much left alone the rest of the time.

For the last two "rainy seasons," all regions of California have had higher than normal rainfall averages, so for now, the heat is off from state legislators in Sacramento. Golf Course Industry spoke with Mike Swing, who is president of the California Golf Course Superintendents Association, as well as two of that group's key legislative liaisons, Jim Ferrin, whose courses are located north of Sacramento in

the northern end of the state, and Jim Alwine, who recently made a move from Stockton Country Club in the central valley to Bernardo Heights Golf Club in San Diego county, the extreme southern end of the state.

All three veterans had much to offer those in other states coping with water restrictions and periods of drought in general.

"The past few years we've had very heavy rainfalls so there've been almost no water restrictions at all," reports GCSA president Mike Swing. Swing, superintendent at Visalia Country Club in Visalia, Calif., and president of the California Chapter of the GCSAA, hails from the state's central valley, a region populated by large corporate farming operations and dozens of smaller farms. The history of water restrictions on irrigation practices in the state of California goes back to the 1970's.

"The central valley is huge and almost all of it is farm, and ag is pretty big out here," Swing reports, "and while this year there have been some water restrictions down south, there is a water use mandate by the state of

California that says by 2010 you shall reduce your water use by 10 percent and by 2015 you shall reduce water use by 20 percent," Swing reports of the latest possible legislative actions he knows about coming out of Sacramento.

"The law is there, it's the enforcement of it and what level they're going to enforce it at that are the issues," Swing continued, freely admitting the state of California these days is looking everywhere for new sources of revenue. As of yet, however, there is no formula and there's likely not going to be one blanket, across-the-board solution for all golf course superintendents in a state as big and varied as California. It's well-known that southern California cities like Los Angeles and San Diego average far less in annual rainfall than do cities like Sacramento and points north in northern California.

"I'm sure they're going to have to devise some sort of formula that works for each golf course," Swing said of state water control authorities, "so that they can tell owners and supers, this is where you need to be and if you're over it, this what you're going to pay."

To comply with new water restrictions, Swing offered by way of example his own club, Visalia. Built in 1922, the club's irrigation system is 23 years old.

"Instead of looking at a complete rebuild, we're going to replace sprinkler heads and control stations to satisfy the 2010 10 percent water drop," he said, "and our lakes leak pretty good, so for a second phase we'll seal all our ponds up, and that'll satisfy the 20 percent. And a lot of other clubs will be doing exactly the same thing."

Swing predicted it will take time for the state regulatory authorities to come up with a formula that is flexible enough to be applied to every golf course in the state, and it will take many years for southern California, which draws much of its water from the Colorado River, to find solutions to its water use problems, not just for golf courses, but for businesses and growing populations in that region of the state.

"More and more golf courses are going to reclaimed water, especially in south California," he said, because about two-thirds of the water is in northern Califor-

nia but two-thirds of the population is in south California.

This is all par for the course since the 1970's, when water rights came under the domain of lawyers, many of whom, of course, are also legislators, Swing said. In the central valley farming region where Visalia Country Club is situated, "ninety-eight percent of the water in this region is used by ag, and it's a very small percentage that goes to businesses, homes and golf

courses here. Golf courses are just more visible, even though we use our water very efficiently."

"It's hard to get past some of the perceptions of people that don't really understand golf, they often have the opinion that golf courses do nothing but waste water," Swing said, "but if you get these people to look at individual houses and the amount of water home irrigation systems put down, the amount that golf courses put down is far, far less.

The home owner can water heavily and just let it run down the street, and hey, we've all seen it, driving through housing developments, it's raining outside and the lawn sprinkler system is on, watering the lawn."

Rainfall in the central valley averages just nine to 12 inches a year, Swing points out, and that's only during the rainy season, he notes, "we don't get any during the summer."

By way of advice to other su-

perintendents in other parts of the country, Swing said continuing your education is a big part of the solution, "and it's vital to be operating a golf course with newer irrigation tools, sprinkler heads and wetting agents have become very very good." He adds that "supers can advise their boards, 'Hey there are new technologies available, we can make a savings by implementing some of these new technologies.'"

As for the eventual implementation of water use mandates for golf courses in California, "we're trying to keep an ear close to anything that's going on with golf at the state level, especially if it concerns water," Swing relates.

"We don't know yet what the penalties are going to be, they've got the law, the mandates are there, but how you going to

"The central valley is huge and almost all of it is farm, and ag is pretty big out here... and while this year there have been some water restrictions down south, there is a water use mandate by the state of California that says by 2010 you shall reduce your water use by 10 percent and by 2015 you shall reduce water use by 20 percent." — Mike Swing, Visalia Country Club

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enforce it and at what level," he said. "I think they're going to look at historical E.T. rates for each area of the state, they may work off of that, but once you've determined that, how are you going to make it compliant? That's what they have to figure out."

Jim Ferrin, a legislative liaison with the state superintendents' association oversees Timber Creek and Sierra Pines golf courses in Roseville, Calif., just north of Sacramento.

"They've been trying to regulate water use on golf courses in a bunch of different ways now for a number of decades," Ferrin said, agreeing with Swing that water restrictions will be more of a problem in the southern part of the state first.

Pressed for advice and suggestions for supers in other parts of the country who must deal with occasional, temporary droughts and resulting water use restrictions, Ferrin said a number of solutions are posted online.

"We have a great model done by golf course supers in Georgia," Ferrin notes, and it's posted online at the GCSA of America website.

"They're already been through horrific droughts over the last three years, and it's a best management practice program about how you go about dealing with things. I saw some good ideas in there. It's just a proactive way of dealing with regulatory effects,"

Ferrin adds.

Aside from using gray or reclaimed water, which so many golf courses in California are already doing, longer term, Ferrin predicts, "we have to be aware that the future is probably going to involve less water use. So the amount and type of your turf, the type of your soil, the computer systems, the type of sprinklers you're managing, the pump stations, all have to be looked at to be made as efficient as possible," he argues.

"And it's not just the water usage, it's also the power usage, the cost of the power, and the cost of that power and water varies from place to place."

So how does one justify irrigation methods and water use to state regulators who don't play golf?

"Many of us keep clear records of our daily usage and can show how we're using less water, we're adding turf areas and fertility factors to use less water, and there are products on the market like wetting agents that allow you to use less water," he says, "just having a record of your practices and the means with which we do so, you can show somebody who's a non-golfer how we're trying to conserve water."

Ferrin notes that members are ultimately the ones who have to be satisfied and are paying the superintendents' salaries, "so really, there's pressure in both places."

Ferrin advocates for golf courses that are less green but more play-able. "Every section of the golf course does not have to be perfectly green," he said.

"A lot of clubs are taking advantage of recycled water where they can, but there's not always

that much recycled water available," Ferrin adds. "So as populations grow and demand for bottle water grows, golf courses are going to be under more pressure to use reclaimed water."

(continued on page 57)

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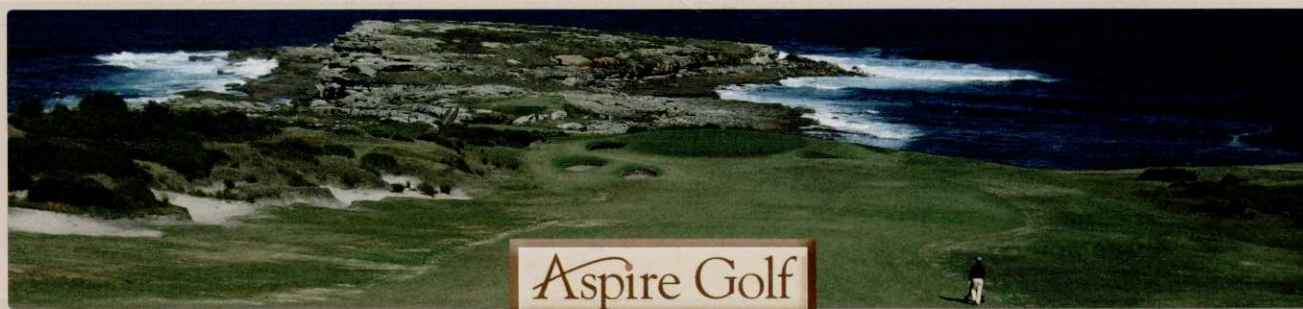
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COMPLIANT OR COMPLACENT?

On Jan. 1, 2013 the FCC's new narrowband frequency requirements go into effect. These regulations require old wideband radio frequencies (25 kHz wide channels) be reduced to 12.5 kHz). This applies to all UHF and VHF frequencies between 150-512 MHz (VHF) and 150-174 MHz (VHF). It also affects any repeaters you might have on your communication system. Lastly, it applies to SCADA systems, so if your system incorporates SCADA communication technology you will need to update that, as well. This is not new news as the FCC announced the requirement back in 1999, but as time gets closer you need to make sure you are compliant as radios are a big part of many golf courses irrigation systems communications.

You have probably already dealt with the narrowband frequency issue with your crew's radios, but did you look at the irrigation radios? Radio communication in regards to the irrigation system can include; remote control, computer to field controller communication, weather station communication and pump station communication. On your FCC license in the far right is a column labeled "Emission Designator". If the first two digits are greater than 11 you will need to modify the license. Most new radios are capable of being reprogrammed from wideband to narrowband, but your license will still need modification to remove any wideband emission designators.

The good news is that the manufacturers have been shipping narrowband compliant equipment for years;

Toro and Hunter since approximately 2001 and Rain Bird since 1998. However, many of you have irrigation systems that are much older than that, so you must make sure you won't have any issues. Your handheld remote is probably the most vulnerable. If it is more than 12 years old it is probably wideband. To check, look at your FCC license or call your distributor. If it is wideband, you will need to modify your license and upgrade your radios.

You have probably already dealt with the narrowband frequency issue with your crew's radios, but did you look at the irrigation radios?

Unfortunately, many superintendents during this process have discovered they have no FCC license for their radios. Remember UHF and VHF radios require a FCC license to operate. If your system is a 900 MHz system, then no license is required. So if you have no license, then it's time to get one and this can be expensive.

An alternative is to change your technology. Download a free app for your existing or to-be- purchased iPad and use that as your remote control system instead of the radio. It is much less expensive than the license (updated or new) and new radios, not to mention a lot more fun. You can also change your system to 900 MHz radios which doesn't require a license.

If your system uses radio communication for central to field controller communication, and it is still wideband, than you've got lots more to do and your costs will be substantially higher as narrowband equipment is more expensive. You may have to upgrade your control system hardware. By now your local irrigation distributor should have been in contact with you and you should have a plan in place for upgrading before the year is out. Many manufacturers have special pricing available for upgrades, especially if you are a member of their service plans, such as Rain Bird's GSP or Toro's NSN.

The FCC has stated it will not extend the deadline and the fines for non-compliance are pretty hefty, upwards of \$25,000.00 for unauthorized or illegal operation. They will also cancel your license and the FCC has stated relicensing of cancelled systems will become very difficult. You cannot mix wideband and narrowband. You have to be one or the other and starting January 1 it has to be narrowband.

Depending on your system, your pump station monitoring package and communication or your weather station communication with your central computer could also utilize radio communication and those frequencies need to be checked and possibly upgraded.

This change in frequencies is an important issue. It is not something that can be changed overnight and requires time, planning and cash. And in this day and age, all of those are at a premium. **GCI**

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Blackstone Golf Club is a high-end daily-fee course my firm designed in the northern suburbs of Chicago.

Short-changed scenario

How does a superintendent cope when a course is built on the assumption that 40-50 percent of the water would come via effluent, from adjacent home lots, but only a fraction have been built?

by Bob Lohmann

So here's a question: What does a superintendent do when a golf course irrigation system was designed and built on the assumption that 40-50 percent of the water would come via effluent, from adjacent home lots, but only a fraction of those homes have been built?

We've recently been in touch with the ownership and management teams at Blackstone Golf Club, where we've all put our heads together to find solutions to this problem. Blackstone is a high-end, daily-fee course my firm designed in Chicago's northern suburbs. The golf portion of the venture has done extremely well, even in these tough times. But 95 lots were planned and only 13 have been built. So we've been strategizing this spring, in consultation with Blackstone, to determine alternative water resources and alternative design/grassing strategies to reduce the facility's overall thirst.

Blackstone opened for play in 2005, but the reality is course architects maintain a life-long





It's not clear when exactly all the design improvements will be implemented at Blackstone, but the new grassing plan and bunker reductions are a priority.

relationship with the courses they design and help build. While course owners and superintendents can and do change, the course designer is and always will be the course designer until such time that a layout is renovated. Even then, unless the routing is completely blown up and replaced with an entirely new design, the original architect remains attached in a way that is both unique and resourceful.

Superintendents inherit golf courses from the folks they've replaced, and they serve existing owners as stewards of the property. But in another important sense, superintendents inherit the course from the architect. Accordingly, when something isn't working, or something doesn't make sense, that architect should be put to work. Find him. Pick his brain. Get him out to your property so he might explain what the hell he was thinking when he put that bunker there, or preserved that line of trees, or contoured that green in such a way to prevent cupping on 25 percent of the putting surface.

We have always made a point of staying close to past clients, and we've found these relationships to be far more constructive than adversarial. We've developed a checklist of things to discuss with past clients, so we might better realize original design goals along with new goals based on modern influences. These ongoing relationships invariably result in improved efficiencies, playability and maintainability. We've also found that current superintendents, with our input, are better able to allocate money from less- or non-essential areas to essential ones. That's been the case at Blackstone, and here's that checklist:

Analyze the impact of current equipment and maintenance technologies on the original design. What still works, what doesn't? Rare is the design that truly anticipates agronomic innovation, for example.

Review those parts of the original design plan that were not built – due to budget or previous owner bias, etc. You wouldn't believe what gets sacrificed just to save a tree...

Review design elements, i.e. green slopes relative to current green speeds, available pin

The golf course portion of the venture has done extremely well, even in these tough times. But 95 lots were planned and only 13 have been built. So we've been strategizing all this spring, in close consultation with Blackstone, to determine alternative water resources and alternative design/grassing strategies to reduce the facility's overall thirst.

placements; variety in teeing distances, on a hole by hole basis more so than overall; width of landing areas, i.e. where are people really landing the ball, what's really in play?

Review pace of play, i.e. where are the pinch points? What's slowing golfers down?

Review maintenance issues that have presented over time, i.e. excessive sand maintenance, drainage problems, material failures (greens mix, bunker sand), limited irrigation coverage, poor cart circulation, etc.

Review efficiency of maintenance practices, i.e. effective use of cultural practices (top-dressing, aerating, etc.), hand-raking versus machine-raking, bunker face management (hand

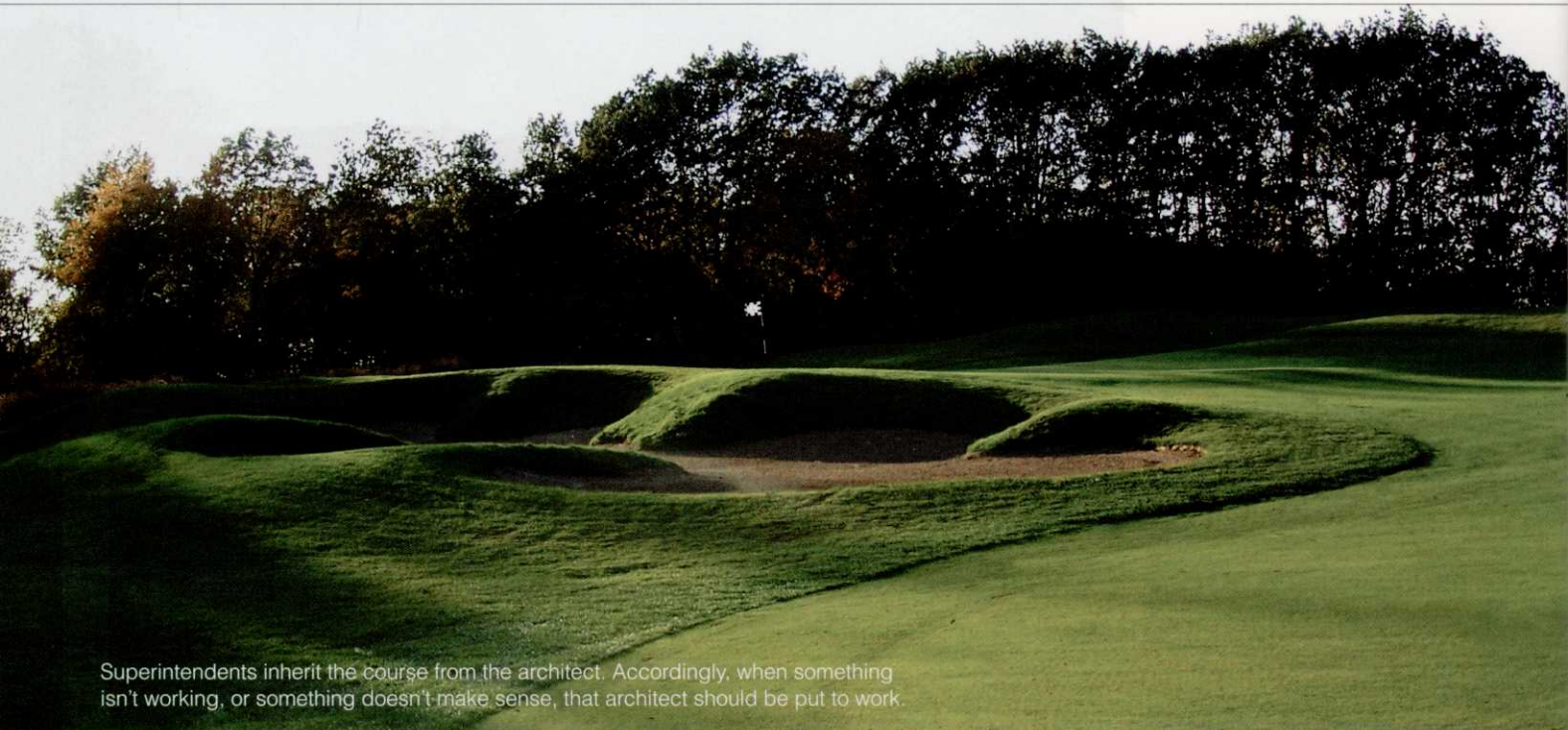
vs. machine), tree management, *Poa annua* management, water management, etc.

Assess environmental and economic impacts, i.e. unused land for housing, stormwater management, water quality and water sources.

Assess age and durability of specific features, mainly greens, tees and bunkers, with an eye toward eventual replacement, because they do wear out.

Be proactive regarding future regulations and restrictions, i.e. energy use, water use, etc.

This is stuff that supers and in-touch owners assess every day, but rarely with the original architect. We're currently working through this process with Blackstone and, as per usual, it's



Superintendents inherit the course from the architect. Accordingly, when something isn't working, or something doesn't make sense, that architect should be put to work.

proving incredibly instructive. Finding new sources of water is a big ask, admittedly. But we're aiming to identify several acres that can be reasonably converted to non-irrigated areas. This "turf-reduction" we're recommending involves the replacement of manicured turf with fescue plantings, and/or the re-grassing of areas with more drought-tolerant varieties.

We know the grassing plan at Blackstone because it's our grassing plan. We know, better than anyone could, which areas can go non-irrigated, what aspects of the grassing plan were entirely aesthetic, and therefore can be sacrificed or repurposed. Those 82 units of housing aren't going to be built anytime soon, meaning no new water sources, but we reckon the measures we've proposed will reduce the client's water needs by 5 to 10 percent.

Understand that while architects like to stay in touch with past clients, it's the clients who request and drive the process. We keep the door open, but the clients have to walk through it.

"There's been good communication from the start but I do

think I approached you guys," Dan Weck, the owner at Blackstone, told me. "There was that big hump in the putting green. We didn't think it was representative of the greens on the course and it was tough to maintain. I talked to you about that last fall, Bob, but that was a project we did in-house.

"Prior to that we had expanded a tee box on one of the par-3s, but it was the bunkers that really got us thinking. There are certain ones out there, just a couple, that just don't come into play too much, so the cost of maintaining them was tough to swallow."

We went from there. Some bunkers at Blackstone are indeed slated for removal, but not until we ensured those removals would have minimal impact on aesthetics and strategy, probably none at all. We've also proposed to the owners some additional design tweaks:

Expansion of the 5th green, which is the most complained-about putting surface on the course, apparently. (I don't know why... Narrow and angled around a deep hollow – with a lovely Biarritz-like swale at the

midpoint. It's a beauty.) We've proposed filling in the hollow to create a lower tier, allowing the green to be hit in regulation more often, while still providing a stern, fun putting challenge.

Removal of a fairway bunker on the left side of No. 10 and expansion of the fairway, allowing better players to draw the ball around or carry a pond, thereby setting up the best angle into this par-5 green.

Opening up the green-entry on 14 by shrinking or moving a greenside bunker, providing a better opportunity to run it onto the green at this long par-4.

"That change on No. 5," Dan explained, "will really improve the golfer experience on the hole. I think I initially brought up the idea [of expanding the green into the hollow] but an actual design solution? That needs an architect. I don't know the height of that tier, what it should be, how it should transition... I'll leave all those specifics to you guys.

"My goal is to make the course more enjoyable for the golfers. That's the biggest part of it, and that's why the relationship with

the original designer needs to continue beyond opening. The whole operation here is driven by, 'What can make the experience better at a certain price point?' Because we want to improve, we want to be talking to the architect continually, to enhance the experience, but also to improve our maintenance situation from a conditions standpoint and a cost standpoint."

It's not clear when exactly all these design improvements will be implemented at Blackstone, but the new grassing plan and bunker reductions are definitely a priority. We're hoping to mitigate a big problem for the club, and save it money.

As the original architect, it's something that only our firm could have achieved; we visited the course but we could have done it without a visit – such is our knowledge of the property. That sort of familiarity is invaluable, and the original architect is the only one who has it. **GCI**

Bob Lohmann is founder, president, and principal architect of Lohmann Golf Designs and a frequent GCI contributor.