

Water, Water... *Everywhere?*

NO MATTER IN WHAT
REGION THEY'RE LOCATED,
MOST ALL GOLF COURSES
FACE SOME KIND OF
IRRIGATION ISSUES

In the **WEST**,

BY LARRY AYLWARD,
EDITOR IN CHIEF

YOU HEAR IT OFTEN: The West is running out of fresh water. Consider California, where many areas of the state import water from other places, such as Lake Mead and the Colorado River. But those supplies are diminishing.

Alas, what does the future hold for golf courses in a region that's drying up?

Mike McCullough, director of environmental and water resources for the Northern California Golf Association in Salinas, Calif., says golf course superintendents and other golf industry leaders better start thinking about the future of their water use or their won't be a future.

"You'd like to think people are thinking about it long term, but chances are they're not," McCullough says, noting that while areas of northern California receive up to 15 inches of rain a year or more, most of Southern California receives much less.

The passage of a bill in November by the California legislature will surely get them thinking about the future. It calls to reduce water use statewide by 20 percent by 2020. Groundwater supplies will be measured across the state for the first time. "Is this ideal? Absolutely not," McCullough says. "Is turf going to suffer? Yes."

But the good thing is the bill will stimulate thinking of how to save water, McCullough adds. "I've been encouraging people to start this kind of dialogue," he says.

For instance, maybe golf's leaders in California should talk about whether it's sensible to grow cool-season turf in areas that are consistently 100 degrees Fahrenheit during the summer.

"Could you get by with a species

a Need to Keep an Eye on Every Drop Used

that requires less input, less maintenance and less water, yet still be desirable?" McCullough asks.

Recycled water use is a good answer for golf course irrigation in California and other parts of the West. But it's not *the* answer. There are infrastructure issues and turning a recycled water plan into reality could take years.



McCullough:
More people
need to think
about water
conservation.

It's also possible to run out of recycled water. Just ask Justin Ruiz, the certified golf course superintendent of the Rim Golf Club in Payson, Ariz. Ruiz uses it to irrigate at the Rim, and it's not uncommon for the club's irrigation lakes to drop to a 30-day supply of water for irrigation. As a superintendent, Ruiz says, you're forced deal with it.

How does Ruiz deal with what seems like a constant challenge of having enough water with which to irrigate? "We know exactly how much water we're using at night, and we also measure how much water we put out by hand-watering," Ruiz says.

Why doesn't Ruiz have an abun-

dance of recycled water with which to irrigate? "We have a small town," he says of Payson, which is about 90 minutes north of Phoenix. "Because of the down economy, more people have left town. Because there are fewer people, less water is used."

McCullough believes California will blaze a trail toward water conservation. The state's new water legislation is the beginning of just that.

"Water use will be more transparent and there could potentially be a formula for how much you get," McCullough says. "If you exceed that amount, there will be heavy fines and you'll be the scorn of the community." ■

Forecast in the **SOUTH** Calls for More Effluent Water Use

BY LARRY AYLWARD, EDITOR IN CHIEF

TWO YEARS AGO, the Southeast experienced its worst drought in a century. Mark Esoda, certified superintendent of the Atlanta (Ga.) Country Club, remembers the drought well.

Last September, the Southeast experienced unprecedented rainfall. Atlanta was saturated for nearly a week, with some areas of the city receiving 5 inches of rain in 13 hours. Esoda remembers that weather phenomenon well, too.

"The lakes are full, and nobody cares about the drought anymore," Esoda said in October. "The Atlanta area has already surpassed its annual rainfall mark."

Climate change? Call it what you will.

No matter, water availability will continue to be an issue in Atlanta and the South, Esoda says. And much of it is because of the wacky weather.

"Right now, water availability is good but outdoor water-use rules will continue to be developed even though there is plenty of water," Esoda says.



Mark Esoda
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South.

In Florida, Rob Kloska, superintendent of the Jupiter Island Club in Hobe Sound, says availability is the biggest water issue there, especially for new golf courses. Kloska says the first questions asked to developers are: Where will you get the water, and do you have access to effluent sources?

Kloska has irrigated his course through a reverse osmosis treatment plant since 1998. Reverse osmosis is the process of extracting salt and other minerals from brackish salt water and converting it to irrigation-quality water. Kloska says Jupiter Island decided to build the \$1 million reverse osmosis plant because of soaring potable water costs and water

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In the **EAST**, Water is Plentiful But Superintendents Expect More Regulations

BY ANTHONY PIOPPI,
CONTRIBUTING EDITOR

THE SUBJECT "WATER ISSUES" is not one normally associated with the Northeast portion of the United States, where the average rainfall is between 40 and 46 inches annually and water quality, for the most part, is excellent.

Like everywhere else, though, how local and state governments view water usage is changing and golf courses will be, and are, affected.

At places like The Golf Club at Oxford (Conn.) Greens, a Mark Mungeam design that opened in 2004, the plan was to never touch the aquifer to irrigate. "For the most part, we rely on storm water to recharge our ponds," said superintendent/general manager Bryan Barrington.

Situated in the midst of a real-estate development, rainfall at Oxford Greens is first directed through a 300-foot grass swale, stone rip rap, then into a settling pond before spilling into the irrigation

pond. Barrington said the water quality consistently tests very high.

In drought conditions, Oxford Greens taps into the municipal water supply. Barrington says the last time the course needed to do that the cost for 5 million gallons was about \$10,000.

Barrington also grew in Red Tail Golf Club in Devens, Mass. While there, Barrington was constantly monitoring his water quality to make sure he had no impact on what flowed beneath his course.

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restrictions imposed by the city's utility company. Kloska figured if the course manufactured its own water, it wouldn't be at the mercy of the utility company during droughts and wouldn't be affected by soaring water prices.

Kloska is right, and he expects more courses along Florida's coast to opt for reverse osmosis in the future, especially since the water-management district wants courses to stop using shallow wells.

Kloska and Esoda also expect more Southern courses to irrigate with effluent or recycled water. Coastal cities are discovering they can no longer discharge wastewater in rivers and the ocean, Esoda says. Hence, golf courses will become a market for them. "I can see this happening more in densely populated areas where there are limited resources," he adds.

Esoda says water quality is not an issue in his area, but he realizes superintendents in coastal areas can't say the same. Kloska has few water-quality issues, but some of the courses that use effluent have challenges, such as high phosphorus.

Kloska predicts new and old golf courses will continue toward using turfgrass varieties and plants that use less water. Kloska also believes smaller water-recycling systems are the future and will be used to irrigate courses.

The good thing about the slow economy is slower population growth, which equates to less development, which won't put a drain on water use in the South, Esoda says. "I don't see any kind of real increased growth rate through golf in Georgia and maybe even the Southeast for the next five years," he adds.

Kloska agrees. "The only positive about the economic slowdown is development has gone to zero, which means the need for more water has dwindled," he says. "But in five years, when the economy is rolling again and new homes and developments are being built, the issue will move to the forefront again." ■

Despite Water

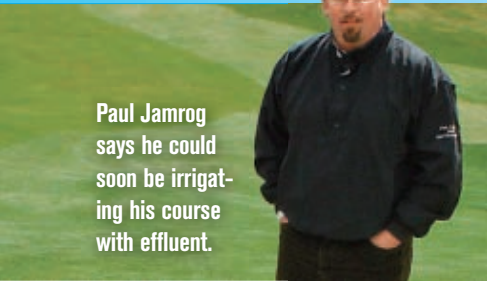
BY JOHN WALSH,
CONTRIBUTING EDITOR

JUST BECAUSE A GOLF COURSE is located in the Great Lakes region doesn't mean it's exempt from dealing with water issues. While availability usually isn't an issue, cost and quality are for some.

Even though the issues aren't as serious as those in the Southwest, superintendents in the Great Lakes region can't take the precious resource for granted.

The Lochmoor Club in Gross Pointe Woods, Mich., has unsuccessfully dug wells for years to find water. At one time, the club purchased all its irrigation water from the city of Detroit.

"We're unusual in the Detroit area in that we have to pay for water," says golf course superintendent Mike Mulkey. "We're only a couple miles from Lake St. Clair. The club tried to



Paul Jamrog says he could soon be irrigating his course with effluent.

“There was a laundry list we had to test for,” he says. “They wanted to know what was going into the ground. They also wanted to know what they had for a baseline.”

For Paul Jamrog, superintendent at Metacomet Country Club in East Providence, R.I., municipal water is how he irrigates but that could be changing.

Although Jamrog keeps the Donald Ross design dry and firm, the club was advised by the water district to seek an alternate source. Right now, Metacomet pays .0285 cents per cubic foot

of water along with a 7 percent sales tax. The cost is expected to rise dramatically when the municipal water infrastructure undergoes a massive upgrade and prices skyrocket to recoup the expense.

“Where do we go from here? It’s something that has to be addressed,” Jamrog says.

Metacomet tried drilling wells but that produced little water, and Jamrog estimates it would take 12 or 14 wells to keep an irrigation pond recharged. Part of the problem is the brackish Providence River runs right past the course and deep wells would most likely draw from the salty water.

Jamrog says there’s a possibility he could one day be irrigating with effluent provided by a nearby treatment plant.

“All this is going to come to a head in the next five years,” he adds.

Then there’s David Berard, the certified superintendent at Dorset (Vt.) Field Club, who gets water for his course from a 3-acre pond dug into a gravel aquifer that quickly recharges.

“It’s a wonderful pond,” he says, noting water quality is fantastic, only slightly high in pH.

Berard says other courses in south Vermont also irrigate from self-charging ponds. Berard, though, knows it’s a matter of time before regulations tighten in Vermont, where the state has legal control over all types of water, including aquifers. ■

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Availability in the **NORTH**, There Are Hurdles

get water from the lake but, politically, couldn’t do it because of municipalities and conservation groups that put the kibosh on it.”

In 2002, the club completed an \$800,000 project that comprised creating a large retention pond that ties to its irrigation pond. The retention pond was created to catch as much rainwater and snow melt as possible. The 12-million-gallon-capacity pond filled completely the past two winters.

“The 12 million gallons we save by collecting is worth \$60,000,” Mulkey says. “The cost of water has increased, and that was the main reason the club built the retention pond — to save money on water.”

Mulkey spends \$60,000 a year to purchase water from the city of Detroit. That amount of water, half of what he uses, is in addition to the 12 million gallons he retains from rainwa-

ter and snowmelt. “During a typical year, we would use \$120,000 worth of water,” he says.

The 36-hole Olympia Fields (Ill.) Country Club has plenty of water because it sits on an aquifer and is close to Lake Michigan. There are two wells on property and one recharges the irrigation lake. The club doesn’t pay for water, it just pays for the electricity to pump it.

But water-quality problems stem from road salt and debris in a creek that drains into a pond on the course used for irrigation. In the spring, a large amount of sodium accumulates in the pond. “We drain the pond, fill it up with well water and repeat the process,” says certified superintendent Sam MacKenzie.

In 2007, the South golf course was renovated. Planning the project, the architect wanted to tie the pond to

the 13th and 14th holes via the creek. MacKenzie recommended diverting the creek around the pond to create a wetlands area that would filter the salt and debris before it entered the creek. In the end, the creek couldn’t be completely diverted, so some of the contaminated water still enters the pond. That said, the sodium content of the pond the past two springs has been cut in half. ■

Walsh, a Golfdom contributing editor, is based in Cleveland.



Mike Mulkey says his club saved money after building a big retention pond.