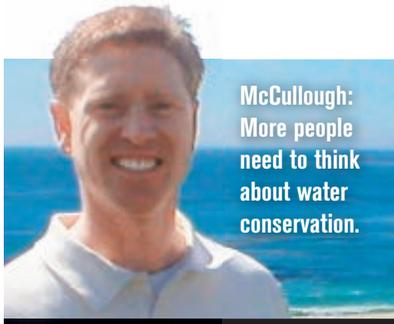


a Need to Keep an Eye on Every Drop Used

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 says water availability will continue to be an issue in the 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