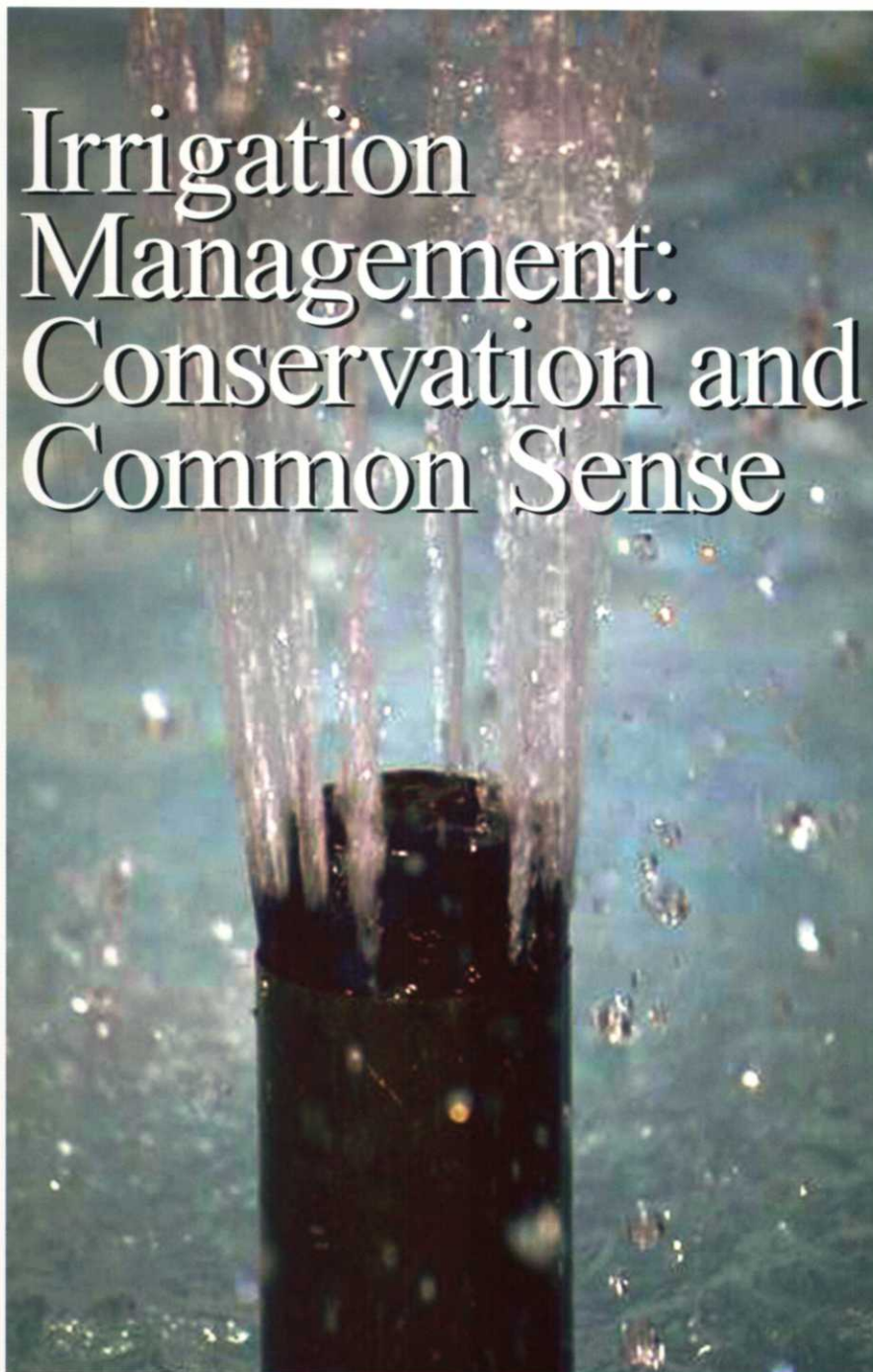


Irrigation Management: Conservation and Common Sense



By Joel Jackson, CGCS

You should know the story by now. Most of the earth's water is sea water. Some say about 97 percent. Another 1-2 percent is tied up in the polar ice caps. That leaves 1-2 percent of relatively easily accessible fresh water for all of our needs. Agreeing on the priority of those needs is the vexing question facing water-management districts and local authorities, and as we know, golf is low on their list. While playing golf may be a game, managing turf and operating a golf facility is a business... a big business in Florida.

Golf is in one of the lowest water-con-

sumption groups tracked by water management districts. From actual consumption figures I have been able to find on web sites, the recreational/aesthetic use of water generally accounts for only 3-5 percent of the total daily consumption. Keep in mind we're just part of that group so the actual number for golf is lower. National figures compiled by the Irrigation Association suggest golf's water consumption to be around 1.5 percent. Combine that with consumptive-use permits (CUPs), the need to have good playing conditions, and improved irrigation technology and we are some of the best water managers around while being one of the most regulated. All because we are so visible.

It has been my experience to grow up in golf-course maintenance from the late 1950s to the present. I have operated a quick-coupler manual system as a teenager making my rounds during course grow-in. Then at Disney, I got to experience the Binar electrical system, which added lots of flexibility, but those decoder blocks in the ground were great lightning rods. Then I had a Buckner hydraulic system with a rudimentary central control panel. Most of the settings and adjustments were made at the satellite boxes, which made for a lot of trips around the course to make last-minute changes due to changes in the weather or the superintendent's mind.

A Toro Varitime II hydraulic system at Isleworth didn't eliminate the satellite box stops, but the master control board did allow multiple programming of fixed run-time cycles of 4 minutes, 8 minutes, etc. Finally in 1991, I got to experience the Rainbird Maxi V system back at Disney, and computerized control systems have been evolving ever since. They certainly offer a turf manager a lot of flexibility to prescribe water for small areas on the course to prevent wet and dry spots... if the system has been designed properly and you have single-head control.

Besides computerized control systems, the next best tool is a well designed delivery system. That means that the system needs to have correct pipe size, proper head spacing and location and a good isolation-valve network to shut down zones with leaks without shutting down the whole course. There should also be a network of manual quick-couple valves for hand-watering greens and tees and maybe even fairway bunker complexes. Many new courses are installing double-head systems around the greens so that the putting surface can be watered independently from the surrounding slopes, which may be built out of less porous soil and require less water.

Along the way, my water sources were direct pumping from a surface water lake fed by an artesian well, pumping directly from a deep well, pumping from a lake recharged by a deep well and reclaimed water piped into the mainline and pressurized with a booster pump. In my career I never had to contend with water restrictions like we have seen lately, but the goal of turf managers is always to use water wisely for to produce the healthiest turf and best playing conditions. Lately we have been learning to do more with less.

Even reclaimed water is not a panacea. Utilities have been prone to see the gold in them 'thar gallons and outrageous rate hikes of 350 percent have torpedoed course maintenance budgets. Local authorities seem to forget that using golf and landscape irrigation as community spray fields is providing them with a service which is saving them disposal costs.

As we have had to operate under water restrictions the past few years due to the persistent drought, two things have been abundantly clear to superintendents. First, they learned they could manage their golf courses with less water, and second, they could not effectively manage them by following the simplistic but totally ineffective method of restricting irrigation by the day of the week.

The only thing dictated by day-of-the-week watering schedules is when you water, not how much you water. Some water district officials have admitted that this method did not really save much water. Instead it forced water users to overwater on specific days to try and keep the root zone moist until the next scheduled irrigation.

Overwatering brings on another set of problems including poor playing conditions and poor turf health often requiring application of more chemicals to treat weeds and disease.

For those whose pumping capacity was limited or who had sandy soils, it encouraged - or rather forced - them to water off-schedule just to keep their turf alive and functioning. A rule or law that forces someone or a company to break the rules just to survive is plainly a bad rule.

I heard some superintendents documented their reduction in overall water use to cover themselves, but they watered when they had to, not on the arbitrary day of the week. They met the intent of the law, water conservation, in spades, but they violated the letter of the law which is flawed by not addressing practical agronomy or horticultural requirements. Their message is: We can and will cut back on amounts used during droughts, but let us apply the water when we need it. Enforcement is possible through pumping reports.

To the credit of many superintendents and the water management districts, they have made good strides in working out practical solutions to

these problems. This is a never-ending process and it is critical that superintendents keep their owners advised of the issues and solicit their help in educating politicians, water management districts and the general public about golf's true impact on the community.

TALE OF TWO COURSES

High & Dry or Low & Wet, Use Common Sense

The Highlands Reserve Golf Course is located in northeast Polk County just off US Hwy 27 on the sandy ridge that runs from Ocala to Sebring, and it's also near the eastern boundary of the Southwest Florida Water Management District. Superintendent Dave Datema, CGCS recently moved over from Disney and arrived in time to feel the full effects of the drought on this high and dry layout. Dave's current water source is ground water, but a reclaimed water line is being installed along US 27 from Haines City to the intersection of U.S. Hwy 192. The amount of reclaimed water Dave will have to use is unknown at this time, but hopefully he will be able to pump less ground water in the future.

Meanwhile over in Winter Park, Stuart

Leventhal's Interlachen Country Club was built on an old peat bog that wasn't suitable for residential development. Interlachen is located right next door to the local water treatment plant and so Interlachen irrigates totally with reclaimed water, but does have a backup well in case of emergencies. Drainage and percolation are polar opposites for the two courses and yet the management of the irrigation is based on the same concept - common sense.

Highlands Reserve drains so quickly that, during tropical storm Gabrielle last August, Datema's crew was mowing fairways when the eye of the storm passed over. That was after six inches of rain the previous night and morning. Over at Interlachen when summer rains kick in, Leventhal may not irrigate the fairways for four to six weeks. In fact they often have to go out and trim the grass back off the heads from lack of use.

Under normal conditions Highlands Reserve will pump 350,000 - 375,000 gallons per irrigation cycle and Interlachen will pump an average of 155,000 gallons. Both superintendents are addressing the needs of the turf and maintaining good playing conditions, and both use weather forecasting data to adjust their nightly watering to reflect the constantly changing conditions.

With the sandy conditions at Highlands Reserve, Datema has had to amend his native-soil greens to slow down the water percolation since there is no perched water table effect.

"While the greens drain super, I cannot



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