

GCI's Bruce Williams offers a case study on how Los Angeles golf courses worked with their local water agency to foster a better understanding of golf's unique water needs.

An LA Story

Dry

All across the United States water shortages are applying pressure on golf courses to conserve more water than ever before. Recent droughts in Texas, Georgia and other states have made headlines, while other states like Arizona, Nevada, New Mexico and California have dealt with these issues for years.

In 2009, successive drought years jeopardized Los Angeles' water supply. LA receives its water from the Sacramento Delta and also from the Colorado River via a lengthy set of aqueducts. Much of that water is stored in reservoirs near LA because usage is higher during the summer months due to reduced rainfall and increasing temperatures.

Snowpack in the Sierras is a major source of water that enters the delta. Much of Southern California is dependent on a solid snow season to provide the melting off that feeds the rivers. Up until 2012 we have experienced successive below normal snow years, which resulted in lower-than-normal reservoirs are much and it would take several years of

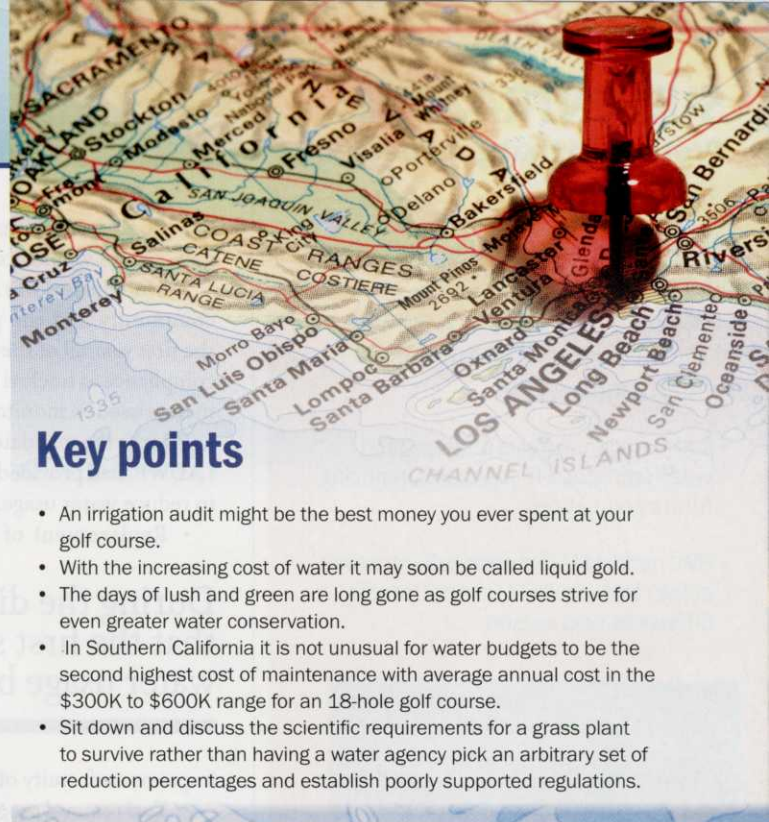
above average precipitation to get out of the drought situation.

Water is such a precious commodity the city council passed an Emergency Water Conservation Ordinance in June 2009 mandating immediate compliance with an onerous set of irrigation regulations that would have had a dismal impact on golf courses. The original set of regulations allowed for irrigation only on Mondays and Thursdays and no irrigation between 9 a.m. and 4 p.m. Those regulations were for all turf irrigation including, lawns, parks, sports fields and, of course, golf courses.

Originally the request was for a 15 percent reduction in water usage for each golf course facility but the regulations did not allow for well-trained and highly educated golf course superintendents to manage their water. The new stipulations could have potentially led to mismanagement of a precious resource. There became a need to develop a group of golf course water users – who had water provided to them by the Los Angeles Department of Water and Power (LADWP) – to engage in a process of education and understanding.

DEVELOPING PARTNERSHIP. LA's golf community organized and approached the LADWP with the idea of having a set of meetings that would evolve into the "Golf Industry Water Conservation Task Force." The purpose of the group was to:

Through tracking of water usage and staff member education, the most satisfying moment was when golf course representatives were told that golf courses were some of the most efficient of all the outdoor irrigation users.



Key points

- An irrigation audit might be the best money you ever spent at your golf course.
- With the increasing cost of water it may soon be called liquid gold.
- The days of lush and green are long gone as golf courses strive for even greater water conservation.
- In Southern California it is not unusual for water budgets to be the second highest cost of maintenance with average annual cost in the \$300K to \$600K range for an 18-hole golf course.
- Sit down and discuss the scientific requirements for a grass plant to survive rather than having a water agency pick an arbitrary set of reduction percentages and establish poorly supported regulations.

- Open a dialogue regarding water usage and conservation

- Discuss methodology for golf courses to best manage irrigation
 - Be involved in the formation of any new regulations via recommendations by the task force to LADWP

- Have ongoing meetings to chart the progress of the conservation efforts

- Educate the LADWP as to the Better Management Practices for golf course irrigation

- Educate golf course representatives on the requirements of the LADWP and its sister agencies

- Provide annual educational workshops to educate superintendents on new programs and methods for water conservation.

This task force has been working well for over 3 years now and the outcomes would not have been possible without all the powers sitting at the same table. I imagine this group will still be

working on water issues with mutually agreeable outcomes for many years to come.

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OPTIONS FOR WATER CONSERVATION.

During the dialogue for water conservation it was felt that the first step would be to reduce golf irrigation water usage by 15 percent. The governor of California had developed a plan that was referred to as 20 by 2020 and included a 20 percent reduction in water usage by the year 2020. The restrictions as to days of irrigation and timing of irrigation were not suitable to the golf community so an offer was made to reduce the irrigation water by 20 percent immediately and not wait until 2020

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This photo shows the same area the following spring. While the green *kyllinga* has reestablished most everywhere else, the area treated with *Dismiss* is lush and green.



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the **WATER** issue

but lift all restrictions as to how individual golf courses would accomplish this.

A win-win deal was struck for both the golf community and the people of LA. Within the first year all of the 35 golf course were in compliance as tracked by the LADWP and the meters used to monitor water usage.

Prior to the mandates the city, through the LADWP, had provided a variety of incentives to reduce water usage. Among those were:

- Replacement of irrigation nozzles to

tion via savings on fertilizer, mowing and weed control.

Turf reduction requires a plan designed by a qualified golf course architect and the golf course superintendent. Simply ceasing to irrigate does not work and the turf will need to be cut and removed. Once the turf is removed it is often replaced by decomposed granite, pine straw or bark mulch. This requires installation costs but those are normally offset by the rebate. Upkeep will be required as well.

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improve uniformity of distribution

- Turf removal program that would reward properties taking acreage out of irrigation
- Rebates for approved control systems
- Adjusted water rates for golf courses following a set of requirements including the use of weather stations and computerized control systems to best apply water to the turf

Water can wear things out after many years of usage. Most nozzles, on the irrigation heads, are made of either plastic or brass and subject to wear. When those orifices wear out the volume, trajectory and uniformity of the irrigation water can be dramatically affected. I have seen irrigation audits that resulted in only about 60 percent efficiency of systems. By changing the nozzles an increase of up to 25 percent can be expected. From personal experience I utilized a rebate program that allowed our golf courses to receive all new nozzles and all we had to do was supply the labor to install them. This is a great program that the LADWP has had in place for a number of years. It does require some paperwork but it is well worth the effort.

Steve Sinclair, CGCS, Woodland Hills Country Club, is one of several superintendents who opted to remove turf as a part of his conservation program. Don Johnson, superintendent at Porter Ranch GC, also undertook a major improvement project involving turf removal. The premise of meeting a 20 percent reduction in irrigation water becomes much simpler when you have 10-20 percent less turf to water. These projects are not simply undertaken and they are not inexpensive. However, with a rebate of \$1 per square foot, it does make such projects doable for many properties. You not only have the reduction in irrigation costs but sustained cost reduc-

Xeriscaping is often added with the use of drought tolerant plants and the installation of subsurface emitters for drip irrigation.

Several golf courses have opted to install new irrigation systems. A typical irrigation system should last 20 years in Southern California. Newer systems are much more efficient than those designed several decades ago. Variable speed pumps save on energy costs and also keep optimal pressure in the lines. Although new irrigation systems can cost between \$1 million and \$2 million if you calculate the cost per year it is less than the cost of water that many courses would pay in a 4-year to 8-year period.

IMPORTANCE OF WORKING TOGETHER. With the LA area receiving an average of less than 12 inches of rainfall per year it is easy to understand that golf course turf would not exist without irrigation. Water is a precious resource and it is also a huge line item in most golf course budgets.

The golf course industry was very proactive in working with the local water agency to develop a sound strategy to turn a problem into a solution. That takes teamwork. Without both parties coming to the table it would not have happened.

Drought is a serious trend in California. Even with an above-normal snow pack and above-average rainfall I doubt we will see any improvement for the rest of this decade and beyond. Treaties concerning water were originated back in the 1950's. At that time California was in a growth boom and transporting water to places like LA and San Diego made that possible. At the same time, Northern California and Las Vegas grew, and both of those locations were supplying water.

There is a lot of pressure to reduce water transport to Southern California as Las Vegas and the Sacramento Delta want to keep their water and also the many agricultural farms that feed the nation along the aqueducts. Debates over endangered species and reduced fish populations have added fuel to the fire.

One thing you can count on is that potable water is a finite commodity and we are not making any more. The availability is less and often the quality is marginal at best. Yet the cost continues to rise as golf course superintendents walk the tight rope with their daily decisions for irrigation management.

MIRRORING LA'S GOLF COURSE WATER PLAN

Several other nearby water agencies have taken notice of the collaborative efforts of LADWP and the Golf Industry Water Conservation Task Force. As regulations are being developed we have heard from many other water agencies and also golf course superintendents. As the old saying goes "it may not be necessary to reinvent the wheel."

Ironically, a few other regions are experiencing new water regulations that you would think had adequate supplies. Florida has quite a few water management districts and they monitor any and all usage for golf irrigation. A few years ago there was a severe drought up through Georgia. The Georgia Golf Course Superintendents rose to the occasion and worked with agencies to develop better management practices still utilized.

Even cities like Chicago are starting to question who has rights to Lake Michigan water. Many collar cities that border other cities on Lake Michigan utilize that water for irrigation. As lake water levels go down plenty of eyebrows raise in Michigan and Wisconsin as to who has those water rights.

THE FUTURE. No matter how we look at it there will be less water to irrigate with, so we must manage it well. By working with local water agencies it is possible to develop positive outcomes that satisfy everyone. We must continue to be strong stewards of the environment and our resources. GCI

Bruce R. Williams, CGCS, is principal for both Bruce Williams Golf Consulting and Executive Golf Search. He is a frequent GCI contributor.



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