Water Management | Stuart Hackwell

# The hottest issue in golf

For architects, a major benefit of ASGCA membership is the opportunity to work closely with major partners to stay updated on new industry trends and technology. One key initiative introduced by ASGCA for its members is the water management education partnership with Rain Bird Corporation. Completing its third year, the initiative invites industry experts to deliver webinars and presentations on key environmental issues related to water use on golf courses. Irrigation technology and water management has changed considerably in recent years resulting in increased system efficiency and reduced water consumption. Staying in tune with these latest advances is a key goal of the initiative.

Many factors determine how much water is required to sustain turfgrass. These include climatic conditions, architectural design style, water supply, drainage, irrigation, and turfgrass selection. Ensuring a highly efficient irrigation system design, selecting the right materials and choosing a quality irrigation installer are basic requirements to enable a knowledgeable operator to conserve water over the next 15-25 years. Understanding the latest environmental issues and possible solutions to minimize water use are key factors that the architect considers during the development process. Staying abreast of new materials and technology is critical to enable the golf course architect to provide leadership to the design team.

Recent water management education presentations highlighted advances in irrigation technology like the use of soil sensors in golf applications. Sensors buried in the soil profile measure soil moisture, temperature and salinity to report the data to an on-site computer. While soil monitoring has been used for many years in agriculture, advances in technology have enabled soil sensing to become practical on golf courses during the past few years. Prior to soil sensors, a superintendent would evaluate turfgrass health and climatic conditions and an irrigation decision would be reached to determine the amount and timing of irrigation. With a sensor system installed on the course, a superintendent can monitor actual soil conditions to provide better indication of when and how much irrigation is required. A sensing system allows the user to delay irrigation as long as possible, resulting in greater water savings.

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> Tom Alex, Grand Cypress Resort

The Jack Nicklaus, ASGCA—designed Grand Cypress Resort in Orlando installed soil sensors on several areas in 2010. Tom Alex, director of agronomy at Grand Cypress, is impressed with the technology. "Soil sensors take the guesswork out of the irrigation decision," he says. "They are easy to install and provide instant readings to let us know what is happening below the soil surface. Playability is more consistent with a sensing system and we are better able to manage our irrigation as well as our labor. We recently completed a major tournament at our course and the sensor system was a great help to monitor soil conditions and guide irrigation decisions. We were able to really dial-in the consistency of our greens with the sensors."

Turf reduction case studies were the subject of another presentation. Turf reduction is a renovation process gaining in popularity in the southwestern United States. Golf courses employ architects to redefine grassing areas, converting out-of-play turf areas to native grasses or other landscape materials that do not require irrigation. Turf reduction projects can be phased in over time as budgets permit and many public agencies will support the project.

Andy Staples, ASGCA Associate, presented a case study for a phased turf reduction project that enables a course to implement changes over several years. Staples supports the ongoing education offered to ASGCA members. "These webinars enable members to stay current on latest technologies and techniques to conserve water and other resources. Our clients benefit from the latest technology by seeing bottom line savings as a result," he says.

Turf reduction projects have become a key way for desert courses to save water

Other topics include irrigation material selection like the use of high-density polyethylene (HDPE) pipe and the increasing popularity of two-wire underground control systems. Both provide significant environmental benefits beyond water. HDPE pipe is produced in a significantly more environmentally-friendly manner, reducing the impact on the environment. Excess HDPE pipe can be recycled and reprocessed following the installation process, resulting in no wasted pipe. Another benefit is that HDPE is installed as a sealed system with zero pipe leaks, eliminating water lost due to leaks.

Two-wire underground irrigation control systems have been around the golf industry for over 20 years. Recent advances in technology make them feasible for larger, more sophisticated irrigation control systems. The control systems are called 'underground' because the field control technology is completely below ground. Field satellite boxes are eliminated, as is much of the copper wire used on a satellite control system. The key environmental advantage of an underground system is that copper use is reduced by as much as 90 percent. A ton of copper wire consumes roughly 500 tons of raw materials during production. A 1,400 sprinkler satellite system on an eighteen hole course can use over 11 tons of copper in the wire buried in the ground. Eliminating up to ten tons of copper with an underground control system means that potentially 5,000 tons of raw materials are conserved.

Understanding the advantages of new materials and technology and deciding when best to implement them, is a key leadership role of the golf architect. Jason Straka, ASGCA, architect with Hurdzan-Fry Environmental Golf Design, is a strong believer that ongoing education is critical to conserve resources. "The water management partnership provides key updates and new information to better manage our resources," he says. "We find this extremely useful when advising clients about the best solutions for their projects. The golf industry is under scrutiny to ensure golf facilities are environmentally conscious. Ongoing education is integral to ensure ASGCA members are leading the way in this area."

Staying abreast of current water management information and technology is an ongoing effort. With education partnerships providing continuous updates, ASGCA members are well-positioned to lead the golf industry with environmentally conscious practices.

## Stuart Hackwell

As Global Specification Manager with Rain Bird Corporation, Stuart Hackwell works with golf course specifiers on water management projects worldwide. Based in Tucson, Ariz., he has been with Rain Bird for 19 years.