

# Working with water

Bandon Trails, designed by Bill Coore, ASGCA and Ben Crenshaw: the Bandon courses have very sophisticated irrigation systems, but use them sparingly to deliver fast and firm conditions. Bandon also uses recycled water for irrigation



## Water, its availability and cost, is a central strategic issue both for potential new golf developments and existing courses around the world. Adam Lawrence asks what the industry can do to alleviate the water problem

Unless you are prepared to play on sand, or to invest in a huge quantity of artificial turf, without water golf is impossible. Water shortages can be survived, water quality issues can be overcome and high water costs can be mitigated, but the absence of water means no golf. Water and golf are inextricably linked.

Across the world, water is becoming an ever-greater issue for society as a whole. Climate change, whatever its causes, the growth and mobility of human populations and our increasing thirst are making water a political football to a degree never previously known in most parts of the world. As far back as 1995, World Bank vice president Ismail Serageldin observed ‘the wars of the future will be fought not for crude oil but for water’, and the United Nations has issued warnings about the dangers of desertification in several parts of the globe. For golf, access to, and the sensible use of water, is a strategic issue.

Everyone involved in the global golf business is aware of the political hostility towards the game that exists in many countries and regions. Water is at the root of much of this disapproval, and it’s not hard to see why. In an area such as the Murcia region of Spain, which is essentially becoming a desert, no-one should be surprised that there exists a great degree of local disquiet about the development of golf courses.

Yet, of course, there is another side to the story. Golf, as many in the industry have been at pains to point out, is typically lighter on

the surrounding environment than agricultural use of the same land; in that same Murcia region of Spain, a huge and thirsty glasshouse economy has developed, supplying out of season fruit and vegetables across Europe. While it’s clearly true that food is more important to human beings than golf, no-one ‘needs’ strawberries in January. Nevertheless, the ‘We’re not as bad as you’ argument is a dead end for golf. If the game is to progress, it must prove to the world at large that it is serious about water.

There are a number of ways that this could be done. Talk to golf’s water experts, the irrigation suppliers, and the message you will get is that system efficiency is key. Old irrigation systems, the argument runs, waste water, because they lack control, and thus the superintendent applies more than necessary out of caution. “The sophistication of the physical system—how many sprinklers you have, how far apart they are, the level of control you have—dictates efficiency,” says Stuart Hackwell of Rain Bird. “You have sprinklers because you need water at times, but you don’t need to run them all the time. Bandon Dunes has a very sophisticated irrigation system, but it is among the firmest, fastest playing surfaces you can find. They only use the system when absolutely needed, which speaks to good irrigation management.”

Steve Snow of competitor Toro echoes this view, but adds: “Consistency is really important. If you have sprinklers with different circle speeds, then obviously you will set your run time for the slowest. But

the quick ones could put down twice as much water in that time.”

Irrigation systems, though, are expensive, so, with an eye to current golf industry priorities, the suppliers are pushing a message of cost-effectiveness. Specifically, they want to talk about low-cost upgrades such as sprinkler nozzles. “In the last ten or eleven years there have been really dramatic improvements in irrigation technology,” says Hackwell. “If you have a ten-year old irrigation system your sprinklers are probably still working fine, but if you purchase new nozzle kits to upgrade to the latest nozzle technology—which are less than a \$20 purchase—that will increase efficiency a great deal.” Snow cites a particularly impressive example. “We can upgrade a 30 year old sprinkler to today’s technology,” he says. “At one South Carolina course that was under severe drought restrictions, we were able to help save five million gallons of water by installing new nozzles.”

The issue with sophisticated irrigation systems, though, is that they are expensive. Accepting the industry’s point that retrofitting earlier systems to achieve state-of-the-art levels of control can be done relatively cheaply, it remains the case that the industry has spent a great deal of money on irrigation in recent years, money that—at the moment anyway—most courses don’t have. With the cost of sophisticated new irrigation systems regularly running into seven figures, this is a solution only suitable for a small proportion of golf courses. Sustainability, the buzzword of the moment where golf is concerned, means that courses must be economically viable, as well as environmentally sound.

To the irrigation industry’s credit,



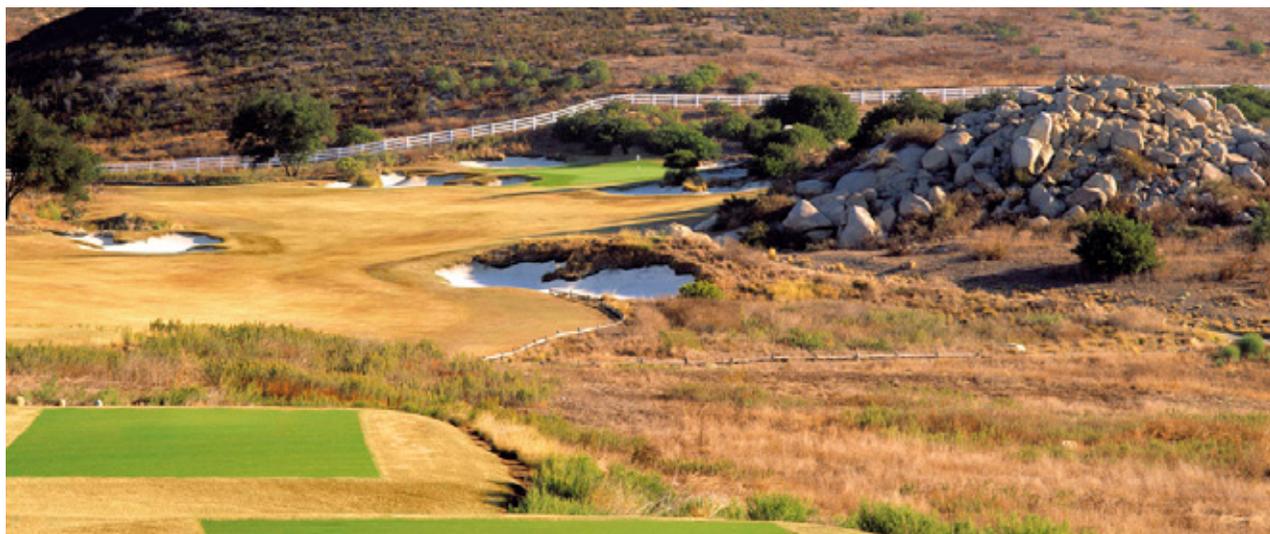
The Geronimo course is one of six designed by Jack Nicklaus, ASGCA at Desert Mountain, all subject to Arizona’s law restricting irrigated turf area

suppliers are now talking about how, when and why courses might choose to limit their use of their systems. “What is driving up the cost of irrigation is the desire for manicured grass wall to wall,” says Rain Bird’s Hackwell. “If we are going to maintain those green-everywhere courses and manage water efficiently, then we’re going to need bigger and better irrigation systems. You could save a lot of money by not ‘hardlining’, out in the deep rough, for example. We were happy to see the *Golf Digest* ratings criteria change to say that fast and firm conditions are a good thing. Some experts recommend a nightly water window of four to six hours for tournament courses. In reality, for average courses, you may have eight to twelve hours available to get the water down. Choose to operate that way, and you can save money on pump stations, piping and the like.”

This brings us to the essence of the water issue: conditions. The simple truth, which we have all been reluctant to admit, is that the

environmentalists have a point. Golf has been a wasteful use of water, and, although the industry has made great strides to improve, it needs to do more, and demonstrate its stewardship of natural resource. To return to the Murcia example, it is not good enough for golf to say that other land uses are worse. Regions such as Arizona have begun to address this with the restrictions on the area of maintained turf permitted on courses. Elsewhere, too, golf courses are trying to reduce the amount of turf in play: Barona Creek in southern California, designed by ASGCA member Todd Eckenrode, recently won plaudits for a project that took 10-12 acres of turf out of play. Around the world, ASGCA member architects are working on similar projects, and partnering with developers, existing clubs, course superintendents, the irrigation industry and others to create innovative solutions to water dilemmas. From rainwater capture schemes that aim to detain every

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Barona Creek recently reduced its irrigated turf by more than ten acres, as well as cutting back on water by eliminating most overseeding

drop of water that falls onto a site, through large reservoirs capable of retaining water obtained during wet spells, to grassing plans that increase the amount of unmaintained area, golf architects have found ways to cut course's water demands.

As an organisation, ASGCA has a long history of trying to persuade the game to husband its water resources. As far back as 1970, under its then chairman Phil Wogan (who sadly died recently at the age of 91), the society's Environmental Committee put out a landmark report on golf's use of water and other natural resources. More recently, the society has published a useful flyer on golf and water and, in 2008, issued a new edition of its booklet 'An Environmental Approach to Golf Course Development' (both publications are available from the ASGCA website, [www.asgca.org](http://www.asgca.org)).

The Barona project also addressed another water use issue that is of key importance in dry, warm areas: overseeding. There is a huge challenge to be dealt with in this regard. On the one hand, we know golfers like green grass, and, more fundamentally, it is always going to be difficult to cope with heavy play on grass that is not growing. Dormant bermuda or paspalum grasses provide a tremendous playing surface at the start of the winter, but by the end of the season, it is inevitable that

the condition of the course will suffer. On the other, it is pretty clear that overseeding is an expensive, thirsty process that is hard to justify in the context of water usage.

Only a few years ago, it seemed that paspalum grass species were the Holy Grail for courses in dry regions. Here, we were told, was a grass that could stand being irrigated with very poor quality water, even with pure seawater for a period of time. Unfortunately, though, the paspalum revolution has not had quite the impact that might have been hoped. Partly, as in the case of several developments in Dubai, this is because of failings elsewhere in the development: if your strategy is to irrigate with treated sewage effluent (TSE), but very few people are living in the houses attached to the course, where is your water to come from? But also, as superintendents have learned more about managing paspalum, it has become clear that the toxic buildup of salts in the soil demands that it should be 'flushed' with fresh water more frequently than had at first been supposed. Thus, the benefits of the grass are reduced.

In essence, the water issue, like so many other issues in the golf industry, comes down to what we as golfers expect from courses. It is natural that humans would want to live or vacation in regions that are warm and sunny: but places that are warm and sunny in the

winter especially tend to be hot and dry year round, not natural environments for golf. Thus the courses must be maintained in an artificial fashion. In arid regions such as Arizona, southern Spain and the Middle East, this cannot be avoided. Elsewhere, though, the game as a whole needs to take a step back and return to a more natural approach, and to find ways of explaining to golfers that dry, firm and bouncy courses are truer to the game's roots, more forgiving for weaker players and more testing for good golfers than the kind of lush, green and wet tracks many of us have come to see as the norm.

With this in mind, it was refreshing recently to hear of the noises coming out of the USGA annual meeting in Pinehurst. *Golfweek* architecture editor Bradley Klein reported in detail on this meetings, saying: "A number of senior officials referenced the need for a shift from the lush, ultra-green wall-to-wall turf to a relaxed sensibility about turfgrass. The emphasis should be less about irrigation, with more naturalised areas and modest standards of grooming." But Klein rightly pointed out that the quickest way to get golfers to accept this old/new paradigm is for the professional tours to play more events on courses that match the description. The USGA and the R&A are walking the walk; will the PGA and the European tours match their efforts? ●