

The great water divide: the haves and the have-nots

Britain's greenkeepers are utterly divided. Not by accent; salary differentials; class; creed; religion; or the so called north-south divide; but by a quirk of geology that splits our great country into 'them that have and them that haven't' – abundant water resources, that is!

To illustrate this point, early in September I talked to a golf club secretary in Kent, who told me the problems that have bedevilled his part of the south-east throughout the growing season. In his case the club was forced (first by swingeing restrictions, then by a total ban) into a situation of having to purchase an additional tractor and a 1,200 gallon water bowser, at a cost exceeding £28,000, in order to transport final stage effluent (water one stage removed from domestic purity), bought at £5 per thousand gallons. He further explained that his club's location, just three miles from the Mid Kent Water sewage plant, made things somewhat easier in that he was able to employ just one member of the green staff to continually ferry back and forth and to distribute the effluent over the golf course. He pointed out that other clubs in Kent were less fortunate and were forced to rely upon contractors, often spending as much as £1,200 on effluent in a single week. As a result of such expenditure, some clubs have imposed an additional 'water levy' of a pound or two on all green fee paying visitors.

It comes as no consolation to those still banned clubs in the south-east to learn that the British trend is toward a wetter climate, with the 80s decade the wettest so far recorded.

The great water divide is, simply stated, one of distribution. From an imaginary line – say from Hartlepool to Weymouth – the north-west gets most rain, the south-east has more people, demands more water and has fewer suitable sites for reservoirs. It also gets less rain, even in winter.

Of even greater importance, the geological make-up of the north-west – high, hard and rocky ground sweeping down to deep valleys – provides ideal reservoir locations. The poor old south-east has softer rock – mostly chalk – which form the aquifers which absorb the lesser rainfall, storing it and eventually releasing it to rivers, boreholes and the like. About 17% of Britain's water comes from such aquifers, though our clubs in Kent, indeed much of the south and east, depend on aquifers as their only source.

To understand more fully the reasons behind continuing bans, we must set aside the fact that these are not causing problems *at the moment* just because rainfall has been abundant throughout August and September. Rainfall pattern records reveal that the east gets less rainfall in winter than in summer – period.

Grass and other plants need more moisture during the growing season (April-September) and any rainfall is voraciously absorbed, failing to recharge the aquifers. The drying out which occurs is known in scientific circles as a 'soil moisture deficit' (SMD), i.e. the amount of rain needed to soak the soil to a point where soil absorption is complete and aquifers can replenish.

Greenkeepers know that the SMD cannot increase indefinitely, for as the soil on golf courses dries out it becomes more difficult for turf to extract water and the playing surfaces begin to wither and die. There has been nothing typical in the recent south eastern pattern of SMDs, which in normal times begin to increase in spring, rising to something over 100mm in July, declining through autumn and (usually) ended by November to bring about a recharging of aquifers or reservoirs.

Rains from the Atlantic have of late tended to skip Britain



and the west-east shortfall has been added to by a lack of summer thunderstorms, resulting in SMDs that have lasted till early winter or even the following spring. In Kent and East Anglia, the SMDs of 1991 persisted throughout winter and the whole problem began again this spring.

The exceptional rainfall in early July and all of August has eased the problem – temporarily – and there are signs that reservoirs are being replenished.

There have been some unusual irregularities in past droughts, as witness those of 1975/6 and 1984. The first dealt a severe blow to southern England, with Devon, Cornwall and Somerset particularly hard hit as their reservoirs dried up. The latter affected the whole country for a few months, though the usually rain-blessed north and west experienced greater problems than the south and east. It was not until the heavy rains of early autumn that depleted reservoirs were able to replenish, having been down to as low as 30% capacity.

Talking to a National Rivers Authority official recently, I was told that despite the present drought there is more available water in the aquifers than in all of the reservoirs of England and Wales, though its use to supply golf courses and country gardens is decried as being a contributory factor in the decline of wetland areas.

Returning to those unfortunates from the south east, especially Kent and East Anglia, there can be but cold comfort in knowing the tendency for rainfall is to increase in winter, for very heavy autumn and winter rainfalls are vital in the next six months to lift the threat of water shortages next year. Clubs in the south east remain defenceless should the forecasters have their sums wrong and the meagre 1991/2 recharge rate is repeated.

If all this sounds unduly pessimistic, there may be a light at the end of the tunnel. One safe and sure solution, *always provided access to winter water is available*, is winter storage for summer use. This is not without additional cost and should not be undertaken without early consultation with the NRA, who are developing considerable expertise in this field. Coupled with the taking of expert advice on building lakes or other catchment devices, this may well represent the only rescue package available.

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