



# Algae Alert!

Tim Soane talks about the biggest threat to ponds, lakes and irrigation pens on golf courses - algae



**A lot has been said about the threat of global warming to all different aspects of our daily lives but nobody has yet pointed out the very real menace it poses to golf courses from one end of the country to the other. And I am not talking about tinder dry greens or parched and brown fairways, either.**

The unprecedented heat and endless withering weeks of burning sunshine this past summer - not to mention hosepipe bans and water restrictions in some areas - gave Course Managers and greenkeepers alike almighty challenges and headaches trying to keep precious grass surfaces in pristine condition against colossal odds.

But, while they fretted over frazzled greens and browning fairways a far more insidious and menacing threat erupted amongst them virtually overnight and practically without warning - highly toxic blue green algae.

Nature's most ugly - and, potentially, damaging - aquatic mantle rampaged across lakes, ponds and, most chillingly of all, crucial irrigation reservoirs throughout July and August at almost Apocalyptic speed - in some cases its green choking pea soup-like mass achieving depths of over 1.5 metres in just a matter of days.

What were once picturesque water features enhancing the natural rhythms and undulations of every kind of course from Championship standard through to local pay and plays were turned, almost overnight, into unsightly, slimy eyesores - distasteful and off putting to members and exasperating for the Course Managers and greenkeepers.

It is no exaggeration to say that my small team and I were literally run off our feet during these months, trying to keep up with calls from existing clients and scores of new Course Managers who called us in desperation because of the algae problems, which burst upon their water areas from one day to the next.

The real worry is not - despite the distaste and anger it provokes in members - the ruined visual appearance and aesthetics of the course or its water features but the very practical threat which blue green algae poses, should it infiltrate the waters of the irrigation reservoirs and lakes without being detected.

Highly toxic, it can lead to serious de-oxygenisation of the water and the blockage of pumps and pipe work of irrigation systems. Most worryingly of all it can inflict incalculable damage to the greens and fairways onto which any contaminated irrigation water is sprayed, rendering the course unplayable within hours and running up a bill of unthinkable, disastrous, magnitude.

Algae is, without exaggeration, one of the Course Manager's worst nightmares - and the threat of it is going to become greater and greater as

global warming delivers more and more summers in the future on the scale of this one. Make no mistake, it is the new scourge of golf courses along with elodia, broadleaved pondweed and several other invasive weed species whose growth is accelerated by prolonged sunshine and nutrient rich run-off, from nearby greens and fairways. Be in no doubt the troubles of summer 2006 are just a foretaste of much more to come.

To a large extent, it is today's generation of course designers and architects, who must shoulder a good deal of the responsibility for this. Their preference has been to create more and more new courses with large tracts of shallow, largely static, water or lakes and ponds with very little depth, flow or current. Almost without fail, nobody thinks to stipulate the installation of water agitators or pumps at the time of building these wonderful aquatic features and thus are inbuilt the perfect - I would go as far as to say optimum - conditions for the dreaded algae to flourish.

Blue green algae - some people call it blanket weed - comes in two forms: the wispy filamentous type, often known as maidenhair or silkenweed, which is free floating and then the single cell species which creates the choking, pea soup like masses which proliferate at alarming speed through all kinds of water areas from large lakes to suburban garden ponds.

Both are relatively simple organisms, which require very little encouragement to bloom and multiply. Hot weather, plentiful sunshine and shallow, slow moving water are the three key components for explosive growth. I have recently been engaged on consultancy work with a major water authority near London, where an entire six kilometre stretch of one of their rivers had become engulfed to a depth of over a metre in little over two weeks!

The hotter and longer the sun shines, the more rapidly it will bloom and spread. Modern golf courses, with their emphasis on numerous water features that are invariably shallow and with little or no current or flow, provide almost laboratory standard growing conditions for it. The fierce and relentless onset of global warming, as evidenced this summer, will only exacerbate an already serious problem for many years to come for greenkeepers and Course Managers. You can be sure that, Summer 2006, was only the beginning of an emerging pattern both in terms of weather and its effects on aquatic areas.



What then, is the answer? In a nutshell, not a lot. And by that I mean the remedy is relatively simple and straightforward. For greenkeepers and Course Managers to lay their hands on it, does not require too much imagination or trouble.

First and foremost, if the problem is to be tackled from a long term point of view then those courses with relatively shallow water areas of little or no movement should start thinking about having them dug deeper and/or the installation of heavier duty pumps, water aerators or simple pump and fountain features which will, at least get the water moving about.

Secondly, today's course architects and celebrity designers need rapidly to take on board the realities and implications of global warming and the future prospect of more, not less, tinder-box dry summers. They must re-examine their instincts for incorporating water features of only a shallow aspect and static character and instead make them deeper and with a real flow of water - otherwise don't bother with them.

Don't get me wrong, water on a course is great and vastly enhances its aesthetics and playing challenges so I would never say dispense with it altogether - but it is critical that the designers get it right in today's changing climatic times - otherwise they could be creating expensive breeding grounds for toxic green eyesores.

More immediately, blue green algae can be controlled and very largely suppressed if courses adopt all-year round aquatic maintenance. The crucial thing for Course Managers, greenkeepers - and particularly the accountants protecting their budgets - to realise is that algae control is not something which can be cherry picked on an ad-hoc basis - say, in Spring to make a course look attractive for the approaching summer or every alternate year to enable something else to be accommodated in the CapEx columns in intervening years.

Unequivocally, anti-algae treatments, depending on the size of the water area(s) involved, need to be carried out between two or four times a year on a sustained on-going basis. Obviously companies like our own specialise in the work - but, if they wish, a ground staff team are perfectly capable of implementing the necessary preventative measure on their lakes, ponds and irrigation reservoirs etc.

At the heart of the treatment programme is a very simple and straightforward material readily available to anybody who knows a friendly farmer or two - barley straw.

When this is immersed in the affected water, a 100% environmentally safe chemical reaction takes place with the algae, which is then slowly and steadily destroyed and degraded by the straw. Usually, the first effects are visible within two to three weeks of the straw being submerged and its algae decomposing properties generally go on working for two to four months depending on the depth and density of the algae.

There's a bit of a knack in how the barley straw should be deployed an affected water course and how it is most effectively baled up for immersion. Similarly, at Clearwater, we have developed a number of accelerants - all 100% environmentally friendly - which we mix in with the straw to carefully worked out levels and these speed up the decomposition process on the algae. This, in certain instances can achieve quite startlingly rapid results.

Obviously, prevention is the best cure of all and it is especially important to realise that by deploying the barley straw throughout the year, including the winter months, then



Lake covered in algae - before

resistance levels in water courses are built up. If nowhere else, golf Course Managers and groundsmen, should be avidly following such a strategy in relation to their irrigation reservoirs and pens.

What happens if prevention has not been practised and algae density has reached extreme levels? In such circumstances the last resort is chemical spraying but for safety and efficacy's sake, it should, without fail, be conducted by a specialist contractor to ensure that the correct strengths of chemical in relation to the cubic capacity of the affected water area, is applied.

Even then this creates something of a Catch 22 situation in relation to irrigation reservoirs. Compromised by toxic algae, their water cannot under any circumstances be utilised for spraying or irrigation purposes on fairways or greens for fear of disastrous consequences - but then neither can the water be used after the chemical treatment without leaving it for an absolute minimum of 14 days.

Let's face it, blue green algae is nobody's friend and I cannot pretend that, with the fierce onset of global warming as we have seen this summer, the picture is a particularly happy one. There is no question that the future is a sunny one but, for once, that is not what greenkeepers and Course Managers really want to be hearing.

*Tim Soane is Founding Director of Clearwater Pond and Lake Management Ltd.*



Lake as above - after