

## Improved water quality in the Serpentine

### Hyde Park, London

When the Serpentine in London's Hyde Park staged a series of major sporting events and was seen on millions of TV sets throughout the world earlier this year, few people realized that a team of experts had contributed to improving the ecology and the water quality of the 16 ha lake.

Managing water quality in the Serpentine has always been a priority for The Royal Parks, the authority that manages both Hyde Park and the adjacent Kensington Gardens. Although water quality in the lake has remained good in recent years, like many lakes, the Serpentine is susceptible to blue green algal blooms during the warmer months of the year.



*Picture courtesy of upsolutuk*

In an effort to develop both short and long term water quality improvement strategies, The Royal Parks sought the advice of specialist environmental consultants, Haycock Associates, in early 2011. After reviewing the available water quality data for the lake and implementing an expanded monitoring program, Haycocks quickly came up with a number of recommended actions for the lake.

Haycock Associates Director, Dr Nick Haycock, identified a number of strategic, long term measures which would be essential for managing water quality, including reducing phosphorus concentrations which would be the key to reducing the likelihood of major algal blooms in the future.

"We felt that a number of measures needed to be considered", says Haycock. "These included the application of a clay based material called Phoslock to permanently bind excess phosphorus in the water column and reduce phosphate release from sediments as well as the installation of an aeration system to increase the volume of dissolved oxygen in the lake. We also determined that the population of bottom feeding fish in the lake was too high and recommended that a number of the larger species be relocated to



*Picture courtesy of Haycock Associates*



*Picture courtesy of Haycock Associates*



*Picture courtesy of Phoslock Europe GmbH*

reduce the sediment resuspension caused by the fish when feeding. Finally, we also proposed that a new borehole be installed in order to allow the water in the lake to be replaced with sufficient frequency.”

The recommendations made by Haycocks were accepted in full by The Royal Parks and implemented in the first quarter of 2012. The lake has been sampled either weekly or fortnightly by Royal Parks staff since August 2011 and the samples tested by the Environment Agency. The results show a dramatic improvement in the quality of the water after the measures were undertaken earlier this year.

Nigel Trill, the General Manager of Phoslock Europe GmbH, says that the reduction in phosphorus levels have been particularly gratifying. “The average phosphorus levels in the lake were 88.5% lower this summer than in August 2011 when The Royal Parks began its current monitoring program. The lower phosphorus concentrations seen in the lake following the application of Phoslock and the implementation of the other measures resulted in significantly clearer water in the spring and early summertime this year which in turn allowed a large number of aquatic plants to grow for the first time in many years in the shallower areas of the lake. This, in itself, is a clear indication that the ecological condition of the lake is very healthy.”

Ironically, some of the plants growing in the lake needed to be cut back in July in preparation for sporting events held in the lake over the summer, however phosphorus levels in August 2012 are still 80% lower than in August 2011.

With the Serpentine successfully showcased to the world, Director of Programmes for The Royal Parks, Greg McErlean, is understandably delighted with the results of the measures. “The water quality here in Hyde Park has always been good, but over the last few years we have really stepped-up our long term water strategy. The Serpentine is in great condition at the moment and we will be



working hard into the future to ensure that it remains so through many of the recommendations made by Haycock Associates”.

“We are really pleased that we’ve been able to substantially improve the long term biodiversity of The Serpentine, through the reduction in nutrient levels, installation of aeration equipment, creation of additional reed beds and a new borehole – all of which have delivered great results for the benefit of Hyde Park, its wildlife and millions of visitors.”

For more information on the work on the Serpentine, Hyde Park, go to:

<http://www.royalparks.org.uk/>

<http://www.phoslock.eu/>

<http://www.haycock-associates.co.uk/>

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