



Ultrasonic Control of Algae

Hiltruper See is a 16 ha lake in the Nord-Rhine Westphalia region of Germany. In 2011 at the start of the experiment, there was a very heavy growth of Cyanobacteria. This was preventing amenity use of the lake, including bathing, swimming and sailing, the Hotel guests were also complaining of the smell when overlooking the lake. The lake was completely closed, losing income for the sailing club and preventing amenity use.

Monitoring of the chlorophyll and cyanobacterial chlorophyll were undertaken during 2001 to provide baseline information (see graphs). Two ultrasonic algae control units were installed in March 2012. These covered about 10 – 12 Ha of the lake as the island blocked part of the ultrasound transmission.

During the late summer and autumn of 2012 the total chlorophyll was reduced by 75% and the cyanobacterial chlorophyll by up to 97.5%. The same effect carried on through 2013, and the beneficial effects of ultrasound are still visible today.

The water clarity improved so much that it was possible to see the bottom of the lake for the first time in 20 years. Submerged plants started to grow and there was no need to close the lake to bathers, sailing started again and incomes increased.

Monitoring continued, with data showing no growth of cyanobacteria at all, at any time of year. This has been combined with a drop in total Phosphorus measurements due in part to sedimentation of spring bloom diatoms, and an increased redox potential at the sediment, keeping sediment P bound in the sediment, and increasing sediment P-binding capacity through availability of Fe³⁺.

Ecosystem Engineering and **Restoration** using ultrasound is possible – Just ask!