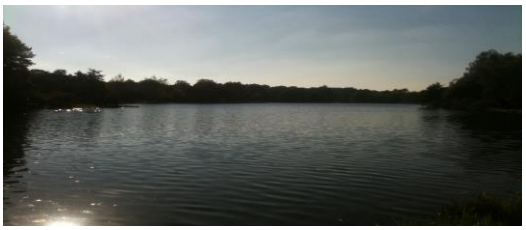
WaterLand Management Ltd

Case Study: Shadwell Estate

Algal Species: Enteromorpha intestinalis, Bladderwort



Ultrasonic Control of Algae

A private estate in Norfolk had problems with floating blanket weed, *Enteromorpha intestinalis*. The algae was preventing access to the lake and causing a serious aesthetic issue with sight lines. Nutrients in the lake are continually replenished from a diversionary flow from the adjacent river, so algal growth was unchecked. The lake is relatively shallow with a maximum depth of no more than 3m. The total area is about 12 hectares, less a few islands. We installed two solar powered 24V DC EV-300 units, one at either end of the lake pointing towards the middle.

Filamentous algae are relatively difficult to control, and *Enteromorpha* is especially difficult using ultrasound because of the numerous air bubbles within the structure, which tend to absorb ultrasound strongly. However, with about 6 – 8 weeks the existing mat had sunk to the bottom and had started to die off. The bottom became visible and the aesthetics were significantly improved. Access to the lake was possible with boats, the ducks enjoyed improved feeding due to clearer water and grew better

The limit of detection was visible due to shadows behind islands were the ultrasound signal could not reach, but with improved water movement the algae was killed when it came into line of sight of the ultrasound transducer. By leaving the systems on all year for 24 hours a day continued control of algae has been possible. Running costs are very low with 24V DC systems, just the occasional battery every 2 – 3 years. Free energy from the sun and wind means remote deployment is not a problem.

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

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