



A.G.A. GROUP
Consultancy Limited



Aquatic, Ecology, Environmental and Land Management Consultants

Canvey Lake

Water Quality Report – July 2026

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Contents

1.0	Executive Summary	3
2.0	Introduction.....	3
3.0	Results	5
3.1	Water Quality Results	5
3.1.1	Table of Results	5
3.2	pH	5
3.3	Phosphate.....	6
3.4	Nitrogen.....	6
3.4.1	Nitrate (NO ₃).....	6
3.4.2	Nitrite (NO ₂).....	6
3.4.3	Unionized Ammonia (NH ₃ -N)	7
3.4.4	Ammonium (NH ₄ ⁺)	7
3.5	Total Organic Carbon (TOC).....	7
3.6	Biological Oxygen Demand (BOD)	7
3.7	Chemical Oxygen Demand (COD)	7
3.8	Total Alkalinity	8
3.9	Suspended Solids	8
3.10	Coliforms	8
3.11	E. Coli	8
3.12	Enterococci	8
3.13	Algal Survey	9
3.14	Wildfowl Census	10
4.0	Discussion	10
4.1	Overall Condition	10
4.2	Oxygen Demand and Nitrogen Cycling	11
4.3	Current Treatment Programme.....	11
4.4	Aeration	12
4.5	Wildfowl and Bank Condition	12
4.6	Management Approach.....	12
5.0	Recommendations	14
6.0	Appendix 1: Algal Survey Results	15
7.0	Appendix A: Lake Aid AquaBio	16
8.0	Appendix A: Lake Aid BioX	18
9.0	Appendix C: Bacterius®	20

1.0 Executive Summary

A.G.A. Group Consultancy Limited undertook water-quality monitoring, an algal survey and a wildfowl census at Canvey Lake 3rd July 2026 as part of the ongoing monitoring programme.

The results indicate that the lake remains in a significantly degraded and eutrophic condition. Elevated ammonium, un-ionised ammonia, nitrite, suspended solids, TOC, BOD and COD demonstrate substantial nutrient and organic loading. Although dissolved oxygen was not measured, these results, together with low nitrate concentrations, indicate impaired nitrogen cycling and a likely oxygen limitation within the lake.

The algal community was strongly dominated by cyanobacteria, which represented approximately 87% of the total algal concentration at both sampling locations. *Dolichospermum*, *Microcystis* and *Oscillatoria* were recorded, all of which include species capable of producing cyanotoxins.

A total of 548 wildfowl were recorded, including 418 Canada geese. The high bird population, intentional feeding and heavily grazed banks are likely to contribute nutrients, organic matter, microbial contamination and sediment runoff to the lake.

The existing monthly Bacterius[®] N, Bacterius[®] 5B, Bacterius[®] Muck and Lake Aid BioX treatment programme should continue, supported by winter AquaBio treatment. Surface aeration is also recommended to improve oxygen transfer, circulation and biological nutrient processing. Further recommendations include reducing waterfowl feeding, stabilising eroded banks, installing floating eco-islands, continued monitoring and longer-term de-silting.

2.0 Introduction

A.G.A Group Consultancy Limited (AGA) was commissioned by Stuart Jarvis, Assistant Director Environment on behalf of Castle Point Borough Council to undertake water quality monitoring and an algal survey of Canvey Lake, on 3rd July 2026.

This assessment is the first of an ongoing water monitoring programme. Survey and analysis will be completed monthly in March - September and bi-monthly from October – February. The purpose of this assessment is to evaluate current water quality conditions and identify factors that may be contributing to historically poor water quality and algal growth.

Water samples were analysed for key water quality parameters including pH, nutrients and microbials, whilst microscopic examination was undertaken to identify the algal community present within the lake.

This report presents the results of the water quality analysis, discusses the findings and provides recommendations to support improvements in water quality and ecological condition.

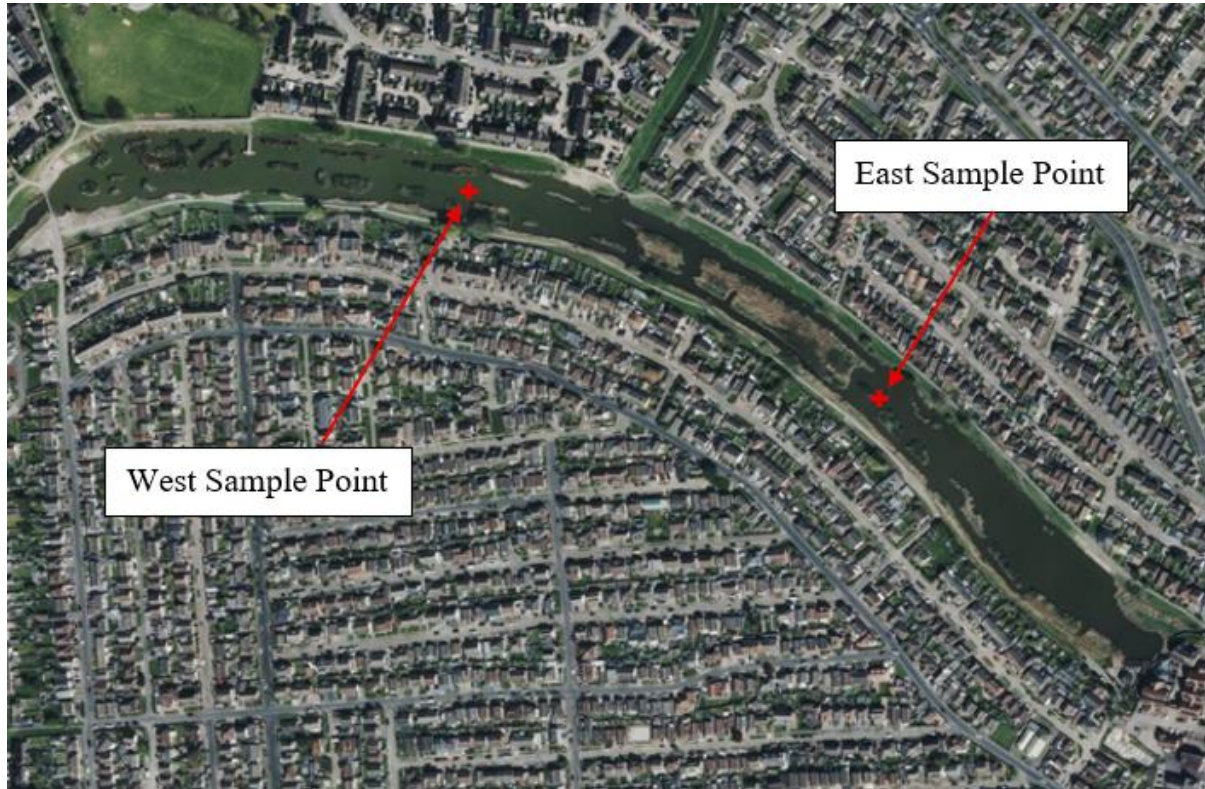


Figure 1 – Canvey Lake with annotated water sampling points.

3.0 Results

3.1 Water Quality Results

3.1.1 Table of Results

The water quality results from samples taken 12th May and analysed for the Lake are shown in *Table 7* below.

Parameter	Unit	Canvey Lake West	Canvey Lake East
pH	pH	8.2	8.9
Total Phosphorus	mg/l	0.152	<0.010
Ammonia Un-ionised as NH ₃	mg/l	0.182	0.690
Ammonium as NH ₄ ⁺	mg/l	2.62	2.58
Nitrite (NO ₂ ⁻)	mg/l	0.20	0.16
Nitrate (NO ₃ ⁻)	mg/l	0.07	0.06
Total Organic Carbon (TOC)	mg/l	38.5	33.3
Biological Oxygen Demand (BOD)	mg/l	76.0	33.0
Chemical Oxygen Demand (COD)	mg/l	611	348
Total Alkalinity	mg/l as CaCO ₃	255	173
Calcium Carbonate	mg/l as CaCO ₃	280	151
Suspended Solids	mg/l	1550	737
Coliforms	MPN/100ml	>2420	>2420
E. coli	MPN/100ml	194	28
Enterococci	CFU/100ml	>200	41

Table 7. Water quality results for the samples taken 3rd July 2026.

3.2 pH

The ideal pH range for water bodies is between 6.5 and 8.5. Over time, water bodies tend to become more acidic due to the accumulation of organic material, which lowers the pH.

The recorded pH for the lake was 8.2 for the West sample point and 8.9 for the East sample point of the lake. The West section of the lake is within normal range while the west section is elevated. While this is not directly concerning by itself, a higher pH increases the proportion of un-ionised ammonia which is toxic at low concentrations.

3.3 Phosphate

Elevated phosphate concentrations can lead water bodies into a eutrophic state. Eutrophication can severely threaten aquatic ecosystems.

This eutrophication can include oxygen depletion due to the increased decomposition of organic matter, which may result in a loss of fish populations. Phosphorus levels are shown in *Table 7*. The total phosphate concentration for the West sample point 0.152 mg/l and the East sample point was <0.010 mg/l. The concentration within the West of the lake is significantly elevated above the 0.1mg/l limit where eutrophic conditions are met. However, within the East sample, phosphate concentration is ideal.

3.4 Nitrogen

Total oxidised nitrogen ($\text{NO}_x\text{-N}$) is the sum of the concentrations of nitrate, nitrite, and ammoniacal nitrogen.

3.4.1 Nitrate (NO_3)

For many freshwater systems, nitrate levels should be kept below 1 mg/l to protect sensitive species, such as salmonids. Concentrations above 10 mg/l can cause eutrophication in lakes, although nitrate alone is unlikely to harm non-sensitive fish species. The World Health Organization (WHO) recommends a maximum nitrate concentration of 50 mg/l in drinking water. The nitrate levels recorded for in the West and East sample points were 0.07 and 0.06 mg/l respectively, which is within acceptable parameters and no cause for concern alone. In conjunction with the elevated un-ionised Ammonia and Ammonium, this indicates that the Nitrogen Cycle (*Figure 2*) is not functioning efficiently.

3.4.2 Nitrite (NO_2)

Nitrite is toxic to aquatic organisms, even at low concentrations. Ideally, nitrite levels should be kept below 0.1 mg/l for many freshwater species. Acute toxicity can occur at levels as low as 0.2 mg/l, and concentrations above 1 mg/l can be lethal. The recorded nitrite levels in the lake are 0.20 mg/l for the West sample point and 0.16 mg/l for the East sample point. Indicating the conditions for acute toxicity are met in the western section of Canvey Lake.

3.4.3 Unionized Ammonia (NH₃-N)

Unionized ammonia should ideally be kept below 0.02 mg/l to protect sensitive aquatic life. Concentrations above 0.1 mg/l can be harmful or lethal, depending on pH and temperature (see *Table 3*). The NH₃-N levels recorded in the West sample point area are 0.182 mg/l and 0.690 mg/l in the East sample point, this is significantly elevated outside of the safe range for aquatic life and in particular fish.

3.4.4 Ammonium (NH₄⁺)

While less toxic than un-ionized ammonia, elevated ammonium levels can still impact aquatic ecosystems by contributing to nutrient loading and promoting eutrophication.

Concentrations below 0.5 mg/l are generally considered acceptable. Higher concentrations, particularly above 1 mg/l, can contribute to nutrient imbalances. The ammonium levels recorded in the West sample point are 2.62 mg/l and 2.58 mg/l in the East sample point. These concentrations are significantly elevated and show signs that the nitrogen cycle is not functioning efficiently.

3.5 Total Organic Carbon (TOC)

In a eutrophic lake, characterised by high biological productivity, TOC typically ranges from 3 to 12 mg/l. Recommended TOC levels for lakes are around 0.5 mg/l. The TOC concentration in the West sample point are 38.5 mg/l and the concentration in the East sample are 33.3 mg/l. The lake's TOC is significantly elevated, indicating a significant input of organic pollution likely from decomposing plant/algae matter.

3.6 Biological Oxygen Demand (BOD)

BOD measures the oxygen demand of organic components in the water system (see *Table 5*). High BOD can cause hypoxic or anoxic conditions, which are detrimental to fish health. The BOD levels in the West sampling point of the lake are 76.0 mg/l and in the East sampling point the levels are 33.0 mg/l which is categorised as poor.

Prolonged, elevated BOD may promote anaerobic (low-oxygen) conditions within the lake sediments, increasing the likelihood of foul-smelling hydro-soil development.

3.7 Chemical Oxygen Demand (COD)

COD measures the amount of oxygen required to chemically oxidise both organic and inorganic compounds in the water. High COD levels can indicate pollution and contribute to eutrophication, oxygen depletion and reduced bathing water amenity.

The COD concentration recorded in the lake was 611 mg/l in the West sample point and 348 mg/l in the East sample point, indicating a significant pollution load.

The lake shows elevated levels categorised as “very poor”, indicating elevated concentrations of organic material which can lead to decreased dissolved oxygen during decomposition.

3.8 Total Alkalinity

Freshwater alkalinity should typically be between 20 and 200 mg/l as CaCO₃, as levels within this range help buffer water against rapid pH changes and provide a stable environment for aquatic life. The alkalinity levels recorded in the West sample point in the lake are 255 mg/l and 173 mg/l in the East sample point, this is outside the ideal range but not a cause for concern. It should be noted that this will increase the buffering capacity of the waterbody, reducing pH fluctuations.

3.9 Suspended Solids

Suspended solids at elevated concentrations can reduce underwater visibility, detract from the aesthetic quality of the waterbody and may indicate increased organic or sediment inputs.

The suspended solids concentration recorded in the West sampling point are 1550 mg/l, and 737 mg/l in the East sampling point, this is significantly elevated and will be contributing to poor water clarity.

3.10 Coliforms

Coliform concentrations can indicate potentially harmful bacteria or organic pollution entering the water.

Coliform levels in the lake were recorded in the West sample point at >2420 MPN/100ml and >2420 MPN/100ml in the East sample point which is above detection limits and elevated.

3.11 E. Coli

E. Coli is an indicator of organic pollution. The concentrations recorded in the West sample point are 194 MPN/100 ml and 28 MPN/100ml these are low and within the excellent standard for The UK Bathing Regulations (2013).

3.12 Enterococci

Enterococci concentrations indicate potential faecal contamination. The recorded levels in the lake were >200 CFU/100ml in the West sample point and 41 CFU/100ml.

The western section of the lake has a low concentration, meeting the excellent standard for The UK Bathing Regulations (2013). The eastern section is elevated and above detection limits and so the extent of elevation cannot be assumed.

3.13 Algal Survey

Algal samples were collected from the eastern and western sections of Canvey Lake in June 2026. A total algal concentration of 238,000 cells/ml was recorded within the eastern section of the lake and 244,000 cells/ml within the western section. Table of results shown in *Appendix I*.

The algal community at both sampling locations was dominated by cyanobacteria (blue-green algae). Total blue-green algae concentrations were 208,000 cells/ml at Canvey Lake East and 230,000 cells/ml at Canvey Lake West, representing approximately 87% of the total algal assemblage in both samples according to the laboratory analysis.

At Canvey Lake East, the dominant taxon was *Dolichospermum* spp., with a concentration of 170,000 cells/ml, accounting for 71% of the total algal community. *Microcystis* spp. was also recorded at 30,000 cells/ml (13%), while the green alga *Scenedesmus* spp. was present at 38,000 cells/ml (16%).

At Canvey Lake West, *Dolichospermum* spp. remained the dominant taxon, with a concentration of 140,000 cells/ml. Additional cyanobacterial taxa included *Microcystis* spp. at 50,000 cells/ml and *Oscillatoria* spp. at 40,000 cells/ml. The green alga *Scenedesmus* spp. was recorded at 14,000 cells/ml and represented the only non-cyanobacterial taxon identified within the sample.

Several of the cyanobacterial genera identified, including *Dolichospermum*, *Microcystis* and *Oscillatoria*, contain species known to be capable of producing cyanotoxins. The algal assemblages recorded at both sampling locations were therefore characterised by a high relative abundance of potentially toxin-producing cyanobacteria.

Overall, the survey identified a strong dominance of cyanobacteria within both lake basins, with *Dolichospermum* spp. representing the most abundant taxon in each sample.

The presence of *Microcystis* spp. and *Oscillatoria* spp., together with the high proportion of blue-green algae, indicates that cyanobacteria formed the principal component of the phytoplankton community at the time of sampling.

3.14 Wildfowl Census

A wildfowl census has been conducted to form baseline data of wildfowl population through the seasons of the year. Given one of the management objectives is to reduce the wildfowl population at Canvey Lake, this will allow monitoring of the changes in wildfowl population surrounding the lake in order to evaluate if reduction of the resident population has been achieved.

Species	Count
Coot <i>Fulica atra</i>	8
Moorhen <i>Gallinula chloropus</i>	32
Canada Goose <i>Branta canadensis</i>	418
Mallard <i>Anas platyrhynchos</i>	83
Grey Heron <i>Ardea cinerea</i>	2
Mute Swan <i>Cygnus olor</i>	5

Table 2. Species abundance across Canvey Lake July 3rd 2026.

4.0 Discussion

4.1 Overall Condition

The results indicate that Canvey Lake is in a significantly degraded and eutrophic condition. Both sections of the lake are affected by elevated organic matter, suspended solids, ammonia, nitrite and cyanobacteria, although conditions were generally poorest in the western section.

The combination of high algal abundance, nutrient enrichment and organic loading indicates that the lake is under substantial ecological pressure and presents a risk to fish, wildlife, dogs and recreational users.

4.2 Oxygen Demand and Nitrogen Cycling

Although dissolved oxygen was not measured, the extremely elevated BOD, COD and TOC concentrations indicate a substantial demand for oxygen within the lake.

The accumulation of ammonium and nitrite, alongside very low nitrate concentrations, also suggests that the nitrogen cycle is not functioning effectively. As the biological conversion of ammonia and nitrite requires oxygen, these results are consistent with poor circulation and limited oxygen availability.

The high cyanobacterial concentrations are likely to worsen this pressure. Algae consume oxygen overnight and during decomposition, increasing the risk of early-morning hypoxia or anoxia, particularly during warm weather.

Elevated un-ionised ammonia presents an additional risk to aquatic life, particularly in the eastern section where the elevated pH increases the proportion of ammonia present in its more toxic form.

4.3 Current Treatment Programme

A monthly water-quality treatment programme has been introduced to address the nutrient, organic matter and algal pressures affecting the lake.

Bacterius® N is being applied to introduce and support nitrifying bacteria responsible for converting ammonia and nitrite into less harmful forms. Bacterius® 5B is also being used to support nitrifying bacterial activity and assist with the biological breakdown of accumulated organic matter.

Lake Aid BioX, a barley-straw extract treatment, is being applied to help suppress nuisance algal growth and reduce the likelihood of further bloom development.

During winter, Lake Aid AquaBio is also proposed. AquaBio acts as a hydro-soil conditioner, helping to improve anaerobic sediment conditions and reduce internal phosphorus availability by binding phosphorus within the sediment.

These treatments are intended to improve biological processing within the lake; however, their effectiveness is likely to remain constrained where oxygen availability and water circulation are insufficient.

4.4 Aeration

Additional mechanical aeration is therefore strongly recommended throughout the lake to improve oxygen transfer, circulation and biological nutrient processing.

Due to the shallow depth of Canvey Lake, surface aerators are considered the most appropriate option. Aerators should be distributed along the lake to reduce stagnant areas rather than being concentrated in one location. The depth of the water however is approximately 250-400mm and so is still too shallow for surface aerators to function. Therefore, each aerator should be installed within a sunken sump in which the aerator can be positioned within. This would prevent soft sediment from encroaching around the equipment, restricting water flow and potentially causing overheating or mechanical failure.

4.5 Wildfowl and Bank Condition

The census recorded a substantial wildfowl population, including 418 Canada geese. At this density, faecal inputs are likely to contribute to nutrient enrichment and microbial contamination, as reflected by the elevated coliform results.

Intentional feeding is likely to support unnaturally high bird numbers, while uneaten feed contributes additional organic matter and nutrients to the lake. Heavy grazing has also created barren banks, increasing erosion and the movement of sediment, nutrients and faecal material into the water.

Waterfowl feeding should therefore be substantially reduced or discontinued, and the feeding of bread prohibited, supported by educational signage. Barren banks should also be restored and protected while vegetation becomes established.

4.6 Management Approach

The existing treatment programme should continue alongside the installation of surface aeration, coir rolls, floating eco-islands and longer-term de-silting.

Monthly water-quality, algal and wildfowl monitoring should continue to establish baseline data to inform management actions. Dissolved oxygen should be included in future surveys, ideally through early-morning measurements or short-term continuous monitoring, to assess the extent of oxygen depletion and inform the final aeration design.

Overall, the results demonstrate that Canvey Lake requires coordinated intervention to address organic loading, impaired nitrogen cycling, cyanobacterial dominance, bank erosion and likely oxygen instability.

4.7 Emergency Measures – Blue-Green Algae

Blue-green algal blooms can cause fish kills either through oxygen depletion as they respire during the night – consuming oxygen. They also produce toxins like microcystins that can be toxic to fish.

If the scenario arises that a blue-green algae bloom is causing significant fish kills (often preceded by frequent number of fish gasping at the surface), Lake Aid Oxy can be used to combat both pressures. Oxy can be used to rapidly increase dissolved oxygen in a water body and to control/manage algae. Following this treatment removal of debris from the algae cells, killed by the treatment, is imperative to reduce organic input back into the lake. To read more information on Lake Aid Oxy see *Append D*.

5.0 Recommendations

Recommendation	Rationale
Continue the monthly Bacterius[®] N, Bacterius[®] Muck and Bacterius[®] 5B treatment programme. Appendix C	Bacterius [®] N is a nitrifying bacterial treatment intended to support the conversion of ammonia and nitrite into less harmful nitrogen compounds. Bacterius [®] 5B supports nitrifying bacteria while also assisting with the biological breakdown of organic matter. Continued monthly treatment is recommended due to the elevated ammonium, un-ionised ammonia and high sediment volume.
Continue the monthly Lake Aid BioX treatment programme. Appendix B	Lake Aid BioX is a barley-straw extract treatment used to help limit nuisance algal and cyanobacterial growth. Continued treatment is recommended due to the high algal concentrations and strong dominance of potentially toxin-producing cyanobacteria recorded throughout the lake.
Undertake a winter Lake Aid AquaBio treatment programme. Appendix A	AquaBio is a hydro-soil conditioner intended to improve redox conditions within organically enriched and anaerobic sediments. The treatment can help reduce phosphorus availability by binding phosphorus within the sediment, thereby limiting internal nutrient release and reducing the nutrients available to support future algal growth.
Apply Bacterius[®] Muck. Appendix C	Bacterius [®] Muck is recommended to support the biological breakdown of accumulated organic sediment. Reducing the quantity of decomposing organic material within the lakebed will help lower sediment oxygen demand, improve nutrient cycling and reduce internal nutrient loading.
Install distributed surface aeration throughout the lake.	Although dissolved oxygen was not measured, the highly elevated BOD, COD and TOC concentrations, together with ammonia accumulation, elevated nitrite and high algal abundance, indicate a concerning oxygen bottleneck. Surface aeration is recommended due to the shallow depth of the lake and would improve oxygen transfer, circulation and the effectiveness of the biological treatment programme.
Install surface aerators within sunken sumps or equivalent sediment-exclusion structures.	The shallow water and accumulation of soft sediment may allow sediment to encroach around the aerators, restrict water flow and cause overheating or mechanical failure. A sunken sump would maintain sufficient clear water around each unit and reduce sediment disturbance.
Continue monthly water-quality monitoring and algal surveys.	Ongoing monitoring will allow changes in water quality, algal abundance and cyanobacterial composition to be assessed. It will also provide early warning of further deterioration and allow the effectiveness of the treatment and aeration programme to be reviewed.
Substantially reduce or discontinue intentional waterfowl feeding.	Feeding supports unnaturally high wildfowl numbers and encourages birds to congregate around the lake. Uneaten feed and increased faecal inputs contribute organic matter, nutrients, microbial contamination and oxygen demand. Educational signage should be installed to explain the effects of feeding on water quality, bird health and the wider lake ecosystem.
Install planted coir rolls along eroded and heavily grazed banks.	Planted coir rolls are recommended to stabilise eroding banks, reduce sediment and nutrient runoff and establish marginal vegetation. This would improve water clarity, provide aquatic habitat and reduce the effects of grazing and trampling by wildfowl.
Install vegetated floating eco-islands.	Vegetated eco-islands would provide direct nutrient uptake, additional habitat and suspended root surfaces for beneficial microbial communities, including bacteria involved in nitrogen cycling. They would also improve habitat diversity within the otherwise degraded lake environment.
Undertake de-silting works as a longer-term intervention.	De-silting would remove nutrient-rich and organically enriched sediment, increase effective water depth and reduce sediment oxygen demand and internal nutrient loading. A bathymetric and sediment-depth survey should be undertaken to identify priority areas and estimate sediment volumes before the works are designed.

6.0 Appendix 1: Algal Survey Results



Algal Survey Results

Project reference number: CP2526-129

Date: June 2026

Sampled:

Waterbody: Canvey Lake

Sample ID:			Canvey Lake East		
No.	Algal group	Genus/species identified	Cell concentration (cells/ml)	Relative abundance (%)	Potentially toxin-producing
1	Blue-Green Algae	<i>Dolichospermum spp</i>	170,00	71%	Yes / No
2	Blue-Green Algae	<i>Microcystis spp</i>	30,000	13%	Yes / No
3	Green Algae	<i>Scenedesmus spp</i>	38,000	16%	Yes / No
4					Yes / No
5					Yes / No
6					Yes / No
7					Yes / No
8					Yes / No
9					Yes / No
10					Yes / No
Total algal concentration			238,000cells/ml	100%	
Total blue-green algae concentration			208,000cells/ml	87%	
Sample ID:			Canvey Lake West		
No.	Algal group	Genus/species identified	Cell concentration (cells/ml)	Relative abundance (%)	Potentially toxin-producing
1	Blue-Green Algae	<i>Dolichospermum spp</i>	140,00	38%	Yes / No
2	Blue-Green Algae	<i>Microcystis spp</i>	50,000	20%	Yes / No
3	Green Algae	<i>Scenedesmus spp</i>	14,000	6%	Yes / No
4	Blue-Green Algae	<i>Oscillatoria spp</i>	40,000	16%	Yes / No
5					Yes / No
6					Yes / No
7					Yes / No
8					Yes / No
9					Yes / No
10					Yes / No
Total algal concentration			244,000cells/ml	100%	
Total blue-green algae concentration			230,000cells/ml	87%	

7.0 Appendix A: Lake Aid AquaBio



Lake Aid

AquaBio™

Lake Aid AquaBio is used in the treatment of ponds, lakes and rivers to modify the chemical composition of the hydro-soil, whilst reducing the organic components of the silt. It also clarifies the water as it rebalances the chemical composition of the water by the provision of calcium.

This effective treatment mitigates and delays against the costly processes of dredging or flushing (de-silting) of a waterbody by reducing the depth of organic silt.

Lake Aid AquaBio regenerates water quality and the hydrosol of aquatic environments in:-

- muddy and turbid ponds
- lakes and canals
- muddy and demineralised rivers
- muddy and turbid canals and also:
- encourages the development of phytoplankton
- encourages calcium remineralisation

Lake Aid AquaBio is used as a treatment for:

- flocculating clay particles
- clarifying cloudy waters charged in humic acids
- increasing calcium concentration and water hardness
- precipitating phosphates
- buffering pH shifts without physically increasing pH
- reducing organic silt loading
- Decreasing the anaerobic nature of hydro soil



Dosage Recommendations		
Water Body	Initial treatment 1st season	Maintenance treatment 2nd season on
Rivers	1,200 –1,500kg	1,000kg
Ponds, lakes and canals	800 –1,400kg	800 –1000kg
Leisure pools and ponds	3,000kg	1,000kg

The recommended dose is based upon
1 hectare of surface area.



LAKE AID

T: 01953 886824



LAKE AID AQUABIO.

To enhance fishery conditions Lake Aid AquaBio facilitates the breakdown of previously partially decomposed organic material and boosts aerobic digestion. Untreated the hydro-soil becomes anaerobic producing the undesirable gases methane and hydrogen sulphide. Because of their inbuilt instincts fish will always avoid these poor water areas.

TREATMENT PERIOD.

Any time of the year but most effective between March to November in Temperate regions (water temp 10°C).

Two or three treatments spread over a season will be more effective than one application.

This is particularly true for lake bed hydro-soil where there is a significant proportion of partially digested sediment or anaerobic conditions forming the noxious gasses associated with the anaerobic substrate.

PRODUCT DESCRIPTION.

Lake Aid AquaBio is completely harmless to all aquatic organisms including fish and amphibians.

Lake Aid AquaBio is a micronised powder produced from the processing of high purity mineral ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ - Calcium Sulphate Di-hydrate).

Lake aid AquaBio is completely harmless to all aquatic organisms including fish and amphibians.

TECHNICAL DATA.

For a comprehensive technical data sheet please contact A.G.A. direct.

HEALTH AND SAFETY.

These products are not classified as dangerous/hazardous chemicals. Health and Safety information sheets are always available on request.

SUPPLY DETAILS.

Lake Aid AquaBio is supplied in handy 25Kg plastic sacks.

STORAGE.

When stored under normal dry conditions, this product will not deteriorate chemically, however it is susceptible to compaction lumps. Each bag is stamped with a date of manufacture and a batch reference. Stocks should be rotated so that the oldest material is used first.

This information is subject to change arising from new developments and findings. If you are unable to find the item you are looking for, please do not hesitate to contact us immediately.

The A.G.A. Group installation teams operate solely within the field of aquatic and bioengineering. We operate a policy of 'Best Practice' and are bound by the Code of Conduct of both the Institute of Fisheries Management and the Society of Biology. The A.G.A. Group will quote for the supply of materials, their installation or for 'turnkey' projects.

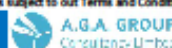
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8.0 Appendix A: Lake Aid BioX



**Lake Aid
BIO-X™**

Easy-to-use,
no mess, no
unsightly rotting
straw, a pure natural
straw extract for clearer
water.

Using Lake Aid Bio-X for
conditioning contained water is more
effective than straw, it's economical,
works faster and totally eliminates the high
cost of transporting and handling barley straw.

The benefits of Lake Aid Bio-X:

- Harmless to pets
- Harmless to fish and wildlife in ponds
- Controls algae and filamentous algae (blanket weed)
- Accelerates the clearing of the green water
- Contains no synthetic chemicals or artificial pesticides
- Becomes effective weeks earlier than barley straw
- Can safely be used in ponds with filters and water features
- Excellent value
- Environmentally friendly

The A.G.A. Group's Biologists have concentrated the inhibiting chemical compounds produced by barley straw into a practical easy to apply extract.

The application of Lake Aid Bio-X barley straw concentrate has the same inhibiting effect on the growth of algae without the often arduous and untidy process of introducing and removing large quantities of barley straw.



LAKE AID

T: 01953 886824



ALGAE CONTROL.

Lake Aid Bio-X is a concentrate of barley straw which conditions the water to inhibit and control algae growth. For years' environmentalist and pond keepers alike have been using barley straw treatment as a control against the nuisance of algae. This laborious and expensive control is no longer the ideal answer.



Lake Aid Bio-X should be applied initially at a dose rate of 5 litres per acre before dilution.

The concentrate should be added to the water body by mixing at least 1 part concentrate to 5 parts water, this is done, not directly to dilute the product, but simply to create volume thus ensuring a good initial spread across the entire area of the waterbody

Further weekly treatment should then be carried out at 1-5 litres per acre dosage, still diluting the product for ease of application across the water surface.

Ideally the dilute concentrate should be applied from a boat preferably by spraying out through a knapsack sprayer which should be kept clean of any other chemicals.

Alternatively it can be drizzled gradually into a running inlet which will then naturally distribute it with the flows and currents.

Lake Aid BioX contains: Aqueous barley straw extract as a natural source of plant lignin. Lake Aid Bio-X is triple distilled to ensure 'full strength' delivery of the active ingredient

DOSAGE.

Lake Aid Bio-X is available in handy 25 litre drums.

Other pack options such as IBC 1000 litre containers available

Initial application rates 5 litre per acre. Subsequent regular applications 1.5 litre per acre should be carried out at weekly intervals.

The treatment should be carried out through the algae season. We therefore recommended that the critical application of Lake Aid Bio-X is commenced in early spring and used throughout the spring and summer to prove most effective in the control of algae.

This information is subject to change arising from new developments and findings. If you are unable to find the item you are looking for, please do not hesitate to contact us immediately.

The A.G.A. Group installation teams operate solely within the field of aquatic and bioengineering. We operate a policy of 'Best Practice' and are bound by the Code of Conduct of both the Institute of Fisheries Management and the Society of Biology. The A.G.A. Group will quote for the supply of materials, their installation or for 'turnkey' projects.

A.G.A. is Quality assured to: ISO45001 : 2018, ISO9001 : 2015 & ISO 14001 : 2015

A.G.A. Group, MMG and MHP and AGACES are trading styles of A.G.A. Group Enviro-Fix Limited

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The information set forth in this brochure reflects our best knowledge at the time of issue.
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9.0 Appendix C: Bacterius®



Lake Aid Bacterius®

No matter how well an aquatic system is set up, keeping it in balance, attractive and healthy sometimes takes a little more by way of human intervention. When the balance of nutrients in the water rises passed a certain level an unpleasant algal bloom often occurs. These filamentous and blue green algal blooms not only look unsightly, but can introduce harmful toxins into the water.

Bacterius® products will:

- Reduce the levels of nutrients
- Reduce the phosphorus loading
- Reduce the nitrogen loading
- Breakdown dead algae
- Reduce algal blooms
- Reduce toxicity
- Reduce Sludge build up

Bacterius® is safe for fish and plants and will help support fish health and clear water.

Aquatic environments depend on algae as the foundation of their food chains.

In a healthy, stable setting, the amount of algae is regulated by various factors such as light, temperature, available gases, other nutrients, and the organisms that consume it.

Most aquatic systems achieve a balanced state where these factors stabilise. However, this balance may not always be ideal from our perspective. When phosphorus levels increase, it typically encourages the growth of filamentous and blue-green algal blooms.



LAKE AID



Bacterius.



BACTERIUS®

Bacterius®: Natural Water Treatment Solutions

Bacterius® is a brand of water treatment products designed to improve water quality as naturally as possible. Supplied by Canadianpond, a company renowned for its expertise in bioaugmentation and water treatments, Bacterius® products leverage the power of beneficial microorganisms to transform water parameters. In the UK, A.G.A Group is the exclusive supplier of this innovative technology and has successfully used it to treat ponds and lakes across the country.

How Does It Work?

Bioaugmentation involves introducing cultured beneficial microorganisms into an existing microbial community. These microorganisms reduce nutrient levels and break down unwanted compounds, thereby enhancing water quality. Specifically, the microorganisms in Bacterius® products produce enzymes that biodegrade or transform excess ammonia, nitrites, phosphorus, and hydrocarbon-based contaminants. This enzymatic activity is crucial in maintaining a healthy aquatic environment. The enzymes released by the microbes in Bacterius® products break down various compounds that may contaminate aquatic environments. Bioaugmentation with Bacterius® offers many benefits:

- **Reducing Odours:** The breakdown of organic matter by beneficial microorganisms helps eliminate unpleasant odours commonly associated with stagnant or polluted water bodies.
- **Natural Clarification of Pond Water:** The enzymatic activity helps clear suspended particles and organic matter, increasing water clarity and enhancing the aesthetic appeal of ponds and lakes.
- **Reducing the Risk of Sickness and Death Among Fish:** By maintaining balanced nutrient levels and reducing harmful compounds, bioaugmentation promotes a healthier environment for fish, decreasing disease and mortality rates.
- **Clearing Lake or Pond Bottoms and Reducing Silt:** The microorganisms break down organic matter that accumulates on the bottoms of ponds and lakes, reducing silt and sediment buildup and maintaining the natural depth and health of these water bodies.
- **Controlling Algal Growth, Including Blue-Green Algae:** By breaking down excess nutrients, the beneficial microbes help control and prevent excessive algal growth, maintaining a balanced and healthy aquatic ecosystem.
- **Controlling Ammonia Levels:** Denitrifying bacteria break down harmful ammonia, converting it into nitrogen gas (N₂), which is harmlessly released into the atmosphere.

PRODUCTS WE OFFER

Bacterius® products come in various different product types, each specialised to the needs of the water system, most are in liquid form and are applied to the surface while some are in solid forms designed to dig deep into the sediment. All Bacterius® products are non-toxic and safe for the environment, the products A.G.A Group offers are highlighted below.

Bacterius® C – Organic matter and waste controller

Bacterius® N – Nitrogen controller to reduce ammonia and nitrites (water nitrification)

Bacterius® EQUINOX – Cold Water Beneficial Bacteria Treatment

Bacterius® MUCK – Concentrated bacterial pellets for treating shoreline muck and sediment rich areas

Bacterius® 5B – High concentration bacteria with barley straw for sediment reduction and water clarity

Bacterius® 1B – Natural bacteria with barley straw, same formulation as 5B but less concentrated

Bacterius® POND – Nitrification and control of organic sediment

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Bacterius®



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A.G.A. GROUP
 Consultancy Limited

10.0 Appendix D: Lake Aid Oxy



Lake Aid Oxy

Lake Aid Oxy

- Instantly increases the oxygen content of the water
- Instantly kills algae and diatoms
- Improves fish health
- Clarifies green water
- Acts as a sanitiser treatment for aquaculture and fisheries water
- Enhances water quality
- Improves aesthetic landscape appeal



For use in:

- Fisheries, ponds, lakes, reservoirs, drinking water sources.
- Golf courses and ornamental water
- **Lake Aid Oxy** is a non-invasive way to treat ponds and lakes without removing fish or draining the water.
- Safe for fish and invertebrates (avoid unnecessary direct contact with desired plants) **Lake Aid Oxy** is best applied by qualified persons to achieve optimum results.

Lake Aid Oxy is not approved as an algaecide, however because of harmless side effects, it will often be necessary to remove dead algae from the water to maintain clarity

**LAKE AID**

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