



A CHANGING WINDERMERE



These facts and figures are intended to summarise the Changing Windermere report. The Love Windermere Partnership believes they demonstrate the need for a whole catchment approach to improving the water quality of Windermere.

280 days for a drop of water to flow from the north to south basin

4 bathing sites rated as **excellent** (see map for locations)

300 billion litres lake water volume

7 million annual visitors*

14 - 17.5k Resident population

20 Sites of Special Scientific Interest

*STEAM data 2019

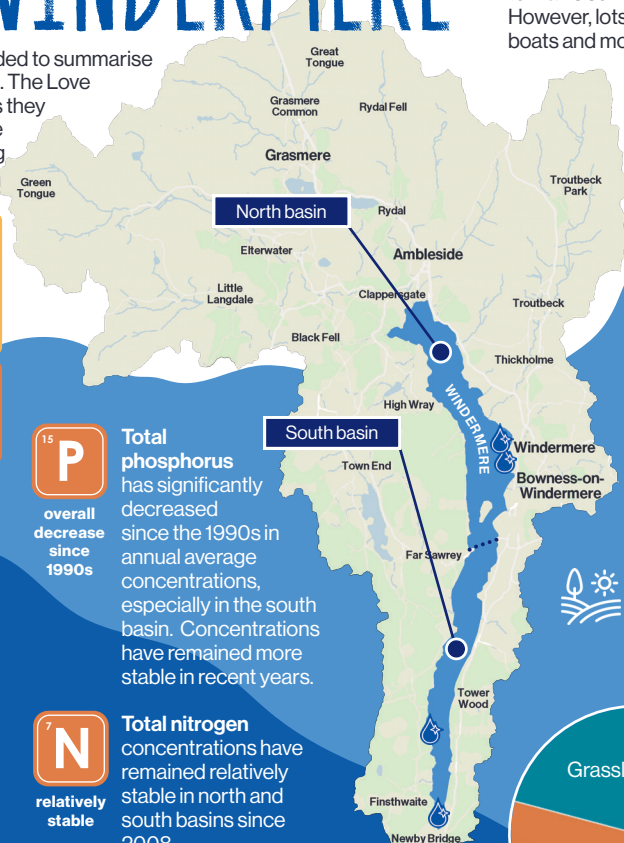
LAKE WATER QUALITY

Nutrients, such as phosphorus and nitrogen are essential for normal algal growth, but if present at high concentrations they can cause problems such as harmful algal blooms. Over the past 200 years, various sources have introduced extra nutrients into the lake, including sewage, wastewater, land-use practices. These nutrients have accumulated in lake sediments and are released back into the water under certain conditions.

Bacteria such as E. coli from human, farm animal and wildlife sources are present in all water environments. Bacteria are monitored at four designated Bathing Waters where the quality has rated excellent since 2015.



Blue green algae are natural. 'Blooms' can be toxic and typically occur in warm, still conditions. Wind and rain can physically move blooms around the lake making them hard to track without public support.



15 P

overall decrease since 1990s

Total phosphorus has significantly decreased since the 1990s in annual average concentrations, especially in the south basin. Concentrations have remained more stable in recent years.

7 N

relatively stable

Total nitrogen concentrations have remained relatively stable in north and south basins since 2008.

WASTEWATER INFRASTRUCTURE



Many homes and businesses are connected to mains sewers operated by United Utilities. However, lots of properties are not, as well as boats and motor homes. In these cases, owners manage sewage and wastewater themselves.



United Utilities in Windermere

10 Wastewater Treatment Works (WwTW) serving homes and businesses.

6 United Utilities storm discharge points.



Privately operated wastewater treatment in Windermere

89 Larger sites permitted by the Environment Agency. Combined, these individual permits are equal to one UU WwTW treatment works.

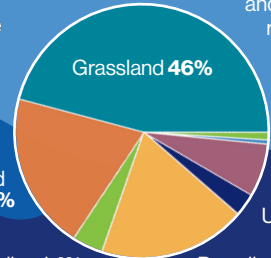
1.8k - 2k

Smaller sites operating under general binding rules, such as septic tanks and cess pits.



LAND COVER AND CHANGE

Windermere's landscape has been shaped by human activity over thousands of years. Poor land management practices, including the over-use of fertilisers and insecticides, as well as road runoff containing heavy metals and oils, negatively impact water quality.



Improved grassland and arable **20%**

Coniferous woodland **4%**

Broadleaved woodland **9%**

Heather **0.5%**
Inland Rock **0.01%**
Freshwater **7%**
Urban and suburban **3%**



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CLIMATE CHANGE

Climate change affects the natural processes occurring within Windermere and its animals and plants, including blue green algae. Because our climate is changing, action is needed in the catchment to prevent the lake deteriorating. Improving the condition of Windermere under a changing climate requires this action to go even further. The temperature increase in Windermere is notable and favours coarse fish like ruffe and roach but makes conditions hard for the iconic Arctic charr.



Suspect blue green algae?

If you suspect blue green algae in your area, which can be toxic, report it to the Environment Agency. Call 0800 8070 60 or use the Bloomin' Algae app: www.ceh.ac.uk/our-science/projects/bloomin-algae



16 species least 16 fish species have been recorded in Windermere



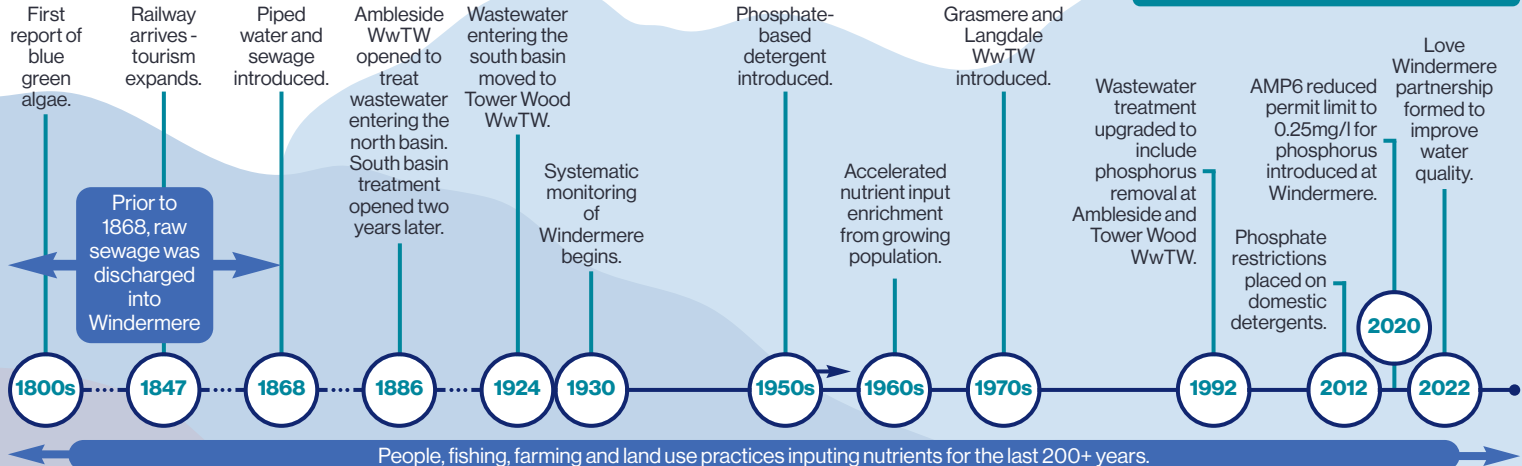
60+ Wetland Bird Survey have recorded more than 60 species of bird in the catchment area



11.6°C Average surface water temperature of Windermere increased from 10.4°C (1961-1990) to 11.6°C (2017-2021)

A TIMELINE OF WINDERMERE

Since the Stone Age, people have shaped Windermere's catchment. Lake sediment records show 5,000+ years of agriculture, forestry, mining, fisheries, urbanisation, transport and tourism in the catchment. Since the arrival of the railway, the resident and tourist population has grown, increasing pressures on the Lake.



FIND OUT MORE AND HELP WINDERMERE: Visit our website, sign up to receive our newsletter, join Citizen Science projects, report pollution including blue green algae to the Environment Agency 0800 8070 60 or via the Bloomin' Algae app.

PARTNERS: Cumbria Tourism, Environment Agency, Lake District Foundation, Lake District National Park Authority, The National Trust, National Farmers Union, South Cumbria Rivers Trust, United Utilities, Westmorland and Furness Council.

Infographic produced with input from Lancaster University, UK Centre for Ecology and Hydrology and the Environment Agency. Full references can be found on the detailed reports via the Love Windermere website: www.lovewindermere.co.uk