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ONLY RAINWATER INTO WINDERMERE

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Strategic Case summary

Overview. The Strategic Case establishes why intervention beyond currently committed investment is necessary. It sets out the strategic rationale for ORiW, defines the outcomes the programme is seeking to achieve, and explains why a coordinated catchment-wide approach is required. It also provides the foundation for subsequent business case development and option appraisal.

Strategic fit. ORiW is aligned with national, regulatory, local and regional priorities for water quality, climate resilience and catchment-based action. The programme supports emerging water sector reform, environmental improvement objectives and local economic and environmental ambitions. It provides a practical delivery mechanism through which multiple organisations can contribute to shared outcomes for Windermere.

Case for change. Windermere faces increasing environmental pressures that are expected to intensify under future climate conditions. While existing regulatory and investment frameworks deliver important improvements, evidence suggests they may not be sufficient to secure the lake's long-term ecological resilience. The environmental, social and economic value at risk, combined with fragmented responsibilities, creates a strong case for coordinated intervention.

The baseline. Committed AMP8 investment improves outcomes but does not fully address long-term challenges across the catchment. Environment Agency modelling indicates that ecological pressures remain in the North Basin under future climate scenarios, despite planned investment. In contrast, more transformational reductions in wastewater inputs are associated with materially improved ecological condition and the elimination of cyanobacteria risk days.

Objectives and Critical Success Factors. The programme objectives define the outcomes ORiW is seeking to achieve, while the Critical Success Factors establish the conditions options must satisfy to progress. Together they provide a consistent framework for option development and appraisal. Key themes include wastewater and runoff reduction, environmental enhancement, stakeholder alignment, resilience to future pressures and early intervention.

Risks, constraints, and dependencies. The programme faces several strategic risks and dependencies that will influence future delivery. These include affordability, funding and financing arrangements, consenting requirements, land availability, climate uncertainty and the need for sustained stakeholder support. Successful delivery will depend on effective coordination across organisations operating under different regulatory and investment frameworks.

Stakeholder engagement and communication. Stakeholder engagement is essential to ensure future decisions are informed by technical, regulatory, local and community perspectives. Engagement undertaken to date has helped shape the evidence base and programme direction, while future engagement will focus on testing assumptions, identifying delivery challenges and building support for subsequent business case stages. Given the breadth of organisations and communities affected, a structured and proportionate engagement strategy will be critical to programme success.

1. Strategic Case

1.1 Overview

The Strategic Case establishes why intervention beyond currently committed investment is necessary, what outcomes it should achieve, and how it aligns with national and local policies. It is structured as follows.

- **Section 1.2.** Strategic fit. Alignment with national policy and regulatory frameworks.
- **Section 1.3.** Case for change. The evidence base for intervention.
- **Section 1.4.** Baseline assessment. The trajectory of the lake under existing committed investment, and why this is insufficient.
- **Section 1.5.** Objectives and Critical Success Factors.
- **Section 1.6.** Risks, opportunities, constraints and dependencies.

1.2 Strategic fit

The ORiW programme aligns with an evolving national policy landscape where water quality, climate resilience and catchment-based partnership working are increasingly central priorities. Beyond policy alignment, ORiW provides a delivery mechanism for achieving or supporting objectives across national policy, local and regional policies and within the regulatory framework.

1.2.1 National policy

A New Vision for Water is the government's water White Paper (Defra, 2026) and response to the 2025 Cunliffe Review (Independent Water Commission, 2025). It sets out a major plan for reform of the water sector. The White Paper prioritises pre-pipe solutions including sustainable drainage, rainwater management and action on sewer misuse. The ORiW goals (see section 2.5) are directly aligned with these approaches. The White Paper also signals a move toward joined-up local planning, bringing together councils, water companies, farmers¹ and developers to address river pollution. This is the governance model ORiW is already developing. A Water Reform Bill and 2026 Transition Plan are forthcoming. ORiW is well-positioned as an early demonstration of the kind of place-based, multi-stakeholder programme the new regulatory framework is designed to enable. ORiW therefore is in a good position to implement the requirements emerging from water sector reform.

The programme also supports:

- **The Storm Overflows Discharge Reduction Plan 2023**, which targets a 70% reduction in discharges to bathing waters by 2035 and elimination of harm from storm overflows by 2050 (Defra, 2023).
- **Defra's Environmental Improvement Plan 2025**, in particular Goal 3 (clean, resilient and plentiful English waters), which commits to place-based, catchment-wide action to protect freshwater environments (Defra, 2025).
- **The Environment Agency's EA2030: Change for a better environment strategy** (Environment Agency, 2025) which the Agency presents as its contribution to the Environmental Improvement Plan. ORiW aligns to delivery of EA2030 objectives relating to healthier water and place-based catchment management with local partners.
- **The Lake District UNESCO World Heritage Site Management Plan**, which identifies freshwater ecosystem protection as a statutory objective (Lake District National Park Partnership, 2026).
- **The Fourth UK Climate Change Risk Assessment 2026**, which identifies more action being needed to mitigate risks to freshwater ecosystems and risks to water supply and wastewater systems, which the assessment identifies as key interdependent climate-driven risks (UK Climate Risk, 2026).

¹ The contribution of agricultural runoff and farming practices are being further investigated as part of the Love Windermere Land Management workstream – one of three priorities in *The Love Windermere Partnership Action Plan 2025-2027* (Love Windermere, 2025).

1.2.2 Regulatory frameworks

Options to achieve ORiW align with the objectives of a number of statutory and investment frameworks, which will drive investment. However, options will need to exceed the requirements of these frameworks in order to achieve the project objectives.

- **Requirements set out in the Water Framework Directive (WFD):** Windermere currently holds 'moderate' overall ecological status under the WFD (Defra, 2022). Whilst AMP8 investments are partially driven by WFD objectives for the lake; maintaining 'moderate' or achieving 'good' overall ecological status will also depend on pressures beyond the Water Company's AMP8 scope (e.g. private wastewater systems, nearshore discharges, agriculture, highway runoff and climate sensitivity). Achieving the programme objectives will require coordination with complementary investment and regulatory programmes addressing pressures beyond AMP8, highway runoff and flood risk management. ORiW does not replace these sector-specific responsibilities; rather, it provides a framework through which activities can be aligned to support environmental outcomes.
- **The UK Government's 2022 Strategic policy statement (SPS) for Ofwat:** sets out the expectation to see water and sewerage companies making progressive reductions in the adverse impacts of discharges from storm overflows (Defra, 2022).
- **United Utilities' Drainage and Wastewater Management Plan (DWMP)** is the Company's long-term (25-year) strategy for managing drainage and wastewater systems in response to pressures including climate change, population growth and pollution (United Utilities, 2023). The DWMP provides the water company planning framework most directly relevant to ORiW for managing drainage, rainwater and wastewater pressures within the Windermere catchment. ORiW contributes to delivery of DWMP objectives relating to reducing wastewater and rainwater-derived pollutant inputs to the lake through coordinated catchment-scale action. These commitments inform United Utilities' PR24 business plan and AMP8 investment programme.
- **The Bathing Water Regulations 2013** (which implement the Bathing Water Directive in England) require designated bathing sites to meet water quality standards for public health based on microbiological indicators, specifically *Escherichia coli* (*E. coli*) and intestinal enterococci (IE) (UK Government, 2013). At Windermere, four designated sites are currently classified as 'Excellent' under this regime, based on measurements taken at defined locations. ORiW provides an opportunity to secure the long-term resilience of these sites, against changing climate and potentially rising populations. It also provided the opportunity to expand the number of bathing water sites.
- **The Conservation of Habitats and Species Regulations 2017** require that plans and projects do not adversely affect the integrity of designated sites unless there are no alternative solutions and there are Imperative Reasons of Overriding Public Interest (UK Government, 2017). Given the downstream designation of Morecambe Bay as a Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site, ORiW options will be developed to demonstrate compliance through Habitats Regulations Assessment, ensuring solutions avoid deterioration or displacement of environmental impacts and shaping the design and consenting strategy for the programme. ORiW also contributes positively to the conservation objectives these designations protect: by reducing nutrient and pollutant loads reaching the Leven and, downstream, Morecambe Bay, the programme supports those objectives. This complements existing AMP8 investment in the Windermere catchment already driven in part by habitats improvement requirements.
- **The National Framework for Water Resources 2025** identifies the need to secure resilient water supplies while improving and protecting the water environment in response to climate change and growing demand (Environment Agency, 2026). Options for ORiW will need to consider their impact on lake levels and water availability in Windermere for abstraction *ORiW - Impact of Only Rainwater into Windermere on Lake Levels (Final)* (Jacobs Mott MacDonald, 2026).

The feasibility study reflects established practice for major water infrastructure and is consistent with approaches adopted within UK water sector, including alignment with the Major water Infrastructure Programme combined gated process (Ofwat, 2026). It also aligns with the wider water sector planning and environmental frameworks, including Water Resource Management Planning guideline (Defra, 2026), Water Industry National Environment Programme (WINEP) methodology (Defra, 2022), and relevant national policy frameworks (Defra, 2012) (HM Government, 2026).

1.2.3 Local and regional policies

Investing to safeguard the lake aligns to the Westmorland and Furness Council Plan (2023-2028), advancing key policies on climate action and sustainable economic development (Westmorland and Furness Council, 2023). By safeguarding and improving water quality and ecological health, this programme will support the delivery of local commitments to enhance natural habitats and tackle biodiversity loss. ORiW also underpins the council's vision for a vibrant, resilient local economy, supported by green growth and sustainable tourism. As Windermere attracts over seven million visitors annually, further action to enhance water quality improvements could support the visitor economy, safeguard the lake's status as a premier UK destination, and help secure long-term economic resilience for the region.

Furthermore, the Destination Management Plan (DMP) for Cumbria shares the objective of supporting activities that sustain and enhance the environment in the region (Cumbria Tourism, 2024). The DMP's aim to make Cumbria Britain's most vibrant and sustainable rural destination by 2040 requires unwavering commitment to maintain and strengthen the quality of its natural assets and the value of Cumbria's visitor economy.

The Lake District National Park and World Heritage Site Management Plan 2026–2031 identifies the protection and enhancement of freshwater ecosystems, climate resilience and natural capital as core objectives for the National Park and World Heritage Site (Lake District National Park Partnership, 2026). Similarly, the Cumbria Combined Authority aims to work collaboratively with government and councils and develop a local resilience strategy for Cumbria that includes supporting long-term planning that strengthens environmental resilience and helps communities prepare for future challenges (Cumbria Combined Authority, 2026). ORiW contributes to these objectives by supporting coordinated catchment-scale action to improve water quality and ecological resilience.

1.3 Case for change

Windermere has now reached a critical point. While continuing with incremental investment may slow the damage, it will not restore the lake. Meanwhile, environmental pressures will only intensify with climate change, and public, political and regulatory expectations will continue to escalate. The existing wastewater management system is designed around proportionate, risk-based regulation of permitted discharges. This is sufficient to manage today's pressures but is likely to become structurally insufficient under the conditions Windermere will face in the future.

Regulatory limits are set against a stable baseline that does not reflect existing and emerging conditions. Residual nutrient loading is amplified by climate change. Responsibilities for wastewater are fragmented across actors who cannot deliver coordinated adaptation. Taken together, these conditions point toward the need for strategic structural intervention.

Against this backdrop, this ORiW feasibility study presents a stark strategic choice to continue to manage decline, or to take decisive action to end wastewater discharges into Windermere.

The evidence base for this proposition rests on five bodies of evidence:

- the environmental pressures the lake is facing;
- the limitations of the current regulatory and investment frameworks;
- the economic and social value at risk;
- public demand and community engagement; and
- the need for coordinated action across multiple actors.

1.3.1 Environmental pressures

Windermere is England's largest natural lake and one of the United Kingdom's most internationally recognised freshwater environments. Situated at the centre of the Lake District National Park UNESCO World Heritage Site, its ecological condition is of national and international significance. The catchment supports a range of important freshwater species, including one of England's last remaining populations of

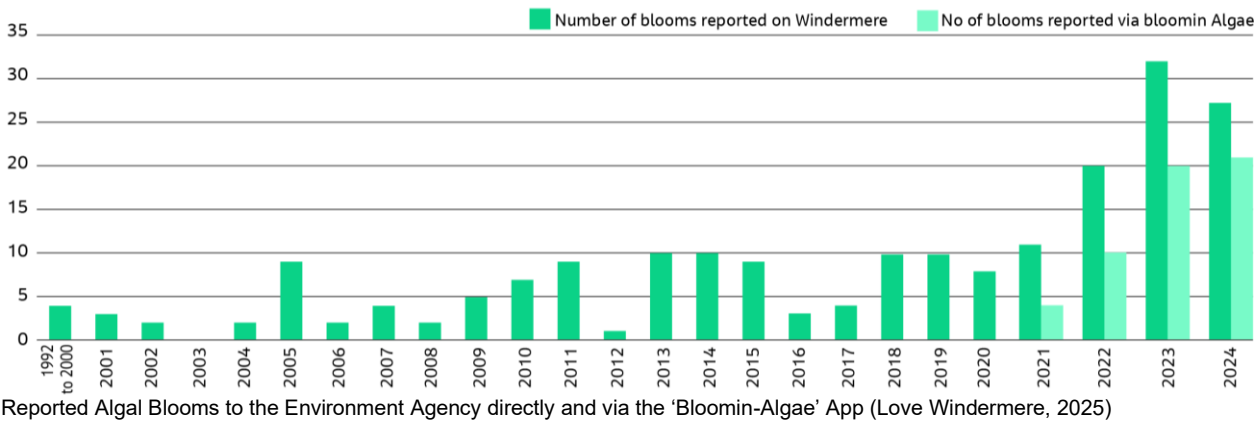
Arctic charr,² alongside Atlantic salmon, brown trout and European eel, white-clawed crayfish and other protected aquatic species (Harper, 2024). The surrounding catchment includes over 20 Sites of Special Scientific Interest, and the River Leven connects Windermere to Morecambe Bay, which is designated as a Special Area of Conservation, Special Protection Area and Ramsar site (Natural England, 2024).

Windermere is one of the best-studied lakes in the world, with interest in improving condition spanning decades (Harper, 2024).³ Despite United Utilities investing more than £75 million in wastewater infrastructure upgrades in the Windermere catchment since 2000, reported presence of cyanobacterial bloom has increased substantially (Love Windermere, 2025), as shown in Figure 1-A. The Environment Agency recorded 32 reported incidents of cyanobacterial blooms in 2023, the highest on record, with further incidents reported in 2025 (UKCEH, 2026). Although visual reports alone do not confirm blooms exceed health risk thresholds, additional sampling has demonstrated occasions in recent years where cyanobacteria concentrations have exceeded recreational guidance thresholds set by the World Health Organisation (considered a cyanobacteria risk day with potential for adverse human impacts).⁴ These events highlight that water quality pressures affect not only ecological conditions, but recreation confidence and the wider social and economic value provided by the lake.

This interaction between nutrient enrichment and climate change is reflected internationally. Analysis of 71 large lakes globally found that peak summertime bloom intensity has increased in 68% of the lakes studied since the 1980s, demonstrating that climate-driven amplification of nutrient pressures is a global challenge affecting freshwater systems (Ho, Michalak, & Pahlevan, 2019). This highlights the need for more fundamental changes to wastewater infrastructure, to cope with future conditions.

Environment Agency and UKCEH modelling indicates that climate-driven internal eutrophication is not expected to be a significant driver of ecological deterioration in Windermere, particularly under scenarios where wastewater inputs are substantially reduced. However, further investigation of potential climate-nutrient interactions is recommended at Outline Business Case stage to confirm the robustness of this provisional conclusion.

Figure 1-A - Windermere algal blooms reported to the Environment Agency via the CEH Bloomin' Algae App 2000-2024



Three major sources of nutrient input into the lake have been identified through catchment modelling.⁵ United Utilities operates ten wastewater treatment works discharging to the lake catchment, of which two are

² Species such as Arctic charr are impacted by climate change across the Lake District, however – environmental impacts such as algal blooms can worsen conditions.

³ The Love Windermere partnership builds on previous partnership working initiatives in the catchment, including the Lake District Still Waters Partnership (1999) and Windermere Reflections partnership programme (2011).

⁴ Cyanobacteria risk days are where a particular type of toxic blue-green algae, which is visible, exceeds the WHO10 threshold (10µg of cyanobacteria chlorophyll a per litre) – a threshold derived by the World Health Organisation as signifying low potential for adverse human health impacts.

⁵ Note, in the catchment modelling produced in the table above, diffuse sources, which include urban runoff, and infiltration from pipes, were all classed as 'Agricultural Diffuse'. It is expected that this classification risks overstating what is attributable to agricultural sources.

permitted to discharge directly into the lake. **Error! Bookmark not defined.** Six storm overflow points intermittently discharge untreated sewage during high-flow events (Harper, 2024). In addition, there are 92 permitted private wastewater discharges within the catchment⁶, and an estimated 1,800 to 2,000 further private discharges via septic tanks and small-scale treatment plants operating under general binding rules. Some discharge directly to the lake; others discharge to tributaries or to ground. The relative contributions of the controlled discharge sources differ significantly between the two basins.

Table 1-A - Phosphate⁷ source apportionment by Windermere basin (% of inflow load, controlled discharge sources)

Source	North Basin	South Basin
Public wastewater (sewage treatment works)	53%	85%
Intermittent discharges (storm overflows)	8%	6%
Septic tanks and private systems	1%	1%
Diffuse (largely attributed to agricultural runoff, soil erosion and urban runoff) ⁸	37%	8%

Source: SIMCAT-SAGIS catchment model, reported in Environment Agency Chief Scientist's Group (Environment Agency, 2026). This data presents modelled phosphate source apportionment and therefore differs from previously published source apportionment data reported in *Phosphorus Source Apportionment data for the Windermere Catchment* (Environment Agency, 2023), which modelled total phosphorus. Note: There is a rounding error in the referenced data and therefore the source apportionment for the North Basin does not total to 100%.

The Environment Agency's SAGIS catchment modelling identifies public and private sewage discharges combined as the largest source of phosphorus in the Windermere catchment (Environment Agency, 2023). Treatment reduces phosphorus to within permitted limits, but the residual load from sewage remains the dominant controllable input. Nutrient sources in the South Basin are dominated by public wastewater, with sewage treatment works accounting for 85% of phosphate load from controlled sources. This makes it highly responsive to investment in treatment works and overflow reduction. The North Basin has a more mixed source profile.

Windermere is sensitive to climate impacts such as water temperature increases and changes in rainfall patterns. The warming of Windermere is expected to increase the frequency and intensity of algal blooms at the surface and associated oxygen depletion at depth, due to decomposing algae – altering the habitability for plants and animals (Harper, 2024). Further water quality management may therefore be needed to maintain existing condition, as temperatures rise. Increased rainfall accelerates the delivery of sediment, nutrients and faecal bacteria. Increasing periods of drought would likely exacerbate existing issues, through longer duration and intensity of thermal stratification, lower dissolved oxygen concentrations, increases in nutrients and algal biomass (Harper, 2024).

The Big Windermere Survey has identified elevated levels of bacteria (*Escherichia coli* and Intestinal enterococci) during the summer months, when recreational use is highest (Freshwater Biological Association, 2025). When ingested, these bacteria risk gastro-intestinal illness. Although Windermere's four designated bathing sites are currently classified 'Excellent', based on concentrations of coliform bacteria, declining water quality condition as a result of climate change risks deteriorating this status.

⁶ This is based on the number of licences within the Windermere catchment as of October 2025, using data within the Environmental Permitting Regulations discharges to water and groundwater data register. There are 75 non-water company sewage discharges, 5 trade discharges and 12 sewage and trade discharges. The number of licences is however subject to change.

⁷ The *Nutrient Futures for Windermere* report (Environment Agency, 2026) uses the term 'phosphate' to refer to 'reactive phosphorus', which is WFD classification for phosphate-phosphorus in English rivers. This the simplest and most common form of phosphorus in natural water and is a constituent of total phosphorus. Reactive phosphorus (often referred to as orthophosphate) is modelled in the *Nutrient Futures for Windermere* report (Environment Agency, 2026) source apportionment model (PROTECH model). It is highly soluble in water – making it readily bioavailable for plants and algae and exacerbating algal blooms, which is why focussing on reactive phosphate is appropriate for understanding algal bloom impacts. Particulate phosphorus is the other constituent of total phosphorus, which is less immediately bioavailable.

⁸ The percentage contribution from diffuse sources is reasonable and largely attributed to agricultural runoff and soil erosion, which is not being addressed by the ORiW scope. Beyond ORiW, there is a need to address the residual pollution sources from agricultural impacts, which are being further investigated as part of the Love Windermere Land Management workstream – one of three priorities in *The Love Windermere Partnership Action Plan 2025-2027* (Love Windermere, 2025).

The full effects of polluting highway runoff are yet to be quantified, but could be significant. Runoff from urban areas in the catchment, which includes roads and development, are estimated to contribute to between 6%-12% and 4%-10% of the lake's total phosphorus concentration in the North and South Basins respectively (Environment Agency, 2023). In addition to nutrient pollution, other pollutants from runoff can be toxic to aquatic biota. For example, salt-laden road runoff has been shown to reduce the abundance of invertebrates in receiving waterbodies (Gillis, Parrott, & Helm, 2022).

In addition to nutrient enrichment and coliform bacteria, wastewater and urban runoff introduce a wider range of emerging contaminants into freshwater environments. These include pharmaceuticals, chemicals, plastics and heavy metals, whose long-term impact on human and ecological health in Windermere are less understood (Harper, 2024). The accumulation of sediments from land runoff and decaying algae can also smother habitats and limit sunlight penetration – affecting photosynthesis in aquatic plants and leading to decomposition and oxygen depletion. This can reduce the availability of spawning grounds for important fish species such as Arctic charr. These further and broader impacts are presented in *The State of Windermere* report (Harper, 2024). Although the focus of public attention has been on high nutrient concentrations exacerbating visible algal blooms (Save Windermere, 2025), the ORiW programme's focus on wastewater discharges and urban runoff will also address these broader and emerging contaminants.

1.3.2 Current regulatory framework

Windermere's water environment is governed by several regulatory frameworks. Each is effective within its own remit, and the permitting regime is deliberately proportionate and risk-based, concentrating individual permits and monitoring where regulatory risk is greatest. For the specific, long-term challenge Windermere faces, however, two structural features are relevant.

First, by design the framework does not bring every source under individual permitting: a significant number of small-scale private discharges operate under general binding rules and self-monitoring, so full compliance does not, in itself, amount to control of all the pressures reaching the lake.

Second, regulatory requirements are calibrated against historic conditions, whereas the Environment Agency's own modelling indicates the pressures on Windermere will intensify under future climate conditions (see Section 1.4). This limitation is recognised beyond Windermere: the 2025 Independent Water Commission (the Cunliffe Review) found that the sector's regulatory framework lacks system-wide, forward-looking resilience standards and recommended statutory resilience standards for water infrastructure (Independent Water Commission, 2025). Together with the fragmentation of responsibility examined in Section 2.3.5, these features mean that, on current evidence, full compliance with the existing framework would not be sufficient to secure Windermere's ecological future.

Several regulatory issues are examined in turn below:

- **Water Framework Directive:** The Water Framework Directive (WFD) establishes the statutory environmental objectives for Windermere. Both the North and South Basins are currently classified as having 'Moderate' ecological status, below the objective of Good Ecological Status (GES). The Regulations provide for alternative objectives where specific statutory tests are met, including where achieving GES by 2027 would be disproportionately costly or require longer ecological recovery times. Both Windermere basins are currently subject to such alternative objectives (Defra, 2022) (OEP, 2024). Achieving those objectives depends on the effective implementation of a range of regulatory, investment and catchment management measures, within which ORiW provides a complementary programme of coordinated action. ORiW's contribution is best understood at the level of the biological quality elements rather than the headline classification: modelling indicates that reducing nutrient inputs would improve the lake's ecological condition, even where the overall WFD class may not change.
- **Bathing Water Directive (BWD)** classifications are distinct from WFD ecological status: they assess public health risk at designated sites, not the ecological condition of the lake. Windermere's four designated sites are currently classified 'Excellent', based on *Escherichia coli* (*E. coli*) and intestinal enterococci (IE) sampled over a rolling four-year dataset. These metrics do not assess nutrients or cyanobacterial toxins, and the designations cover four locations rather than the whole lake. The Big Windermere Survey reports higher summer bacterial levels in some non-designated nearshore areas, consistent with 'Poor' bathing water quality (Freshwater Biological Association, 2025). Bathing water compliance therefore provides limited assurance about the pressures ORiW addresses, and designating further sites would not, in itself, capture nutrient enrichment or whole-lake ecological condition.

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- **The Environmental Permitting Regulations 2016** manage discharges to surface water and groundwater through permits and compliance requirements aimed at protecting water quality. There are 106 consented discharges within Windermere's catchment, including 14 relating to United Utilities, 75 private sewage, 12 combined sewage and trade, and 5 trade discharges (Environment Agency, 2025), enforced by the Environment Agency through monitoring, with increasing scrutiny and awareness of permit breaches (Environment Agency, 2024). Consistent with the proportionate design of the regime, not every source is individually permitted: alongside the consented discharges, the estimated 1,800 to 2,000 small-scale private discharges noted in Section 2.3.1 operate without individual permits under the general binding rules, relying on self-monitoring by property owners, so non-compliance and misconnections can occur without triggering enforcement. The First-Time Sewerage provisions (Section 101A, Water Industry Act 1991) allow connection to the public drainage system but depend on applications from owners who may be unwilling to fund connections within the property curtilage (UK Government, 1991). The permitting framework therefore does not, on its own, comprehensively control the discharges affecting Windermere.

As stated above, regulatory requirements reflect historic environmental conditions, but the Environment Agency's own modelling indicates these do not hold under future climate: as set out in Section 1.4, projected outcomes deteriorate under climate change even with committed AMP8 investment delivered (Environment Agency, 2026). Compliance with existing requirements will not, on its own, secure the lake's ecological future. This is consistent with the Independent Water Commission's finding, noted above, that the sector lacks forward-looking resilience standards (Independent Water Commission, 2025). Reform is under way but has not yet translated into the investment obligations ORIW would require.

1.3.3 Economic and social value at risk

The Lake District National Park generates over £2.3 billion in annual tourism revenue and attracts approximately 17.7 million visitors annually (Cumbria Tourism, 2025). Windermere contributes to a large portion of this. More than 60% of local employment is in tourism-related sectors (ONS, 2024). The regional economy is therefore sensitive to the lake's reputation and perceived environmental quality, as well as its actual ecological condition.

Research across 14 European countries found that perceived declining water quality at recreational blue spaces was associated with ten fewer visits per year per visitor (-20.83%), while improving quality generated three additional visits (+6.67%) (Börger, et al., 2021). This suggests that sustained water quality and public confidence in the lake's health are relevant factors in the long-term performance of the regional visitor economy.

The Cumbrian visitor economy is under near-term pressure and deterioration of Windermere's water quality may exacerbate this. In 2024, visitor numbers fell by 3.3%, visitor days by 5%, and inflation-adjusted revenue by 5.7% – although this may not be linked to Windermere's environmental concerns (Cumbria Tourism, 2025). Analysis of the potential economic impact of water quality concerns suggests that a deteriorating water quality could lead to a 3% to 16% reduction in Windermere visitor numbers – reducing annual economic impact by approximately £24.5 million to £122.5 million (Cumbria Tourism, 2021).⁹ Although there is limited confidence in how water quality reduction influences the percentage reduction in visitor numbers, this percentage reduction is broadly in line with the 20.83% reduction in visitor numbers associated with one-level deterioration in Bathing Water classification – as estimated in Börger et al, 2021. The direction of that risk is clear, even if the magnitude is uncertain.

The *Olympic Legacy Waterways Framework* identifies the environmental enhancement of waterways as an enabler for wider economic, social and sporting outcomes (Canal & Rivers Trust, 2024). Achieving sustained improvements in water quality could strengthen Windermere's position as a world-class venue for both national and international sport, including the Olympics.

Windermere North and South basins are Drinking Water Protected Areas and under suitable flow conditions, water is abstracted to supplement water supply to South Cumbria and Lancashire (Harper, 2024). Water

⁹ This indicative assessment was conducted in 2021, using Cumbria Tourism STEAM data from 2019 – as reported in *Windermere Catchment Tourism Value* (Cumbria Tourism, 2021). The data presented in this report has not been updated to present-day prices or updated to reflect latest available tourism data. Further economic analysis on the impact of water quality on the visitor economy is presented in the Economic Case.

abstraction from Windermere can contribute to regional water resource resilience by reducing reliance on strategic water supply reservoirs during periods of water stress. Options for ORiW will need to consider their impact on lake levels and water availability in Windermere for abstraction, for further details see, *ORiW - Impact of Only Rainwater into Windermere on Lake Levels (Final)* (Jacobs Mott MacDonald, 2026).

1.3.4 Public demand, wellbeing and social value

Windermere holds significant social and cultural value, extending beyond its ecological and economic importance. Public engagement in monitoring Windermere's water quality is itself evidence of the social value placed on the lake. The Big Windermere Survey, a volunteer-supported citizen science programme, demonstrates sustained public interest in the lake's long-term health and a constituency of support for action (Freshwater Biological Association, 2025). Save Windermere have led a campaign to increase the level of public awareness of Windermere's water quality in recent years.

This sustained engagement has raised Windermere's water quality from a largely technical regulatory issue, into a matter of public interest. It has demonstrated the social value placed on the lake and the expectation that a nationally important freshwater environment should be protected for future generations.

Access to blue spaces such as Windermere generates measurable wellbeing benefits beyond recreational value. Research across 18 countries found that frequency of recreational visits to inland blue spaces was positively associated with positive wellbeing and negatively associated with mental distress (White, et al., 2021).

These benefits extend beyond active users: people report wellbeing gains from knowing clean waters exist and from having the option to visit, even where they do not do so regularly. Under a Green Book framework, these non-use and option values are recognised as legitimate components of social value and are assessed in the Economic Case.

ORiW provides an opportunity to respond to this demonstrated public demand by delivering a long-term intervention that protects Windermere's ecological, cultural, recreational and social value for future generations

1.3.5 The need for coordinated action

Protecting Windermere's long-term ecological and economic resilience, represents a public goods challenge of the kind recognised by the Green Book as requiring coordinated intervention (HM Treasury, 2026). Six features are relevant.

- **Diffuse benefits.** The benefits of a healthier lake, including improved ecological condition, public health, recreational quality, visitor confidence and climate resilience, are widely distributed across local communities, regional, national and international visitors, and future generations.
- **Concentrated costs and delivery responsibility.** The action required sits across localised organisations and groups, including water companies, water customers, landowners, private asset owners and highways authorities – while the benefits extend across wider society. Without coordination, individual actors are unlikely to deliver interventions at the scale required to maximise total social, environmental and economic value.
- **Intergenerational benefits.** The most significant benefits, including avoiding climate-driven deterioration and securing ecological resilience, accrue over decades beyond individual investment periods and regulatory cycles.
- **Non-market environmental value.** Much of the value at stake (lake amenity, ecological condition, cultural heritage, non-use value) is not captured in market transactions and is therefore systematically under-provided by market mechanisms alone.
- **Coordination dependency.** Responsibility for the sources of discharge is fragmented across United Utilities, approximately 90 permitted private operators, an estimated 1,800 to 2,000 septic tank owners, highways authorities and others. Unilaterally, no single actor controls enough of the system to meaningfully safeguard Windermere's environmental, social and economic value – ORiW is founded on the effective coordination needed to overcome this.

- **Misaligned planning cycles create sequencing gaps and stranded investment risk.** Regulatory and investment frameworks operate across different timescales, including water sector Asset Management Plan (AMP) cycles, highways investment programmes and land management schemes. These are also unaligned to how investment could occur in private assets, with no formal investment cycles at all. Without a coordinated programme that spans these cycles, investment risks being fragmented, incremental and insufficient, leaving the regional economy and the long-term health of the lake at greater risk. A multi-cycle improvement trajectory is required to achieve ORiW and respond to the long-term pressures facing Windermere.

Taken together, these features describe the type of challenge for which market mechanisms and incremental regulatory action alone are unlikely to deliver the optimal long-term outcome. They provide the formal Green Book rationale for public intervention through the structured, coordinated programme that ORiW provides and is needed to protect the lakes' ecological condition, economic value and long-term resilience.

How to interpret the modelling results

EQR (Ecological Quality Ratio) measures overall ecological condition on a scale from 0 to 1:

- 1.0: near-natural condition
- 0.8+: close to original condition
- 0.6-0.8: working but still impacted
- <0.6: increasing ecological degradation

WHO10 risk days measure how often harmful algal blooms exceed a recognised health threshold:

- Based on a World Health Organization level linked to increased risk during recreation
- More days = worse water quality and usability

1.4 The baseline: testing whether committed investment is sufficient

Section 1.3 sets out why the case for change exists. This section tests that case against the evidence. It examines the baseline: the trajectory of the lake's ecological condition assuming all currently committed investment is delivered, principally United Utilities' AMP8 programme from 2025 to 2030. This baseline is the benchmark against which any case for further intervention must be judged. It is given its own section because it carries the central analytical test of this report: whether committed investment alone is sufficient to secure the lake's ecological future. Baseline projections are based on Environment Agency-commissioned modelling for the 2076 to 2079 period (Environment Agency, 2026).

1.4.1 Delivering AMP8

Recent observed conditions (2018) provide the reference point for current ecological status in Windermere. The modelling then tests how this position evolves under future climate conditions and different levels of intervention – as summarised in Table 1-B.

Without further intervention and excluding AMP investment and considering the impact of climate change, summer inflow nutrient concentrations are expected to increase as lower flows reduce dilution. The thermal stratification season is extended, dissolved oxygen concentrations can decline at depth and can increase the release of dissolved phosphorus from lake sediment – creating more favourable conditions for cyanobacteria. Increased rainfall intensity increases the mobilisation and transport of nutrients, sediments and faecal matter from the catchment, and increases the frequency and volume of intermittent discharges. The combined effect is a deterioration in water quality over time. Existing management does not maintain current ecological status under future conditions.

The baseline is defined as delivery of the AMP8 programme. This represents the next committed phase of wastewater investment and provides the appropriate comparator for assessing further intervention.

Table 1-B presents cyanobacteria risk days as an important metric for lake condition. Cyanobacteria risk days are where a particular type of toxic blue-green algae, which is visible, exceeds the WHO10 threshold (10µg of cyanobacteria chlorophyll a per litre) – a threshold derived by the World Health Organisation as signifying low potential for adverse human health impacts. The WHO10 threshold is an important indicator for lake health as it represents the transition from negligible to low/medium health risk and also an indicator for reputational risk and decline in amenity value. They represent the point in which algal blooms are reported on and are a salient feature in people’s assessment of their confidence in lake condition. Hunter et al. (2012) highlights that that public willingness to pay for water quality improvements is strongly linked to perceptions of cyanobacteria risk and is a useful proxy measure linking environmental condition and social benefits derived from healthy lakes – including wellbeing, recreation, amenity and tourism.

Table 1-B - Projected WHO10 cyanobacteria risk days and WFD EQR by scenario

Windermere Basin	Metric	Recently measured performance (2018)	No further intervention, with climate change (2079)	Baseline: AMP8, with climate change (2079)	No sewage, with climate change (ORiW - 2079)
North Basin	Cyanobacteria risk days/yr	8	36	24	0
North Basin	WFD EQR	0.646	0.587	0.614	0.729
South Basin	Cyanobacteria risk days/yr	50	92	3	0
South Basin	WFD EQR	0.659	0.603	0.682	0.803

Source: Environment Agency (2026). The ORiW column represents the modelled 'no sewage' scenario, removing all point-source wastewater inputs. The WFD classifications are indicated by shaded boxes, where: Moderate = Yellow, Good = Green and High = Blue.

1.4.2 Why this matters strategically

The modelling indicates that, in the 'no further intervention scenario', the ecological status of both the North and South basins of Windermere is expected to deteriorate under future climate conditions. Increases in nutrient concentrations and longer stratification periods result in higher cyanobacteria risk and a reduction in ecological quality.

The AMP8 investment programme, which forms the baseline for this assessment, improves outcomes relative to the 'no further intervention' position. The scale of improvement differs between the basins. In the South Basin, where public wastewater is the dominant source of nutrients, the baseline delivers an improvement in ecological condition relative to current levels. In the North Basin, where nutrient sources are more mixed, the baseline reduces the extent of deterioration but does not restore current ecological status.

The results therefore show that delivery of the current investment programme limits the effects of climate change in the North Basin and improves the condition in the South Basin, but does not provide a consistent improvement in ecological condition across the system. This highlights the need to consider whether additional transformational measures, potentially extending beyond traditional wastewater interventions, are required to secure sustainable ecological outcomes across the whole catchment.

1.4.3 How ORiW changes the trajectory

The modelled evidence demonstrates that the long-term legacy of removing the point sources identified within this study are expected to achieve a secure, ecologically high-performing lake for future generations.

Under the modelled 'no sewage' scenario, which represents the scale of intervention delivered by ORiW, the risk of cyanobacteria concentrations exceeding recreational health risk thresholds, as set by the World

Health Organisation¹⁰, is effectively eliminated in both basins. Ecological condition is estimated to materially improve, with EQR values moving towards Good or High WFD status.

This represents a different order of outcome from that delivered under the AMP8 baseline. Existing investment will reduce storm overflow frequency and improve infrastructure, but it may not deliver the end state for Windermere that drives long-term confidence in its use. Untreated wastewater would still intermittently enter the lake, and wastewater treated to current regulatory standards would still continue to be the core driver of the environmental pressures already visible today. The modelling therefore indicates that the scale of intervention is a key determinant of performance, with more extensive reductions in point-source inputs associated with significantly improved ecological condition. A long-term solution must go beyond compliance and end the cycle of repeated, partial upgrades. This provides the basis for further assessment of options capable of delivering these outcomes in the Economic Case.

1.5 Programme objectives and Critical Success Factors

2.5.1 Programme objectives

The following SMART objectives define the outcomes and benefits the ORiW programme is seeking to achieve. These objectives have been developed through consultation with the Programme Steering Group and provide the basis for options appraisal across all five cases. At this early stage, the objectives are set at programme level. These objectives will be refined as options are developed and feasibility work is completed. The objectives will be reviewed at Strategic Outline Case and developed to better align with SMART objective principals.¹¹

Table 1-C - Programme objectives

#	Objective	SMART statement
1	Remove, where feasible, discharge and risk from urban surface runoff	Remove, where feasible, all urban runoff and wastewater discharges into the lake from identified, confirmed through water quality and flow monitoring.
2	Minimise construction impact	All construction activities meet agreed community and environmental disruption thresholds throughout delivery. Innovative approaches including Modern Methods of Construction (MMC) to be used where feasible.
3	Maintain water supply	Maintain abstraction volumes to 2050, with no increase in treatment costs attributable to programme interventions, validated by operational data from United Utilities.
4	Environmental protection and enhancement	Achieve a net environmental benefit by construction-end, going beyond requirements in at least one biodiversity, climate or habitat enhancement measure, verified by ecological assessment.
5	Long-term resilience	Demonstrate that the chosen option remains effective under projected climate, environmental and demographic scenarios to 2100, as assessed by scenario modelling.
6	Early intervention	Incorporate at least one interim intervention implementable by one year after approval of the business case that delivers measurable mitigation of wastewater or urban surface runoff – subject to necessary surveys, third-party agreements, consents and stakeholder engagement.

2.5.2 Critical Success Factors

The Critical Success Factors (CSFs) translate the objectives into the conditions that options must satisfy to be taken forward. They are designed for the specific purpose at this stage of the programme: filtering a longlist of options to a defensible shortlist for further appraisal.

¹⁰ Cyanobacteria risk days are where a particular type of toxic blue-green algae, which is visible, exceeds the WHO10 threshold (10µg of cyanobacteria chlorophyll a per litre) – a threshold derived by the World Health Organisation as signifying low potential for adverse human health impacts.

¹¹ SMART objectives are Specific, Measurable, Achievable, Realistic and Timebound (HM Treasury, 2026)

The CSFs largely align with the Green Book's standard CSF criteria for longlist to shortlist screening including strategic fit and achievability (HM Treasury, 2026). Given the complexity of the programme and early stage of design, the CSFs partially depart from the remaining standard criteria in respect of potential value for money, affordability and supplier capacity and capability – although these criteria are considered through the appraisal in the Economic Case. This is a deliberate decision, made on the proportionality grounds explicitly recognised in the Green Book at paragraph 1.8, which states that the effort involved in developing a proposal should correlate to its scale, cost, complexity and risk (HM Treasury, 2026).

The standard VfM, affordability and supplier criteria were developed for programmes where order-of-magnitude cost differentiation between options is meaningful at longlist stage. For ORiW, the options span fundamentally different engineering approaches, interceptor sewers, distributed nature-based systems, hybrid catchment interventions and combinations thereof, across a complex catchment with difficult ground conditions, multiple ownership structures, planning constraints and a UNESCO World Heritage Site designation. Estimating the cost of any individual option to a level of precision that makes affordability a meaningful differentiator at the longlist stage would require a more detailed engineering design for each option. Undertaking that design across the full longlist would be disproportionate and expensive. This would also risk systematically favouring options that appear cheaper at superficial assessment but that may not, on full project analysis, deliver the objectives. This is value engineering before the options have been properly explored.

Applying potential affordability as a longlist filter in these circumstances would either be trivially passed by all options because any robust order-of-magnitude range would be too wide to exclude anything or even misleading. The Green Book's own proportionality principle argues against it.

The full set of VfM, affordability, commercial viability and deliverability tests are applied at shortlist stage through the Strategic, Economic, Commercial, Financial and Management Cases respectively. This is the correct point in the Green Book sequence for a programme of this nature: CSFs establish the shortlist; detailed appraisal tests it. The CSFs below are the gateway to that process, not a substitute for it.

Table 1-D - Critical Success Factors

#	Critical Success Factor	What this means in practice
1	Runoff and discharges eliminated	Design and implement feasible solutions to achieve zero identified point-source sewage and highway runoff entry into the lake and its tributaries, with robust monitoring to verify success.
2	Minimal construction impact	Maintain access for businesses and visitors during works. Reduce noise, disruption and visual impact.
3	Maintain water supply	Safeguard both the capacity and quality of drinking water abstraction from the lake throughout delivery and beyond.
4	Stakeholder alignment	Secure and maintain documented support from key stakeholders, incorporating their requirements into design and delivery decisions.
5	Environmental protection and enhancement	Prevent avoidable harm, mitigate unavoidable impacts, and leave biodiversity and habitat in a better state than before.
6	Long-term resilience	Solutions remain effective to 2100 under a range of plausible future scenarios.
7	Early intervention	Deliver at least one interim intervention by 2028 to demonstrate early progress and maintain stakeholder confidence.

1.6 Risks, constraints and dependencies

Key risks, constraints and dependencies considered in the study are presented below. There are further important considerations outlined in the Management Case and risk register, alongside mitigations.

Table 1-E - Key risks

Risk	Description
Community and stakeholder fatigue	The scale and lead time of the programme mean anticipated benefits will take time to materialise. The programme must maintain sustained engagement and demonstrate early tangible progress to retain public and partner support throughout.
Affordability, funding and financing	The capital cost of achieving ORiW across all source categories is likely to be substantial. Securing a credible blended funding strategy possibly spanning public, regulated and private sources will be a critical delivery condition. The Financial Case will develop this in detail.
Consenting and planning	Interventions at the scale contemplated by ORiW will require planning permissions, environmental permits and potentially development consent orders. The UNESCO World Heritage Site designation and protected species present sensitivities with regards to consenting. Consenting routes are discussed further within the Management Case.
Land assembly	Securing land for engineered or nature-based infrastructure may be challenging given ownership patterns, planning restrictions, ground conditions and affordability in a high-value rural landscape.
Population growth	Increased demand from population growth may compete with nature-based approaches. Options must be stress-tested against a range of demographic scenarios.
Climate change	Increased pressure from climate change may compete with nature-based approaches. Options must be stress-tested against a range of climate scenarios.
Regulatory and permitting uncertainty	Transition to a single integrated regulator introduces uncertainty around policy and approvals and compliance timelines. The direction of reform is broadly supportive of ORiW's objectives, but the transition period carries delivery risk.

Table 1-F - Key constraints and dependencies

Factor	Type	Description
Downstream receptor designations	Constraint	The Leven catchment drains to Morecambe Bay (SAC, SPA and Ramsar site). Options that transfer rather than eliminate discharge must account for the consenting and environmental constraints this imposes on downstream disposal routes.
Land availability and suitability	Constraint	Securing land for nature-based or engineered solutions may be challenging due to ownership patterns, planning restrictions, affordability and ground conditions.
Multi-agency coordination	Dependency	Delivery depends on sustained alignment between United Utilities, regulators (in their current and future forms), local authorities, landowners and community stakeholders.
Feasibility study outcomes	Dependency	The feasibility study will surface additional technical requirements, risks and constraints that will shape the Outline Business Case and delivery strategy.

1.7 Stakeholder engagement and communication

1.7.1 Purpose of stakeholder engagement

Stakeholder engagement is an important part of ORiW's next stage of development.

The Strategic Case has established the scale of the challenge, the range of potential interventions and the need for coordinated action across multiple organisations.

Engagement will help test the emerging findings, assumptions and options with those who may influence, scrutinise, help deliver or be affected by the programme. It will also support the evidence and assurance needed for future business case development, including progression through the Strategic Outline Case and Outline Business Case stages.

The purpose of engagement is therefore to strengthen the programme's development, identify risks and constraints early, and ensure that future decisions are informed by the right technical, regulatory, local and delivery perspectives, including the constructive challenge stakeholders can provide.

Stakeholder engagement is important because it helps to:

- test the options, assumptions and evidence base with relevant organisations and communities;
- identify risks, opportunities, constraints and dependencies linked to cost, affordability, deliverability, disruption, environmental credibility, land access, funding and consenting;
- build trust, shared understanding and support for next-stage development;
- avoid surprise among government, regulators, local leaders, community voices and key place-based stakeholders; and
- create a clear feedback trail so stakeholder questions and concerns can inform future materials, risk management and programme development.

Further consultation should be undertaken in line with the Gunning principles of consultation (Local Government Association, 2019) (R v Brent London Borough Council, Ex p Gunning, 1985), including consultation at a formative stage, provision of sufficient information, adequate time for response, and conscientious consideration of feedback.

1.7.2 Engagement undertaken to date

Engagement has already started to shape the programme. This has included discussions with government and a regulatory body through the Steering Group, technical conversations with councils in the Lake District area, and regular engagement with Steering Group members who represent a range of regulatory, local, environmental and community interests.

Regular meetings with nominated Steering Group representatives are also helping to agree the evidence base for engineering design and business case development. Initial technical and economic discussions have taken place with relevant organisations, including the Environment Agency, to test assumptions and identify further evidence needs.

This early engagement provides a foundation for the next stage, but it now needs to be streamlined into a clearer, more targeted programme of engagement linked to feasibility, economics, benefits assessment, consenting, delivery and public communication.

1.7.3 Engagement approach and next steps

Future engagement will be guided by the stakeholder engagement and communications strategy and will be structured, proportionate and carefully sequenced as the programme develops. It will build on engagement undertaken to date, avoid duplication, and focus on the issues needed to support the next stage of the programme.

The approach will recognise that different stakeholders will need to be engaged at different points and in different ways, depending on their role, interest, potential impact, and the level of detail available to support meaningful discussion.

Engagement will be tailored to each stakeholder group rather than adopting a one-size-fits-all approach. This will include audience-specific briefing materials, agreed messages and the identification of the most appropriate ORiW representative to lead discussions. Engagement will focus on the issues most relevant to each stakeholder group, recognising that different audiences will have different interests, responsibilities, concerns and information needs.

It will take place through four broad phases: early engagement, socialisation, publication and launch, and follow-up activity to embed understanding and build support for the next stage. As outlined in Table 1-G, this will include targeted discussions with government, regulators, local authorities, key place-based organisations, embargoed briefings where appropriate, engagement with environmental, community and business groups, wider public communications, media activity, and follow-up meetings.

Initial engagement should focus on testing the evidence, assumptions and issues most relevant to future business case development. Wider engagement will help test the options and underlying assumptions, identify concerns and understand practical issues linked to delivery, funding, affordability, land access, disruption, customer and community impact, environmental credibility and public communication.

Feedback from engagement should be recorded and used to inform future materials, risk and opportunity management and the development of the proposals for the next-stage.

1.7.4 Mapping of key stakeholders

For this programme, stakeholders are organisations, groups or individuals with influence over, interest in, or a potential role in the future development and delivery of ORiW.

The stakeholder groups identified below reflect the programme's scope, including wastewater, private drainage systems, urban surface water runoff, regulation, funding, delivery, local place management, community representation and wider catchment activity. The stakeholder groups below will be engaged in line with the approach set out in Section 1.7.3.

A broad group of stakeholders has therefore been identified for the programme.

Table 1-G - List of key stakeholders by broad group

Stakeholders	Description of their influence/interest
Government	Defra is a key stakeholder because it sets national policy on environmental protection, water quality, storm overflows, water sector reform and catchment-based approaches to improving the water environment. Government departments may also have an interest in the programme because of its potential links to national environmental policy, infrastructure investment, local economic resilience, tourism, affordability and wider public funding considerations. Engagement with government should help build understanding of the evidence, the scale of the challenge, the potential benefits and any policy, funding or public handling sensitivities.
Water and environment regulators	Ofwat, as the economic regulator for the water and wastewater sectors in England and Wales, sets the regulatory framework through which water companies are funded by water customers and incentivised to deliver agreed outcomes and commitments. While government has announced plans to replace Ofwat as part of wider water regulatory reform (Defra, 2025), it remains in place during the transition. Its role in relation to Windermere is therefore focused on the funding, incentives and delivery commitments associated with United Utilities' investment programme, rather than environmental permitting or enforcement. The Environment Agency is the primary environmental regulator for water quality. Its role includes monitoring, permitting, regulation, enforcement and supporting delivery of water quality improvements. The Environment Agency also has a role in flood risk management and regulation. It is also a coalition partner, so its regulatory role and partnership role will need to be managed clearly.

	Natural England advises government and regulates activities relating to England's natural environment. It may have an interest where future options have implications for protected sites, habitats, species or environmental assessment. The Marine Management Organisation may be relevant where future options have implications for marine licensing, the Leven Estuary, Morecambe Bay or other lake-to-sea operational or consenting issues. Historic England may also be relevant where future options have implications for heritage assets or the historic environment. The Forestry Commission is responsible for protecting, expanding and promoting the sustainable management of woodland and would be a statutory consultee where woodland may be impacted by the project.
Local and strategic authorities	Westmorland and Furness Council is the unitary authority responsible for the administration of Windermere and the surrounding area. It has an interest in local leadership, community representation, highways, flood risk, environmental health, transport, local economic resilience, planning matters outside the Lake District National Park, and place-based impacts. The Council is not the primary environmental regulator, but it has an important role in local coordination and public confidence. It is also involved in wider work to understand and improve water quality, including citizen science activity such as the Big Windermere Survey. Cumbria Combined Authority is the strategic authority for Cumbria, working with Cumberland Council and Westmorland and Furness Council on Cumbria-wide priorities. It may have an interest in ORIW where future options relate to transport, infrastructure, investment, local growth, skills, environmental resilience and wider Cumbria-wide strategy.
Other public sector organisations	The Lake District National Park Authority is a public body that conserves and enhances the natural beauty, wildlife and cultural heritage of the Lake District and promotes opportunities for the understanding and enjoyment of the area by the public. It is a key stakeholder because Windermere sits within the Lake District National Park and UNESCO World Heritage Site. The Authority has an important role in planning, landscape, heritage, visitor economy, local place management and wider catchment activity. The Lake District National Park Authority is the local planning authority for the National Park, while Westmorland and Furness Council are the local planning authority for development outside of the National Park boundary. Other public sector organisations may also have an interest where future options interact with highways, land, transport, environmental management, public access or local infrastructure.
Other third sector organisations	Several third-sector organisations, partnerships and catchment groups are active in Windermere. These include Love Windermere, a delivery partnership focused on water quality improvements in the Windermere catchment, alongside organisations such as the Freshwater Biological Association, Save Windermere and South Cumbria Rivers Trust. Their roles vary and include research, monitoring, citizen science, catchment delivery, community engagement, funded improvement activity and advocacy for improved water quality. These organisations may help strengthen the evidence base, identify public concerns, support wider understanding of the issues and provide constructive challenge on the environmental credibility of the programme.
United Utilities	United Utilities is the regulated water company responsible for managing the public water and wastewater infrastructure in the Leven Catchment. It has a critical role in protecting and maintaining Windermere's water quality through its management of wastewater treatment works, storm overflows and the wider public sewerage network. It also supplies water to the region and under suitable flow conditions, United Utilities abstract water from Windermere to provide drinking water to South Cumbria and Lancashire (Harper, 2024). Specific commitments include improvements to treatment processes across the relevant wastewater treatment works and reductions in storm overflow discharges into the lake and its tributaries. United Utilities is also central to future discussions on deliverability, funding, affordability, customer impact and long-term asset management.

Local residents, communities & businesses	Local residents, communities and businesses have a direct interest in Windermere's long-term water quality, environmental condition and reputation. This includes communities around Windermere and those in areas that may be impacted by future options, including Ulverston and Morecambe Bay. They may also be affected by future works, including construction activity, traffic, land access, disruption, visitor confidence and cumulative impacts with other local projects. Local businesses, particularly those in tourism, hospitality, retail, leisure and accommodation, have an interest in maintaining Windermere and the wider area as high-quality visitor destination. Engagement should therefore help understand local concerns, practical constraints and how future disruption could be avoided, reduced or managed. Residents and businesses may also have a role where private wastewater systems, septic tanks, private sewerage arrangements, surface water separation or misconnections are relevant to the programme.
Visitors to the Lake	Visitors have an interest in the quality, safety, appearance and reputation of Windermere as a major visitor destination. Improved water quality in Windermere will elevate the level of pleasure and enjoyment visitors can gain from their stay. And it contributes to eliminating the risk of reputational damage from circumstances such as visitors falling into sickness due to the direct exposure to pollutants. Since tourism is the backbone of the local economy, high water quality and reduced levels of nutrients and pollutions are key factors underpinning positive visitor experience and play an important role in supporting the long-term economic resilience and sustainability.
Households and businesses in the wider North West region that are served by United Utilities	Households and businesses across the wider North West served by United Utilities are also stakeholders because future investment, funding and affordability decisions could have wider customer implications. They may also benefit from the programme, as North West residents make up a significant proportion of visitors to the Lake District and may have an interest in Windermere as a recreational, environmental and visitor destination. Although many customers may not be directly affected by Windermere's local water quality, they may have an interest in the cost, phasing, funding route, potential customer bill implications, customer value and wider regional benefits of any future investment. Customers beyond Cumbria will have an interest in the cost of water supply and any impact options have on Windermere's capacity to supply drinking water to South Cumbria and Lancashire. Engagement materials should therefore be clear about cost, funding, affordability, potential customer bill implications, benefits and uncertainty, and should avoid implying that decisions have already been made, which they have not.
Other stakeholders	Other organisations and individuals may have an interest because of their role in private wastewater systems, septic tanks, private sewerage arrangements, highways runoff, land access, route development, lake use, operational infrastructure or wider catchment activity. This may include private wastewater asset owners, landowners, land managers, highways authorities, marina and boating infrastructure operators, and other infrastructure or operational stakeholders. National Highways will need to be engaged where future options interact with the strategic road network, including the A590, site access, crossings, traffic management, construction movements or disruption to the road network. This should be considered alongside Westmorland and Furness Council's separate role as local highway authority. The ORiW programme focuses on wastewater and urban surface water runoff discharges into Windermere and its tributaries. Other pollution sources, including agricultural runoff, are being considered through separate partnership workstreams. Stakeholders involved in wider catchment activity are therefore important to coordination, even where they sit outside the direct scope of ORiW. Engagement with these stakeholders should help understand responsibilities, practical constraints, future intervention opportunities and issues that could affect the credibility, deliverability or completeness of the programme. It should also be clear about what ORiW does and does not cover, while recognising the importance of wider action to improve and maintain Windermere's long-term water quality.

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