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NW Drought Plan 2027 Water Framework Directive (WFD) Report - Kielder Transfer Drought Action

July 2026

DOCUMENT CONTROL SHEET

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1 INTRODUCTION

1.1 Background and Purpose of this Report

Under the Water Industry Act 1991, Northumbrian Water Group (NWG) are required to prepare and update a Drought Plan for each of our supply regions. This document focuses on the Northumbrian Water (NW) supply area. Our Drought Plan must be approved by the Secretary of State for Environment, Food and Rural Affairs and made available for public consultation.

Our Drought Plan will provide a comprehensive statement of the actions we will consider implementing during drought conditions to safeguard essential water supplies and minimise environmental impact within our supply area. The plan will align with our Water Resources Management Plan (WRMP), which sets out the strategic approach to maintaining a supply-demand balance over a 25-year planning period.

We must ensure that our Drought Plan meets the requirements of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (WFD Regulations) before implementation.

This Water Framework Directive (WFD) Report presents a Stage 2 WFD Compliance Assessment prepared in support of the development of our Drought Plan. This report is the second output of the WFD process. This document summarises the Kielder Transfer drought action, including the site context, and the findings of the Stage 1 WFD Strategic Compliance Assessment[1] which was undertaken in 2025. This report also outlines the approach and methodology adopted and evaluates the potential impacts of the drought action on water bodies within a defined Study Area, in accordance with the requirements of the WFD Regulations.

1.2 The WFD Context

The WFD Regulations 2017, establish a statutory framework for the protection and enhancement of water bodies, including rivers, lakes, estuaries, coastal waters, and groundwater.

Under this legislation, drought actions must be assessed for their potential impact on the ecological and chemical status of relevant water bodies, as defined within River Basin Management Plans (RBMPs). These plans set out environmental objectives and measures to achieve “Good” status, and any proposed development must demonstrate compliance with these objectives, avoiding deterioration and supporting improvement where feasible. Key considerations include surface water runoff, pollution risk, and habitat disruption.

[1] Northumbrian Water. 2026. NW Drought Plan 2027 Strategic Water Framework Directive (WFD) Report. [Unpublished]

1.3 The NW Plan Context

We supply water to approximately 2.7 million customers in the North East of England which extends from the Scottish border in the north to the Yorkshire border in the south and to as far west as the Cumbrian border. The major population centres of Tyneside, Wearside and Teesside are located within NW's supply in this area.

In accordance with our WRMP24[2], the supply area comprises two Water Resource Zones (WRZs) known as the Kielder WRZ and the Berwick & Fowberry WRZ (see Figure 1.1 below). Berwick & Fowberry WRZ is in the far north of the supply area and serves approximately 1% of customers whilst the Kielder WRZ serves the remaining 99% of customers. For more information on the WRZs see NW's Drought Plan Strategic Environmental Assessment Report (2026)[3].

This WFD Assessment focuses on the Kielder Transfer drought action, which relates to the Kielder WRZ. Although the drought action is aimed at supporting water supplies across the wider NW supply area - covering approximately 99% of customers - the action itself involves increasing transfers from Kielder Reservoir within existing licensed limits to support downstream abstractions on the River Wear and River Tees. These transfers form part of the established operational system that regulates flows in the North Tyne, Tyne (to Riding Mill), Wear and Tees, and are undertaken through the existing Kielder Transfer Scheme.

[2] Northumbrian Water (2024). *Water Resources Management Plan 2025–2030 (WRMP24)*. Available at: https://www.nwg.co.uk/responsibility/environment/wrmp/wrmp-2025-2030/ [Accessed Jul 2025].
[3] Northumbrian Water (NW) (2026) NW Drought Plan 2027 Strategic Environmental Assessment (SEA): Environmental Report

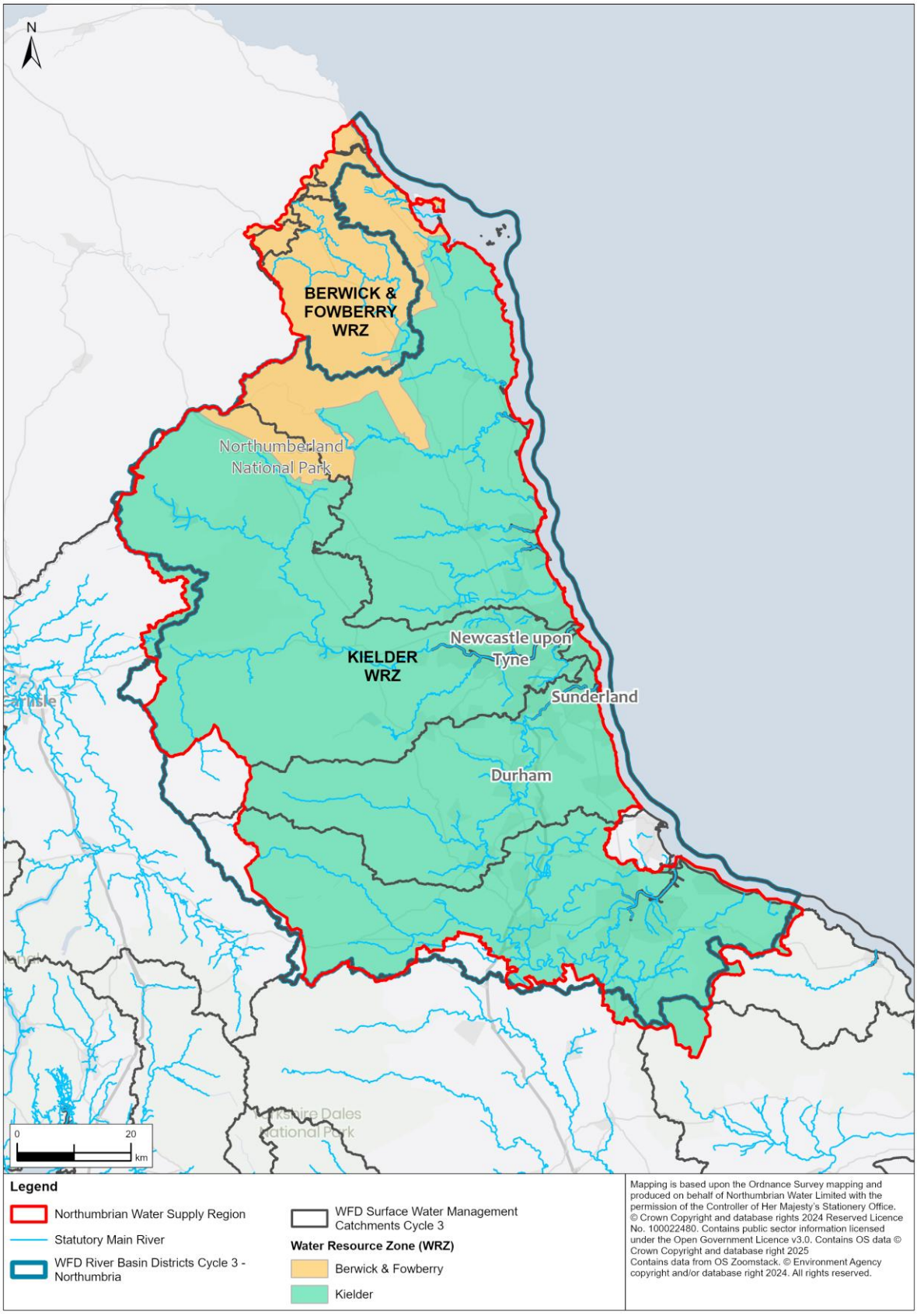

Figure 1.1 Map showing Northumbrian Water's supply area [3]

1.4 The WFD Legislation Requirements

The WFD Regulations were transposed from the Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000), which was established to provide a framework for managing, protecting and improving the water environment.

The WFD Regulations require all water bodies to achieve both Good Ecological Status (GES) and Good Chemical Status (GCS), and Heavily Modified Water Bodies (HMWBs) or Artificial Water Bodies (AWBs) to achieve Good Ecological Potential (GEP) and GCS, in accordance with the environmental objectives set out under the WFD.

Drought Plans are a statutory requirement meaning there is a legal obligation binding water companies to the requirements of the WFD Regulations. Water companies are required to demonstrate that their plan supports the environmental objectives contained within RBMPs, including preventing deterioration, achieving protected area objectives and achieving water body status objectives.

1.5 WFD Objectives

The main objectives of the WFD Regulations are to:

- Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters;
- Aim to achieve at least ‘Good Status’ for all waters by 2027;
- Promote sustainable use of water;
- Conserve habitats and species that depend directly on water;
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and,
- Help reduce the effects of floods and droughts.

2 KIELDER TRANSFER DROUGHT ACTION

2.1 Kielder WRZ

The Kielder WRZ is the largest supply zone within the NW supply area, covering approximately 99% of customers across the region. The WRZ extends from the Scottish border in the north, across Northumberland and Tyneside, to County Durham and the Tees Valley in the south. It includes major population centres such as Newcastle upon Tyne, Sunderland, Durham and Teesside.

The Kielder WRZ is supported by an extensive integrated resource system centred on Kielder Reservoir, one of the key strategic water sources in the region. The Kielder Transfer Scheme was developed to provide strategic water resource resilience across North –East of England and has been operational since the 1980s. It comprises Kielder Reservoir, the Tyne-Tees Transfer (TTT), and associated pumping assets to enable redistribution of water to the Tyne, Wear and Tees catchments.

Within the Drought Plan framework, the Kielder Transfer system plays a central role in maintaining supply resilience during dry weather by enabling controlled redistribution of water between catchments while remaining within existing abstraction licenses.

2.2 Site Context and Features

Kielder Water Water Body (Kielder Reservoir) (GB30327698) is a large impounding reservoir located in Northumberland and is designated as a HMWB under the WFD. It is classified as Moderate ecological status, with an objective to reach Good by 2027. Water released from Kielder Reservoir flows south east along the River North Tyne and then along the River Tyne to Riding Mill pumping station where it can be transferred into the TTT (maximum pumping capacity 270 megalitres per day (Ml/d)). The Riding Mill pumping station is located within the Tyne from Watersmeet to Tidal Limit Water Body (GB103023075801). Water in the TTT can either be released at Frosterley Outlet into the River Wear, or further south at Eggleston into the River Tees.
Seventeen WFD water bodies are considered within the assessment (see Section 3.2). These include:

- Kielder Water Water Body;
- River North Tyne and downstream River Tyne water bodies;
- River Wear water bodies receiving augmented flows;
- River Tees water bodies;
- Tyne Carboniferous Limestone Groundwater Body; and,
- Downstream surface water bodies hydrologically connected to the transfer regime.

The Kielder Transfer system forms part of NW's long-standing operational network used to balance supply and environmental requirements during varying hydrological conditions.

Table 2.1 NW public water supply abstraction licence details

Licence No.	Source Name	Annual Licence (Ml/yr)	Daily Licence (Ml/d)	Licence Conditions
1/23/3/145	Riding Mill (River Tyne)	227304.0	909.2	
1/23/1/002	Ovingham (River Tyne)	54750.0	180.0	Downstream MMF 227.273 Ml/d
1/24/5/034	Lumley (River Wear)	16593.2	45.5	Downstream MMF 224 Ml/d
1/25/2/103	Broken Scar (River Tees)	107675.0	295.0	Combined max with Blackwell is 320 Ml/d
1/25/2/109	Blackwell (River Tees)	58075.2	159.1	Combined max with Broken Scar is 320 Ml/d, downstream MMF 127.288 Ml/d
1/25/4/136	Low Worsall (River Tees)	11000.0	150.0	Downstream MRF 44 Ml/d

2.3 Description of Drought Action

The Kielder Transfer drought action proposes the use of the Kielder Transfer to support the Rivers Tyne, Wear and Tees during a drought within currently licensed limits. This action involves:

- Increased transfers through the TTT.
- Remaining fully within the existing abstraction and operational licences.
- Augmented input of freshwater through TTT into River Wear and Tees to support abstraction for drinking water and environmental flows on the Wear and Tees during drought conditions.

The increased transfers are intended to maintain water availability across the Kielder WRZ and uphold minimum flow requirements in affected catchments during dry periods. As a supply-side drought action, the action supports resilience of the wider regional water system and helps manage periods of low natural river flow.

3 WFD APPROACH AND METHODOLOGY

3.1 Methodology

The methodology for the WFD Compliance Assessment comprises the following:

Screening - A preliminary WFD assessment was completed at Stage 1, and all relevant information has been carried forward into this report. Any further screening of additional water bodies is due to information that has subsequently become available from the Environmental Assessment Report (EAR)[4].

Scoping – Builds on the findings from the screening and applies specific risks to the identified activities. This step also details which WFD elements are at risk. The WFD quality elements are generally categorised into the following sub-sections:

1. Biological Elements - phytoplankton, phytobenthos, macrophytes, benthic invertebrates, and fish
2. Hydromorphological Elements - connection to groundwater, quantity and dynamics of flow, river depth and width variation, structure and substrate of the riverbed, structure of the riparian zone
3. Physico-Chemical Elements - temperature, pH, dissolved oxygen, nutrients, salinity, acidification status and nutrient conditions
4. Chemical Elements - priority hazardous substances, priority substances, other pollutants.

This determines which WFD quality elements are being taken forward into the Impact Assessment.

Impact Assessment - The impact assessment draws on the findings from both previous steps to provide a detailed analysis of specific risks to WFD quality elements arising from the proposed activities. This includes making informed judgments based on the duration, magnitude, and overall significance of impact that the activity could cause. Following the identification and explanation of these risks, appropriate mitigation measures are outlined to avoid or minimise any adverse effects on the relevant WFD quality elements.

When proposals affect waterbodies designated as HMWBs or AWBs, the assessment considers their consistency with the relevant Programme of Measures (PoMS) set out in the RBMP. This includes consideration of mitigation measures identified to support the achievement of GEP. More generally, the proposed drought action is assessed against the environmental objectives and PoMs applicable to all affected water bodies to determine whether it could hinder the delivery of planned measures or give rise to significant effects requiring additional mitigation. Assessment of the proposals against water body status objectives ensures compliance with the WFD, including the achievement of GES or GEP, as appropriate.

3.2 Study Area

For the purposes of this WFD Assessment, the Study Area encompasses:

[4] Northumbrian Water (NW) (2026) Kielder Transfer Environmental Assessment Report (EAR) (incl. monitoring plan & mitigation measures) [Unpublished]. Available on request

- Kielder Water Water Body, which is the source water body associated with the proposed drought action and the point at which regulated releases are initiated.

The following water bodies, which represent the primary surface water receptors potentially affected by changes in flow regime associated with increased transfers from Kielder Reservoir:

- N Tyne from Lewis Burn to Tarset Burn River Water Body
- N Tyne from Tarset Burn to River Rede Water Body
- N Tyne from Rede to Gunnerton Burn Water Body
- N Tyne from Barrasford to South Tyne confluence Water Body
- Tyne from Watersmeet to Tidal Limit Water Body
- Wear from Middlehope Burn to Houselop Beck Water Body
- Wear from Houselop Beck to Beechburn Beck Water Body
- Wear from Beechburn Beck to Gaunless Water Body
- Wear from Gaunless to Browney Water Body
- Wear from Croxdale Beck to Lumley Park Burn Water Body
- Wear downstream of Lumley Park Burn to Tidal Limit Water Body
- Tees from Maize Beck to Percy Beck Water Body
- Tees from Percy Beck to River Greta Water Body
- Tees from River Greta to River Skerne Water Body
- Tees from Skerne to Tidal Limit Water Body
- Tyne Carboniferous Limestone Groundwater Body.

A 2 km buffer around these water bodies to capture any designated sites which may be impacted by the drought action as they may be hydrologically or ecologically connected.

It should be noted that designated sites are identified as Protected Areas under the Water Framework Directive and must be considered in the assessment of WFD objectives. These include:

- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)
- Ramsar sites
- Sites of Special Scientific Interest (SSSI)
- Shellfish waters
- Bathing waters
- Nutrient Sensitive Areas (NSA)
- Nitrate Vulnerable Zones (NVZ)
- Drinking Water Protected Areas.

3.3 Data Sources

The following data sources have been used to support this WFD Compliance Assessment:

- Catchment Data Explorer[5]
- MAGIC multi-agency mapping[6]
- Water Resources Planning Guideline[7]
- Environmental Assessment Guidance for WRMPs and Drought Plans (2021)[8]
- A practical guide to the Strategic Environmental Assessment Directive[9]
- Water Company Drought Plan Guideline[10]
- Water Resources Planning Guideline supplementary guidance [11]
- Environmental Assessment for Water Company Drought Planning: Guidance[12]

[5] https://environment.data.gov.uk/catchment-planning
[6] https://magic.defra.gov.uk/MagicMap.html
[7] Environment Agency (EA), Natural Resources Wales and The Water Services Regulation Authority (2023). *Water resources planning guideline*. Available at: https://www.gov.uk/government/publications/water-resources-planning-guideline [Accessed March 2026].
[8] UKWIR (2021). Environmental Assessment Guidance for Water Resources Management Plans and Drought Plans. *London: UK Water Industry Research.* Available at: https://ukwir.org/environmental-assessments-for-water-resources-planning [Accessed March 2026].
[9] Office of the Deputy Prime Minister, Scottish Executive, Welsh Assembly Government, and Department of the Environment (Northern Ireland) (2005). *A practical guide to the Strategic Environmental Assessment Directive*. London: Office of the Deputy Prime Minister. Available at: https://assets.publishing.service.gov.uk/media/5a78ec0740f0b62b22cbddd2/practicalguidesea.pdf [Accessed March 2026].
[10] Environment Agency and Department for Environment, Food and Rural Affairs (2025). *Water company drought plan guidance, 2025. Available at: https://www.gov.uk/government/publications/water-company-drought-plan-guideline-2025 [Accessed March 2026]*
[11] Environment Agency (2023). *Water resources planning guideline supplementary guidance – actions required to prevent deterioration.* Available at: https://www.gov.uk/government/publications/review-of-englands-emerging-regional-water-resources-plans/review-of-englands-emerging-regional-water-resources-plans [Accessed March 2026].
[12] Environment Agency (2025). Environmental assessment for water company drought planning: Guidance. Version 1.0. LIT 75033. Published 21 March 2025. Environment Agency, in collaboration with Defra and Natural England.

4 SUMMARY OF STAGE 1 WFD REPORT

4.1 Methodology

The Stage 1 WFD Report provides a preliminary WFD assessment undertaken as an initial step to identify the relevant drought actions and associated water bodies that could potentially be affected. As a high-level assessment, it was completed at a lower level of detail than this subsequent WFD Compliance Assessment and was used to screen out drought actions that were not considered to require further assessment. The assessment applied a screening and scoring methodology to distinguish between water bodies requiring detailed evaluation and those where impacts were beneficial, absent or limited to minor, localised, and short-term effects (Score 1 or better). Only water bodies identified as having the potential for 'Medium' (Score 2) to 'High Impact' (Score 3) were taken forward to this WFD Compliance Assessment.

4.2 Assessment Findings

This drought action was given a score of 'Medium' impact and therefore was progressed to a WFD Compliance Assessment due to the potential for cumulative impacts on biological, hydromorphological conditions, and physico-chemical parameters in the receiving water bodies (North Tyne, Tyne (to Riding Mill), Wear and Tees).

While transfers within licensed limits are likely to pose negligible risk, the frequency and scale of transfers during drought conditions could influence biology, flow regimes, sediment transport, and water quality, warranting a more detailed evaluation under WFD objectives to determine both compliance and potential benefits under WFD.

5 SCREENING OF WATER BODIES

This section identifies and provides baseline information on all relevant water bodies within the Study Area. These are:

Surface Water (River / Reservoir):

- Kielder Water Water Body
- N Tyne from Lewis Burn to Tarset Burn River Water Body
- N Tyne from Tarset Burn to River Rede Water Body
- N Tyne from Rede to Gunnerton Burn Water Body
- N Tyne from Barrasford to South Tyne confluence Water Body
- Tyne from Watersmeet to Tidal Limit Water Body
- Wear from Middlehope Burn to Houselop Beck Water Body
- Wear from Houselop Beck to Beechburn Beck Water Body
- Wear from Beechburn Beck to Gaunless Water Body
- Wear from Gaunless to Browney Water Body
- Wear from Croxdale Beck to Lumley Park Burn Water Body
- Wear downstream of Lumley Park Burn to Tidal Limit Water Body
- Tees from Maize Beck to Percy Beck Water Body
- Tees from Percy Beck to River Greta Water Body
- Tees from River Greta to River Skerne Water Body
- Tees from Skerne to Tidal Limit Water Body.

Groundwater:

- Tyne Carboniferous Limestone Groundwater Body.

These water bodies have been evaluated against the Kielder Transfer drought action and have been screened in or out of further assessment depending on the potential impacts.

5.1 Kielder Water Water Body

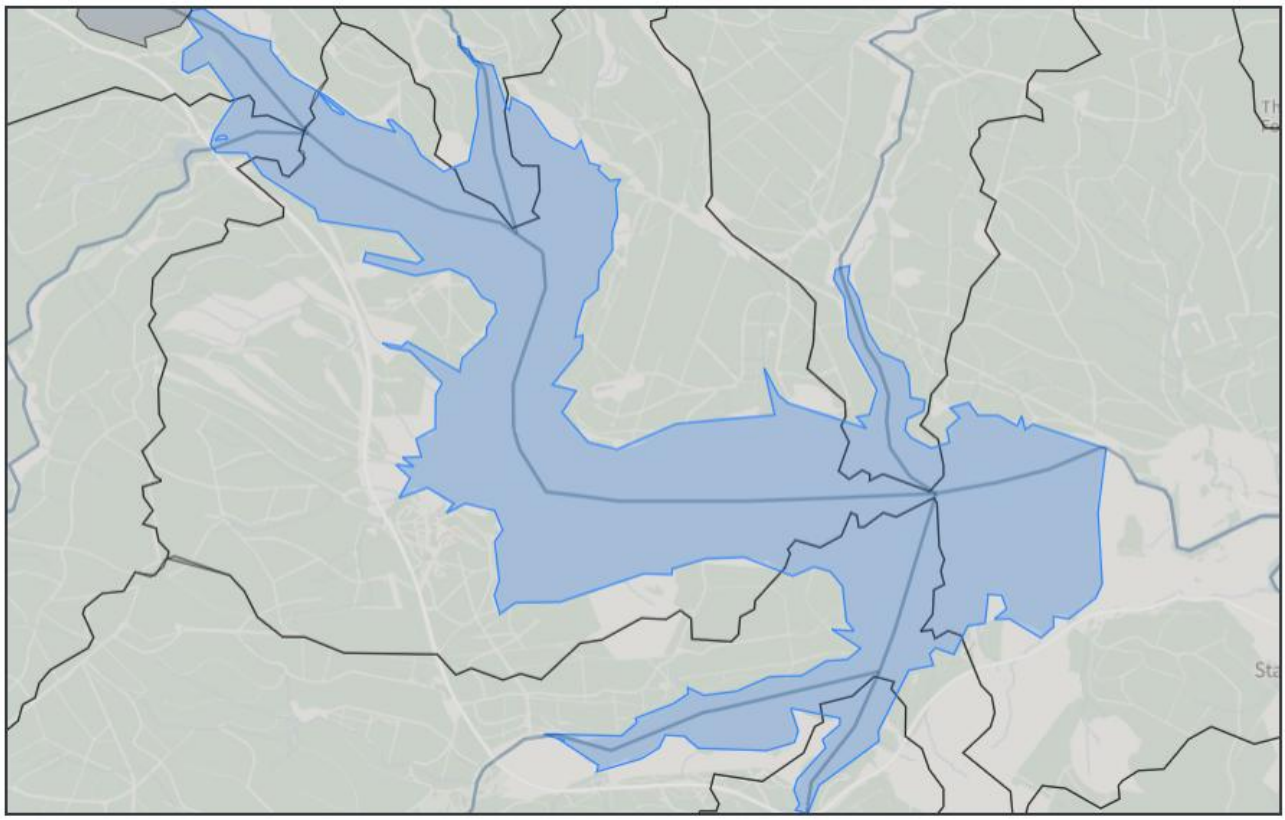

Figure 5.1 A map showing Kielder Water WFD Water Body (Source: Environment Agency Catchment Data Explorer) [13]

[13] https://environment.data.gov.uk/catchment-planning/WaterBody/GB30327698?cycle=1

The baseline data for the Kielder Water Water body are shown in Table 5.1.

Table 5.1 Water body data for the Kielder Water WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Water body ID	GB30327698
Water body name	Kielder Water Water Body
NGR	NY6747887778
Catchment area (ha)	24241.5
Mean depth (m)	18.3
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good (2027)
Reasons for not achieving good status:	▪ Physical modification - Drinking water supply ▪ Physical modification - Water regulation ▪ Unknown (pending investigation) measures delivered to address reason, awaiting recovery - Mercury and Its Compounds ▪ Unknown (pending investigation) measures delivered to address reason, awaiting recovery - Polybrominated diphenyl ethers (PBDE)
Protected area designation and list of protected areas	Kielder Water – Drinking Water Protected Area
Supporting elements (Surface Water)	Moderate
Chemical Status	Fail (2019) - Does not require assessment

Kielder Water (Reservoir) Water Body has been screened out and has not been taken forward for detailed assessment as the drought action operates within the existing licence and established release regime. In line with the WFD 'no deterioration' principle, no new impact pathway has been identified at this location and assessment has been focused on downstream receptors where redistribution of flows may give rise to measurable change.

5.2 N Tyne from Lewis Burn to Tarset Burn Water Body

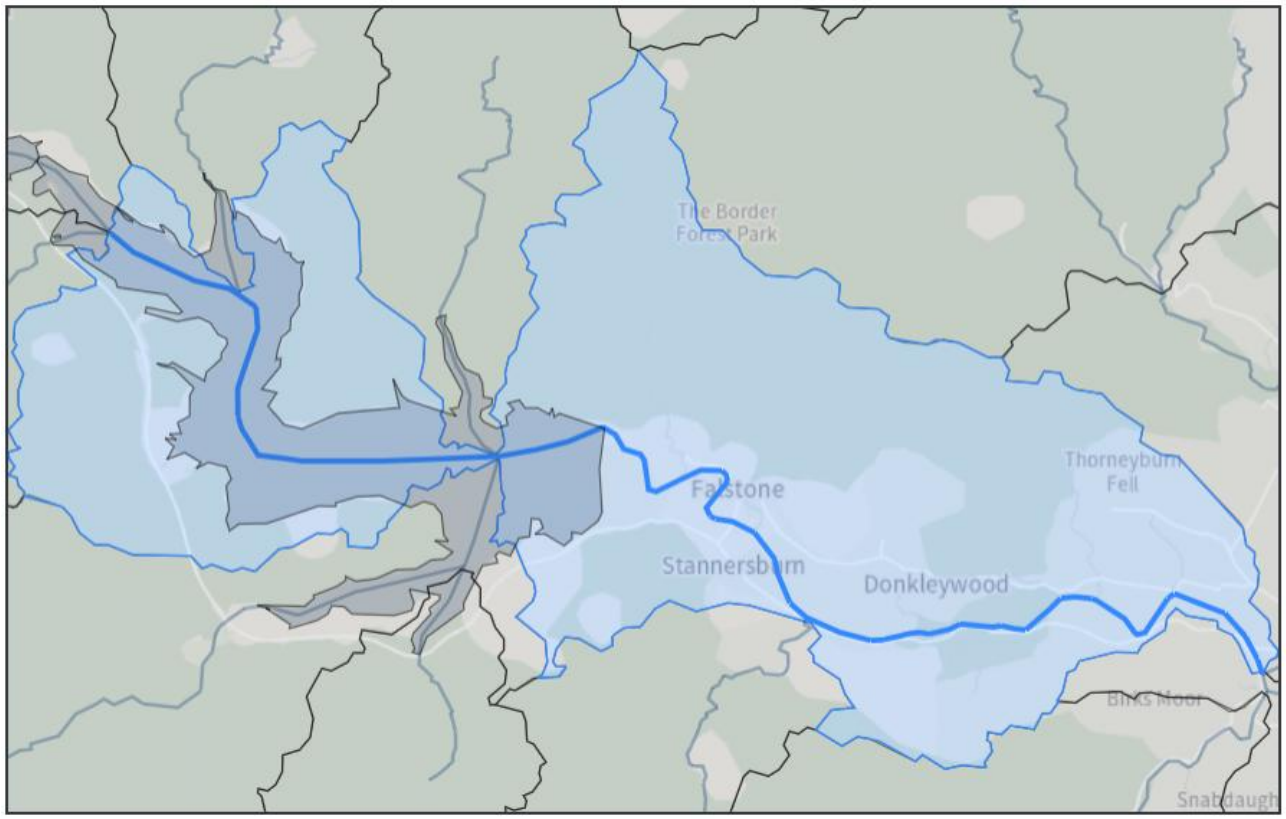

Figure 5.2 A map showing the N Tyne from Lewis Burn to Tarset Burn WFD Water Body (Source: Environment Agency Catchment Data Explorer) [14]

The baseline data for the N Tyne from Lewis Burn to Tarset Burn Water Body are shown in Table 5.2.

Table 5.2 Water body data for the N Tyne from Lewis Burn to Tarset Burn WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103023075070
Waterbody name	N Tyne from Lewis Burn to Tarset Burn Water Body
NGR	NY7177087660
Catchment area (ha)	5172.66
Length (km)	18.363
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Unknown (pending investigation) - Perfluorooctane sulphonate (PFOS) ▪ Measures delivered to address reason, awaiting recovery - PBDE

[14] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103023075070

	▪ Measures delivered to address reason, awaiting recovery - Mercury and Its Compounds ▪ Physical modification - Mitigation Measures Assessment (Water regulation (i. ii.)) ▪ Physical modification - Mitigation Measures Assessment (Power generation)
Protected area designation and list of protected areas	Border Mires, Kielder-Butterburn SAC
Biological quality elements	Good
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Moderate
Chemical Status	Fail (2019) - Does not require assessment

N Tyne from Lewis Burn to Tarset Burn Water Body has been screened out. This water body acts as a downstream receptor of regulated releases from Kielder Reservoir. The EAR[4] indicates that additional water required to support the drought action is often already incorporated within the existing hydropower and compensation flow regime. As a result, the incremental change in flow is limited. Modelled results show that increases in flow associated with the drought action are limited in magnitude, with modelled increases generally less than 10%. In accordance with the EAR hydrological assessment methodology, this is considered a low magnitude change and therefore not significant. No significant impact to flow regime, water quality, or geomorphological conditions is identified in this reach, beyond the existing regulated operation of Kielder Reservoir. On this basis, the water body has been screened out.

5.3 N Tyne from Tarset Burn to River Rede Water Body

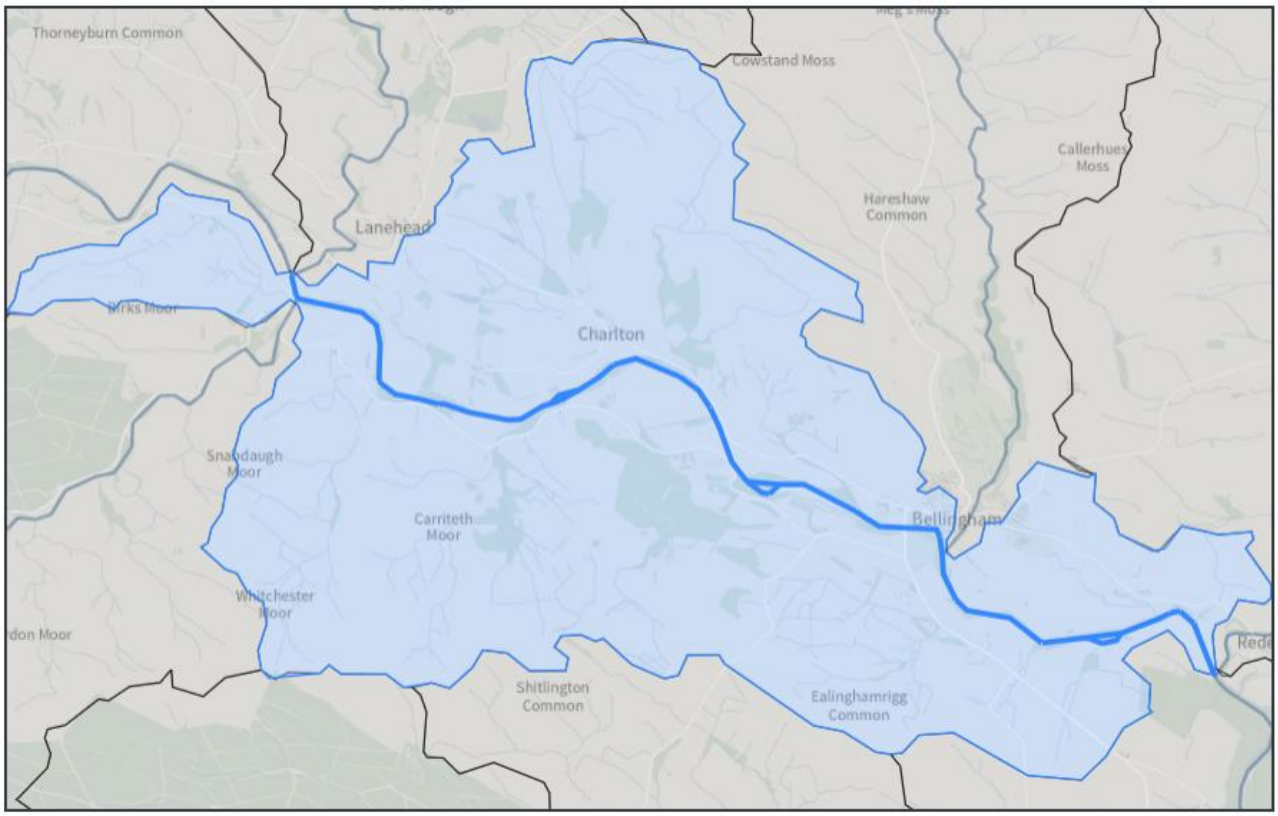

Figure 5.3 A map showing the N Tyne from Tarset Burn to River Rede WFD Water Body (Source: Environment Agency Catchment Data Explorer) [15]

The baseline data for the N Tyne from Tarset Burn to River Rede Water Body are shown in Table 5.3.

Table 5.3 Water body data for the N Tyne from Tarset Burn to River Rede WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103023074960
Waterbody name	N Tyne from Tarset Burn to River Rede Water Body
NGR	NY8059984312
Catchment area (ha)	2808.65
Length (km)	11.145
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds ▪ Physical modification - Water regulation (i. ii.) - Water Industry - Mitigation Measures Assessment

[15] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103023074960

	▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - PFOS ▪ measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE
Protected area designation and list of protected areas	No data to show
Biological quality elements	High
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Moderate
Chemical Status	Fail (2019) - Does not require assessment

N Tyne from Tarset Burn to River Rede Water Body has been screened out. This water body acts as a downstream receptor of regulated releases from Kielder Reservoir. The EAR[4] indicates that additional water required to support the drought action is often already incorporated within the existing hydropower and compensation flow regime. As a result, the incremental change in flow is limited. Modelled results show that increases in flow associated with the drought action are limited in magnitude, with modelled increases generally less than 10%. In accordance with the EAR hydrological assessment methodology, this is considered a low magnitude change and therefore not significant. No significant impact to flow regime, water quality, or geomorphological conditions is identified in this reach, beyond the existing regulated operation of Kielder Reservoir. On this basis, the water body has been screened out.

5.4 N Tyne from Rede to Gunnerton Burn Water Body

Figure 5.4 A map showing the N Tyne from Rede to Gunnerton Burn WFD Water Body (Source: Environment Agency Catchment Data Explorer) [16]

The baseline data for the N Tyne from Rede to Gunnerton Burn Water Body are shown in Table 5.4.

Table 5.4 Water body data for the N Tyne from Rede to Gunnerton Burn WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103023074920
Waterbody name	N Tyne from Rede to Gunnerton Burn Water Body
NGR	NY8800875344
Catchment area (ha)	4537.67
Length (km)	13.778
Hydromorphological designation	Not designated artificial or heavily modified
Current Ecological Status	Good
Ecological Status Objective	Good 2015
Reasons for not achieving good status:	▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - PFOS ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE

[16] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103023074920

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds
Protected area designation and list of protected areas	No data to show
Biological quality elements	High
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Not assessed
Hydromorphological Supporting Elements	Not high
Chemical Status	Fail (2019) - Does not require assessment

N Tyne from Rede to Gunnerton Burn Water Body has been screened out. This water body acts as a downstream receptor of regulated releases from Kielder Reservoir. The EAR[4] identifies that the additional water required to support the drought action is often already incorporated within the existing hydropower and compensation flow regime. As a result, the incremental change in flow is limited. Modelled results show that increases in flow associated with the drought action are limited in magnitude, with modelled increases generally less than 10%. In accordance with the EAR hydrological assessment methodology, this is considered a low magnitude change and therefore not significant. No significant impact to flow regime, water quality, or geomorphological conditions is identified in this reach, beyond the existing regulated operation of Kielder Reservoir. On this basis, the water body has been screened out.

5.5 N Tyne from Barrasford to South Tyne confluence Water Body

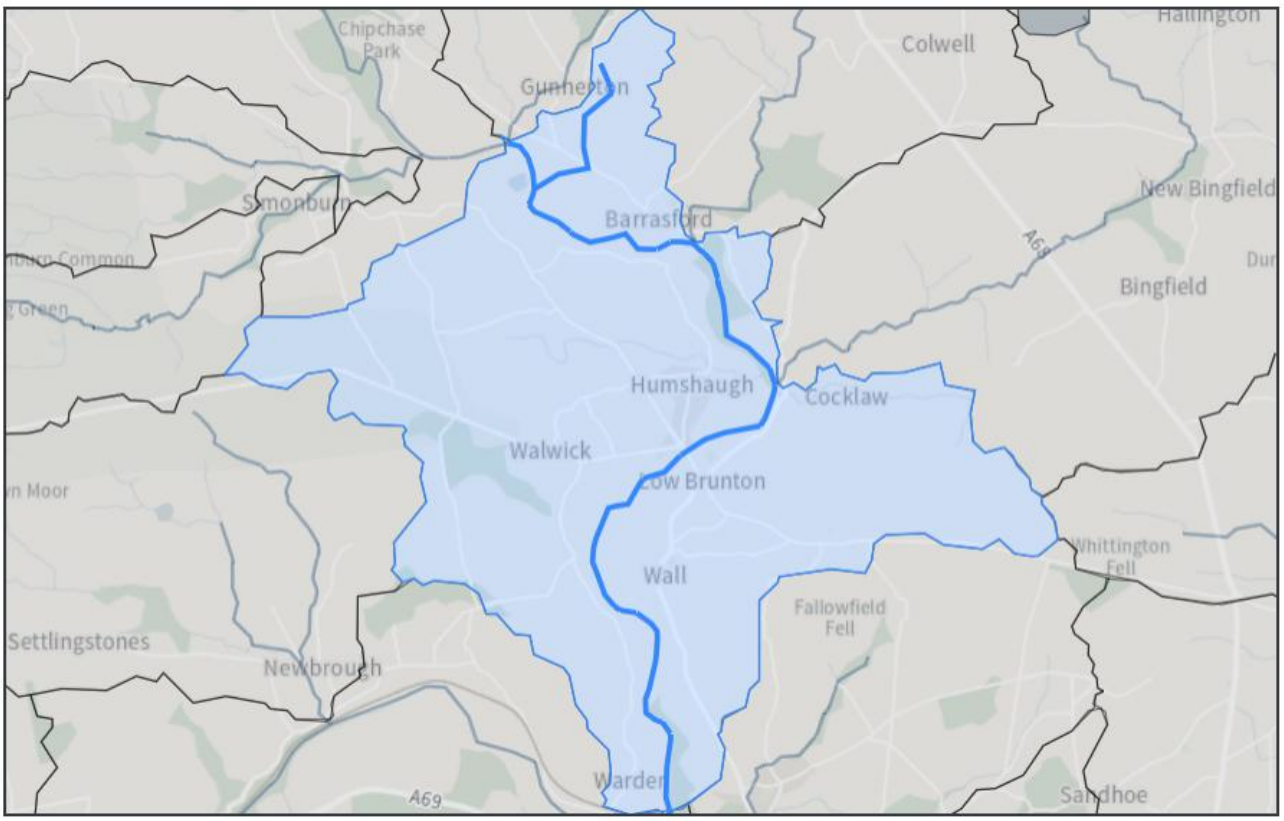

Figure 5.5 A map showing the N Tyne from Barrasford to South Tyne confluence WFD Water Body (Source: Environment Agency Catchment Data Explorer) [17]

The baseline data for the N Tyne from Barrasford to South Tyne confluence Water Body are shown in Table 5.5.

Table 5.5 Water body data for the N Tyne from Barrasford to South Tyne confluence WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103023075802
Waterbody name	N Tyne from Barrasford to South Tyne confluence Water Body
NGR	NY9216270649
Catchment area (ha)	3859.06
Length (km)	15.091
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - PFOS

[17] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103023075802

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds ▪ Physical modification - Water regulation (i. ii.) - Water Industry - Mitigation Measures Assessment
Protected area designation and list of protected areas	N Tyne from Barrasford to South Tyne confluence Drinking Water Protected Area
Biological quality elements	High
Physico-chemical quality elements	Good
Supporting elements (Surface Water)	Moderate
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

N Tyne from Barrasford to South Tyne confluence Water Body has been screened out. This water body acts as a downstream receptor of regulated releases from Kielder Reservoir. The EAR[4] indicates that additional water required to support the drought action is often already incorporated within the existing hydropower and compensation flow releases from Kielder Reservoir. As a result, the incremental change in flow is limited in magnitude and is considered to be of low magnitude and therefore not significant. No significant impact to flow regime, water quality, or geomorphological conditions is identified in this reach, beyond the existing regulated operation of Kielder Reservoir. On this basis, the water body has been screened out.

5.6 Tyne from Watersmeet to Tidal Limit Water Body

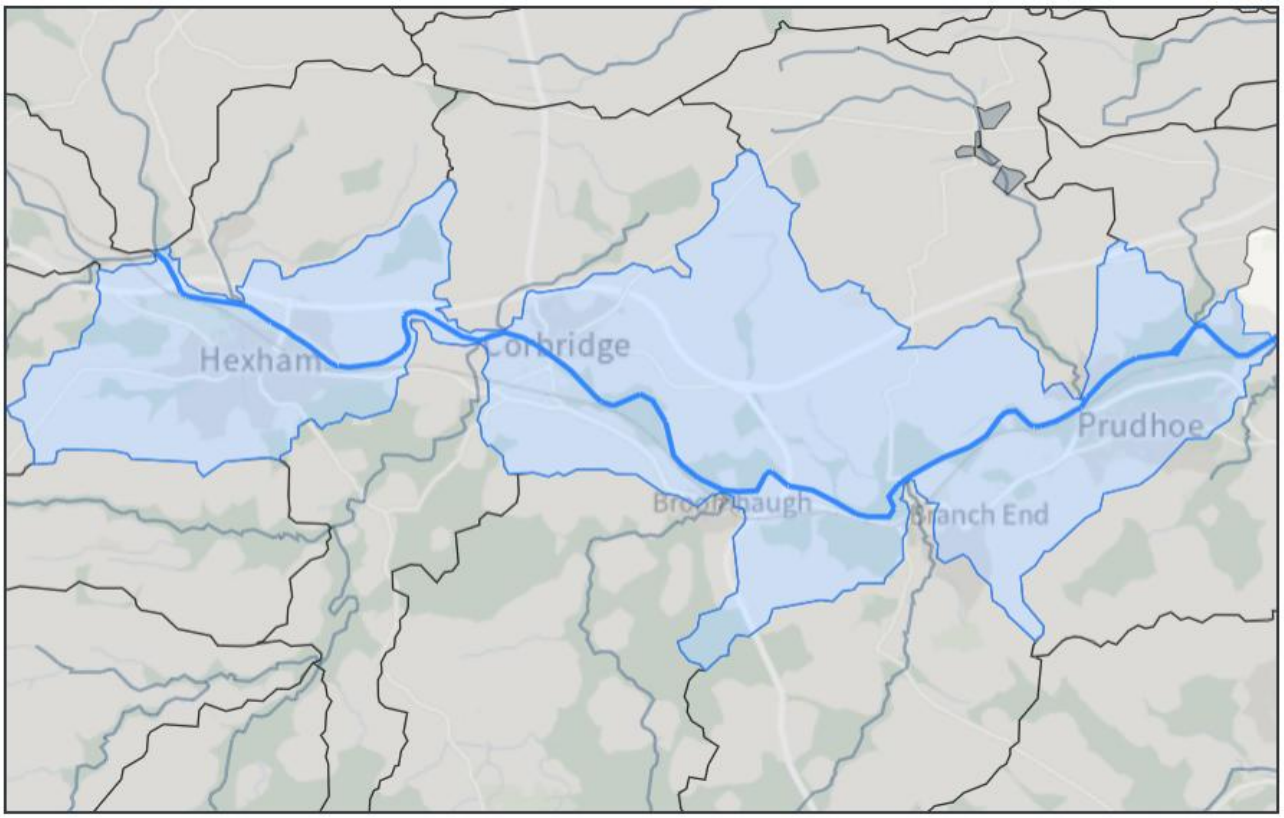

Figure 5.6 A map showing the Tyne from Watersmeet to Tidal Limit WFD Water Body (Source: Environment Agency Catchment Data Explorer)[18]

The baseline data for the Tyne from Watersmeet to Tidal Limit Water Body are shown in Table 5.6.

Table 5.6 Water body data for the Tyne from Watersmeet to Tidal Limit WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103023075801
Waterbody name	Tyne from Watersmeet to Tidal Limit Water Body
NGR	NZ1012664309
Catchment area (ha)	8058.24
Length (km)	26.866
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Physical modification - Flood protection - Local and Central Government - Mitigation Measures Assessment ▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - PFOS

[18] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103023075801

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds
Protected area designation and list of protected areas	Whittle Dene Safeguard Zone Tyne from Watersmeet to Tidal Limit Drinking Water Protected Area
Biological quality elements	Moderate
Physico-chemical quality elements	Good
Supporting elements (Surface Water)	Moderate
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Tyne from Watersmeet to Tidal Limit Water Body has been screened in for further assessment. The Riding Mill Pumping Station is located within this water body, which is the point of abstraction for the TTT. As described in the EAR[4], this water body spans two assessed sections. In Section A (upstream of Riding Mill), flows are dominated by regulated releases from Kielder Reservoir and the additional water required to support the drought action is often already incorporated within existing hydropower and compensation releases, resulting in a negligible impact. In Section B (downstream of Riding Mill), reduced flows may occur due to abstraction; however, the EAR[4] concludes that the change attributable to the drought action represents only a very small proportion of natural variability under drought conditions and is not considered a measurable or meaningful change in flow regime, and no deterioration in WFD hydrological supporting elements is anticipated. Notwithstanding this, a direct impact pathway is present at the abstraction point. On this basis, this water body has been taken forward to the impact assessment to provide a precautionary, location-specific confirmation of compliance with WFD objectives at the point of abstraction.

5.7 Wear from Middlehope Burn to Houselop Beck Water Body

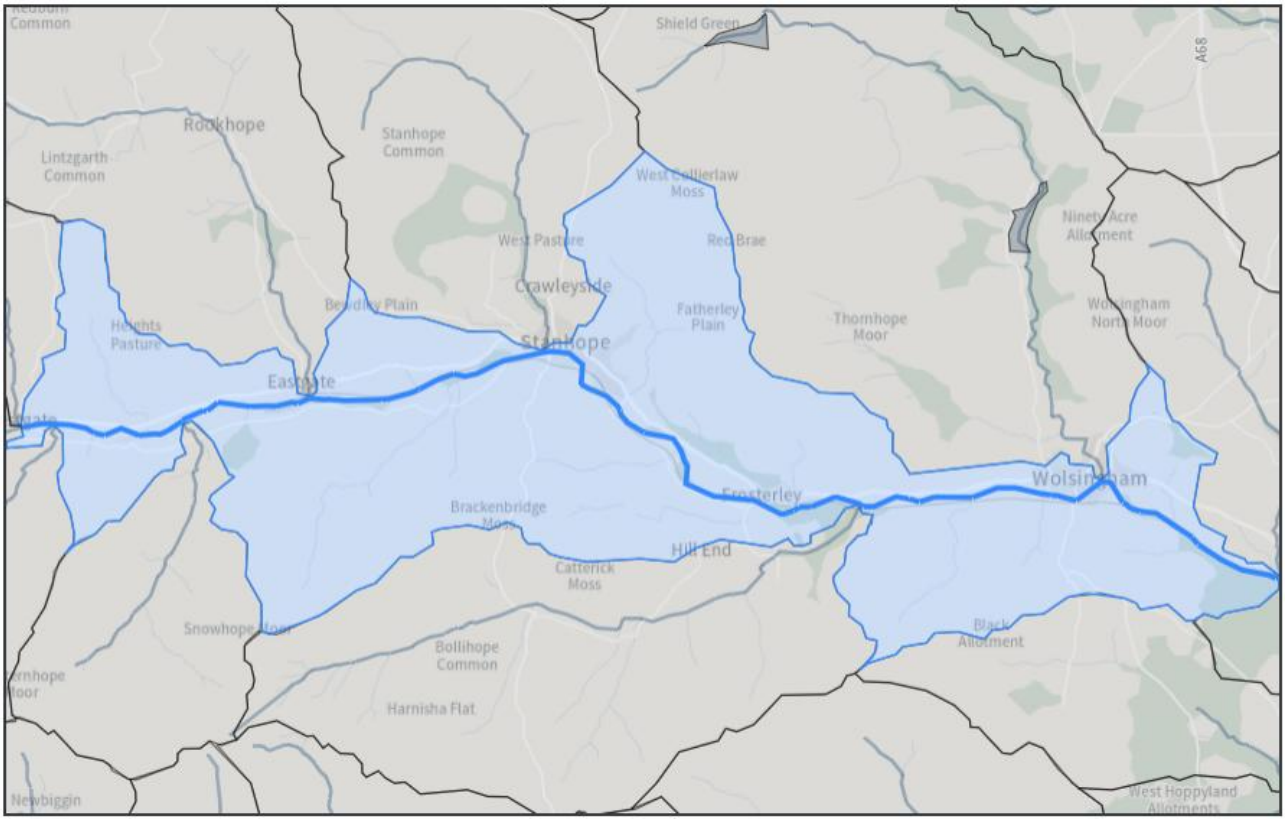

Figure 5.7 A map showing the Wear from Middlehope Burn to Houselop Beck WFD Water Body (Source: Environment Agency Catchment Data Explorer)[19]

The baseline data for the Wear from Middlehope Burn to Houselop Beck Water Body are shown in Table 5.7.

Table 5.7 Water body data for the Wear from Middlehope Burn to Houselop Beck WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103024077461
Waterbody name	Wear from Middlehope Burn to Houselop Beck Water Body
NGR	NZ0089937846
Catchment area (ha)	6411.85
Length (km)	22.975
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Point source - Abandoned mine - Mining and quarrying - Zinc

[19] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103024077461

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds ▪ Physical modification - Water regulation (i. ii.) - Water Industry - Mitigation Measures Assessment
Protected area designation and list of protected areas	North Pennine Moors SPA North Pennine Moors SAC
Biological quality elements	High
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Moderate
Specific pollutants	Moderate
Chemical Status	Fail (2019) - Does not require assessment

Wear from Middlehope Burn to Houselop Beck Water Body has been screened in for further assessment as it is the receiving water body for flows released at the Frosterley Outlet (TTT), with the discharge location situated within this reach of River Wear. As described in the EAR[4], this reach is directly influenced by regulated releases associated with the drought action. While modelling indicates that changes in flow and water quality are small in magnitude and classified as having a negligible impact, a direct impact pathway is present. On this basis, this water body is taken forward to the impact assessment to confirm compliance with WFD objectives.

5.8 Wear from Houselop Beck to Beechburn Beck Water Body

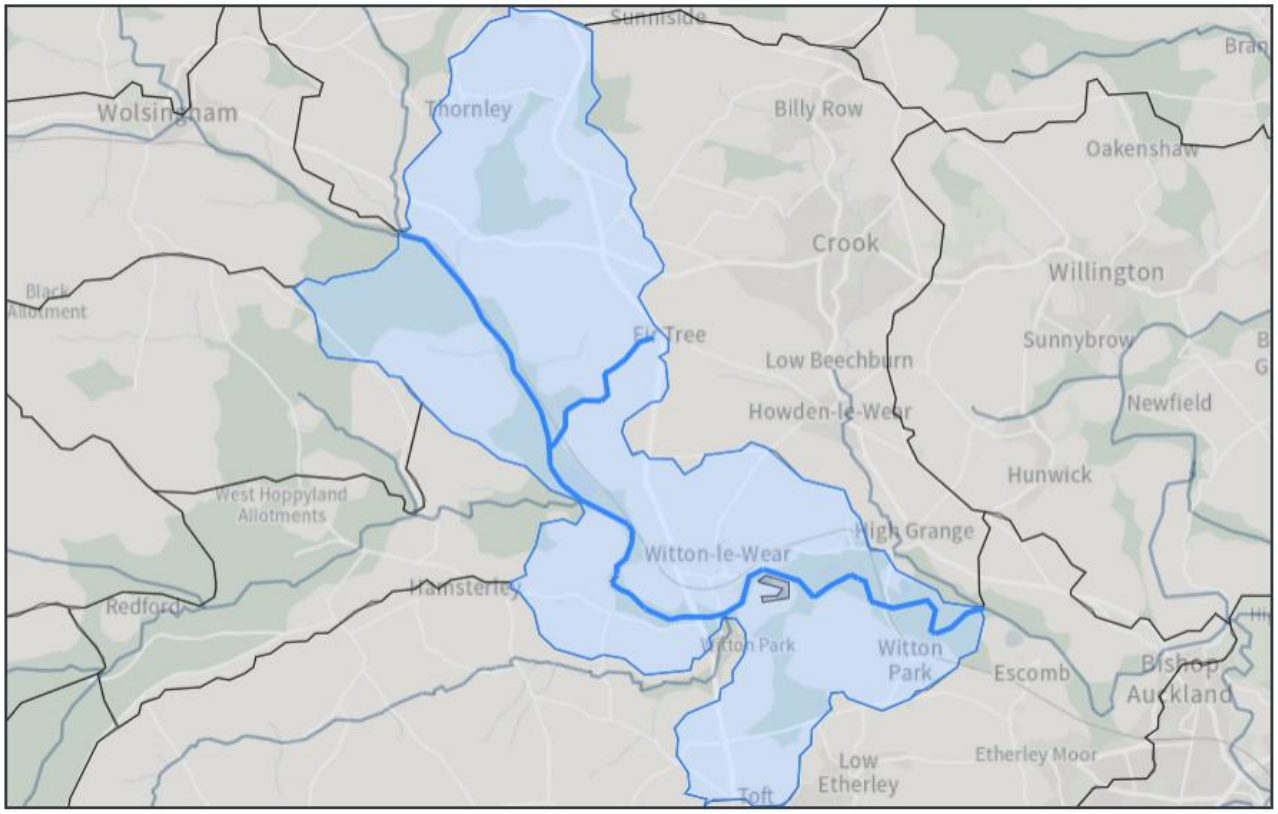

Figure 5.8 A map showing the Wear from Houselop Beck to Beechburn Beck WFD Water Body (Source: Environment Agency Catchment Data Explorer)[20]

The baseline data for the Wear from Houselop Beck to Beechburn Beck Water Body are shown in Table 5.8.

Table 5.8 Water body data for the Wear from Houselop Beck to Beechburn Beck WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103024077462
Waterbody name	Wear from Houselop Beck to Beechburn Beck Water Body
NGR	NZ1512430970
Catchment area (ha)	3207.86
Length (km)	14.818
Hydromorphological designation	Not designated artificial or heavily modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds

[20] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103024077462

	▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - Macrophytes and Phytobenthos Combined
Protected area designation and list of protected areas	River Wear Urban Waste Water Treatment Directive
Biological quality elements	Moderate
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Not assessed
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Wear from Houselop Beck to Beechburn Beck Water Body has been screened out. This water body is located downstream of the Frosterley Outlet. As described in the EAR[4], this reach is influenced by increased flows associated with releases at the Frosterley Outlet to support the Minimum Maintained Flow (MMF) downstream of Lumley WTW. However, modelling indicates that changes in flow and water quality are limited in magnitude and are classified as having a negligible impact, with no significant effects on WFD status elements identified. On this basis, the water body has been screened out.

5.9 Wear from Beechburn Beck to Gaunless Water Body

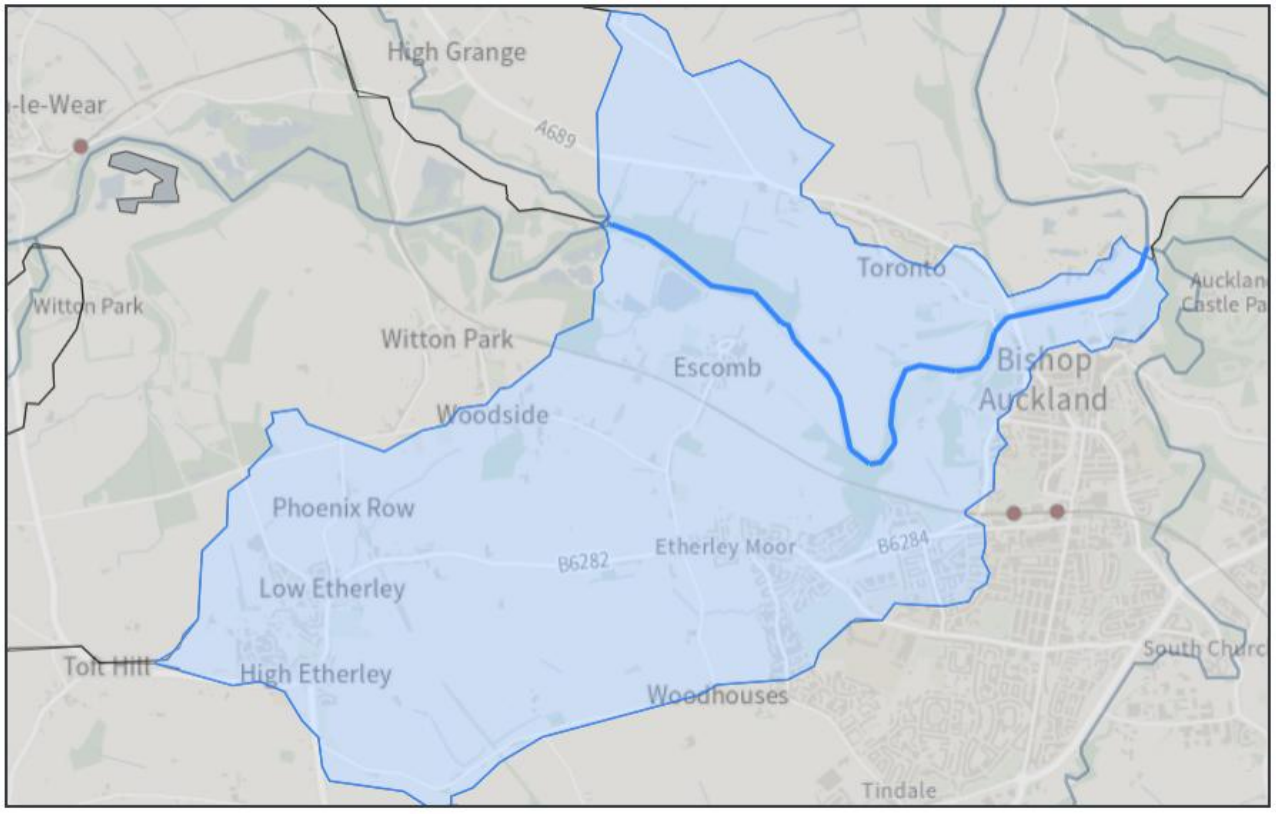

Figure 5.9 A map showing the Wear from Beechburn Beck to Gaunless WFD Water Body (Source: Environment Agency Catchment Data Explorer) [21]

The baseline data for the Wear from Beechburn Beck to Gaunless Water Body are shown in Table 5.9.

Table 5.9 Water body data for the Wear from Beechburn Beck to Gaunless WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103024077463
Waterbody name	Wear from Beechburn Beck to Gaunless Water Body
NGR	NZ1987429480
Catchment area (ha)	1188.78
Length (km)	4.705
Hydromorphological designation	Not designated artificial or heavily modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - Macrophytes and Phytobenthos Combined

[21] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103024077463

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds
Protected area designation and list of protected areas	River Wear Urban Waste Water Treatment Directive
Biological quality elements	Moderate
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Not assessed
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Wear from Beechburn Beck to Gaunless Water Body has been screened out. This water body is located downstream of the Frosterley Outlet. As described in the EAR[4], this reach is influenced by increased flows associated with releases at the Frosterley Outlet to support the MMF downstream of Lumley WTW. However, modelling indicates that changes in flow and water quality are limited in magnitude and are classified as having a negligible impact, with no significant effects on WFD status elements identified.

5.10 Wear from Gaunless to Browney Water Body

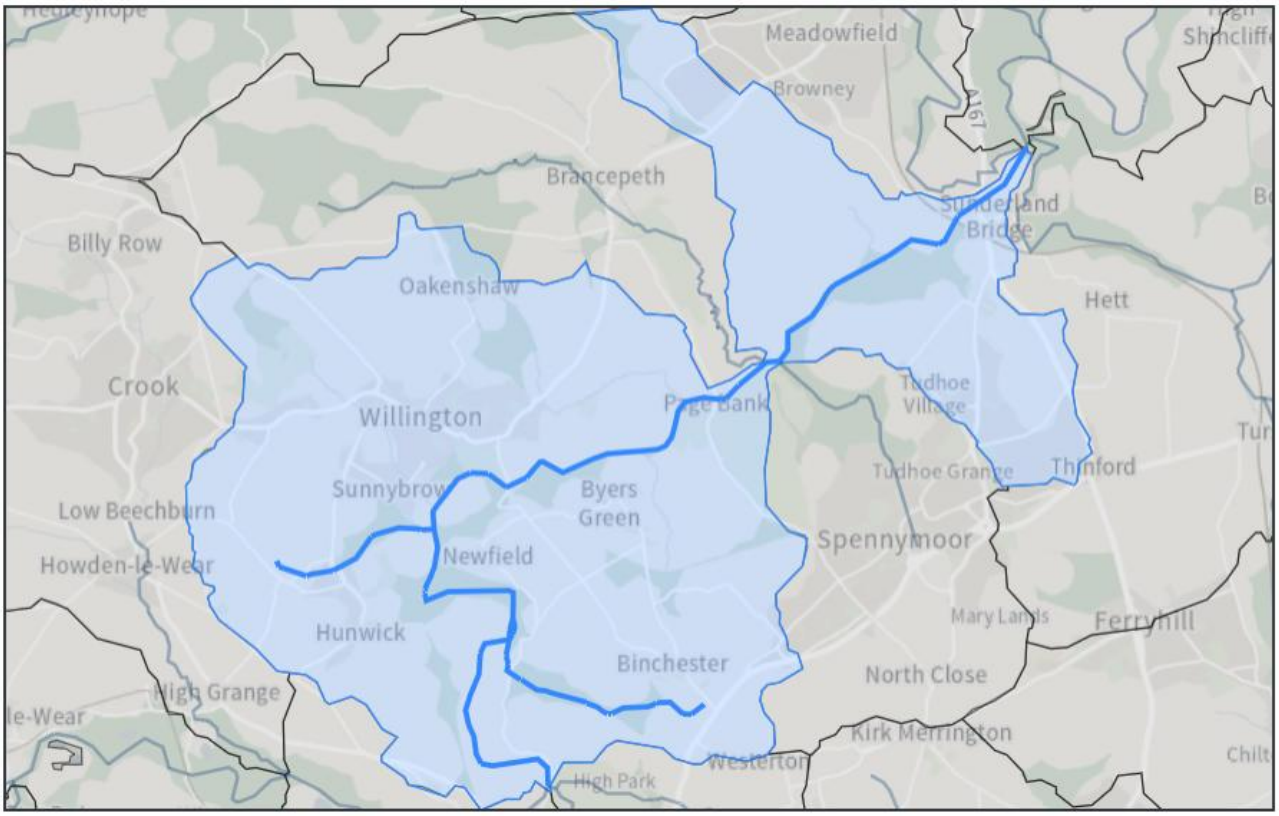

Figure 5.10 A map showing the Wear from Gaunless to Browney WFD Water Body (Source: Environment Agency Catchment Data Explorer)[22]

The baseline data for the Wear from Gaunless to Browney Water Body are shown in Table 5.10.

Table 5.10 Water body data for the Wear from Gaunless to Browney WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103024077464
Waterbody name	Wear from Gaunless to Browney Water Body
NGR	NZ2372035617
Catchment area (ha)	5104.44
Length (km)	21.742
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds

[22] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103024077464

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Physical modification – Urbanisation - Urban and transport - Mitigation Measures Assessment ▪ Physical modification - Flood protection - Local and Central Government - Mitigation Measures Assessment
Protected area designation and list of protected areas	River Wear Urban Waste Water Treatment Directive
Biological quality elements	Good
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Moderate
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Wear from Gaunless to Browney Water Body has been screened out. This water body is located downstream of the Frosterley Outlet. As described in the EAR[4], this reach is influenced by increased flows associated with releases at the Frosterley Outlet to support the MMF downstream of Lumley WTW. However, modelling indicates that changes in flow and water quality are limited in magnitude and are classified as having a negligible impact, with no significant effects on WFD status elements identified.

5.11 Wear from Croxdale Beck to Lumley Park Burn Water Body

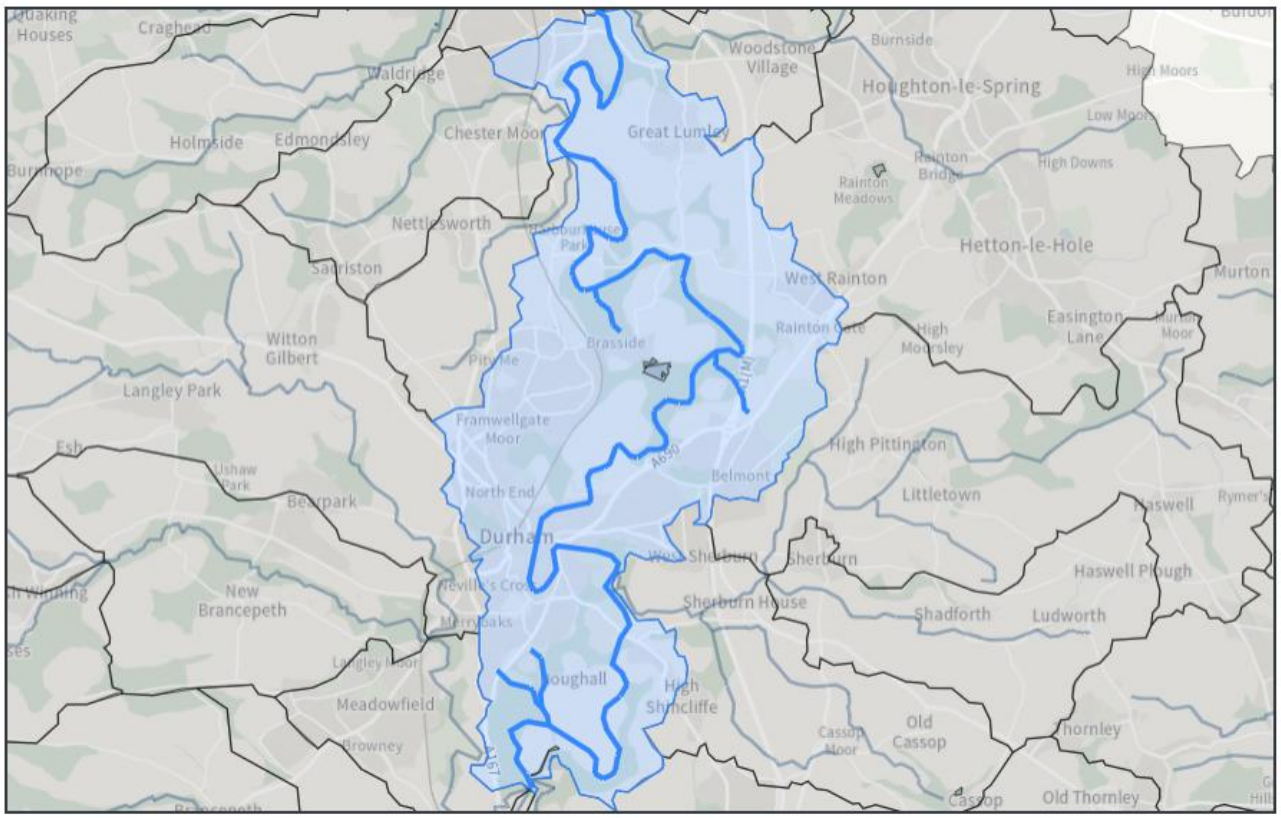

Figure 5.11 A map showing the Wear from Croxdale Beck to Lumley Park Burn WFD Water Body (Source: Environment Agency Catchment Data Explorer) [23]

The baseline data for the Wear from Croxdale Beck to Lumley Park Burn Water Body are shown in Table 5.11.

Table 5.11 Water body data for the Wear from Croxdale Beck to Lumley Park Burn WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103024077621
Waterbody name	Wear from Croxdale Beck to Lumley Park Burn Water Body
NGR	NZ2963546848
Catchment area (ha)	4650.97
Length (km)	34.064
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Physical modification - Flood protection - Local and Central Government - Mitigation Measures Assessment ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE

[23] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103024077621

	▪ Physical modification - Recreation - Recreation - Mitigation Measures Assessment ▪ Point source - Sewage discharge (intermittent) - Water Industry - Phosphate ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds ▪ Diffuse source - Poor Livestock Management - Agriculture and rural land management - Phosphate ▪ Diffuse source - Poor soil management - Agriculture and rural land management - Phosphate ▪ Point source - Misconnections - Water Industry - Phosphate ▪ Point source - Sewage discharge (continuous) - Water Industry - Phosphate
Protected area designation and list of protected areas	River Wear Urban Waste Water Treatment Directive Croxdale Beck from Source to Wear NVZ Nitrates Directive Wear from Croxdale Beck to Lumley Park Burn Drinking Water Protected Area
Biological quality elements	Good
Physico-chemical quality elements	Moderate
Supporting elements (Surface Water)	Moderate
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Wear from Croxdale Beck to Lumley Park Burn Water Body has been screened out. This water body is located downstream of the Frosterley Outlet. As described in the EAR[4], this reach is influenced by increased flows associated with releases at the Frosterley Outlet to support the MMF downstream of Lumley WTW. However, modelling indicates that changes in flow and water quality are limited in magnitude and are classified as having a negligible impact, with no significant effects on WFD status elements identified.

5.12 Wear downstream of Lumley Park Burn to Tidal Limit Water Body

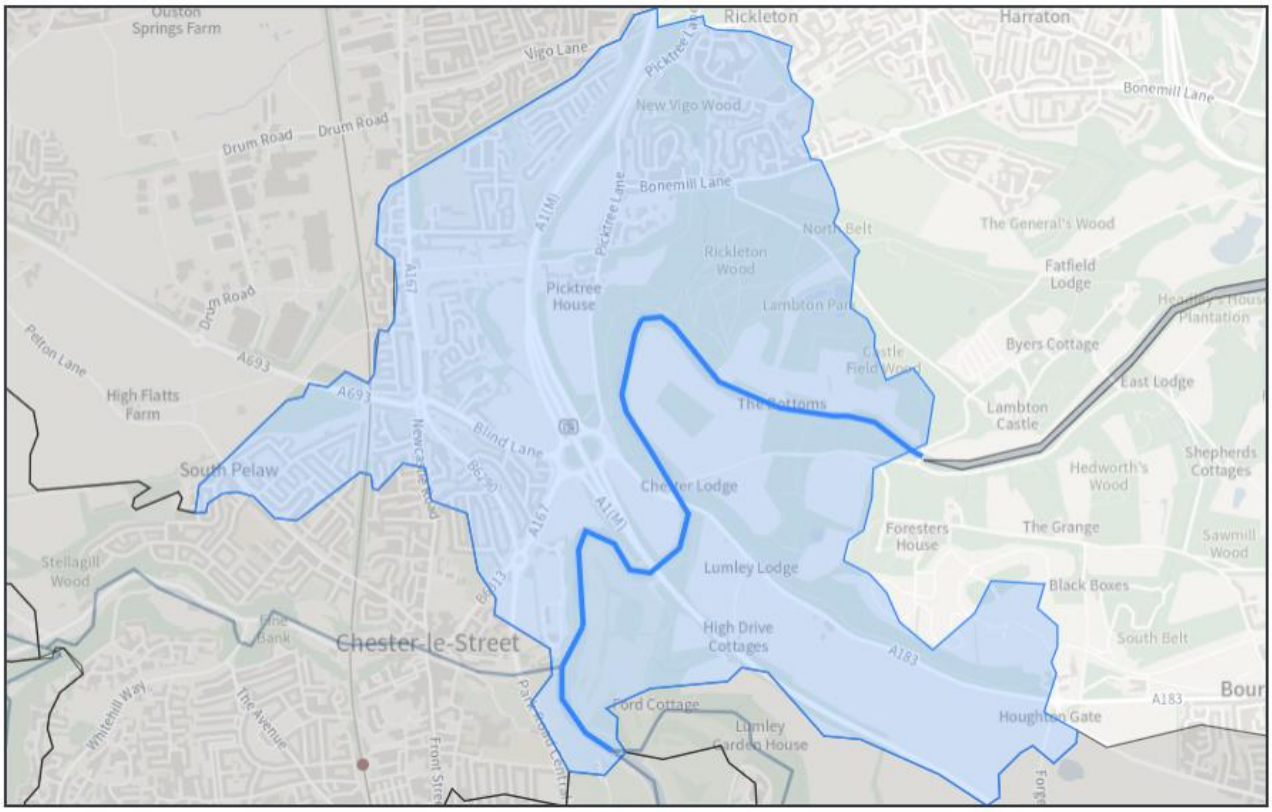

Figure 5.12 A map showing the Wear downstream of Lumley Park Burn to Tidal Limit WFD Water Body (Source: Environment Agency Catchment Data Explorer) [24]

The baseline data for the Wear downstream of Lumley Park Burn to Tidal Limit Water Body are shown in Table 5.12.

Table 5.12 Water body data for the Wear downstream of Lumley Park Burn to Tidal Limit WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103024077624
Waterbody name	Wear DS of Lumley Park Burn to Tidal Limit Water Body
NGR	NZ2834652434
Catchment area (ha)	533.02
Length (km)	3.893
Hydromorphological designation	Not designated artificial or heavily modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Point source - Sewage discharge (continuous) - Water Industry - Phosphate ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds

[24] https://environment.data.gov.uk/catchment-planning/WaterBody/GB103024077624

	▪ Suspect data - Not applicable - No sector responsible - Invertebrates ▪ Point source - Sewage discharge (intermittent) - Water Industry - Macrophytes and Phytobenthos Combined ▪ Point source - Sewage discharge (continuous) - Water Industry - Macrophytes and Phytobenthos Combined ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Point source – Misconnections - Water Industry - Phosphate ▪ Point source - Sewage discharge (intermittent) - Water Industry - Phosphate
Protected area designation and list of protected areas	River Wear Urban Waste Water Treatment Directive Cong Burn from Twizell Burn to Wear NVZ Nitrates Directive
Biological quality elements	Moderate
Physico-chemical quality elements	Moderate
Supporting elements (Surface Water)	Not assessed
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Wear downstream of Lumley Park Burn to Tidal Limit Water Body has been screened out. This water body is located downstream of the Frosterley Outlet. As described in the EAR[4], this reach is influenced by increased flows associated with releases at the Frosterley Outlet to support the MMF downstream of Lumley WTW. However, modelling indicates that changes in flow and water quality are limited in magnitude and are classified as having a negligible impact, with no significant effects on WFD status elements identified.

5.13 Tees from Maize Beck to Percy Beck Water Body

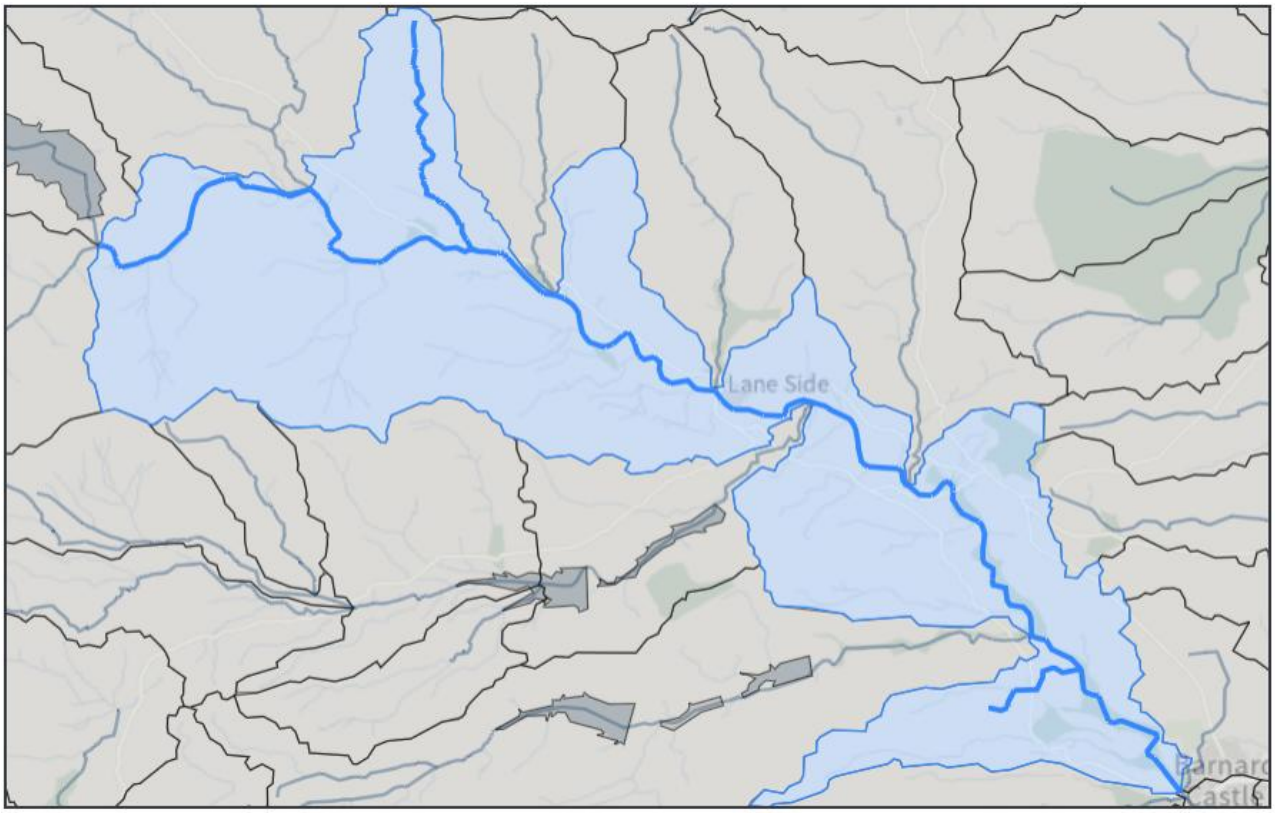

Figure 5.13 A map showing the Tees from Maize Beck to Percy Beck WFD Water Body (Source: Environment Agency Catchment Data Explorer) [25]

The baseline data for the Tees from Maize Beck to Percy Beck Water Body are shown in Table 5.13.

Table 5.13 Water body data for the Tees from Maize Beck to Percy Beck WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103025072511
Waterbody name	Tees from Maize Beck to Percy Beck Water Body
NGR	NY9688924999
Catchment area (ha)	11917.73
Length (km)	44.115
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Physical modification -Other (not in list, must add details in comments) - Water Industry - Mitigation Measures Assessment

[25] https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB103025072511

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds
Protected area designation and list of protected areas	North Pennine Moors SPA North Pennine Moors SAC Moor House-Upper Teesdale SAC
Biological quality elements	Good
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Moderate
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Tees from Maize Beck to Percy Beck Water Body has been screened out on the basis that hydrological and operational assessments presented in the EAR[4] demonstrate that the TTT is not required to support flows to the River Tees under current demand conditions. No transfers to the Tees via the Eggleston Outlet are expected to occur during the drought action, and therefore no impact pathway has been identified. Consequently, this water body was not subject to further assessment within the EAR, including water quality analysis, and is not considered to be affected by the proposed drought action. These releases would be made in drought conditions if needed to support the MMF downstream of NW's Blackwell abstraction.

5.14 Tees from Percy Beck to River Greta Water Body

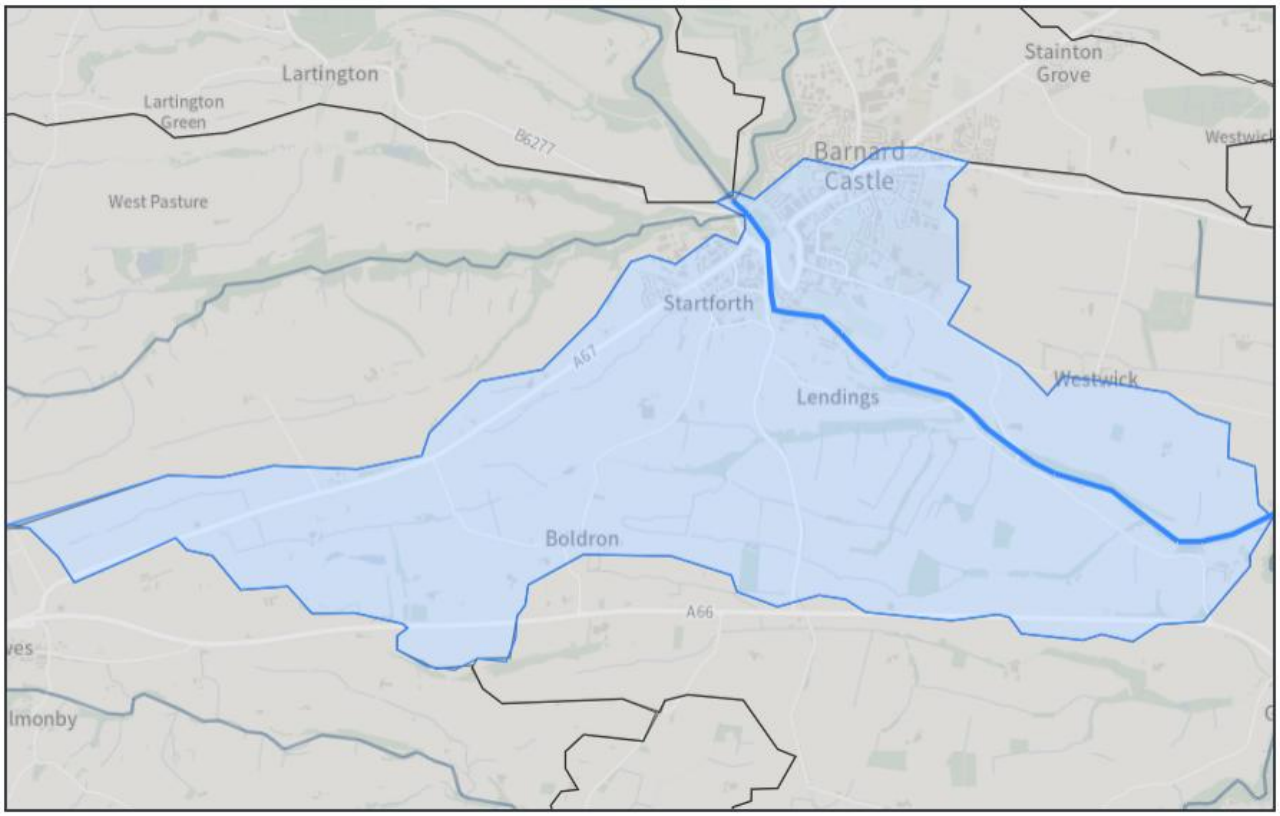

Figure 5.14 A map showing the Tees from Percy Beck to River Greta WFD Water Body (Source: Environment Agency Catchment Data Explorer) [26]

The baseline data for the Tees from Percy Beck to River Greta Water Body are shown in Table 5.14.

Table 5.14 Water body data for the Tees from Percy Beck to River Greta WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103025072512
Waterbody name	Tees from Percy Beck to River Greta Water Body
NGR	NZ0627315246
Catchment area (ha)	1535.61
Length (km)	5.147
Hydromorphological designation	Heavily Modified
Current Ecological Status	Good
Ecological Status Objective	Good 2021
Reasons for not achieving good status:	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE

[26] https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB103025072512

	▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds
Protected area designation and list of protected areas	No data to show
Biological quality elements	Good
Physico-chemical quality elements	High
Supporting elements (Surface Water)	Good
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

The Tees from Percy Beck to River Greta Water Body has been screened out. This water body is located downstream of the Eggleston Outlet and forms part of the River Tees. As stated in the EAR[4], the River Tees is excluded from further impact pathway modelling on the basis that the TTT is not required to support flows under current demand conditions.

5.15 Tees from River Greta to River Skerne Water Body

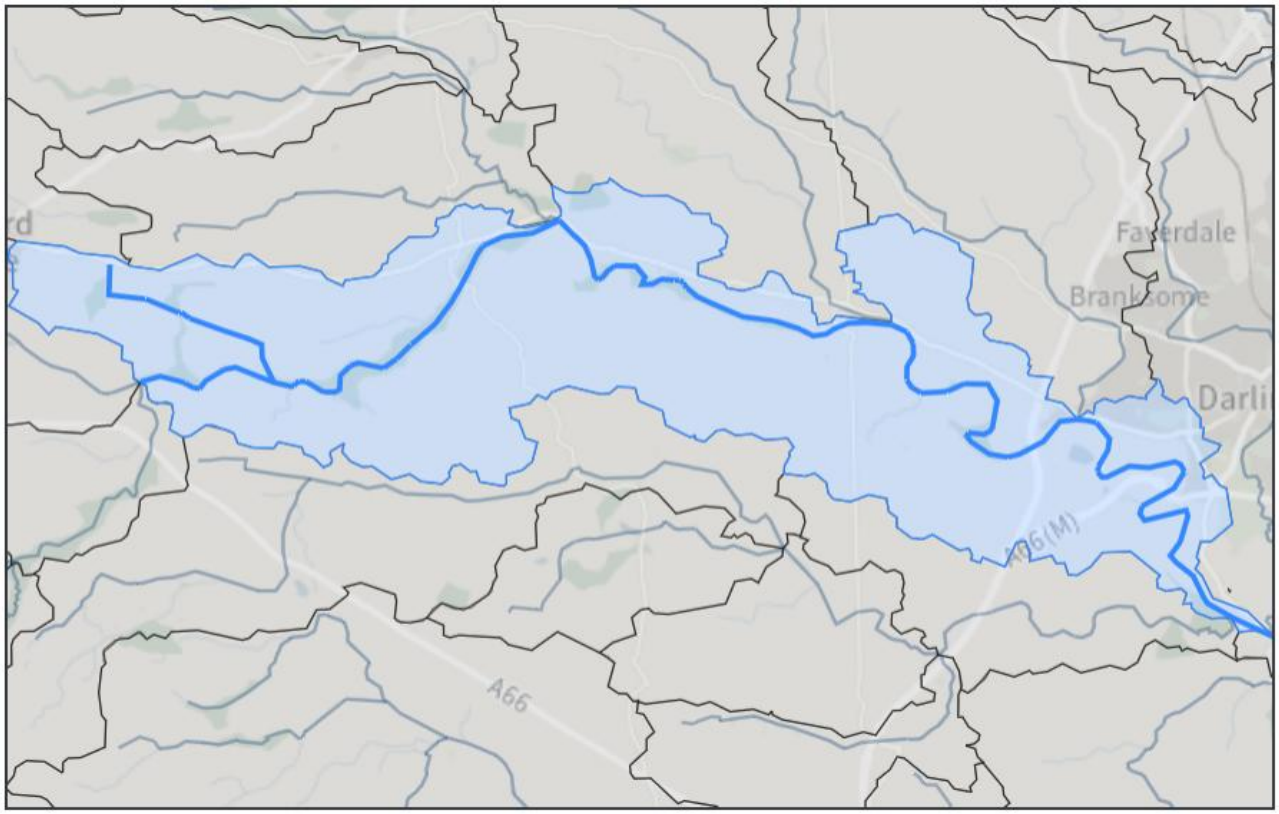

Figure 5.15 A map showing the Tees from River Greta to River Skerne WFD Water Body (Source: Environment Agency Catchment Data Explorer) [27]

[27] https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB103025072190

The baseline data for the Tees from River Greta to River Skerne Water Body are shown in Table 5.15.

Table 5.15 Water body data for the Tees from River Greta to River Skerne WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103025072190
Waterbody name	Tees from River Greta to River Skerne Water Body
NGR	NZ0942915663
Catchment area (ha)	7448.571
Length (km)	36.627
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - PFOS ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ Unknown (pending investigation) - Unknown (pending investigation) - Sector under investigation - Invertebrates ▪ Measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds ▪ Physical modification - Urbanisation - Urban and transport - Mitigation Measures Assessment ▪ Physical modification - Flood protection - Local and Central Government - Mitigation Measures Assessment ▪ Physical modification - Water regulation (i. ii.) - Water Industry - Mitigation Measures Assessment
Protected area designation and list of protected areas	Tees from River Greta to River Skerne Drinking Water Protected Area
Biological quality elements	Moderate
Physico-chemical quality elements	Good
Supporting elements (Surface Water)	Moderate
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

The Tees from River Greta to River Skerne Water Body has been screened. This water body is located downstream of the Eggleston Outlet and forms part of the River Tees. As stated in the EAR[4], the River Tees is excluded from further impact pathway modelling on the basis that the TTT is not required to support flows under current demand conditions.

5.16 Tees from Skerne to Tidal Limit Water Body

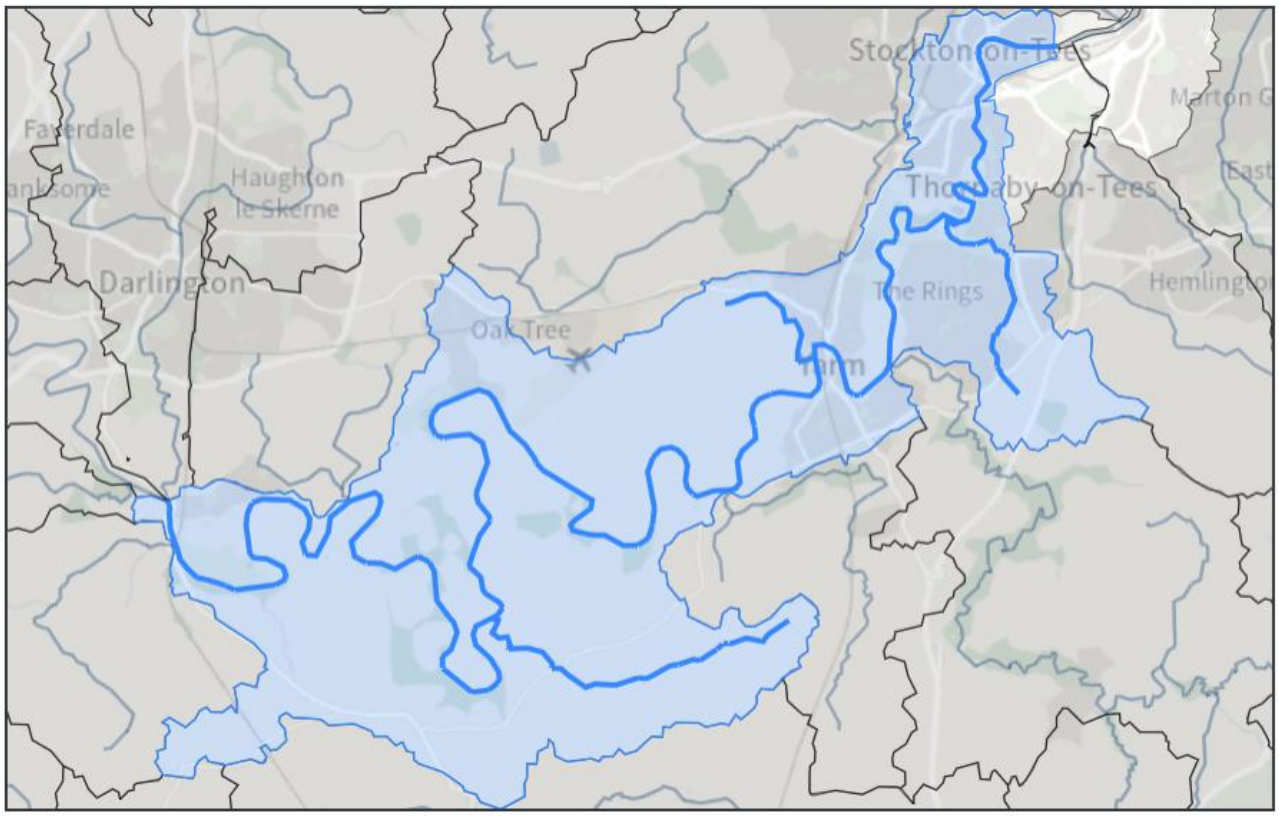

Figure 5.16 A map showing the Tees from Skerne to Tidal Limit WFD Water Body (Source: Environment Agency Catchment Data Explorer) [28]

The baseline data for the Tees from Skerne to Tidal Limit Water Body are shown in Table 5.16.

Table 5.16 Water body data for the Tees from Skerne to Tidal Limit WFD Water Body (Source: Environment Agency Catchment Data Explorer)

Waterbody ID	GB103025072595
Waterbody name	Tees from Skerne to Tidal Limit Water Body
NGR	NZ4466517559
Catchment area (ha)	10924.516
Length (km)	70.746
Hydromorphological designation	Heavily Modified
Current Ecological Status	Moderate
Ecological Status Objective	Good 2027
Reasons for not achieving good status:	▪ Point source - Misconnections - Water Industry - Macrophytes and Phytobenthos Combined ▪ Point source - Misconnections - Water Industry - Phosphate

[28] https://environment.data.gov.uk/catchment-planning/v/c3-plan/WaterBody/GB103025072595

	▪ measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - PBDE ▪ measures delivered to address reason, awaiting recovery - Not applicable - No sector responsible - Mercury and Its Compounds ▪ Point source - Sewage discharge (continuous) - Water Industry - Macrophytes and Phytobenthos Combined ▪ Point source - Sewage discharge (continuous) - Water Industry - Phosphate ▪ Physical modification - Flood protection - Local and Central Government - Mitigation Measures Assessment ▪ Physical modification - Recreation - Recreation - Mitigation Measures Assessment ▪ Physical modification - Urbanisation - Urban and transport - Mitigation Measures Assessment
Protected area designation and list of protected areas	River Skerne (Tees catchment) Urban Waste Water Treatment Directive Low Dinsdale Nitrates Directive
Biological quality elements	Moderate
Physico-chemical quality elements	Moderate
Supporting elements (Surface Water)	Moderate
Hydromorphological Supporting Elements	Not high
Specific pollutants	High
Chemical Status	Fail (2019) - Does not require assessment

Tees from Skerne to Tidal Limit Water Body has been screened out. This water body is located downstream of the Eggleston Outlet and forms part of the River Tees. As stated in the EAR[4], the River Tees is excluded from further impact pathway modelling on the basis that the TTT is not required to support flows under current demand conditions.

5.17 Groundwater - Tyne Carboniferous Limestone Water Body

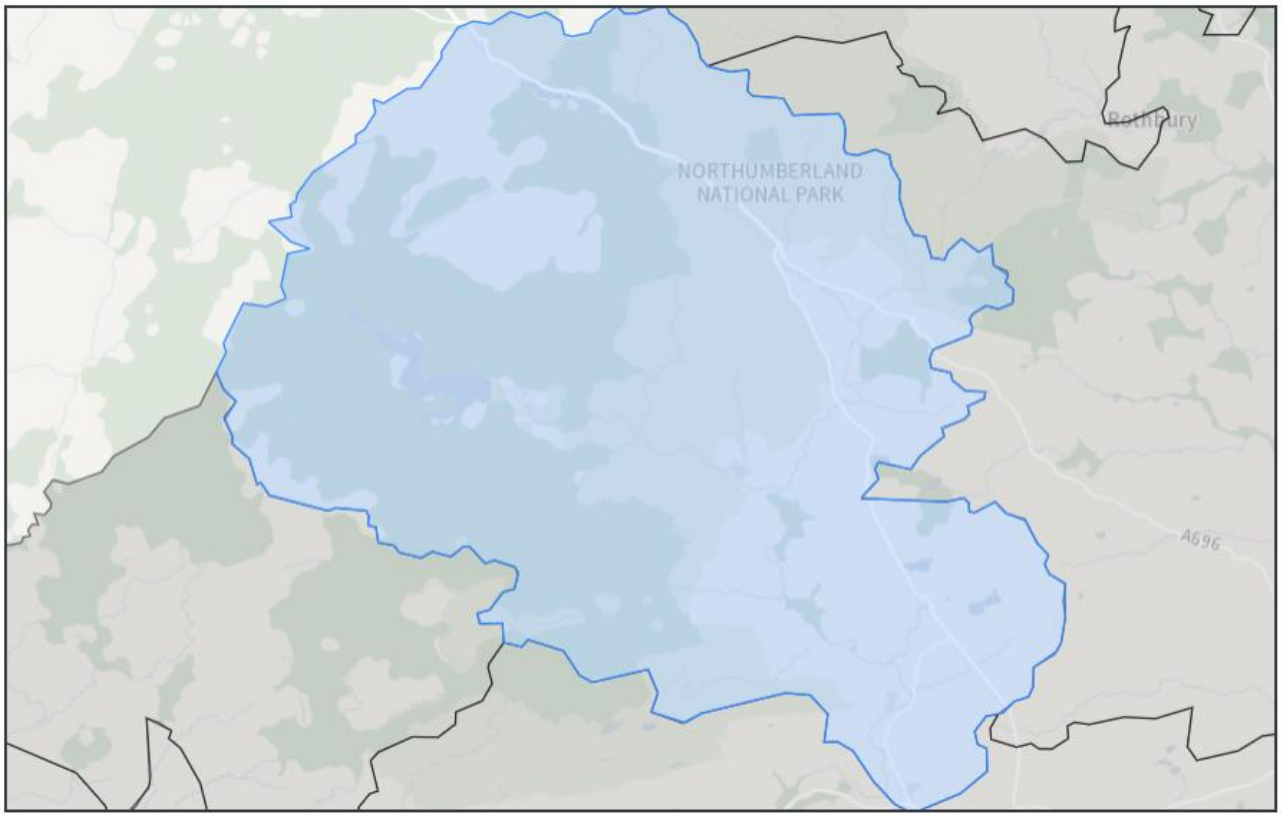

Figure 5.17 A map showing the Tyne Carboniferous Limestone Ground WFD Water Body (Source: Environment Agency Catchment Data Explorer) [29]

The baseline data for the Tyne Carboniferous Limestone Ground Water Body are shown in Table 5.17.

Table 5.17 Water Body Data for the Tyne Carboniferous Limestone WFD Ground Water Body (Source: Environment Agency Catchment Data Explorer)

Water body ID	GB40302G702700
Water body name	Tyne Carboniferous Limestone Water Body
NGR	NY7647386477
Groundwater area (ha)	113624.858
Hydromorphological designation	Not applicable
Current overall status	Good
Status objective (overall)	Good 2015
Reasons for not achieving good status:	Not applicable
Protected area designation and list of protected areas	▪ Border Mires, Kielder-Butterburn SAC ▪ Irthinghead Mires Ramsar Site ▪ Simonside Hills SAC ▪ Roman Wall Loughs SAC

[29] https://environment.data.gov.uk/catchment-planning/WaterBody/GB40302G702700

	▪ Tyne Carboniferous Limestone Drinking Water Protected Area
Quantitative (GW)	Good
Chemical (GW)	Good

The Tyne Carboniferous Limestone Ground WFD Water Body has been screened out. The EAR[4] confirms that groundwater pathways are not considered to represent a significant impact mechanism for the drought action due to the limited hydrological connectivity between groundwater bodies and the operational changes associated with the transfer scheme. On this basis, no significant impact pathways to groundwater receptors are identified, and the Tyne Carboniferous Limestone Groundwater Body is therefore screened out.

6 SCOPING OF QUALITY ELEMENTS

Table 6.1 summarises the scoping of water body quality elements, with scoped-in elements being taken forward into the WFD Regulations compliance assessment for the relevant surface water bodies, namely:

- Tyne from Watersmeet to Tidal Limit Water Body
- Wear from Middlehope Burn to Houselop Beck Water Body

These elements are scoped 'in' due to the potential for operational changes to flow regime associated with the Kielder Transfer drought action that could influence biological, hydromorphological and physico-chemical quality elements. It should be noted that there are no expected physical works or in-channel modifications as a result of any of the actions taking place, and all potential effects relate solely to operational changes to water releases and transfers within existing licensed limits.

Table 6.1 WFD elements in surface water bodies (✓ = Scoped In, ✗ = Scoped Out)

Quality element	Description of Element	Scoped in / out	Justification
Biological	Macrophytes and phytobenthos: Composition and abundance	✓	Macrophytes and phytobenthos as well as Benthic invertebrate fauna have been scoped in during operation due to the potential for changes in water quality parameters (in particular orthophosphate concentrations) which, as reported in the EAR[4], may provide a potential pathway of impact for biological quality elements within both water bodies. It has also been noted that the EAR identifies small changes in nutrient concentrations, indicating that a potential pathway of impact may exist.
	Benthic invertebrate fauna: Composition and abundance		
	Fish fauna: Composition, abundance and age	✓	Fish fauna has been scoped in for the operational phase due to the potential for changes in flow regime and water quality associated with the drought action to affect fish species

Quality element	Description of Element	Scoped in / out	Justification
			within the watercourse, including impacts on migratory cues and habitat conditions. It is also noted that the EAR[4] identifies potential impact pathways related to altered flow conditions and changes in source-water composition.
Hydromorphological	Hydrological regime	✓	Hydrological regime has been scoped in for the operational phase as the water transfer changes will result in changes to flow volumes in all three water bodies which may influence the hydrological regime.
	Quantity and dynamics of water flow	✓	Quantity and dynamics of water flow have been scoped in for the operational phase as the changes to water transfers may result in changes to flow volumes and dynamics. Reduced flow for River North Tyne and an increased flow in River Wear and Tees.
	Connection to groundwater bodies	✗	Connection to groundwater has been scoped out as the water transfer is not expected to represent a significant impact mechanism due to limited hydrological connectivity between surface water bodies and groundwater systems, as identified in the EAR[4]. This applies to groundwater bodies underlying River Tyne, River Wear and River Tees catchments.
	River continuity		

Quality element	Description of Element	Scoped in / out	Justification
	River depth and width variation	✓	These hydromorphological elements have been scoped in during operation due to the potential for operational changes in flow conditions as a result of the increased water transfers. It should be noted that no physical works, channel modifications or changes to morphological structure are proposed, and any potential effects would be limited to flow-related processes within existing channel conditions.
	Structure and substrate of the riverbed		
	Structure of the riparian zone		
Physico-chemical quality	Thermal conditions	✓	Thermal conditions have been scoped in for the operational phase as increased water transfers may influence water temperature in receiving water body.
	Oxygenation conditions	✓	Oxygenation conditions have been scoped in for the operational phase as due to the increase in water transfer, downstream waterbodies may experience changes in dissolved oxygen dynamics associated with changes in flow conditions.
	pH	✗	Both acidification and pH have been scoped out for the operational phase as there is no likely change in pH or acidification levels due to an increase in water transfer.
	Acidification status		
	Nutrient conditions	✓	Nutrient conditions have been scoped in during the operational phase as due to the increase in water transfer, there is a possibility that

Quality element	Description of Element	Scoped in / out	Justification
			changes in flow conditions could influence nutrient transport and distribution within downstream water bodies. This may result in minor changes in nutrient concentrations due to variations in source water composition associated with the transfer.
Chemical	Risk of Pollution	✓	Reduced water volume downstream of Riding Mill pumping station may concentrate existing pollutants, increasing exposure levels for aquatic receptors.

7 ASSESSMENT OF IMPACTS

This section evaluates the potential environmental impacts associated with the drought action. The drought action is assessed in terms of its effects on biological, hydromorphological, and physico-chemical elements of the water environment, as well as implications for drinking water supply, water body resilience, and aquatic habitats.

The impacts of the drought action on river water bodies during operation are assessed in Table 7.1 using RBMP Cycle 3 data available from the Environment Agency's Catchment Data Explorer Website. The assessment considers impacts in terms of the individual quality elements scoped into the assessment in Table 6.1. Where possible, potential ways of mitigating highlighted impacts have been suggested.

Table 7.1 Impact assessment for surface water bodies

Quality element	Quality element impact	Control /Mitigation
Tyne from Watersmeet to Tidal Limit Water Body - Increased abstraction at Riding Mill Pumping Station (TTT) and associated impacts on flow regime and downstream conditions		
Biological	**Macrophytes and phytobenthos:** Due to the water transfer, macrophytes and phytobenthos are potentially influenced by small changes in nutrient concentrations (in particular orthophosphate), representing a potential pathway of impact identified in the EAR[4]. However, the predicted changes are minor and remain within historical variability and WFD class thresholds, and these biological quality elements have demonstrated resilience to such variations. No deterioration in WFD status has been identified.	These effects can be mitigated by operation within agreed licence conditions and trigger thresholds (including Minimum Maintained Flow - MMF), supported by monitoring and adaptive management through the Drought Management Group (DMG), with ongoing review and adjustment of releases where required.
	Benthic invertebrate fauna: Due to the water transfer, invertebrates are potentially influenced by small changes in water chemistry (in particular orthophosphate, Biochemical Oxygen Demand (BOD) and ammonia), representing a potential pathway of impact identified in the EAR[4]. However, the predicted changes are minor, remain within historical variability and WFD class thresholds, and macroinvertebrate communities have demonstrated long-term stability and resilience under a wide range of baseline conditions. No deterioration in WFD status is predicted. The action also maintains	These effects can be mitigated by operation within existing licensed conditions and trigger thresholds (including MMF), supported by monitoring and adaptive management through the DMG.

Quality element	Quality element impact	Control /Mitigation
	flows in supported reaches compared to a without-action drought scenario.	
	Fish fauna: Fish fauna may be influenced due to the proposed water transfer through changes in flow support during drought conditions and small changes in water chemistry (e.g. orthophosphate, BOD and ammonia), which represent potential pathways of impact identified in the EAR[4]. However, the drought action maintains flows in the River Tyne relative to unsupported drought conditions, supporting habitat availability and connectivity. Predicted changes in water quality parameters are small, remain within WFD 'High' class thresholds, and are not expected to affect fish behaviour (including migratory cues). No deterioration in WFD status is predicted.	These effects can be mitigated by operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG, with investigation and reactive response in the event of any unexpected ecological effects (e.g. fish distress or mortality).
Hydromorphology	**Hydrological regime:** The hydrological regime is not significantly affected by the drought action. Modelling shows flow changes at Riding Mill of 5-10 Ml/d, which is negligible compared to natural drought variability (500-1000 Ml/d). This represents around ~1% of observed variability and is not considered measurable or meaningful. Flows remain above MMF thresholds, and no impacts on flow-dependent ecological processes are expected. Therefore, no deterioration in WFD hydrological supporting elements is anticipated.	These effects can be mitigated by operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.
	Quantity and dynamics of water flow: Water flow is not significantly altered by the drought action, as changes associated with abstraction at Riding Mill are <1% of natural flow variability. Flows are maintained above MMF thresholds. Consequently, no deterioration in WFD hydromorphological supporting elements is anticipated; rather, the drought action providing a relative benefit compared to unsupported drought scenarios.	
	River continuity: No barriers or interruptions to longitudinal connectivity are introduced. River continuity remains unaffected. Given the very small changes in flow, no impacts on channel form or geomorphological processes are anticipated.	

Quality element	Quality element impact	Control /Mitigation
	River depth and width variation: Changes in water levels are imperceptible relative to natural variability; therefore, no measurable effects on depth or width patterns are expected.	
	Structure and substrate of the riverbed: Flow alterations are insufficient to influence sediment transport, erosion, or deposition processes. Substrate composition and stability remain unchanged.	These effects can be mitigated by operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.
	Structure of the riparian zone: Riparian zone structure and function are not expected to be affected by the drought action, as changes in flow associated with abstraction at Riding Mill are minimal and remain within natural variability, with no measurable or meaningful hydromorphological change identified in the EAR[4].	Not applicable beyond standard operational controls (operation within licensed conditions and MMF thresholds, supported by monitoring and adaptive management through the DMG).
Physico-chemical	**Thermal conditions & Oxygenation conditions:** Thermal and oxygen conditions may be influenced by changes in source water composition associated with the drought action, representing a potential pathway of impact identified in the EAR[4]. The dissolved oxygen levels within watercourse remain within WFD 'High' status, with only minor variations observed under modelled scenarios. Overall, predicted changes in temperature and dissolved oxygen are small, remain within natural variability and WFD class thresholds, and no deterioration in physico-chemical status is predicted. The effect is considered neutral relative to unsupported drought conditions.	These effects can be mitigated by operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG, with review of water quality parameters against WFD thresholds where required.
	Nutrient conditions: Reduced dilution capacity may slightly increase nutrient concentrations, but the magnitude of change is small and temporary and does not exceed typical variability in sluice-controlled systems. Nutrient conditions rely on natural morphological process occurring to release sediment and nutrients into the watercourse, when flow volumes and rates change, it has the potential to disrupt these natural processes and leave sections of river	These effects can be mitigated by operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG, including review of nutrient concentrations against

Quality element	Quality element impact	Control /Mitigation
	deprived of these essential nutrients needed to sustain the baseline ecosystem. As stated in the EAR[4], predicted changes in nutrient concentrations (particularly orthophosphate) are small, remain within natural variability and WFD class thresholds, and do not result in deterioration in WFD physico-chemical status. These changes may represent a pathway for biological response but are not expected to result in ecologically meaningful effects.	WFD thresholds where required.
Pollution	The drought action does not introduce any new pollutant pathways or sources. As changes in flow are minimal (<1% of natural variability), no measurable effects on pollutant dilution, dispersion, or concentration are expected. Therefore, no deterioration in WFD physico-chemical supporting elements is anticipated.	Not applicable beyond standard operational controls (operation within licensed conditions and MMF thresholds, supported by monitoring and adaptive
Operational releases via the TTT to the River Wear (Wear from Middlehope Burn to Houselop Beck)		
Biological	**Macrophytes and phytobenthos:** Macrophytes and phytobenthos may be influenced by small changes in nutrient concentrations (in particular orthophosphate) associated with changes in source water composition, representing a potential pathway of impact identified in the EAR[4]. However, although releases occur at Frosterley, modelling shows no significant change in flow; predicted changes in nutrient concentrations are small, remain within natural variability and WFD class thresholds, and no measurable change in ecological status is anticipated. Localised sensitivity at Frosterley has been considered, but changes are not sufficient to affect classification.	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG. Additional controls include targeted ecological monitoring in accordance with the Environmental Monitoring Plan, comprising LEAFPACS - compliant macrophyte surveys (100m reach) upstream and downstream of the TTT outfall at Frosterley, including assessment of species composition and coverage (DAFOR scale / %), with surveys undertaken prior to the drought action (where available), during the drought summer (if applicable), and within 12

Quality element	Quality element impact	Control /Mitigation
		months post-drought. Diatom samples will be analysed by an accredited laboratory. Monitoring results will be reviewed against WFD class thresholds, with further investigation and adaptive operational response implemented if deviations from predicted conditions are identified.
	Benthic invertebrate fauna: Benthic invertebrates may be influenced by small changes in water chemistry (in particular orthophosphate, BOD and ammonia) associated with changes in source water composition, representing a potential pathway of impact identified in the EAR[4]. However, although releases occur at Frosterley, modelling shows no significant change in flow; predicted changes in water quality parameters are small, remain within natural variability and WFD class thresholds, and macroinvertebrate communities have demonstrated resilience to a wide range of baseline conditions. No deterioration in WFD status is predicted and no ecologically meaningful effects are anticipated. Maintenance of flows during low-flow periods provides a minor beneficial effect relative to unsupported drought conditions.	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.
	Fish fauna: Fish fauna may be influenced by small changes in flow support during drought conditions and minor changes in water quality associated with source water composition, representing potential pathways of impact identified in the EAR[4]. However, although releases occur at Frosterley, modelling shows no significant change in flow; predicted changes in water quality parameters are small and remain within WFD class thresholds. Fish communities are assessed as having low sensitivity and no deterioration in WFD status is predicted. Maintenance of flows during low-flow periods provides a minor beneficial effect, supporting habitat availability, connectivity and fish	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG, with investigation and reactive response in the event of any unexpected ecological effects (e.g. fish distress or mortality). Additional controls include fish monitoring through walkover surveys and

Quality element	Quality element impact	Control /Mitigation
	movement compared to unsupported drought scenarios.	observational checks of fish presence, behaviour and signs of distress, undertaken upstream and downstream of the TTT outfall at Frosterley. Surveys will be carried out once prior to implementation (where applicable) and weekly during the initial drought action, with increased frequency if required and agreed with the Environment Agency. Monitoring will be undertaken by NW's Fisheries Ecologists, with findings informing further investigation and adaptive response where necessary.
Hydromorphology	**Hydrological regime:** The hydrological regime of the downstream waterbodies is maintained under the drought action, as releases at Frosterley support flows during dry conditions. While modelling shows no significant change in flow relative to baseline conditions, this reflects the role of the drought action in regulating flows and maintaining them within the range of natural variability rather than allowing drought-related reductions to occur. No deterioration in WFD hydrological supporting elements is anticipated, and flows are maintained above MMF thresholds during drought conditions, providing a relative benefit compared to unsupported drought scenarios.	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.
	Quantity and dynamics of water flow: The quantity of water flow is not significantly altered by the drought action, as although regulated releases occur at Frosterley, modelling shows no evidence of a significant change in flow and changes remain within the range of natural variability. No deterioration in WFD hydromorphological supporting elements is anticipated, and flows are	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.

Quality element	Quality element impact	Control /Mitigation
	maintained above MMF thresholds during drought conditions, providing a relative benefit compared to unsupported drought scenarios.	
	River continuity: River continuity and morphological conditions are not significantly affected by the drought action, as although regulated releases occur at Frosterley, modelling shows no evidence of a significant change in flow and changes remain within the range of natural variability. No deterioration in WFD hydromorphological supporting elements is anticipated, and flows are maintained above MMF thresholds during drought conditions, providing a relative benefit compared to unsupported drought scenarios.	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.
	River depth and width variation: The depth and width of downstream watercourses are not significantly altered by the drought action, as although regulated releases occur at Frosterley, modelling shows no evidence of a significant change in flow and changes remain within the range of natural variability. As such, no measurable or meaningful changes in channel dimensions are anticipated. No deterioration in WFD hydromorphological supporting elements is anticipated, and flows are maintained above MMF thresholds during drought conditions, providing a relative benefit compared to unsupported drought scenarios.	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.
	Structure and substrate of the riverbed: There is no significant effect on riverbed structure or substrate as a result of the drought action, as although regulated releases occur at Frosterley, modelling shows no evidence of a significant change in flow and changes remain within the range of natural variability. As such, no measurable or meaningful changes in riverbed conditions are anticipated. No deterioration in WFD hydromorphological supporting elements is anticipated, and flows are maintained above MMF thresholds during drought conditions, providing a relative benefit compared to unsupported drought scenarios.	N/A

Quality element	Quality element impact	Control /Mitigation
	Structure of the riparian zone: Riparian zone structure and function are not expected to be affected by the drought action, as although regulated releases occur at Frosterley, modelling shows no evidence of a significant change in flow and changes remain within the range of natural variability. As such, no measurable or meaningful hydromorphological change affecting riparian zones is anticipated.	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG.
Physico-chemical	**Thermal conditions & Oxygenation conditions:** Thermal and oxygen conditions may be influenced by minor changes in source water composition associated with the drought action; however, although regulated releases occur at Frosterley, modelling shows no evidence of a significant change in flow and changes remain within the range of natural variability. Predicted changes in temperature are minimal and dissolved oxygen concentrations remain within WFD 'High' status across all scenarios. Overall, changes are small, within WFD class thresholds, and no deterioration in physico-chemical status is predicted.	These effects are controlled through operation within existing licensed conditions and MMF trigger thresholds, supported by monitoring and adaptive management through the DMG. Additional controls include water quality monitoring through physico-chemical walkover surveys, including spot measurements of dissolved oxygen and phosphate using a hand-held probe/field kit, undertaken in accordance with relevant standards (e.g. ISO 5667-6:2016). Monitoring will be carried out upstream and downstream of the TTT outfall at Frosterley, once prior to drought action implementation and weekly during the initial drought action period, with frequency reviewed in consultation with the Environment Agency. Monitoring will be undertaken by NW's Water Resources team, with results informing further investigation and
	Nutrient conditions: Nutrient conditions within the watercourse may be influenced by small changes in nutrient concentrations (in particular orthophosphate) associated with changes in source water composition, representing a potential pathway of impact identified in the EAR[4]. However, although regulated releases occur at Frosterley, modelling shows no evidence of a significant change in flow; predicted changes in nutrient concentrations are small, localised and temporary, and remain within the range of natural variability and WFD class thresholds. No deterioration in physico-chemical status is predicted.	

Quality element	Quality element impact	Control /Mitigation
		adaptive operational response where required.

7.1 Protected Areas

This section presents a focused subset of WFD designated sites within the EARs[4] defined Zone of Influence (ZoI) based on hydrological connectivity, modelled changes in flow and water quality, and the spatial extent of potential measurable effects with potential hydrological or functional connectivity to the drought action. While a complete list of protected areas in the broader region is provided in Chapter 5. Table 7.2 below includes designated sites with potential hydrological or functional connectivity to the drought action. For each site, the table provides a description of the reasons for designation.

Table 7.2 Designated protected sites within or with hydrological/functional connection to the Study Area

Site Name	Reason(s) for Designation
Witton-le-Wear SSSI	Designated for open waterbodies within former gravel workings adjacent to the River Wear, supporting breeding birds and invertebrate assemblages, with hydrological connectivity to the river via floodplain and groundwater interactions.
Tyne Watersmeet SSSI	Designated for ancient semi-natural woodland and associated riparian habitats at the confluence of the River North Tyne and South Tyne, supporting notable invertebrate assemblages linked to riverine conditions.

Designated sites within the ZoI are hydrologically connected to the River Tyne and River Wear, either directly or via associated riparian, floodplain or groundwater linked habitats. As no changes to flow, hydraulics or geomorphological processes are expected, potential impact pathways are limited to minor changes in water quality associated with an increased proportion of Kielder-derived water during drought conditions.

For Witton-le-Wear SSSI, located within the River Wear floodplain, the potential pathway relates to indirect hydrological connectivity between the river and adjacent standing waterbodies. However, predicted changes in water quality are small, remain within natural variability and do not result in measurable effects on standing water habitats or associated ecological communities.

For Tyne Watersmeet SSSI, hydrological modelling indicates that flows upstream of the TTT offtake are not altered and therefore no direct hydrological impacts occur. Minor changes in water quality (including orthophosphate, ammonia and BOD) may arise due to altered source water composition; however, these remain within WFD class thresholds and are not expected to affect the integrity of riparian habitats or associated invertebrate assemblages.

Across all statutory sites, receptors are assessed as having Low sensitivity, with predicted impacts of Low magnitude and Minor significance at Medium confidence, consistent with the EAR[4]. As a result, there is no mechanism by which the drought action would result in measurable effects on the designated features or deterioration in site condition.

With regard to Drinking Water Protected Areas, the EAR concludes that operation of the Kielder Transfer drought action does not adversely affect groundwater chemical or quantitative status, nor does it increase treatment risk at associated abstractions. These designations therefore remain fully protected in accordance with WFD Article 7 requirements.

7.2 Invasive Non-Native Species

The assessment of Invasive Non-Native Species (INNS) considers separately the risk of introduction and the risk of facilitating spread, in line with EA (2025) supplementary guidance and the EAR[4].

The Kielder Transfer drought action is entirely operational in nature and does not involve any construction works, ground disturbance, in-channel activities, use of machinery or site personnel that could introduce or facilitate the spread of INNS via anthropogenic pathways. Consistent with EAR[4] findings, potential pathways for the introduction or spread of INNS have been considered, including transfer via water movement and altered drought conditions.

A potential pathway for introduction exists via inter-catchment raw water transfer from the River Tyne to the River Wear. This represents a recognised pathway for inter-catchment transfer of INNS associated with raw water transfers. However, evidence presented in the EAR[4] indicates that a range of aquatic INNS are already present in both the River Tyne and River Wear catchments, including at and downstream of the TTT discharge location at Frosterley. These include species such as *Potamopyrgus antipodarum* and *Crangonyx sp*., as identified from INNS Mapper. As such, the transfer does not represent a new introduction pathway for these species between catchments. The potential for transfer of riparian plant propagules (e.g. seeds or rhizome fragments) is low, as abstraction infrastructure at Riding Mill includes fine screening (~1.75 mm), which is expected to remove larger propagules and biological material associated with species such as giant hogweed (*Heracelum mantegazzianum)* and Japanese knotweed (*Reynoutria japonica)*.

The risk of facilitating the spread of INNS as a result of the drought action is considered to be low. The drought action does not alter habitat availability, create new areas for colonisation, or introduce physical disturbance that would facilitate expansion of riparian or aquatic INNS. The drought action maintains flows relative to unsupported drought conditions and does not create environmental stress conditions that would disproportionately favour INNS over native species. Predicted changes in flow, dissolved oxygen and water quality are negligible and remain within natural variability; therefore, no measurable changes in habitat suitability or prey availability are anticipated that would facilitate the spread or competitive advantage of INNS.

Given that INNS are already present in both catchments, the potential for additional individuals to be transferred is recognised; however, this is not expected to result in measurable population expansion or range increase under the predicted conditions.

On this basis, no material increases in the risk of introduction or spread of INNS is predicted. Receptors, including American mink *(Neogale vison)* and aquatic INNS, are assessed as not sensitive to the predicted changes, and the magnitude of impact is negligible, resulting in a Minor significance at Medium confidence, consistent with the EAR[4]. No deterioration in ecological status is anticipated.

It is noted that the broader risk of INNS transfer associated with long-term or more frequent operation of the Tyne Tees Transfer (TTT) is a wider strategic issue, which is being considered separately (e.g. as part of the Kielder Strategic Resource Option), and is therefore outside the scope of this WFD assessment.

8 CONCLUSION

This WFD assessment has been undertaken to support Northumbrian Water's Drought Plan (DP27) and evaluates whether the Kielder Transfer drought action could affect the status of, or the achievement of Water Framework Directive objectives for, any potentially affected surface water or groundwater bodies. On the basis of the available evidence, no risk of deterioration in water body status has been identified, nor is there any risk to the achievement of WFD objectives. The Compliance with the key objectives against which the impacts of the Kielder Transfer drought action were assessed against in this assessment have been summarised as part of concluding compliance with WFD Regulation, see Table 8.1.

The screening of water bodies determined that most surface water bodies could be screened out because no credible impact pathway was identified. For the North Tyne and downstream River Wear water bodies, modelling demonstrated that changes in flow and water quality would be negligible, remain within natural variability, and would not affect WFD status elements. The Tees water bodies were screened out because no transfers to the River Tees are anticipated under the assessed drought scenario and therefore no impact pathway exists. The Tyne Carboniferous Limestone Groundwater Body was also screened out because no credible pathway was identified by which the drought action could affect groundwater quantitative or chemical status.

The Tyne from Watersmeet to Tidal Limit Water Body and the Wear from Middlehope Burn to Houselop Beck Water Body were screened in because they contain the direct operational interaction points of the Kielder Transfer Scheme, namely the abstraction and discharge locations. These water bodies were therefore assessed on a precautionary basis to confirm compliance with WFD objectives at locations where a direct impact pathway exists. The absence of deterioration is primarily due to the nature of the drought action, which operates within existing licensed conditions and involves the redistribution of water through an established transfer system. The contribution of Kielder-derived water via the Tyne–Tees Transfer maintains flows during drought conditions while remaining within the range of natural and operational variability. No changes to habitat availability, hydromorphological processes, ecological function, or WFD classification status have been identified.

The assessment concludes that operation of the Kielder Transfer drought action would not compromise the integrity or objectives of Protected Areas. Predicted changes in water quality are minor, remain within natural variability and applicable WFD thresholds, and are not expected to result in measurable effects on designated features, site condition, or Drinking Water Protected Areas. Furthermore, the drought action would not materially increase the risk of the introduction or spread of Invasive Non-Native Species, as relevant aquatic INNS are already present within both catchments and no changes to habitat conditions, disturbance regimes, or ecological processes are predicted that would facilitate their establishment or expansion. Consequently, no adverse effects on Protected Areas or INNS-related receptors are anticipated.

Accordingly, the proposed drought action complies with the environmental objectives of the WFD and can be screened out under Regulation 19. The assessment has demonstrated that there is no credible mechanism by which the Kielder Transfer drought action would cause deterioration in water body status, compromise progress towards Good Ecological Status or Good Ecological Potential, or prevent the achievement of WFD objectives.

Compliance with the key objectives against which the impacts of the Kielder Transfer drought action were assessed against in this assessment are outlined below in Table 8.1.

Table 8.1 Compliance of the Kielder Transfer drought action with the environmental objectives of the WFD

Environmental Objective	Summary of Assessment for the Drought Action	Compliance with the WFD Directive
No changes affecting high status sites	No high-status features are present within the scheme baseline area and no deterioration of any quality elements has been identified.	Yes
No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential	Assessment has determined that the drought action will not cause deterioration in the status of the water body or prevent any implementation of water body mitigation measures in the future.	Yes
No changes which will permanently prevent or compromise the Environmental Objectives being met in other water bodies	There is no identifiable pathway by which the proposals could affect any other bodies of water within the River Basin District.	Yes
No changes that will cause failure to meet good groundwater status or result in a deterioration groundwater status	Groundwater bodies were screened out of the detailed WFD assessment due to the absence of a plausible impact pathway associated with the drought action.	Yes
No changes that will progressively reduce pollution from priority substances and cease or phase out emissions, discharges and losses of priority hazardous substances.	Assessment has determined that the drought action will not introduce new sources of pollution or increase emissions, discharges or losses of priority substances or priority hazardous substances and will not	Yes

Environmental Objective	Summary of Assessment for the Drought Action	Compliance with the WFD Directive
	comprise the achievements of chemical status objectives.	