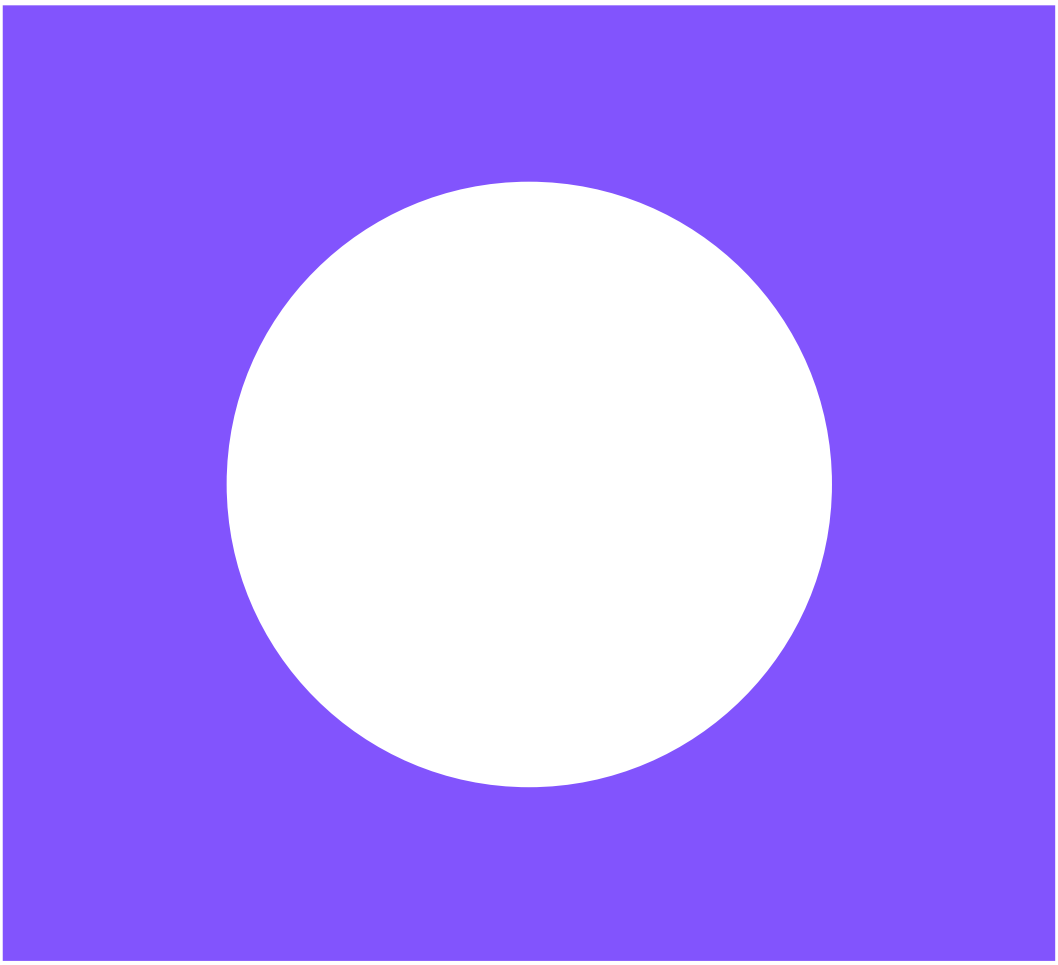
MOTT MACDONALD



# South West Water, Bristol Water and Bournemouth Water Drought Plan 2027

## SEA Environmental Report: Annex P - Water Framework Directive (WFD) Assessment

March 2026

Mott MacDonald
Endeavour House
Pynes Hill
Exeter EX2 5WH
United Kingdom

T +44 (0)1392 409410
mottmac.com

# South West Water, Bristol Water and Bournemouth Water Drought Plan 2027

## SEA Environmental Report: Annex P - Water Framework Directive (WFD) Assessment

March 2026

Mott MacDonald Limited. Registered in England and Wales no. 1243967.
Registered office: 10 Fleet Place, London EC4M 7RB, United Kingdom

# Issue and Revision Record

| Revision | Date | Originator | Checker | Approver | Description |
|---|---|---|---|---|---|
| 01 | February 2026 | G.S. | M.D. | M.R. | Draft issue |
| 02 | March 2026 | G.S. | M.D. | M.R. | Issue for consultation |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Document reference:** 100125254-MM-RP-WFD-015-B

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

# Contents

Executive summary 1

1 Introduction 3
1.1 Background 3
1.2 SBB Drought Plan 2027 Options 3
1.2.1 Options considered 3
1.2.2 Removed options 7
1.3 Drought Levels and Environmental Impact 7
1.4 Environmental Assessment Reports 8
1.5 Preferred Plan 8
1.6 The Water Framework Directive 9
1.7 Scope of Report 10

2 Methodology 12
2.1 Approach to WFD assessment for Drought Plan 2027 options 12
2.2 ACWG WFD Level 1 – basic screening 12
2.2.1 Standard approach 12
2.2.2 Drought Plan RAG rating 13
2.3 Level 2 Screening 15
2.4 Cumulative and In-Combination Effects 15
2.5 Limitations and Assumptions 16
2.6 Consultation 17

3 Level 1 Assessment Results 18
3.1 Colliford WRZ 19
3.2 Roadford WRZ 21
3.3 Wimbleball WRZ 25
3.4 Bristol WRZ 27
3.5 Bournemouth WRZ 30
3.6 Isles of Scilly WRZ 31

4 Level 2 Assessment Results 32
4.1 Colliford WRZ 32
4.1.1 C-03: River Fowey at Restormel - increase annual abstraction limit 32
4.1.2 C-04a: Stannon Lake – increase daily abstraction limit 35
4.1.3 C-06: Colliford Reservoir - reduce compensation flow 37
4.1.4 C-30: Siblyback Reservoir - reduce compensation flow 39
4.1.5 C-37: River Cober at Wendron - increase annual licence limit 45
4.2 Roadford WRZ 51

4.2.1 R-07: Slade Reservoir - abstract from new source 51
4.2.2 R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May 55
4.2.3 R-25: Roadford Reservoir - reduce compensation flow 59
4.2.4 R-45: River Dart & Littlehempston boreholes - aggregate daily and annual licence limits 61
4.3 Wimbleball WRZ 67
4.3.1 W-03: Wimbleball Reservoir - reduce compensation flow 67
4.3.2 W-06: Brampford Speke & Stoke Canon - abstract from new source 71
4.3.3 W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May 76
4.4 Bristol WRZ 80
4.4.1 BR-27a: Blagdon Reservoir - reduce compensation flow 80
4.4.2 BR-27b: Blagdon Reservoir - delay water bank releases 83
4.4.3 BR-28a: Chew Valley Lake - reduce compensation flow 86
4.4.4 BR-28b: Chew Valley Lake - delay water bank releases 89
4.4.5 BR-29: Chew Magna Reservoir - reduce compensation flow 93
4.4.6 BR-30: Cheddar Ponds - reduce compensation flow 98
4.4.7 BR-31a: River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October 102
4.4.8 BR-31b: River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include May 104
4.4.9 BR-47: River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction 106
4.5 Bournemouth WRZ 108
4.5.1 BN-04: River Stour at Longham - remove low flow constraint 108
4.5.2 BN-05: Stanbridge boreholes – increase daily abstraction limit 111
4.5.3 BN-12: River Stour at Longham - increase weekly abstraction limit 115
4.6 Isles of Scilly WRZ 117

5 Cumulative / In-combination Effects 118
5.1 Preferred Plan 118
5.2 Colliford WRZ 119
5.2.1 Cumulative effects of options at Drought Level 2 119
5.2.2 Cumulative effects of options at Drought Level 3a 120
5.2.3 Cumulative effects of options at Drought Level 3b 121
5.3 Roadford WRZ 123
5.3.1 Cumulative effects of options at Drought Level 2 123
5.3.2 Cumulative effects of options at Drought Level 3a 123
5.3.3 Cumulative effects of options at Drought Level 3b 124
5.4 Wimbleball WRZ 126
5.5 Bristol WRZ 128
5.5.1 Cumulative effects of options at Drought Level 1 128
5.5.2 Cumulative effects of options at Drought Level 2 128
5.5.3 Cumulative effects of options at Drought Level 3a 128

5.6 Bournemouth WRZ – drought level 3b 131

6 Further Investigations 132

6.1 Assessment Uncertainties 132
6.2 Further Assessments Required 132
6.2.1 C-03: River Fowey at Restormel - increase annual abstraction limit 132
6.2.2 C-30: Siblyback Reservoir - reduce compensation flow 132
6.2.3 C-37: River Cober at Wendron - increase annual licence limit 132
6.2.4 R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May 132
6.2.5 R-45: River Dart & Littlehempston boreholes - aggregate daily and annual licence limits 133
6.2.6 W-06: Brampford Speke & Stoke Canon - abstract from new source 133
6.2.7 W-03, W-06 and W-09 cumulative impact 133
6.2.8 BR-27a: Blagdon Reservoir - reduce compensation flow 133
6.2.9 BR-27b: Blagdon Reservoir - delay water bank releases 133
6.2.10 BR-28a: Chew Valley Lake - reduce compensation flow 134
6.2.11 BR-28b: Chew Valley Lake - delay water bank releases 134
6.2.12 BR-29: Chew Magna Reservoir - reduce compensation flow 134
6.2.13 BR-30: Cheddar Ponds - reduce compensation flow 134
6.2.14 BN-04: River Stour at Longham - remove low flow constraint 134
6.2.15 BN-05: Stanbridge boreholes – increase daily abstraction limit 135
6.2.16 BN-12: River Stour at Longham - increase weekly abstraction limit 135

7 Conclusions 136

7.1 Level 1 Summary 136
7.2 Level 2 Summary 136
7.3 Cumulative Effects Summary 138
7.4 Next Steps 138

A. WFD Level 1 output tables 139

B. WFD Level 2 output tables 140

## Tables

Table 1.1: Drought Plan 2027 Options 4
Table 2.1: Impact scoring system used for WFD assessments 13
Table 2.2: RAG Rating Scoring Criterion 14
Table 2.3: Confidence levels used in the Level 2 assessment 15
Table 3.1: Colliford WRZ Level 1 assessment outcomes and RAG rating 19
Table 3.2: Roadford WRZ Level 1 assessment outcomes and RAG rating 21
Table 3.3: Wimbleball WRZ Level 1 assessment outcomes and RAG rating 25
Table 3.4: Bristol WRZ Level 1 assessment outcomes and RAG rating 27
Table 3.5: Bournemouth WRZ Level 1 assessment outcomes and RAG rating 30
Table 3.6: Isles of Scilly WRZ Level 1 assessment outcomes and RAG rating 31
Table 4.1: C-03: Restormel annual volume – Level 2 WFD Summary 33
Table 4.2: C-04a: Stannon Lake – Level 2 WFD Summary 36
Table 4.3: C-06: Colliford compensation flow – Level 2 WFD Summary 38
Table 4.4: C-30: Siblyback compensation flow – Level 2 WFD Summary 41
Table 4.5: C-37: River Cober at Wendron – increase annual licence limit – Level 2 WFD Summary 47
Table 4.6: R-07: Slade Reservoir– Level 2 WFD Summary 53
Table 4.7: R-11: River Lyd Apr-May– Level 2 WFD Summary 57
Table 4.8: R-25: Roadford Reservoir – Level 2 WFD Summary 60
Table 4.9: R-45: River and Dart Littlehempston boreholes – Level 2 WFD Summary 63
Table 4.10: W-03: Wimbleball compensation flow abstraction – Level 2 WFD Summary 68
Table 4.11: W-06: Brampford Speke and Stoke Canon – Level 2 WFD Summary 73
Table 4.12: W-09: Wimbleball Reservoir (Extension of pumped storage scheme beyond Nov-Mar into Apr-May) 77
Table 4.13: BR-27a: Reduction of Blagdon Reservoir compensation release – Level 2 WFD Summary 81
Table 4.14: BR-27b: Reduction of Blagdon Reservoir water bank releases – Level 2 WFD Summary 84
Table 4.15: BR-28a: Reduction of Chew Valley Lake compensation release – Level 2 WFD Summary 87
Table 4.16: BR-28b: Reduction of Chew Valley Lake water bank releases– Level 2 WFD Summary 90
Table 4.17: BR-29: Reduction of Chew Magna Reservoir compensation release – Level 2 WFD Summary 95
Table 4.18: BR-30: Reduction of Cheddar Ponds compensation release to Cheddar Yeo – Level 2 WFD Summary 100
Table 4.19: BR-31a: River Axe – extend pump storage season – Level 2 WFD Summary 103
Table 4.20: BR-31b: River Axe – extend pump storage season – Level 2 WFD Summary 105
Table 4.21: BR-47: River Axe commissioning – Level 2 WFD Summary 107
Table 4.22: BN-04: River Stour at Longham – Level 2 WFD Summary 109
Table 4.23: BN-05: Stanbridge boreholes 17.5Ml/d – Level 2 WFD Summary 112

Table 4.24: BN-12: River Stour at Longham - increase weekly abstraction total – Level 2 WFD Summary 116
Table 5.1: SBB Drought Plan 2027 Preferred Plan options 118
Table 7.1: SBB Drought Plan 2027 permit options with no requirement for additional assessment 136
Table 7.2: SBB Drought Plan 2027 permit options with no requirement for additional assessment 137

# Executive summary

As part of the Water Framework Directive (WFD) assessment of the South West Water, Bristol Water and Bournemouth Water (SBB) Drought Plan 2027 options, 38 proposed options were assessed at Level 1. Of these, two options did not necessitate further assessment, and present a very low risk of impacting WFD status and objectives.

The remaining options however did require further assessment, but due to programme constraints 24 of these were assessed at Level 2. Of the 24 options assessed at Level 2, 8 presented minor and localised impacts without mitigation, while the remaining 16 require further investigations to inform mitigation design and to more accurately inform assessment of their impacts to the water environment.

A cumulative effects assessment was also undertaken and included all options within the Preferred Plan. The outcome of this assessment showed 33 water bodies across the region where more than one proposed drought option operates. Due to the activities of three drought options, one of these 33 water bodies could have a potential increased WFD deterioration risk if all operate in cumulation.

Recommended next steps to improve assessment confidence and lessen impact to the water environment as a result of proposed drought options have been presented.

# Abbreviations

| Abbreviation | Meaning |
|---|---|
| ACWG | All Company Working Group |
| AWB | Artificial Waterbody |
| BH | Borehole |
| DCO | Development Consent Order |
| DEFRA | The Department for Environment, Food and Rural Affairs |
| DO | Deployable Output |
| EA | Environment Agency |
| EAR | Environmental Assessment Report |
| EFI | Environmental Flow Indicator (flow required in watercourse to support ecology) |
| GEP | Good Ecological Potential |
| GES | Good Ecological Status |
| GW | Groundwater |
| GWDTE | Groundwater Dependant Terrestrial Ecosystem |
| HMWB | Heavily Modified Water Body |
| HOF | Hands Off Flow |
| HOL | Hands Off Level |
| HRA | Habitat Regulations Assessment |
| INNS | Invasive Non-Native Species |
| Ml/d | Megalitres Per Day (1 megalitre is equal to 1,000,000 litres) |
| PBDE | Poly-Brominated Diphenyl Ethers |
| PFOS | Perfluorooctanesulfonic acid |
| Q95 | Flow in watercourse which is exceeded 95% of the time |
| RAG | Red, Amber, Green assessment |
| RBMP | River Basin Management Plan |
| RNAG | Reasons For Not Achieving Good |
| SBB | South West Water, Bristol Water and Bournemouth Water |
| SEA | Strategic Environmental Assessment |
| SPZ | Source Protection Zone |
| SRO | Strategic Resource Option |
| SSSI | Site of Special Scientific Interest |
| SW | Surface Water |
| UKWIR | UK Water Industry Research |
| WFD | Water Framework Directive |
| WINEP | Water Industry National Environment Programme |
| WRZ | Water Resource Zone |
| WTW | Water Treatment Works |

# 1 Introduction

## 1.1 Background

Water companies have a statutory obligation to produce a drought plan, which sets out how a company intends to manage water resources in response to drought events over a five-year period. In the development of a drought plan, water companies must follow the Environment Agency (EA) Water Company Drought Plan Guideline 2025[1]. This sets out the framework and requirements for developing a drought plan in line with the government's objectives to deliver secure, reliable, sustainable and affordable supplies of water, including the need to value nature and connect people with the environment.

The South West Water, Bristol Water and Bournemouth Water (SBB) Drought Plan covers Water Resource Zones (WRZs) in Devon, Cornwall and the Isles of Scilly, as well as Bristol, South Gloucestershire, North Somerset and parts of Somerset, plus Bournemouth, parts of Dorset, Hampshire and Wiltshire. SBB is due to publish its next drought plan in 2027, covering the period from 2027 to 2032. The SBB Drought Plan 2027 provides drinking water to a population of approximately 3.5 million.

As part of the environmental assessment process to support the development of the SBB Drought Plan 2027, a Water Framework Directive (WFD) assessment is required under The Water Environment (Water Framework Directive) (England and Wales) Regulation 2017. This assessment follows the following key guidance:

- EA 'Environmental assessment for water company drought planning – supplementary guidance,' 2025; and
- UK Water Industry Research (UKWIR) 'Environmental assessment guidance for water resources management plans and drought plans,' 2021.

A Strategic Environmental Assessment (SEA) is required for the SBB Drought Plan 2027 under the Environmental Assessment of Plans and Programmes Regulations 2004 ('SEA Regulations')[2]. The SEA works to inform the decision-making process through the identification and assessment of significant and cumulative effects that a plan may have on the environment. The SEA process is conducted at a strategic level and enables consultation on the potential effects of a plan with a wide range of stakeholders. The results of the WFD feed into the SEA process, as well as the Habitat regulation assessment (HRA) and Invasive Non-Native Species (INNS) assessment. Further details can be found in the main SEA Environmental Report, to which this document is appended.

The results of the WFD Level 1 and Level 2 assessments are presented in this appendix report.

## 1.2 SBB Drought Plan 2027 Options

### 1.2.1 Options considered

The SBB Drought Plan 2027 includes both supply and demand drought options. Supply actions consist of 'operational,' 'permit' and 'drought order' actions, as well as local EA agreements.

[1] Environment Agency (2025) *Water Company Drought Plan Guideline, 2025.* Available at: https://www.gov.uk/government/publications/water-company-drought-plan-guideline-2025 [accessed Jan 2026]

[2] GOV.UK (2004) *The Environmental Assessment of Plans and Programmes Regulations 2004*. Available at: https://www.legislation.gov.uk/uksi/2004/1633/contents [accessed Jan 2026]

Operational actions tend to be relatively minor activities which SBB can implement without the need for applying for drought permits. In most cases, operational actions have not undergone SEA, HRA, WFD and INNS assessments unless they have been identified as potentially causing harm to the environment or involve activities outside the norm of SBB activities. One operational action has undergone environmental assessments and will be reported on. The remaining supply options involve new or additional activities outside the norm of SBBs usual activities.

Demand options are activities aimed towards SBB customers to reduce consumption and therefore retain more water in the natural environment. Due to the nature of the measures, demand options do not require detailed WFD assessment, however, will undergo SEA to identify possible negative and positive effects associated with demand measures.

SBB initially developed a long list of options. Following engagement with regulators, internal SBB workshops and initial environmental screenings, these drought options were refined down to the list presented in the Plan.

The list of options that have undergone assessment includes 33 drought permit options, one action and four local EA agreements, and are presented in Table 1.1 below.

**Table 1.1: Drought Plan 2027 Options**

| Option ID | Option Name | Permit / Action | Option Description |
|---|---|---|---|
| **C-03** | River Fowey at Restormel - increase annual abstraction limit | Permit | Increase the annual abstraction licence limit in order to enable greater abstraction for winter pumped storage to Colliford Reservoir. |
| **C-04a** | Stannon Lake - increase daily abstraction limit | Permit | Increase the daily abstraction limit at Stannon Lake from 4Ml/d to 6Ml/d by installing temporary pumps and increase annual limit proportionally. Transfer to De Lank and Lowermoor WTW. |
| **C-06** | Colliford Reservoir - reduce compensation flow | Permit | Colliford not releasing compensation flows when making supply releases |
| **C-07a** | Park Lake - increase daily abstraction limit | Permit | Increase the daily abstraction limit at Park Lake from 8Ml/d to 14Ml/d. Also need to increase annual and rolling 5 year limit proportionally. |
| **C-10** | Drift Reservoir - reduce compensation flow | Permit | Reduce Drift Reservoir compensation flow by up to 50% |
| **C-11** | Hawk's Tor Pit - abstract from new source | Permit | Transfer 4Ml/d from Hawk's Tor Pit (former quarry) to Colliford Reservoir. |
| **C-17** | Stithians Reservoir - reduce compensation flow | Permit | Reduce Stithians compensation release rate by up to 50%. |
| **C-30** | Siblyback Reservoir - reduce compensation flow | Permit | Siblyback not releasing compensation flows when making supply releases |

| Option ID | Option Name | Permit / Action | Option Description |
|---|---|---|---|
| **C-37** | River Cober at Wendron - increase annual licence limit | Permit | Increase of annual abstraction limit which is a key constraint on this licence. |
| **C-40** | Colliford Reservoir - reduce fish bank releases | Local EA agreement | Reduce or not provide / reserve reservoir storage for fish bank releases. Requirement on company undertaking not licence. |
| **R-07** | Slade Reservoir - abstract from new source | Action | Abstract from licensed but disused source. Install temporary pumps to abstract the water and transfer the abstracted water to Hore Down WTW |
| **R-11** | River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May | Permit | Abstract from the River Lyd and transfer into Roadford Reservoir during April and May via existing pipeline (extending currently licensed pumping season of Nov to Mar). |
| **R-20** | Avon Reservoir - reduce compensation flow | Permit | Reduce Avon Reservoir compensation flow by up to 50% for 1 to 4 months in late summer to autumn. |
| **R-21** | Burrator Reservoir - reduce compensation flow | Permit | Reduce the compensation flow at Burrator Reservoir by up to 50% for 1 – 4 months in late summer to autumn |
| **R-22** | Fernworthy Reservoir - reduce compensation flow | Permit | Reduce the compensation flow at Fernworthy Reservoir by up to 50% for 1 to 4 months in late summer to autumn. |
| **R-23** | Trenchford Reservoir - reduce compensation flow | Permit | Reduce the compensation at Trenchford Reservoir by up to 50% for 1 to 4 months in late summer to autumn |
| **R-24** | Meldon Reservoir - reduce compensation flow | Permit | Reduce the compensation flow at Meldon Reservoir by up to 50% for 1 to 4 months in late summer to autumn |
| **R-25** | Roadford Reservoir - reduce compensation flow | Permit | Roadford not releasing compensation flows when making supply releases. |
| **R-26** | Upper Tamar Lake - reduce compensation flow | Permit | Reduce the compensation flow at Upper Tamar Lake by up to 50% for 1 to 4 months in late summer to autumn |
| **R-45** | River Dart & Littlehempston boreholes - aggregate daily and annual licence limits | Permit | Aggregate daily and annual abstraction limits between Littlehempston boreholes and ranneys licence and River Dart at Littlehempston licence. Full licensed volume cannot be abstracted from boreholes due to hydraulic constraints, but licence is key constraint for river abstraction. |
| **R-48** | Roadford Reservoir - reduce fish bank releases | Local EA agreement | Reduce or not provide / reserve reservoir storage for fish bank releases. Requirement on company undertaking not licence. |
| **W-03** | Wimbleball Reservoir - reduce compensation flow | Permit | Wimbleball not releasing compensation flows when making supply releases. |

| Option ID | Option Name | Permit / Action | Option Description |
|---|---|---|---|
| **W-06** | Brampford Speke & Stoke Canon - abstract from new source | Permit | Abstract from licensed but disused borehole sources, releasing the abstracted water into the River Exe and abstracting this water at Pynes WTW. Would need discharge permits / modification to abstraction licence / ordinary drought order. |
| **W-09** | River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May | Permit | Extension of winter pumped storage season (November to March) to include April and May. |
| **W-22** | Wimbleball Reservoir - reduce fish bank releases | Permit | Reduce or not provide / reserve reservoir storage for fish bank releases |
| **BR-27a** | Blagdon Reservoir - reduce compensation flow | Permit | Reduce the compensation flow at Blagdon Reservoir by up to 50% |
| **BR-27b** | Blagdon Reservoir - delay water bank releases | Local EA agreement | Delay of Blagdon Reservoir water bank releases until storage has recovered. Expectation that new licence will allow flexibility in timing when agreed with EA. Normally releases made in late summer |
| **BR-28a** | Reduction of Chew Valley Lake compensation release | Permit | Reduce the compensation flow at Chew Valley Lake by up to 50% |
| **BR-28b** | Chew Valley Lake - delay water bank releases | Local EA agreement | Delay of Chew Valley Lake water bank releases until storage has recovered. Expectation that new licence will allow flexibility in timing when agreed with EA. Normally releases made in late summer |
| **BR-29** | Chew Magna Reservoir - reduce compensation flow | Permit | Reduce the compensation flow at Chew Magna Reservoir by up to 50% |
| **BR-30** | Cheddar Ponds - reduce compensation flow | Permit | Reduce the compensation flow at Cheddar Ponds by up to 50% |
| **BR-31a** | River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October | Permit | Extend pump storage season for River Axe at Brinscombe to Cheddar Reservoir from Nov-Apr to include October and increase annual abstraction limit proportionally. |
| **BR-31b** | River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include May | Permit | Extend pump storage season for River Axe at Brinscombe to Cheddar Reservoir from Nov-Apr to include May and increase annual abstraction limit proportionally. |
| **BR-47** | River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction | Permit | Abstraction for pre-treatment and transfer to Cheddar Reservoir licensed for Nov-Apr. Commissioning and priming treatment processes each year takes a few weeks as it requires river water to be optimised (so abstracted water cannot be discharged to reservoir until complete). Allowing abstraction during October for |

| Option ID | Option Name | Permit / Action | Option Description |
|---|---|---|---|
| | | | commissioning treatment process with discharge back to abstraction point would allow water to be discharged immediately into reservoir on 1st Nov. May also need to increase annual limit proportionally. |
| **BN-04** | River Stour at Longham - remove low flow constraint | Permit | Remove low flow constraint on River Stour at Longham, allowing increased abstraction. |
| **BN-05** | Stanbridge boreholes – increase daily abstraction limit | Permit | Increase daily abstraction above current licence limit of 12.5Ml/d to 17.5Ml/d with current infrastructure and without borehole 3 and increase annual limit proportionally. |
| **BN-12** | River Stour at Longham - increase weekly abstraction limit | Permit | River Stour at Longham licence change in April 2028 includes reduction in allowed weekly abstraction total - 310.22 to 222.72Ml/week. Permit to increase weekly limit. |
| **IS-18** | St Martins - increase abstraction from boreholes to greater than 20m$^3$/d | Permit | Drop and resize pumps in existing boreholes to maximise Deployable Output (DO) above 20m$^3$/d. |

### 1.2.2 Removed options

Following the screening of significant environmental constraints and ongoing option development by SBB, some options originally identified by SBB were not progressed. The following options initially underwent early environmental assessment, but were determined as not suitable and have therefore not been considered further within this report:

- C-04b - Stannon Lake - lower hands off level
- C-07b - Park Lake - lower hands off level
- C-29a - Blackpool Pit.
- IS-08 – Bottled water.
- IS-13 - St Mary's - borehole opportunities requiring permits as above existing licence thresholds.
- IS-15 - Tresco - borehole opportunities with permits as outside of licence conditions.
- IS-20 - St Agnes - borehole opportunities above licence threshold.
- IS-21 - Transfer 'spare' licence volumes from Tresco to other islands - existing BH source (Borehole by lake).
- IS-22 - Transfer 'additional' water (>licence) from Tresco to other islands - existing BH source (Borehole by lake).
- IS-23 - Direct abstraction from Great Pool and/or Abbey Pool.

## 1.3 Drought Levels and Environmental Impact

Defra guidance on Drought Planning states that Drought Plans should demonstrate the actions that will be taken to manage drought at each level. It stipulates:

- Drought Level 1 actions (with a minor environmental impact) are implemented during prolonged dry weather.
- Drought Level 2 and 3a options (with a minor and moderate to major environmental impact respectively) are implemented during drought.

- Drought Level 3b options (with a major environmental impact) are implemented during a severe drought.

The process of determining the sequencing of drought options as a result of environmental impact has been an iterative process, with early findings from the SEA supporting decision-making. As the SEA process and plan-making tend to go hand-in-hand, the current guidance presents a challenge in using the environmental effects to determine the sequencing of drought options in the plan. Therefore, SBB have had to use professional judgement to supplement early SEA findings in order to put forward a preferred Plan.

There has been ongoing work on the drought options and levels, and as the results of environmental assessments have become available, the environmental impact category and associated confidence levels have been reviewed and updated where necessary. The drought levels reported on reflect the expected drought levels for options at the time of undertaking the assessments.

Due to programme constraints, some options identified for inclusion within the preferred Plan have not undergone stage 2 assessment (HRA AA, WFD Level 2 and INNS IRM). However, they have undergone stage 1 assessment (HRA ToLS, WFD Level 1 and INNS RA), and each have an option-level SEA. Care has been taken to ensure that the majority of the options which will be implemented first, and therefore more likely to be used, have undergone detailed stage 2 assessments. Most of the options within the Preferred Plan which are expected to be implemented in drought levels 1, 2 and 3a have undergone full assessment, with results reported on within the report and technical appendices. The 3b options within the Bournemouth WRZ have also undergone full detailed assessment, as these are the only drought supply options identified within this WRZ. All other 3b options have not yet undergone stage 2 assessment. The guidance states that 3b options are those with a major environmental impact. As such, it was considered imperative to ensure the options within the lower drought levels were fully assessed to ensure that they align with the guidance in having only a minor or moderate environmental impact.

It is possible that as a result of the findings of the more detailed assessments, the sequencing of options within the plan may change.

## 1.4 Environmental Assessment Reports

The EA's Drought Plan Guideline states that water companies must demonstrate they have met their responsibility to monitor, assess and where possible mitigate for the environmental impact of all drought supply options.

Drought options which are to be implemented at drought levels 2-3a will also undergo a detailed environmental assessment report EAR which will include hydrological assessments and ecological surveys which will build upon the assessments undertaken to date in order to reach a state of 'permit readiness.' An EAR methodology document has been developed as part of the SEA work and will be subject to consultation alongside this report. This will set out the detail and structure which will be adhered for every EAR in the Plan. Alongside this, SBB have agreed to set out a timeline for undertaking the EAR work, which can be found in Appendix 5 of the Drought Plan.

## 1.5 Preferred Plan

The preferred plan includes a selection of supply and demand options across the SBB region. All available supply options have been taken forward in the Plan. This has ensured a robust Plan which offers a number of supply options in every WRZ, should they be required during a drought.

It is assumed that for each supply side option, the relevant demand side options will have been active for 28 days prior to the implementation of the relevant supply option for that drought level.

As per EA guidance, options considered to have a minor environmental impact will be implemented first at drought level 1 and 2, with options assessed as having a moderate-major environmental impact implemented at later drought levels (3a and 3b), as these are less likely to be needed.

As every available option has been selected for the Plan, no alternatives to the preferred Plan were available for assessment. Therefore, the SEA takes the approach of assessing the environmental effects at each drought level, to establish how the environment would likely be affected as a drought worsens, and to support the decision-making in relation to assigning options to drought levels.

## 1.6 The Water Framework Directive

The Water Framework Directive (WFD) was introduced into UK law in 2003. The latest regulations are set out in The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017[3] (known as the WFD Regulations). These regulations require all water bodies (both surface and groundwater) to achieve 'good status.'

For surface water bodies good status is a function of good ecological status (GES) (for biological, physico-chemical and hydromorphological elements and specific pollutants) and good chemical status (Priority Substances and Priority Hazardous Substances). For groundwater good status is a function of quantitative (surface water, groundwater dependent terrestrial ecosystems (GWDTE), saline intrusion and water balance) and chemical status (dependent surface water body, drinking water protected areas, GWDTE, saline intrusion and general chemical).

The WFD Regulations require that the water bodies experience no deterioration in status and no impediment is introduced which could prevent the achievement of future water body objectives and good status. The WFD Regulations promote long-term sustainable water management, with the key objectives of providing a high level of protection to the aquatic environment, including:

- aquatic ecology
- unique and valuable habitats
- drinking water resources
- bathing water

All the key objectives are integrated for each river basin district with objectives 2, 3 and 4 above reflecting specific bodies of water that are designated for drinking water abstraction, supporting special wetlands, or bathing areas.

The WFD Regulations, regulation 13, sets out the "environmental objectives" for natural surface and groundwater bodies, and artificial water bodies (AWB) and heavily modified water bodies (HMWBs). Natural surface water bodies must, by 2015, adhere to good ecological and chemical status and groundwater bodies to good quantitative and chemical status. Artificial and HMWBs (A/HMWB) must achieve good ecological potential (GEP) and good chemical status. Regulation 13 also sets out the principle of no deterioration, providing protection from the deterioration of water status/potential. The WFD Regulation, regulation 15, sets out the criteria for the designation of artificial or heavily modified water bodies.

[3] GOV.UK (2017) *The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017* Available at: https://www.legislation.gov.uk/uksi/2017/407/contents [accessed 29/08/2025]

Regulations 8 to 10 set out the protection of specific areas for the protection of areas used for drinking water, shellfish water and protected areas, respectively.

Exemptions are defined within the WFD Regulations, with regulations 16 to 19 outlining the conditions under which the achievement of good status or potential may be phased or not be achieved, or under which deterioration may be allowed. Regulations 16 to 19 describe these distinct conditions. In summary:

- Regulation 16 allows an extension of the time limit so that good status or potential is, under certain conditions, achieved only after 2015.
- Regulation 17 allows the achievement of less stringent objectives under certain conditions.
- Regulation 18 allows the temporary deterioration of status in case of natural causes or "force majeure".
- Regulation 19 allows for deterioration of status or non-achievement of good status or potential under certain distinct conditions. If any options are identified as leading to a risk of water body scale deterioration that cannot be mitigated, then a regulation 19 derogation application would be needed. Where a regulation 19 exemption application is needed, various tests must be passed including:
  - The benefits of the option cannot be achieved by a significantly better environmental option.
  - All practicable steps have been taken to mitigate the adverse effects on the water body.
  - The reasons for the modifications or alterations are explicitly set out in the River Basin Management Plan (RBMP).
  - There is an overriding public interest in the proposed development and/or its benefits outweigh the benefits of delivering the WFD objectives.

## 1.7 Scope of Report

The purpose of this report is to present the WFD assessments which have been undertaken to evaluate how the drought options within the SBB Drought Plan 2027 may impact the water environment.

The objectives of a WFD assessment are:

- To ensure there is no deterioration between WFD status class of any element in the water body as set out in WFD Regulation 13.
- To ensure no new impediments to attaining ‘Good’ WFD status or potential for the water body, or any assessed element, as set out in Regulation 13. In some water bodies it is accepted that it is currently technically infeasible or disproportionately costly to achieve Good status or potential. If this is the case, the test is applied to current agreed objectives for the water body.
- To ensure that the planned programme of measures in the current cycle of RBMPs, to help attain the WFD objectives from the water body, are not compromised.

As well as these legally binding WFD objectives, other objectives set out in the RBMP should be reviewed to see if the options can assist in meeting the WFD objectives:

- Does the option assist in attaining the WFD objectives for the water body?
- Does the option assist in attaining the objectives associated with WFD protected areas?
- Does the option reduce treatment needed in the production of drinking water and look to work in partnership with others, promoting the requirements of Regulation 8?

This report presents the assessment of 40 drought supply options.

The aims of this report are to:

- Update accordingly for assessment type e.g.:
- Present the results of the ‘Level 1 screening’ of 40 drought options;
- Use the results of the Level 1 screenings to identify options that require a more detailed ‘Level 2 assessment’;
- Present the results of the Level 2 assessments; and
- Evaluate potential cumulative / in-combination effects of interacting options within the SBB Drought Plan 2027, and with other strategic regional plans and developments.

# 2 Methodology

## 2.1 Approach to WFD assessment for Drought Plan 2027 options

The All Company Working Group (ACWG) has developed a consistent framework for undertaking WFD assessment for Strategic Resource Option (SRO) projects. This same approach was applied to the Water Resource Management Plans in 2024, which included some drought options. Therefore, the use of this ACWG framework for these drought plan assessments ensures a consistent approach. This framework follows a standard WFD assessment approach of screening, scoping and assessment and is therefore considered appropriate for drought planning. This framework has been applied to ensure that the SBB Drought Plan 2027 supports the achievement of environmental objectives for water resources in the RBMPs. The environmental objectives in the RBMP include preventing WFD deterioration and supporting achievement of protected area and water body objectives, as well as not preventing a water body from reaching 'good' status or 'good potential' in the future. This assessment considers mitigation that would need to be put in place to protect water body status and WFD future objectives.

Two stages of assessment are undertaken using the ACWG WFD approach, an initial Level 1 basic screening/scoping (see Section 2.2), and a Level 2 detailed impact assessment (see Section 2.3). These are completed using a spreadsheet assessment tool. Level 1 outcomes are automated based on option information for Level 1 and based on expert judgment for Level 2.

As part of the WFD Level 1 assessment of the Drought Plan options, an additional Drought Plan specific Red Amber Green (RAG) rating has been undertaken. This has been carried out in addition to the standard ACWG framework approach, with the intention of providing additional context to the relative impact of the drought options assessed. Under the ACWG almost all drought options would identify a WFD deterioration risk under the Level 1 screening assessment. Therefore, it would be difficult to identify which options have a higher overall risk to WFD. This additional Red-Amber-Green (RAG) assessment has been carried out in order to attempt to provide an intermediate stage between Level 1 and 2 assessments, to identify which options have higher risks than others, prior to the completion of the Level 2 assessment. The approach is outlined in Section 2.2.2.

## 2.2 ACWG WFD Level 1 – basic screening

### 2.2.1 Standard approach

The first stage of WFD assessment was completed for all options. The Level 1 assessment followed the ACWG methodology outlined in the framework and is summarised as follows:

- The affected water bodies are identified.
- The option is reviewed for activities taking place in each water body.
- Possible impacts of the option are identified. Predetermined scores for each activity (as set out in the ACWG framework) in a water body are applied, using a 6-point scale from -2 to 3 (as shown in **Table 2.1**).
- Embedded mitigation measures (those already included in the scheme design) are applied. Where this embedded mitigation would remove the potential impact from an activity, the impact score is adjusted using professional judgement and justification provided.

- A maximum screening score for the water body is then calculated. Where this maximum screening score identifies water bodies with a maximum score of -2 to 1, these are 'screened out' and do not proceed to further assessment. If the maximum impact score is greater than 1 then the water body is 'screened in' and assessed at Level 2. This is known as detailed impact screening (please refer to **Section 2.3**).

**Table 2.1: Impact scoring system used for WFD assessments**

| Impact | Score | Description |
|---|---|---|
| Major beneficial | -2 | Impacts that, taken on their own, have the potential to lead to the improvement in the ecological status or potential of a WFD quality element for the entire water body. |
| Minor beneficial | -1 | Impacts that, when taken on their own, have the potential to lead to a minor localised or temporary improvement that does not affect the overall WFD status of the water body or any quality elements. |
| Negligible | 0 | No measurable change in the quality of the water environment or the ability for target WFD objectives to be achieved. |
| Minor localised | 1 | Impacts that, when taken on their own, have the potential to lead to a minor localised, short-term and fully reversible effects on one or more of the quality elements but would not result in the lowering of WFD status. Impacts would be very unlikely to prevent any target WFD objectives from being achieved. |
| Amber adverse | 2 | Impacts that, when taken on their own, have the potential to lead to a widespread or prolonged effect on the quality of the water environment that may result in the reduction in WFD status. Impacts have the potential to prevent target WFD objectives from being achieved. |
| Major adverse | 3 | Impacts when taken on their own have the potential to lead to a significant effect and permanent deterioration of WFD status. Potential for high impact on preventing target WFD objectives from being achieved. |

The WFD Level 1 screening outcomes for the SBB Drought Plan 2027 options are presented in **Section 3** and **Annex A**. Where water bodies and option impacts were 'screened in,' they have been taken forward to Level 2 assessment.

### 2.2.2 Drought Plan RAG rating

An additional RAG rating has been included as part of the Level 1 assessment of the SBB Drought Plan 2027 options to help support the screening process. A bespoke methodology has been designed to provide a relative risk rating of the drought options at the Level 1 stage through consideration of collated environmental information, which includes consideration of:

- the percentage flow reduction of the drought permit option volume against the Q95 exceedance flow recorded at the nearest surface watercourse flow station (preferably upstream where possible)[4]
- pathways for impact on downstream, freshwater designated sites (Sites of Special Scientific Interest, Special Protected Areas, Special Areas of Conservation and Ramsar sites)
- pathways for impact on downstream, freshwater abstractions
- proximity of options to Source Protection Zones (included for groundwater abstraction options)

[4] A % flow reduction is calculated using the drought permit abstraction volume divided by the Q95 exceedance flow value.

- Identification of existing pressures on ecology from low flows (using Reasons for Not Achieving Good Statuses for Fish, Macrophytes and Phytobenthos and Macroinvertebrates within the affected water bodies)

Using the collated environmental information, the option is assessed against a scoring criterion which define the overall RAG rating of the option (see **Table 2.2**).

**Table 2.2: RAG Rating Scoring Criterion**

| Indicator | Score Key | Justification |
|---|---|---|
| Groundwater or surface water abstraction-based option | 2 = Surface water (SW)<br>1 = Groundwater (GW) | Surface water abstraction directly impact flow<br>Groundwater abstraction may have a reduced impact on flow due to changes in aquifer storage or disconnection from watercourses in drought periods |
| % Flow Reduction (option vs Q95) | 3 = >25% reduction<br>2 = 10-25% reduction<br>1 = <10% reduction | Crudely based on the abstraction impact bands used in the EA Environmental flow indicator (EFI) calculations. |
| Downstream designated sites in freshwater bodies | 3 = Yes<br>2 = Yes but downstream of major tributary<br>1 = No designated sites downstream | Proximity of designated sites downstream of the option |
| Downstream abstractions in freshwater bodies | 3 = Yes<br>2 = Yes but downstream of major tributary<br>1 = No abstractions downstream | Proximity of other abstractions downstream of the option. |
| Source protection zones (SPZs) (score 1 if surface water (SW) abstraction) | 2 = Yes<br>1 = No | For groundwater options only increased risk if option is located with SPZ of other abstractions |
| Fish Status | 3 = Less than Good status with abstraction related Reasons for not achieving good (RNAG)<br>2 = Less than Good status for other reasons<br>1 = Good or High status | Identification of existing flow related pressure on fish, or whether fish may be more sensitive to changes in flow due to existing stresses from other sources (e.g. poor water quality) |
| Macrophytes + Phytobenthos Status | 3 = Less than Good status with abstraction related RNAG<br>2 = Less than Good status for other reasons<br>1 = Good or High status | Identification of existing flow related pressure on macrophytes, or whether macrophytes may be more sensitive to changes in flow due to existing stresses from other sources (e.g. poor water quality) |
| Macroinvertebrates Status | 3 = Less than Good status with abstraction related RNAG<br>2 = Less than Good status for other reasons<br>1 = Good or High status | Identification of existing flow related pressure on macroinvertebrates, or whether macroinvertebrates may be more sensitive to changes in flow due to existing stresses from other sources (e.g. poor water quality) |
| **Total** | 15-21 (Red) | Relative high risk of impact on WFD water bodies due to option |
| | 13-14 (Amber) | Relative moderate risk of impact on WFD water bodies due to option |
| | 8 – 12 (Green) | Relative low risk of impact on WFD water bodies due to option |

The WFD Level 1 screening outcomes include the RAG ratings for the SBB Drought Plan 2027 options are presented in **Section 3** and **Annex A**. Where water bodies and option impacts were 'screened in,' they have been taken forward to Level 2 assessment.

## 2.3 Level 2 Screening

The second stage of WFD assessment is more detailed. These Level 2 assessments have been completed for options that were screened in at Level 1. The Level 2 assessment includes the following steps:

- For each water body where a risk of deterioration has been identified in Level 1, a detailed assessment is undertaken on the potential for impacts on each WFD quality element, from each activity proposed as part of the option. Each activity is assessed against each WFD status element and a score (using the same criteria set out in **Table 2.1**) is assigned using professional judgement.
- An assessment of confidence in the assessment is given (low, medium or high), for the WFD baseline data and around the design certainty. These confidence levels are assigned for each assessment, based on the quality and availability of physical data and design information for the option at the time of assessment (note, confidence/certainty is expected to be low during this initial assessment and will increase over time). The criteria for these confidence levels is set out in the ACWG framework and provided in **Table 2.3**. For options where confidence levels are medium or low, the requirements for further data collection or design detail are outlined in order to raise this confidence level in the future.
- Further mitigation is also identified.
- A post mitigation impact scope is also assigned based on professional judgement of the impact once the proposed further mitigation, or suitable alternative, has been included in the design.
- Where the assessment certainty is medium or low, further investigations are identified which would improve the certainty of the assessment outcomes.

**Table 2.3: Confidence levels used in the Level 2 assessment**

| Confidence level | Description |
|---|---|
| Low | Limited data and evidence available, based mainly or completely on expert judgement with many assumptions.<br>Preliminary design information only, detailed information on location/routes, construction methods etc not yet available. |
| Medium | Some data and evidence available, based partially on professional judgment with some assumptions.t with some assumptions.<br>Design progressed but some assumptions made on construction methods etc. |
| High | Lots of appropriate data and evidence available, minimal assumptions needed.<br>Design advanced minimal assumptions needed |

The WFD Level 2 assessment outcomes for the SBB Drought Plan 2027 options are summarised in **Section 4** and **Annex B.**

Where water bodies and option impacts have been identified, recommendations have been made for increasing the confidence in the assessment. This is expected to be through enhancing the level of detail available during option development and the pre-application design process when development consent is sought.

## 2.4 Cumulative and In-Combination Effects

The ACWG WFD assessment process, described in Sections 2.2 and 2.3, is designed to identify where an individual option contained within the SBB Drought Plan 2027 would lead to a direct risk of deterioration to a specific water body (i.e. option compliance). There is also the need to consider the potential risk of deterioration posed by the Drought Plan as a whole, to identify whether more than one option included in the Drought Plan could lead to an increase in

deterioration risk to one, or more, water bodies. As such, a cumulative effects assessment was undertaken to identify whether any water bodies are potentially at risk from multiple drought permit options.

The water bodies listed as potentially being impacted under more than one option were identified for each Water Resource Zone (WRZ) and each Drought Level. The proposed activities associated with all options within each water body were reviewed to determine whether there is an increased risk of WFD deterioration and a new impact scope to be assigned to the water body, as required. The assessment is based on the WFD Level 1 and 2 assessment outcomes at this stage. As further investigations are conducted and design information becomes available for future updates to the plan, the individual Level 2 WFD assessments will require updates. Following these adjustments, updates to the cumulative effects assessments will be required.

## 2.5 Limitations and Assumptions

The impact scoring system used in this assessment is derived from the ACWG (2020) guidance and focusses on screening at a project level. The limitations of this scoring system to assess WFD compliance at the strategic level must therefore be acknowledged. However, this system has been used to guide this WFD assessment, in the manner outlined below.

As most of the options set out in the SBB Drought Plan 2027 are in the early stages of design development, a precautionary approach has been exercised in the derivation of WFD compliance risk scoring, following the Level 2 assessment approach. If insufficient evidence was available at the time of assessment to rule out a potential risk of deterioration and/or meeting WFD objectives, that has been reflected in the tables provided with this assessment in the maximum impact score column, which reflects the impact scoring system which contains a category of potential deterioration risk.

The assessment also includes consideration of potential available mitigation, and these measures are taken into account in a further column which reflects the scoring of ‘post-mitigation’ impact. This scoring approach has considered where a potential deterioration risk is identified whether an adjustment should be made to the impact score taking into account the mitigation measures. Given that this assessment is at a strategic plan level the scoring has been undertaken based on reasonable professional judgment at this stage. The mitigation identified at this stage is generic or best practice in nature, so is understood to have a reasonable level of confidence that it can be applied at a project level.

Clearly more detailed WFD assessments will need to be undertaken at the project-level design development stage.

The WFD assessment has the following limitations and assumptions:

- The assessment has used WFD 2019 baseline classification data, which is the current officially reported baseline in the Cycle 3 RBMP.
- All assessments will be based on a precautionary approach where limited data or design certainty is identified.
- All pipelines are assumed to be constructed underground, rather than above ground.
- Assessment assumes that pipelines will be directionally drilled or pipe-jacked beneath any larger watercourses, roads or railways and bypass and trenched under small roads and watercourses. Therefore, they will not be installed over watercourses above ground or cause direct impacts.
- The WFD assessment initially considers the water bodies where changes to abstraction and discharges will take place. There is potential for some effects to continue downstream of the

abstraction point. These downstream water bodies have been considered both precautionarily and where option specific impacts are likely to present and impact. It is assumed the effects of changes in abstractions and discharges would decrease downstream until they are far enough removed from option activity to be considered at a 'negligible' risk. This assumption will need to be reviewed as additional hydrological studies are undertaken.

- For those drought plan options that have been taken forward from previous 2022 options, the relevant EARs have been used to support their assessment.
- In-combination effects assessments are based on publicly available information from planning applications, development consent orders (DCOs) and planning allocations available at the time of writing.

Further, more option specific assumptions are set out in the Level 2 assessment summary tables (outlined in **Section 3.5**).

## 2.6 Consultation

Throughout the development of the Drought Plan 2027, consultation with the Environment Agency and Natural England has been ongoing to ensure the Plan meets expectations. Workshops were held throughout 2025, primarily to present early SEA, HRA, WFD and INNS assessment findings, but also to identify key regulator concerns and insights on specific options. The consultation process aims to address and minimise any gaps in information or the assessments to ensure all potential environmental effects have been considered with regard to the SBB Drought Plan 2027.

The Environmental Report and Technical Appendices (including this report) will be issued for a 10-week consultation period from May to July 2026 to the statutory bodies: the EA, NE, and HE, as well as being available to wider stakeholders for comment.

Following receipt of comments, a Statement of Response (SoR) will be published, in line with the requirements of the Water Resource Planning Guidelines.

# 3 Level 1 Assessment Results

This section presents a summary of the results of the initial Level 1 screening assessments. The full assessments are provided in **Annex A**. Where these assessments highlighted the requirement for further investigation, Level 2 assessments were undertaken. These are summarised in **Section 4**.

## 3.1 Colliford WRZ

**Table 3.1: Colliford WRZ Level 1 assessment outcomes and RAG rating**

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **C-03** | River Fowey at Restormel - increase annual abstraction limit | Increase the annual abstraction licence limit in order to enable greater abstraction for winter pumped storage to Colliford Reservoir. | GB510804806400:FOWEY<br>GB40802G806600:Looe and Fowey<br>GB30846225:Colliford Lake | GB108048001420:Lower River Fowey | Green (12) | Key risk arises from size of proposed maximum abstraction relative to Q95 flow.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **C-04a** | Stannon Lake - increase daily abstraction limit | Increase the daily abstraction limit at Stannon Lake from 4Ml/d to 6Ml/d by installing temporary pumps and increase annual limit proportionally. Transfer to De Lank and Lowermoor WTW. | GB108049006980:Camel (De Lank to Stannon)<br>GB40802G800300:North Cornwall | GB30846165:Stannon Lake<br>GB108049007040:Stannon Stream | Amber (13) | Downstream designated site may be impacted by possible reduced contributions from Stannon Lake.<br>Better understanding of lakes operation is required to more accurately assess this option and its downstream impact.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **C-06** | Colliford Reservoir - reduce compensation flow | Colliford not releasing compensation flows when making supply releases. | GB30846225:Colliford Lake<br>GB510804806400:FOWEY<br>GB40802G806600:Looe and Fowey<br>GB108048007640:St Neot River<br>GB108048001410:Fowey (Warleggan to St Neot) | GB108048001420:Lower River Fowey | Amber (14) | Key risk arises from size of proposed maximum discharge reduction relative to Q95 flow.<br>Reservoir operation specific RNAGs are present in water bodies impacted by the option.<br>The presence and impact of downstream abstractions (additional to Restormel) in combination with this option is unclear. |
| **C-07a** | Park Lake - increase daily abstraction limit | Increase the daily abstraction limit at Park Lake from 8Ml/d to 14Ml/d. Also need to increase annual and rolling 5 year limit proportionally. | GB108048007650:Fowey (Upper)<br>GB108048001410:Fowey (Warleggan to St Neot)<br>GB108048001420:Lower River Fowey<br>GB510804806400:FOWEY | N/A | Amber (13) | Assessment relies on a gauging station a significant distance from the point of abstraction. As such a precautionary approach has been applied to impact scoring for the flow reduction aspect of RAG rating. This comes despite findings of the EAR which suggest impacts are mitigated quickly by other tributaries flows. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| | | | GB30846225:Colliford Lake<br>GB108048002320:Seaton<br>GB40802G806600:Looe and Fowey | | | Better understanding of lakes operation is required to more accurately assess this option and its downstream impact.<br>The presence and impact of downstream abstractions (additional to Restormel) in combination with this option is unclear. |
| **C-10** | Drift Reservoir - reduce compensation flow | Reduce Drift Reservoir compensation flow by up to 50%. | GB30846547:Drift Reservoir<br>GB40802G800100:West Cornwall | GB108048002090:Newlyn River | Green (12) | Key risk arises from size of proposed maximum discharge reduction relative to Q95 flow.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **C-11** | Hawk's Tor Pit - abstract from new source | Transfer 4Ml/d from Hawk's Tor Pit (former quarry) to Colliford Reservoir or local treatment works. | GB108048007630:Warleggan River<br>GB510804806400:FOWEY<br>GB108048001420:Lower River Fowey<br>GB108048007640:St Neot River<br>GB30846225:Colliford Lake<br>GB40802G806600:Looe and Fowey | N/A | Amber (13) | Surrounding and downstream designated sites may be impacted by possible reduced contributions from Hawks Tor pit.<br>Better understanding of lakes operation is required to more accurately assess this option and its downstream impact.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **C-17** | Stithians Reservoir - reduce compensation flow | Reduce Stithians compensation release rate by up to 50%. | GB30846501:Stithians Reservoir<br>GB520804814400:CARRICK ROADS INNER<br>GB40802G800200:South Cornwall | GB108048001140:Kennal | Green (12) | Key risk arises from size of proposed maximum discharge reduction relative to Q95 flow.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **C-30** | Siblyback Reservoir - reduce compensation flow | Siblyback not releasing compensation flows when making supply releases | GB30846262:Siblyback Lake<br>GB510804806400:FOWEY<br>GB40802G806600:Looe and Fowey | GB108048007650:Fowey (Upper)<br>GB108048001410:Fowey (Warleggan to St Neot)<br>GB108048001420:Lower River Fowey | Amber (13) | Downstream designated site may be impacted by possible reduced contributions from Siblyback Lake.<br>The presence and impact of downstream abstractions is a key risk for this option; it is unclear if any additional to Trekeivesteps and Restormel are present. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **C-37** | River Cober at Wendron - increase annual licence limit | Increase of annual abstraction limit which is a key constraint on this licence. | GB40802G800100: West Cornwall | GB108048001171: Upper River Cober<br>GB108048001172: Lower River Cober<br>GB30846556: The Loe | Red (15) | Key risk of option is to downstream designated site (The Loe SSSI) that may be impacted by possible reduced level due to loss of river flow upstream in the River Cober.<br>The presence and impact of downstream abstractions between abstraction point and The Loe is unclear. |
| **C-40** | Colliford Reservoir - reduce fish bank releases | Reduce or not provide / reserve reservoir storage for fish bank releases. | GB30846225:Colliford Lake<br>GB510804806400:FOWEY<br>GB40802G806600:Looe and Fowey | GB108048007640:St Neot River<br>GB108048001410:Fowey (Warleggan to St Neot)<br>GB108048001420:Lower River Fowey | Amber (14) | Key risk arises from unknown quantity of bank releases resulting in precautionary scoring.<br>Increase understanding of fish bank releases quantity and how this is operated in context of Colliford reservoir.<br>Reservoir operation specific RNAGs are present in water bodies impacted by the option.<br>The presence and impact of downstream abstractions (additional to Restormel) in combination with this option is unclear. |

## 3.2 Roadford WRZ

**Table 3.2: Roadford WRZ Level 1 assessment outcomes and RAG rating**

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **R-07** | Slade Reservoir - abstract from new source | Abstract from licensed but disused source. Install temporary pumps to abstract the water and transfer the abstracted water to Hore Down WTW | • N/A | • GB610807680004:Bristol Channel Outer South<br>• GB30843764:Slade Lower Reservoir<br>• GB30843794:Slade Higher Reservoir | **Amber (13)** | The presence and impact of downstream abstractions in combination with this option is unclear. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| | | | | • GB40802G801000:River Taw and North Devon Streams | | |
| **R-11** | River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May | Abstract from the River Lyd and transfer into Roadford Reservoir during April and May via existing pipeline (extending currently licensed pumping season of Nov to Mar). | • GB108047007910:Tamar (River Lyd to River Inny)<br>• GB40802G806700:Tamar | • GB108047007731:Lower River Lyd<br>• GB30847000:Roadford Lake | **Amber (14)** | Key risk arises from size of proposed maximum abstraction quantity relative to river flow.<br>Downstream designated sites may be impacted by possible reduced flow in the Lyd.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **R-20** | Avon Reservoir - reduce compensation flow | Reduce Avon Reservoir compensation flow by up to 50% for 1 – 4 months in late summer to autumn. | • GB30846291:Avon Dam Reservoir<br>• GB510804606000:AVON<br>• GB40802G800700:Teign, Avon, Dart and Erme | • GB108046004941:Upper Avon<br>• GB108046004940:Avon – Upper<br>• GB108046004900:Avon - Lower | **Amber (13)** | Assessment relies on an inappropriate gauging station to understand the Q95 flow near to the point of abstraction. As such the impact scoring for the flow reduction aspect of RAG rating is precautionary.<br>Downstream designated sites may be impacted by possible reduced flow in the Avon.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **R-21** | Burrator Reservoir - reduce compensation flow | Reduce the compensation flow at Burrator Reservoir by up to 50% for 1 – 4 months in late summer to autumn | • GB30846279:Burrator Reservoir<br>• GB520804714300:PLYMOUTH TAMAR<br>• GB40802G806700:Tamar | • GB108047003660:Meavy<br>• GB108047004040:Lower River Plym | **Red (15)** | Assessment relies on an inappropriate gauging station to understand the Q95 flow near to the point of abstraction. As such the impact scoring for the flow reduction aspect of RAG rating is precautionary.<br>Downstream designated sites may be impacted by possible reduced flow in the Meavy and beyond.<br>Reservoir operation specific RNAGs are present in water bodies impacted by the option. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| | | | | | | The presence and impact of downstream abstractions in combination with this option is unclear. |
| **R-22** | Fernworthy Reservoir - reduce compensation flow | Reduce the compensation flow at Fernworthy Reservoir by up to 50% for 1 – 4 months in late summer to autumn. | • GB30846123:Fernworthy Reservoir<br>• GB510804605800:TEIGN<br>• GB40802G800700:Teign, Avon, Dart and Erme | • GB108046008510:South Teign River<br>• GB108046008550:Teign (Upper)<br>• GB108046008540:Teign (Lower) | **Red (15)** | Assessment relies on an inappropriate gauging station to understand the Q95 flow near to the point of abstraction. As such the impact scoring for the flow reduction aspect of RAG rating is precautionary.<br>Downstream designated sites may be impacted by possible reduced flow in the Teign.<br>The presence and impact of downstream abstractions in combination with this option |
| **R-23** | Trenchford Reservoir - reduce compensation flow | Reduce the compensation at Trenchford Reservoir by up to 50% for 1 – 4 months in late summer to autumn | • GB30846161:Trenchford Reservoir<br>• GB510804605800:TEIGN<br>• GB40802G800700:Teign, Avon, Dart and Erme | • GB108046008500:Beadon Brook<br>• GB108046008540:Teign (Lower) | **Red (15)** | Assessment relies on an inappropriate gauging station to understand the Q95 flow near to the point of abstraction. As such the impact scoring for the flow reduction aspect of RAG rating is precautionary.<br>Downstream designated sites may be impacted by possible reduced flow in Beadon Brook and Teign.<br>Water industry specific RNAG present in water body impacted by the option.<br>The presence and impact of downstream abstractions in combination with this option |
| **R-24** | Meldon Reservoir - reduce compensation flow | Reduce the compensation flow at Meldon Reservoir by up to 50% for 1 – 4 months in late summer to autumn | • GB30845945:Meldon Reservoir<br>• GB540805015500:TAW / TORRIDGE<br>• GB40802G800600:Torridge and Hartland Streams | • GB108050008080:West Okement<br>• GB108050008110:Middle River Okement<br>• GB108050008130:Lower River Okement | **Amber (14)** | Key risk arises from size of proposed maximum discharge reduction relative to Q95 flow.<br>Downstream designated sites may be impacted by possible reduced flow in the Okement. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| | | | | • GB108050014660:Torridge (Lew to Estuary) | | The presence and impact of downstream abstractions in combination with this option is unclear. |
| **R-25** | Roadford Reservoir - reduce compensation flow | Roadford not releasing compensation flows when making supply releases. | • GB30847000:Roadford Lake<br>• GB108047008020:Wolf<br>• GB108047008010:Thrushel<br>• GB520804714300:PLYMOUTH TAMAR<br>• GB40802G806700:Tamar<br>• GB108047007731:Lower River Lyd<br>• GB108047007910:Tamar (River Lyd to River Inny) | • GB108047007860:Lower River Tamar | **Red (15)** | Key risk arises from size of proposed maximum discharge reduction relative to Q95 flow.<br>Downstream designated sites in the Tamar system may be impacted by possible reduced releases.<br>The presence and impact of downstream abstractions (additional to Gunnislake) in combination with this option is unclear. |
| **R-26** | Upper Tamar Lake - reduce compensation flow | Reduce the compensation flow at Upper Tamar Lake by up to 50% for 1 – 4 months in late summer to autumn | • GB30845277:Upper Tamar Lake<br>• GB40802G806700:Tamar | • GB108047013920:Upper River Tamar<br>• GB30845324:Lower Tamar Lake<br>• GB108047013890:Tamar (Small Brook to Lamberal Water)<br>• GB108047008050:Tamar (Small Brook to River Deer)<br>• GB108047008030:Tamar (River Ottery to River Deer)<br>• GB108047007940:Tamar (River Ottery to River Lyd) | **Amber (14)** | Key risk arises from size of proposed maximum discharge reduction relative to Q95 flow.<br>Downstream designated sites in the Tamar system may be impacted by possible reduced releases.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **R-45** | River Dart & Littlehempston boreholes - aggregate daily and annual licence limits | Aggregate daily and annual abstraction limits between Littlehempston boreholes and ranneys licence and River Dart at Littlehempston licence. Full licensed volume cannot be abstracted from boreholes due to hydraulic constraints, but licence is key constraint for river abstraction. | • GB510804605900:DART | • GB108046008350:Dart<br>• GB40802G800700:Teign, Avon, Dart and Erme<br>• GB108046005160: Bidwell Brook<br>• GB108046005430: Hems - Lower | **Amber (14)** | Downstream designated sites in the Dart estuary may be impacted by possible reductions in flow following an increase in groundwater abstraction.<br>Boreholes that are the subject of proposed option are within an SPZ.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **R-48** | Roadford Reservoir - reduce fish bank releases | Reduce or not provide / reserve reservoir storage for fish bank releases. Requirement on company undertaking not licence. | • GB30847000:Roadford Lake<br>• GB108047007910:Tamar (River Lyd to River Inny)<br>• GB108047007860:Lower River Tamar<br>• GB520804714300:PLYMOUTH TAMAR<br>• GB40802G806700:Tamar | • GB108047008020:Wolf<br>• GB108047008010:Thrushel<br>• GB108047007731:Lower River Lyd | **Red (15)** | Key risk arises from unknown quantity of bank releases resulting in precautionary scoring.<br>Downstream designated sites in the Tamar system may be impacted by possible reduced releases.<br>The presence and impact of downstream abstractions (additional to Gunnislake) in combination with this option is unclear. |

## 3.3 Wimbleball WRZ

**Table 3.3: Wimbleball WRZ Level 1 assessment outcomes and RAG rating**

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **W-03** | Wimbleball Reservoir - reduce compensation flow | Wimbleball not releasing compensation flows when making supply releases. | • GB30844471:Wimbleball Lake<br>• GB108045020900:Upper River Haddeo<br>• GB108045015090:Lower River Haddeo<br>• GB108045015060:Exe (Haddeo to Barle) | • GB108045015050:Exe (Barle to Culm)<br>• GB108045009060: Exe (Culm to Creedy)<br>• GB108045009040:Exe (Creedy to Estuary) | **Red (15)** | Key risk arises from size of maximum discharge reduction relative to Q95 flow.<br>Designated sites south of reservoir may be impacted by reduced flow released.<br>The presence and impact of downstream abstractions (additional to Allers and Pynes along Exe) in combination with this option is unclear. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| | | | • GB510804505600:EXE<br>• GB40802G801800:Central Devon and Exe - Aylesbeare Mudstone | | | |
| **W-06** | Brampford Speke & Stoke Canon - abstract from new source | Abstract from licensed but disused borehole sources, releasing the abstracted water into the River Exe and abstracting this water at Pynes WTW. Would need discharge permits / modification to abstraction licence / ordinary drought order. | N/A | • GB108045015050:Exe (Barle to Culm)<br>• GB108045009060: Exe (Culm to Creedy)<br>• GB40801G801700:Permian Aquifers in Central Devon<br>• GB108045014970:Lower Culm | **Green (9)** | Potential exacerbation of an existing pressure to biological quality elements (noted by RNAG present in one water body scheme operates in). |
| **W-09** | River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May | Extension of winter pumped storage season (November to March) to include April and May. | • GB510804505600:EXE<br>• GB30844471:Wimbleball Lake<br>• GB40802G801800:Central Devon and Exe - Aylesbeare Mudstone | • GB108045015060: Exe (Haddeo to Barle)<br>• GB108045015050:Exe (Barle to Culm)<br>• GB108045009060:Exe (Culm to Creedy)<br>• GB108045009040:Exe (Creedy to Estuary) | **Amber (13)** | Designated sites far downstream could be impacted by increased abstraction.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **W-22** | Wimbleball Reservoir - reduce fish bank releases | Reduce or not provide / reserve reservoir storage for fish bank releases. | • GB30844471:Wimbleball Lake<br>• GB510804505600:EXE<br>• GB40802G801800:Central Devon and Exe - Aylesbeare Mudstone | • GB108045020900:Upper River Haddeo<br>• GB108045015090:Lower River Haddeo<br>• GB108045015060:Exe (Haddeo to Barle)<br>• GB108045015050:Exe (Barle to Culm)<br>• GB108045009060: Exe (Culm to Creedy)<br>• GB108045009040:Exe (Creedy to Estuary) | **Red (15)** | Key risk arises from unknown quantity of bank releases resulting in precautionary scoring.<br>Designated sites south of reservoir may be impacted by reduced flow released.<br>The presence and impact of downstream abstractions (additional to Allers and Pynes along Exe) in combination with this option is unclear. |

## 3.4 Bristol WRZ

**Table 3.4: Bristol WRZ Level 1 assessment outcomes and RAG rating**

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **BR-27a** | Blagdon Reservoir - reduce compensation flow | Reduce the compensation flow at Blagdon Reservoir by up to 50%. | • GB30943135:Blagdon Lake<br>• GB40902G804800:Bristol Triassic | • GB109052021640:Yeo - source to conf Congresbury Yeo | **Amber (14)** | Designated site(s) associated with Blagdon reservoir and downstream may be impacted by reduced flow released.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BR-27b** | Blagdon Reservoir - delay water bank releases | Delay of Blagdon Reservoir water bank releases until storage has recovered. Expectation that new licence will allow flexibility in timing when agreed with EA. Normally releases made in late summer | • GB30943135:Blagdon Lake<br>• GB40902G804800:Bristol Triassic | GB109052021640:Yeo - source to conf Congresbury Yeo | **Red (15)** | Key risk arises from unknown quantity of bank releases resulting in precautionary scoring.<br>Designated site(s) associated with Blagdon reservoir and downstream may be impacted by reduced flow released.<br>Increase understanding of fish bank releases quantity and how this is operated in context of Blagdon reservoir.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BR-28a** | Chew Valley Lake - reduce compensation flow | Reduce the compensation flow at Chew Valley Lake by up to 50%. | • GB30943096:Chew Valley Lake<br>• GB109053027371:Bristol Avon (By Bk to Netham Weir)<br>• GB40902G804800:Bristol Triassic | • GB109053021852:Chew - Chew Valley Lake to conf Winford Brook<br>• GB109053021950:Chew - conf Winford Bk to conf R Avon (Brist) | **Amber (13)** | Designated site(s) downstream may be impacted by reduced flow released.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **BR-28b** | Chew Valley Lake - delay water bank releases | Delay of Chew Valley Lake water bank releases until storage has recovered. Expectation that new licence will allow flexibility in timing when agreed with EA. Normally releases made in late summer | • GB30943096:Chew Valley Lake<br>• GB109053027371:Bristol Avon (By Bk to Netham Weir)<br>• GB40902G804800:Bristol Triassic | • GB109053021852:Chew - Chew Valley Lake to conf Winford Brook<br>• GB109053021950:Chew - conf Winford Bk to conf R Avon (Brist) | **Amber (14)** | Key risk arises from unknown quantity of bank releases resulting in precautionary scoring.<br>Designated site(s) downstream may be impacted by reduced flow released.<br>Increase understanding of fish bank releases quantity and how this is operated in context of Chew Valley Lake.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BR-29** | Chew Magna Reservoir - reduce compensation flow | Reduce the compensation flow at Chew Magna Reservoir by up to 50% | • GB40902G804800:Bristol Triassic | • GB109053021900:Winford Bk - source to conf R Chew<br>• GB109053021950:Chew - conf Winford Bk to conf R Avon (Brist) | **Red (16)** | Key risk in a reservoir operation related RNAG for an affected water body.<br>Designated site(s) downstream may be impacted by reduced flow released.<br>Reservoir operation specific RNAGs are present in water bodies impacted by the option.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BR-30** | Cheddar Ponds - reduce compensation flow | Reduce the compensation flow at Cheddar Ponds by up to 50% | • GB40901G804600:Mendips<br>• GB40902G804700:Wells | • GB109052021540:Cheddar Yeo - source to conf River Axe<br>• GB109052021570:Axe - Cocklake to Brean Cross Sluice | **Red (16)** | Uncertainty around the reduction in compensation releases. Clarifying the abstraction volume.<br>Designated site(s) downstream may be impacted by reduced flow released.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **BR-31a** | River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October | Extend pump storage season for River Axe at Brinscombe to Cheddar Reservoir from Nov-Apr to include October and increase annual abstraction limit proportionally. | • GB109052021540:Cheddar Yeo - source to conf River Axe<br>• GB30943348:Cheddar Reservoir<br>• GB40902G804700:Wells | • GB109052021570:Axe - Cocklake to Brean Cross Sluice | **Amber (14)** | Key risk arises from size of proposed maximum abstraction quantity relative to Q95 flow.<br>Increasing understanding of impact to designated site(s) downstream following reduced flow released from reservoir.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BR-31b** | River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include May | Extend pump storage season for River Axe at Brinscombe to Cheddar Reservoir from Nov-Apr to include May and increase annual abstraction limit proportionally. | • GB109052021540:Cheddar Yeo - source to conf River Axe<br>• GB30943348:Cheddar Reservoir<br>• GB40902G804700:Wells | • GB109052021570:Axe - Cocklake to Brean Cross Sluice | **Amber (14)** | Key risk arises from size of proposed maximum abstraction quantity relative to Q95 flow.<br>Increasing understanding of impact to designated site(s) downstream could by reduced flow released from reservoir.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BR-47** | River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction | Abstraction for pre-treatment and transfer to Cheddar Reservoir licensed for Nov-Apr. Commissioning and priming treatment processes each year takes a few weeks as it requires river water to be optimised (so abstracted water cannot be discharged to reservoir until complete). Allowing abstraction during October for commissioning treatment process with discharge back to abstraction point would allow water to be discharged immediately into reservoir on 1st Nov. | • GB109052021540:Cheddar Yeo - source to conf River Axe<br>• GB30943348:Cheddar Reservoir<br>• GB40902G804700:Wells | • GB109052021570:Axe - Cocklake to Brean Cross Sluice | **Amber (14)** | Increasing understanding of impact to designated site(s) downstream could by reduced flow released from reservoir.<br>An investigation into the impacts of priming treatment and discharging the water used for this back into the same river on water quality.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |

## 3.5 Bournemouth WRZ

**Table 3.5: Bournemouth WRZ Level 1 assessment outcomes and RAG rating**

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **BN-04** | River Stour at Longham - remove low flow constraint | Remove low flow constraint on River Stour at Longham, allowing increased abstraction. | • GB520804315900:CHRISTCHURCH HARBOUR<br>• GB40802G805800:Lower Dorset Stour and Lower Hampshire Avon | • GB108043011040:Stour (Lower) | **Amber (14)** | Key risk to designated sites downstream due to removal of low flow constraint.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BN-05** | Stanbridge boreholes – increase daily abstraction limit | Increase daily abstraction above current licence limit of 12.5 Ml/d to 17.5 Ml/d with current infrastructure and without borehole 3 and increase annual limit proportionally. | N/A | • GB108043015790:Allen (Headwaters)<br>• GB108043011090:Allen (Lower)<br>• GB40801G804500:Upper Dorset Stour | **Green (12)** | Key risk arises from size of proposed maximum abstraction quantity relative to Q95 flow. Borehole(s) also fall within SPZs.<br>The impact to above ground watercourses due to the groundwater abstraction increase proposed would be useful to understand in more depth.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |
| **BN-12** | River Stour at Longham - increase weekly abstraction limit | River Stour at Longham licence change in April 2028 includes reduction in allowed weekly abstraction total - 310.22 to 222.72 Ml/week. Permit to increase weekly limit. | • GB520804315900:CHRISTCHURCH HARBOUR<br>• GB40802G805800:Lower Dorset Stour and Lower Hampshire Avon | • GB108043011040:Stour (Lower) | **Amber (13)** | Key risk to designated sites downstream due to removal of low flow constraint.<br>The presence and impact of downstream abstractions in combination with this option is unclear. |

## 3.6 Isles of Scilly WRZ

**Table 3.6: Isles of Scilly WRZ Level 1 assessment outcomes and RAG rating**

| Option ID | Option Name | Description | Waterbodies passing WFD Level 1 assessment | Waterbodies requiring further WFD assessment | RAG Rating | Key risks and recommendations |
|---|---|---|---|---|---|---|
| **IS-18** | St Martins - increase abstraction from boreholes to greater than 20m$^3$/d | Drop and resize pumps in existing boreholes to maximise DO above 20 m3/d. | N/A | • GB40802G081200: Isles of Scilly | **Amber (13)** | Key issue would be potential impact to designated sites associated with lake and Isles. Boreholes also fall within SPZs.<br>Increased understanding of surface water on Isles of Scilly, and what is the connectivity with the groundwater would be useful.<br>The presence and impact of downstream surface water abstractions (although assumed unlikely that these operate on Isles of Scilly) in combination with this option is unclear. |

# 4 Level 2 Assessment Results

The second stage of 24 assessment has been completed for the drought options that were screened in at Level 1. Further information on the approach is outlined in Section 2.3. This section provides an overview of the Level 2 assessment findings and summary tables for each option, with details on mitigation measures and scoring.

## 4.1 Colliford WRZ

### 4.1.1 C-03: River Fowey at Restormel - increase annual abstraction limit

For this option, two water bodies were identified as requiring further assessment: GB108048001420: Lower River Fowey river water body and GB30846225: Colliford Lake water body. A summary of the Level 2 WFD assessment is included in Table 4.1 and detailed outputs are presented in Annex B

The Level 2 WFD assessment for Lower River Fowey identified precautionary potential adverse deterioration risks (impact score 2) to biological, hydrological regime and physico-chemical quality elements due to increased surface water abstraction proposed by the drought option. The assessment also identified potential minor localised impacts (impact score 1) to chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants). Potential deterioration risk is due to increased surface water abstraction at Restormel leading to reduced flow over the potential operating period of 3 months.

Further investigation will be undertaken at an appropriate time, in line with the date that the option, if taken forward, is required for the drought plan. These investigations are required to better understand the impacts of this option and are likely to include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required. Further information surrounding the abstraction / Hands Off Flow (HOF) conditions and percentage take quantities would aid in better understanding the potential impact of the proposed drought option on this water body.

No 'reasons for not achieving good' (RNAG) status are currently considered to be impacted by proposed drought option. These RNAGs refer to poly-brominated diphenyl ethers (PBDEs) and mercury and its compounds. These are not anticipated to be affected by this option.

Should it be required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a potential for **WFD deterioration risk** (impact score 2). Therefore, for the Lower River Fowey water body this option may be non-compliant under WFD.

## Table 4.1: C-03: Restormel annual volume – Level 2 WFD Summary

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **GB108048001420** | Lower River Fowey | Low / Low | Possible | No | No | 2 (adverse impact – risk of deterioration) | **Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.**<br><br>**Hydrological modelling of the impacts of increased abstraction on flow, hydromorphology, water quality and biology within the Fowey, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location. Hydroecology, hydromorphological and aquatic ecology baseline survey should be** | **River restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following drought and the unlikely combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime reducing the impacts of a loss in river flow.** | 2 (adverse impact – risk of deterioration) | **This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary.** |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | **undertaken as required.**<br><br>**Further information about option, including details on when the abstraction is occurring and the Hands off flow (HOF) / abstraction conditions and percentage take quantities..** | | | |

### 4.1.2 C-04a: Stannon Lake – increase daily abstraction limit

For this option, two water bodies were identified as requiring further assessment: GB108049007040: Stannon Stream river water body and GB30846165: Stannon Lake. A summary of the Level 2 WFD assessment is included in Table 4.2 and detailed outputs are presented in Annex B.

Stannon Lake has only recently been designated as a lake water body and at present does not have any status classifications or objectives. Therefore, for this assessment the potential impacts on the lake have been considered under the Stannon Stream water body that covers the wider catchment in which Stannon Lake is located.

The Level 2 WFD assessment for Stannon Stream identified minor and localised impacts to all quality elements due to increased abstraction from Stannon Lake. Abstraction from the lake could reduce the volume and timing of overflows from the lake which could lead to minor temporary impacts on the supporting flow discharged to the downstream Stannon Stream. A similar outcome was set out in the 2022 Drought Permit determination report for the use of Stannon Lake in times of drought.

For the Stannon Stream water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward, is required for the drought plan. These investigations are required to better understand the impacts of this option and could include hydrological / hydrogeological assessment of the potential changes in flows and the impact of this on downstream biological elements, hydromorphology, sedimentation and possibly water quality. Further hydro-ecological assessment is also recommended on the Stannon Lake for the impacts of abstraction on biological elements in the lake. Further information about option, including operating timeframe (which 5 months is option operational) would be useful. However, it is anticipated that the scheme will not vary significantly from what was previously assessed and considered in the 2022 Drought Permit determination report.

This water body has RNAGs for mercury and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues or impede the water body from reaching objectives in the future.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD non-compliance risk will remain as minor localised (impact score 1) for both water bodies.

**Table 4.2: C-04a: Stannon Lake – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108049007040 | Stannon Stream | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme since the 2022 drought determination report.<br><br>Updates to the hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological/hydrogeological assessment of the impacts of drought abstraction from that presented in the 2022 drought determination report, may be needed IF the scheme varies significantly from that previously assessed or if additional data is available.<br><br>Further information about option, including operating timeframe (which 5 months option is operational). | Provision of 2022 Drought Permit condition of a pumped supporting flow from Stannon Lake to Stannon Stream when flow in New North Leat reaches Q90. Note that assessment of this water body assumes this condition in place. | **1 (minor localised impact)** | This assessment has been largely informed by the determination report for the 2022 Drought Plan option. |
| GB30846165 | Stannon Lake | No status classifications for this water body - potential impacts on the lake are considered under the Stannon Stream water body | | | | | | | | |

### 4.1.3 C-06: Colliford Reservoir - reduce compensation flow

For this option, one water body was identified as requiring further assessment: GB108048001420: Lower River Fowey river water body. A summary of the Level 2 WFD assessment is included in Table 4.3 and detailed outputs are presented in Annex B.

This option involves the cessation of compensation flow releases from Colliford reservoir when supply releases are occurring. Downstream of Restormel where supply releases are abstracted, flow will decrease. The existing HOF conditions at Restormel will continue to operate and should help to retain sufficient flow downstream, minimising potential implications on quality elements. The Level 2 WFD assessment for Lower River Fowey identified potential minor localised impacts (impact score 1) to hydromorphological quality elements and additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) due to cessation of the existing discharge from Colliford reservoir.

For the Lower River Fowey water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward, is required for the drought plan. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to increased abstraction. Further information surrounding the compensation release conditions would aid in better understanding the potential impact of the proposed drought option on this water body.

No 'reasons for not achieving good' (RNAG) status are currently considered to be impacted by proposed drought option. These RNAGs refer to PBDEs and mercury and its compounds.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD non-compliance risk will remain as minor localised (impact score 1) for the Lower River Fowey water body.

**Table 4.3: C-06: Colliford compensation flow – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **GB108048001420** | **Lower River Fowey** | **Low / Low** | **Possible** | **No** | **No** | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological modelling, ecology assessment, hydromorphological survey and aquatic ecology baseline surveys should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit.<br><br>Further modelling and investigation (including consideration of the HOF conditions and percentage take quantities at Restormel and compensation flow operation at Colliford) should be undertaken to support this assessment | N/A | **1 (minor localised impact)** | This assessment has been completed without hydrological modelling and hydroecological assessment. As such its scoring is precautionary. |

### 4.1.4 C-30: Siblyback Reservoir - reduce compensation flow

For this option, three water bodies were identified as requiring further assessment: GB108048007650: Fowey (Upper), GB108048001410: Fowey (Warleggan to St Neot) and GB108048001420: Lower River Fowey river water bodies. A summary of the Level 2 WFD assessment is included in Table 4.4 and detailed outputs are presented in Annex B.

This option involves the cessation of compensation flow releases from Siblyback reservoir when supply releases are occurring. Downstream of Trekeivesteps where supply releases are abstracted, flow will decrease.

The Level 2 WFD assessment for Fowey (Upper) and Fowey (Warleggan to St Neot) water bodies identified potential risk of deterioration (impact score 2) to biological, hydro morphological and physico-chemical quality elements due to reduction of existing discharge proposed by drought option. The assessment also identified potential minor localised impacts (impact score 1) to additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants). Potential impacts are also due to the reduction of existing discharge.

For these two water bodies, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required. Further information about option, including details on HOF / abstraction conditions and percentage take quantities at Trekeivesteps and Restormel would aid in better understanding the potential impact of the proposed drought option on this water body.

There are RNAGs for Mercury and its compounds, and PBDEs on both of these water bodies although it is not anticipated that the proposed option will exacerbate these existing issues.

Should it be required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following a drought event and/or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

Following further investigation, design development and implementation of any resultant targeted mitigation, this assessment concludes that there is a potential for WFD deterioration risk (impact score 2). Therefore, for this water body this option may be non-compliant under WFD.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, for these two water bodies this option may be non-compliant under WFD.

For the Lower River Fowey water body, minor and localised impacts to all quality elements due to reduction of existing discharge proposed by drought option. The Q95 flow on the Fowey at Restormel as well as the fact this water body is a downstream receiver (over 10km downstream) with additional inflows from tributaries Warleggan and St Neot, indicate that despite the loss of the compensation flow, impacts to this water body will be minor and localised.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward, is required for the drought plan. These investigations are required to

better understand the impacts of this option and could include hydrological assessment of the impact of flow reductions on flow, biological elements (particularly on fish migration) and hydromorphology, support by additional surveys as required. Further information about the existing HOF / abstraction conditions and percentage take quantities at Trekeivesteps and Restormel should also be gathered.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD non-compliance risk to the Lower River Fowey water body will remain as minor localised (impact score 1).

**Table 4.4: C-30: Siblyback compensation flow – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108048007650 | Fowey (Upper) | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of drought comp flow reduction, hydromorphology, water quality and biology within the Fowey, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF / abstraction conditions and percentage take quantities at Trekeivesteps and Restormel. Further information on the compensation flow | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br>Localised mitigation for impact of reduced flow on dilution potential includes increased | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | release volumes and operation. | planting of native species in watercourse channel, bank sides and / or within its riparian zone. | | |
| GB108048001410 | Fowey (Warleggan to St Neot) | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of drought comp flow reduction, hydromorphology, water quality and biology within the Fowey, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF / abstraction conditions and percentage take quantities at Trekeivesteps and Restormel. Further | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes. | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | information on the compensation flow release volumes and operation. | Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone | | |
| GB108048001420 | Lower River Fowey | Low / Low | Possible | Possible | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of drought comp flow reduction, hydromorphology, water quality and biology within the Fowey, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF / abstraction conditions | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecologic al assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | and percentage take quantities at Trekeivesteps and Restormel. Further information on the compensation flow release volumes and operation. | | | |

### 4.1.5 C-37: River Cober at Wendron - increase annual licence limit

For this option, three water bodies were identified as requiring further assessment: GB108048001171: Upper River Cober, GB108048001172: Lower River Cober river water bodies and GB30846556: The Loe lake water body. A summary of the Level 2 WFD assessment is included in Table 4.5 and detailed outputs are presented in Annex B.

This option involves the increase of annual licence limit from the River Cober at Wendron. Downstream of the abstraction site flow will decrease.

The Level 2 WFD assessment for Upper River Cober, Lower River Cober and The Loe water bodies identified potential risk of deterioration (impact score 2) to biological, hydromorphological and physico-chemical quality elements due to increased abstraction proposed by drought option. The assessment also identified potential minor localised impacts (impact score 1) to additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants). Potential impacts are also due to the reduction of existing discharge.

The Loe is a sensitive receiver, with the entire water body designated as a site of special scientific interest SSSI (1001283), The site receives water from the Cober and various other small creeks. Some smaller rivers join the Cober bolstering flow but due to the fact that The Loe is a unique freshwater environment, the potential implications of a loss in flow could have a unique impact on biological quality elements.

For these three water bodies, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required.

The upper River Cober water body has RNAGs for:

- Fish due to mining and quarrying (pollution from abandoned mines); and,
- Hydrological regime due to water industry (changes to the natural flow and levels of water).

Due to the potential for this option to increase the risk to biological, hydro morphological and physico-chemical quality elements, this has potential to exacerbate existing issues in this water body. There are additional RNAGs for zinc, mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

The Lower River Cober water body has RNAGs for:

- Macrophytes and phytobenthos due to water industry, agriculture and rural land management, local and central government (pollution from abandoned mines); and,
- Hydrological regime due to water industry (changes to the natural flow and levels of water).

Due to the potential for this option to increase the risk to biological, hydro morphological and physico-chemical quality elements, this has potential to exacerbate existing issues in this water body. There are additional RNAGs for mitigation measures assessment, copper, mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

The Loe water body has RNAGs for:

- Macrophytes and phytobenthos due to water industry, domestic general public, agriculture and rural land management, local and central government (changes to the natural flow and levels of water, pollution from towns, cities and transport, pollution from waste water, pollution from rural areas);
- Phytoplankton due to agriculture and rural land management, domestic general public, water industry, local and central government (pollution from rural areas, pollution from towns, cities and transport, pollution from waste water); and,
- Total phosphorus due to domestic general public, local and central government, water industry, agriculture and rural land management (pollution from towns, cities and transport, pollution from waste water and pollution from rural areas).

Due to the potential for this option to increase the risk to biological, hydro morphological and physico-chemical quality elements, this has potential to exacerbate existing issues in this water body. There are additional RNAGs for mitigation measures assessment, mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Should it be required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in the River Cober in advance of or as part of a recovery effort following a drought event and/or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

For the Looe if required mitigation in the form of restoration measures (marginal habitat creation, small marginal lagoons, wetland creation) that could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in lake environment, lake bank sides and / or within its riparian zone. Supporting releases from Stithians upstream to support flow can help to mitigate loss of flow (if considered necessary following further investigation).

Once further investigation, design development and implementation of any resultant targeted mitigation, this assessment suggests that the risk may be downgraded (impact score 1). Therefore, for this water body with mitigation implemented, this option may be compliant under WFD.

**Table 4.5: C-37: River Cober at Wendron – increase annual licence limit – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108048001171 | Upper River Cober | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Cober should be undertaken to understand the local implications of this increased abstraction. This should be linked to further hydroecology, hydromorphological survey, aquatic baseline survey and assessment.<br><br>Further information about option HOF / abstraction conditions and percentage take quantities to be collated to better support accuracy of assessment. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Supporting releases from Stithians upstream | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such this assessment has been undertaken with precautionary principles in mind. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | to support flow (if considered necessary following further investigation).<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | | |
| GB108048001172 | **Lower River Cober** | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Cober should be undertaken to understand the local implications of this increased abstraction. This should be linked to further hydroecology, hydromorphological survey, aquatic | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such this assessment has been undertaken with precautionary principles in mind. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | baseline survey and assessment.<br><br>Further information about option HOF / abstraction conditions and percentage take quantities to be collated to better support accuracy of assessment. | of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes. Supporting releases from Stithians upstream to support flow (if considered necessary following further investigation).<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | | |
| **GB30846556** | The Loe | **Low / Low** | **Possible** | **Possible** | **No** | 2 (adverse impact – risk of deterioration) | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Loe | Restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the | 1 (minor localised impact) | This assessment has been completed without modelling and hydroecological assessment. As such this assessment has been undertaken with precautionary principles in mind. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | should be undertaken to understand the local implications of this increased abstraction. This should be linked to further hydroecology, hydromorphological survey, aquatic baseline survey and assessment.<br><br>Further information about option HOF / abstraction conditions and percentage take quantities to be collated to better support accuracy of assessment. | morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes. Supporting releases from Stithians upstream to support flow (if considered necessary following further investigation).<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in lake environment, lake bank sides and / or within its riparian zone. | | |

## 4.2 Roadford WRZ

### 4.2.1 R-07: Slade Reservoir - abstract from new source

For this option, four water bodies was identified as requiring further assessment: GB30843764: Slade Lower Reservoir and GB30843794: Slade Higher Reservoir lake water bodies, GB610807680004: Bristol Channel Outer South coastal water body, and GB40802G801000: River Taw and North Devon Streams groundwater body. A summary of the Level 2 WFD assessment is included in Table 4.6 and detailed outputs are presented in Annex B.

This option includes abstraction from disused licensed reservoir sources (Upper Slade and Lower Slade) for transfer to an existing water treatment works (WTW). Changes in reservoir water levels and sedimentation are anticipated to be minor. The Level 2 WFD assessment for Slade Lower Reservoir and Slade Higher Reservoir identified minor and localised impacts to all quality elements due to abstraction.

For the Slade Lower Reservoir and Slade Upper Reservoir water bodies, further investigations will be undertaken at an appropriate time, in line with the date that the option, is required for the drought plan, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment to understand the potential impact to water levels and biological elements supported by additional surveys as required. Further information about option, including details on abstraction HOL conditions.

The Slade Lower reservoir water body RNAGs are recorded for phytoplankton, total phosphorus, mercury and its compounds, and PBDEs. It is not anticipated that the proposed option will exacerbate these existing issues. The Slade Upper reservoir water body RNAGs are recorded for mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

The West Wilder Brook downstream of the reservoirs flows to the Bristol Channel. This brook is not designated as a WFD water body and has been considered as part of the Bristol Channel Outer South. Changes in flow and velocity in this water body downstream of the reservoirs are anticipated, although given that this watercourse is within the wider coastal catchment and the spatial extent of this water body this is not likely to lead to a water body scale impact, rather it will be localised to the West Wilder Brook. Due to the periodic nature of abstraction increase, the impact will be observed over a 3 month period, the Level 2 WFD assessment for Bristol Channel Outer South identified minor and localised and negligible impacts to all quality elements due to the abstraction increase.

For the Bristol Channel Outer South water body, further investigations will be undertaken at an appropriate time, in line with the date that the option as is required for the drought plan, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment to understand the potential impact to water levels and biological elements supported by additional surveys as required. Further information about option, including details on abstraction conditions in terms of water released to downstream stream.

This water body has RNAGs for mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

The extent of connection between the groundwater and surface water is unclear but it is assumed on a precautionary basis that a change in reservoir levels could lead to localised changes in groundwater levels. Any groundwater level changes will be temporary, short term and highly localised. It is therefore not anticipated to lead to water body scale impacts. The

Level 2 WFD assessment for River Taw and North Devon Streams groundwater body identified minor and localised and negligible impacts to all status elements due to abstraction increase.

For the River Taw and North Devon Streams groundwater body, further investigations will be undertaken at an appropriate time in line with the date that the option, if taken forward, is required for the drought plan,. These investigations are required to better understand the impacts of this option and could include hydrogeological assessment of the impact of increased reservoir abstraction on local groundwater levels.

This water body has RNAGs for chemical drinking water protected area and trend assessment although it is not anticipated that the proposed option will exacerbate these existing issues.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD non-compliance risk will remain as minor localised (impact score 1) for all four water bodies.

### Table 4.6: R-07: Slade Reservoir– Level 2 WFD Summary

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB30843764 | Slade Lower Reservoir | Low / Low | No | No | No | **1 (minor localised impact)** | Hydroecological assessment and hydrological modelling of the impacts of increase in abstraction from reservoir on flow, hydromorphology and water quality / concentration of key physicochemical parameters.<br><br>Review of baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Further information about option, including details on abstraction conditions. | Mitigation to be designed if necessary following further investigations and modelling. | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |
| GB30843794 | Slade Higher Reservoir | Low / Low | No | No | No | **0 (negligible impact)** | Hydroecological assessment and hydrological modelling of the impacts of increase in abstraction from reservoir on flow, hydromorphology and water quality / concentration of key physicochemical parameters.<br><br>Review of baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Further information about option, including details on abstraction conditions. | Mitigation to be designed if necessary following further investigations and modelling. | **0 (negligible impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB610807680004 | Bristol Channel Outer South | Low / Low | No | No | No | **1 (minor localised impact)** | Hydroecological assessment and hydrological modelling of the impacts of increase in abstraction from reservoir on flow, hydromorphology and water quality / concentration of key physicochemical parameters.<br><br>Review of baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Further information about option, including analysis of additional information relating to abstraction conditions in terms of water released to downstream stream. | Mitigation to be designed if necessary following further investigations and modelling. | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |
| GB40802G801000 | River Taw and North Devon Streams | Low / Low | No | No | No | **1 (minor localised impact)** | Hydrogeological assessment of the impacts of increase in abstraction in upstream reservoir on local groundwater levels. | Mitigation to be designed if necessary following further investigations and modelling. | **1 (minor localised impact)** | This assessment has been completed without modelling and hydrogeological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

### 4.2.2 R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May

For this option, two water bodies were identified as requiring further assessment: GB108047007731: Lower River Lyd, river water body and GB30847000: Roadford Lake, lake water body. A summary of the Level 2 WFD assessment is included in Table 4.7 and detailed outputs are presented in Annex B.

This option includes extending the abstraction period from the River Lyd and transfer into the Roadford Reservoir to include April and May. The Level 2 WFD assessment for Lower River Lyd identified potential WFD deterioration risks (impact score 2) to biological, hydro morphological and physico-chemical quality elements due to increased abstraction proposed by drought option. The assessment also identified potential minor localised impacts (impact score 1) to additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants). Potential deterioration risk is due to increased surface water abstraction from the River Lyd leading to reduced flow over the potential extended operating period of 2 months. While there may be reductions in flow during higher flow periods an existing HOF and percentage take quantity is expected to protect the river at lower flows.

Further investigation will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and are likely to include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required. Further information surrounding the abstraction / HOF conditions and percentage take quantity would aid in better understanding the potential impact of the proposed drought option on this water body.

There are RNAGs for mercury and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Should it be required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following a drought event and/or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is **a potential for WFD deterioration risk** (impact score 2). Therefore, for the Lower River Lyd water body this option may be non-compliant under WFD.

The Level 2 WFD assessment for Roadford Lake identified potential WFD deterioration risks (impact score 2) to biological quality elements and physico-chemical quality elements due to increased discharge proposed by drought option. Increased discharge from the river could lead to changes in water level and water quality (as the River Lyd which is the source of the pumped storage water fails for PFOS, which could result in an impact to this status element for Roadford Lake).

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include a hydrological assessment of changes in lake levels due to the discharge, along with hydro-ecological assessment and INNS investigation. Additional analysis of baseline ecological WFD data and potential additional surveys should also be considered.

The Roadford Lake water body has RNAGs for:

- Total phosphorus due to the water industry and agriculture and land management.
- Phytoplankton due to water industry, agriculture and land management and no sector responsible (pollution from rural areas, physical modifications).
- PBDE and mercury and its compounds due to no sector responsible.

Due to the increased discharge into this water body from a river with fail status with respect to PBDE, mercury and its compounds and PFOS there is the potential for this option to comprise water body objectives for these RNAG elements. Further investigation is needed to better understand the potential implications of changes in water quality. Mitigation such as treatment options, could be considered if necessary.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, the two water bodies assessed for this option may be non-compliant under WFD.

**Table 4.7: R-11: River Lyd Apr-May– Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108047007731 | Lower River Lyd | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of drought abstraction, hydromorphology, water quality and biology within the Lyd, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF / abstraction conditions and percentage take quantity. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes. | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB3084 7000 | Roadford Lake | **Low / Low** | **Possible** | **Possible** | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme, including INNS investigation.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of drought abstraction, hydromorphology, water quality and biology within the Roadford Reservoir, should be undertaken to understand the local implications of this increase in pumped storage discharge (of water that could lead to possible deterioration of PFOS).<br><br>Further information about option, including details on discharge quantities to Roadford (rather than a peak benefit). | Water treatment options, to treat water to a matching status between Lyd and Roadford (for PFOS). | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecologic al assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

### 4.2.3 R-25: Roadford Reservoir - reduce compensation flow

For this option, one water body was identified as requiring further assessment: GB108047007860: Lower River Tamar, river water body. A summary of the Level 2 WFD assessment is included in Table 4.8 and detailed outputs are presented in Annex B.

This option involves the cessation of compensation flow releases from Roadford reservoir when supply releases are occurring. Downstream of Gunnislake where supply releases are abstracted, flow will decrease. However, the changes in flow downstream of Gunnislake are small compared to the Q95 flow recorded at this location (a reduction of 9Ml/d compared to a gauged Q95 of 200Ml/d). Therefore, the Level 2 WFD assessment for Lower River Tamar identified minor and localised impacts to all quality elements due to reduction in discharge.

For the Lower River Tamar water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and are likely to include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required. Further information about option, including details on when the compensation flow is reduced would be required.

This water body has RNAGs for macrophytes and phytobenthos combined, copper, mercury and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD risk will remain as minor localised (impact score 1).

**Table 4.8: R-25: Roadford Reservoir – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108047007860 | Lower River Tamar | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Further hydrological modelling and hydroecology assessment of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Tamar, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when the compensation flow is reduced (summer or winter). | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

### 4.2.4 R-45: River Dart & Littlehempston boreholes - aggregate daily and annual licence limits

For this option, four water bodies was identified as requiring further assessment: GB108046008350: Dart, GB108046005160: Bidwell Brook and GB108046005430: Hems – Lower river water bodies and GB40802G800700: Teign, Avon, Dart and Erme groundwater body. A summary of the Level 2 WFD assessment is included in Table 4.9 and detailed outputs are presented in Annex B.

This option is to allow an increase in the aggregated daily and annual abstractions between Littlehempstead boreholes (which include 16 boreholes and 2 radial collectors) and the River Dart surface water abstraction at Littlehempstead. The combined total abstraction licence would not change, but annual abstraction would increase. This is because total abstraction is currently limited by borehole yield and this option would allow for more water to be abstracted from the river, with total abstraction increase by up to 8Ml/d. This option could lead to reduction in flow downstream of Littlehempstead and changes in groundwater levels.

The Level 2 WFD assessment for Dart identified a potential risk to WFD compliance from the increase in abstraction in this water body. The Dart water body is at ‘Does not support good’ for hydrological regime, therefore increased abstraction could lead to increased deterioration within the lowest status class. The Dart water body has RNAGs for fish, hydrological regime, mercury and its compounds, PFOS and PBDEs. This option could also exacerbate existing pressures on hydrological regime and may comprise water objectives and impede it from reaching good status.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward to confirm this assessment. These investigations are required to better understand the impacts of this option and are likely to include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required. Further information surrounding the abstraction / HOF conditions and percentage take quantities would aid in better understanding the potential impact of the proposed drought option on this water body.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, for the Dart water body this option may be non-compliant under WFD.

The Level 2 WFD assessment for the Bidwell Brook and Hems-Lower water bodies identified minor and localised impacts to all quality elements due to increased abstraction. These are considered to be minor as the additional abstraction is within licence and small compared to the river flows in these water bodies.

Bidwell Brook water body has RNAGs for macrophytes and phytobenthos combined, mercury and its compounds, and PBDEs and Hems – Lower water body has RNAGs for phosphate, mercury and its compounds, and PBDEs. In these water bodies this option is not anticipated to comprise water body objectives or impede reaching GES/GEP in the future.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD risk will remain as minor localised (impact score 1) for these three water bodies.

The Level 2 WFD assessment for Teign, Avon, Dart and Erme groundwater body identified a potential WFD compliance risk (impact score 2) to quantitative dependent surface water body status due to increased abstraction. The assessment also identified potential minor localised impacts (impact score 1) to additional quantitative and chemical quality elements. There

potential impacts are also due to the increased abstraction. Localised changes in groundwater level will occur in proximity to the Dart watercourse. This may result in localised changes to groundwater level that reduce ability of groundwater body to provide typical baseflow to the Dart and adjacent watercourses. This will also likely be exacerbated by the operation of a larger quantity surface water abstraction on Dart. The River Dart is already at does not support good for hydrological status. On a precautionary basis this is assessed to be a risk of WFD deterioration to the qualitative dependent surface water body status.

For the Teign, Avon, Dart and Erme water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrogeological assessment of the impact of increased surface water abstraction and continuation of GW abstraction on groundwater flow and therefore on river flows. Mitigation is to be designed following further investigation if deemed necessary.

RNAGs for chemical dependent surface water body status, chemical drinking water protected area and trend assessment are recorded for this groundwater body. This option it is not anticipated to exacerbate these existing issues.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, for the Teign, Avon, Dart and Erme groundwater body this option may be non-compliant under WFD.

**Table 4.9: R-45: River and Dart Littlehempston boreholes – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108046008350 | Dart | Low / Low | No | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological/hydrogeological modelling and assessment of the impacts of drought abstraction on hydromorphology, sedimentation, water quality and biology within the Dart, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF / abstraction conditions and percentage take quantities. | N/A | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB40802 G800700 | Teign, Avon, Dart and Erme | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Hydrogeological assessment of the impact of increased surface water abstraction and continuation of GW abstraction on groundwater flow and therefore on river flows. | To be designed following further investigation if deemed necessary. | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |
| GB108046 005160 | Bidwell Brook | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological/hydrogeological modelling and assessment of the impacts of drought abstraction on hydromorphology, sedimentation, water quality and biology within the Dart, should be undertaken to understand the local | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF / abstraction conditions and percentage take quantities. | | | |
| GB108046005430 | Hems - Lower | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological/hydrogeological modelling and assessment of the impacts of drought abstraction on hydromorphology, sedimentation, water quality and biology within the Dart, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Further information about option, including details on HOF / abstraction conditions and percentage take quantities. | | | |

## 4.3 Wimbleball WRZ

### 4.3.1 W-03: Wimbleball Reservoir - reduce compensation flow

For this option, three water bodies was identified as requiring further assessment: GB108045015050: Exe (Barle to Culm), GB108045009060: Exe (Culm to Creedy) and GB108045009040: Exe (Creedy to Estuary) river water bodies. A summary of the Level 2 WFD assessment is included in Table 4.10 and detailed outputs are presented in Annex B.

This option involves the cessation of compensation flow releases from Wimbleball reservoir when supply releases are occurring. Downstream of Pynes and Allers where supply releases are abstracted, flow will decrease. The Level 2 WFD assessment for the three downstream river water bodies (Exe (Barle to Culm), Exe (Culm to Creedy) and Exe (Creedy to Estuary)) identified minor and localised impacts to all quality elements due to cessation of existing discharge. The compensation release of 9Ml/d is less than 5% of the river flow in these downstream water bodies and the existing HOF at Pynes and Allers would be maintained to ensure sufficient flow downstream, minimising potential implications on all quality elements.

Further investigation will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and are likely to include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required. Further information surrounding the abstraction / HOF conditions at Pynes and Allers would aid in better understanding the potential impact of the proposed drought option on this water body.

The Exe (Barle to Culm) water body has RNAGs for macrophytes and phytobenthos combined, mercury and its compounds, and PBDEs. The Exe (Culm to Creedy) water body has RNAGs for macrophytes and phytobenthos combined, phosphate, mercury and its compounds, and PBDEs. The Exe (Creedy to Estuary) water body has RNAGs for macrophytes and phytobenthos combined, phosphate, mitigation measures assessment, mercury and its compounds, and PBDEs. It is not anticipated that the proposed option will exacerbate the existing issues in any of the water bodies.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD risk will remain as minor localised (impact score 1) for all three water bodies.

**Table 4.10: W-03: Wimbleball compensation flow abstraction – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108045015050 | Exe (Barle to Culm) | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Exe, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when the compensation flow is reduced (summer or winter) as well as the HOF conditions at Pynes and Allers. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |
| GB108045009060 | Exe (Culm to Creedy) | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any | N/A | **1 (minor localised impact)** | This assessment has been completed without |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Exe, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when the compensation flow is reduced (summer or winter) as well as the HOF conditions at Pynes and Allers. | | | modelling and hydroecological assessment. As such its scoring is precautionary. |
| GB108045009040 | Exe (Creedy to Estuary) | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Exe, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when the compensation flow is reduced (summer or winter) as well as the HOF conditions at Pynes and Allers. | | | |

### 4.3.2 W-06: Brampford Speke & Stoke Canon - abstract from new source

For this option, four water bodies were identified as requiring further assessment: GB108045015050: Exe (Barle to Culm); GB108045009060: Exe (Culm to Creedy) and GB108045014970: Lower Culm river water bodies and GB40801G801700: Permian Aquifers in Central Devon groundwater body. A summary of the Level 2 WFD assessment is included in Table 4.11 and detailed outputs are presented in Annex B.

This option is to abstraction from licensed but disused borehole sources, releasing into the River Exe and abstracting at Pynes WTW. This option could lead to reduction in flow downstream of Pynes WTW and changes in groundwater levels.

The groundwater abstraction takes place from the Permian Aquifers in Central Devon groundwater body. The Level 2 WFD assessment of this groundwater body identified minor and localised impacts to qualitative dependent surface water body status and water balance due to increased abstraction, due to the small size of the abstraction compared to the flows in the nearby watercourses and the size of the water body.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrogeological assessment of the impact of the abstraction on groundwater and therefore on river flows. Mitigation would be designed following further investigation if deemed necessary.

This water body has RNAGs for general chemical test, trend assessment, and chemical drinking water protected area although it is not anticipated that the proposed option will exacerbate these existing issues.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD non-compliance risk will remain as minor localised (impact score 1).

The groundwater from these disused boreholes would be discharged into the River Exe within the Exe (Barle to Culm) water body. The Environment Agency have highlighted existing concerns about the quality of groundwater at this location and the potential implications on water quality in the River Exe, which could extend to downstream water bodies including the Exe (Culm to Creedy). Limited data is available at this time to assess the potential impact on the river, therefore on a precautionary basis the Level 2 WFD assessment for Exe (Barle to Culm) and Exe (Culm to Creedy) identified a risk to WFD compliance (impact score 3) to biological, physico-chemical and other chemical quality elements due to changes in water quality from the new discharge proposed by drought option.

For the Exe (Barle to Culm) and Exe (Culm to Creedy) water bodies, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option. These could include hydrological assessment of the potential changes in water quality and the impact on biological elements. Mitigation will be considered following further investigation if they are required.

Both water bodies have RNAGs for:

- Invertebrates and macrophytes and phytobenthos combined (Exe Barle to Culm) and macrophytes and phytobenthos combined (Exe Culm to Creedy) due to water industry, industry, agricultural and rural land management (pollution from waste water, pollution from towns, cities and transport, pollution from rural areas);

- Phosphate due to water industry, industry and agricultural and rural land management (pollution from waste water, pollution from towns, cities and transport, pollution from rural areas); and,
- Mercury and its compounds and PBDEs due to no sector responsible.

All of these RNAGs are related to poor water quality, therefore potential deterioration of water quality from the groundwater source, have the potential to exacerbate the water quality pressures and compromise water body objectives and impediment to good status.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is the potential for a **WFD deterioration risk**. Therefore, for the Exe (Barle to Culm) and Exe (Culm to Creedy) water bodies this option may be non-compliant under WFD.

The Level 2 WFD assessment for Lower Culm identified minor and localised impacts to all quality elements due to increased groundwater abstraction potentially lead to reduced base flow into the river. Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment with supporting surveys where required.

This water body has RNAGs for macrophytes and phytobenthos combined, mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD non-compliance risk will remain as minor localised (impact score 1).

**Table 4.11: W-06: Brampford Speke and Stoke Canon – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108045015050 | Exe (Barle to Culm) | Low / Low | Possible | Possible | No | **3 (major adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey assessment and hydrological/hydrogeological and water quality modelling of the impacts of drought abstraction, hydromorphology, water quality and biology within the Exe, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF, discharge and abstraction conditions. | Treatment of source water for new discharge. | **1 (minor adverse impact – no risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |
| **GB108045009060** | Exe (Culm to Creedy) | Low / Low | Possible | Possible | No | **3 (major adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme. | Treatment of source water for new discharge. | **1 (minor adverse impact – no risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Hydroecology, hydromorphological survey, aquatic baseline survey assessment and hydrological/hydrogeological and water quality modelling of the impacts of drought abstraction, hydromorphology, water quality and biology within the Exe, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on discharge conditions. | | | well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |
| GB108045014970 | Lower Culm | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey assessment and hydrological/hydrogeological and water quality modelling of the impacts of drought abstraction, hydromorphology, water quality and biology within the Exe, should be | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on HOF, discharge and abstraction conditions. | | | |
| GB40801 G801700 | Permian Aquifers in Central Devon | Low / Low | No | No | No | **1 (minor localised impact)** | Hydrogeological assessment of the impact of increased surface water abstraction and continuation of GW abstraction on groundwater flow and therefore on river flows. | To be designed following further investigation if deemed necessary. | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

### 4.3.3 W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May

For this option, four water bodies was identified as requiring further assessment: GB108045015060: Exe (Haddeo to Barle), GB108045015050: Exe (Barle to Culm), GB108045009060: Exe (Culm to Creedy) and GB108045009040: Exe (Creedy to Estuary) river water bodies. A summary of the Level 2 WFD assessment is included in Table 4.12 and detailed outputs are presented in Annex B.

This option involves the extension of winter pumped storage season to include April and May. The Level 2 WFD assessment for the four downstream river water bodies (Exe (Haddeo to Barle), Exe (Barle to Culm), Exe (Culm to Creedy) and Exe (Creedy to Estuary)) identified minor and localised impacts to all quality elements due to reduction in flow. The abstraction of 15-20Ml/d for 2 additional months of operation (April-May) is small compared to the river flow in these downstream water bodies and the existing HOF would be maintained to ensure sufficient flow downstream, minimising potential implications on all quality elements.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and will include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required. Further information surrounding the abstraction / HOF conditions at Pynes and Allers would aid in better understanding the potential impact of the proposed drought option on this water body.

The Exe (Haddeo to Barle) water body has RNAGs for mercury and its compounds, and PBDEs. The Exe (Barle to Culm) water body has RNAGs for macrophytes and phytobenthos combined, mercury and its compounds, and PBDEs. The Exe (Culm to Creedy) water body has RNAGs for macrophytes and phytobenthos combined, phosphate, mercury and its compounds, and PBDEs. The Exe (Creedy to Estuary) water body has RNAGs for macrophytes and phytobenthos combined, mitigation measures assessment, phosphate, mercury and its compounds, and PBDEs. It is not anticipated that the proposed option will exacerbate any of these existing issues in these four water bodies.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD compliance risk will remain as minor localised (impact score 1).

**Table 4.12: W-09: Wimbleball Reservoir (Extension of pumped storage scheme beyond Nov-Mar into Apr-May)**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108045015060 | Exe (Haddeo to Barle) | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Exe should be undertaken to understand the local implications of this pump storage extension.<br><br>Further information about option HOF / abstraction conditions to be collated and understood. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |
| GB108045015050 | Exe (Barle to Culm) | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Exe should be undertaken to understand the local implications | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | of this pump storage extension.<br><br>Further information about option HOF / abstraction conditions to be collated and understood. | | | |
| GB108045009060 | Exe (Culm to Creedy) | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Exe should be undertaken to understand the local implications of this pump storage extension.<br><br>Further information about option HOF / abstraction conditions to be collated and understood. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |
| GB108045009040 | Exe (Creedy to Estuary) | **Low / Low** | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | and biology within the Exe should be undertaken to understand the local implications of this pump storage extension.<br><br>Further information about option HOF / abstraction conditions to be collated and understood. | | | |

## 4.4 Bristol WRZ

### 4.4.1 BR-27a: Blagdon Reservoir - reduce compensation flow

For this option, one water body was identified as requiring further assessment: GB109052021640: Yeo – source to conf Congresbury Yeo, river water body. A summary of the Level 2 WFD assessment is included in Table 4.13 and detailed outputs are presented in Annex B.

This option is to reduce compensation flow at Blagdon Reservoir by up to 50% over the summer period. The Level 2 WFD assessment for the downstream Yeo – source to conf Congresbury Yeo water body identified a risk to WFD compliance (impact score 3) to biological quality elements. This is primarily a result of the potential implications this reduction in discharge may have on sedimentation transport and deposition because of the subsequent loss in flow velocity and volume. The assessment also identified a potential risk to WFD compliance (impact score 2) to physico-chemical elements due to reduction in dilution potential downstream of the reservoir. Potential minor localised impacts (impact score 1) to hydro morphological quality elements and additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) were also identified.

For this water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward, is required for the drought plan. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information surrounding the compensation release conditions would aid in better understanding the potential impact of the proposed drought option on this water body.

This water body has RNAGs for phosphate due to water and wider Industry activities (pollution from towns, cities and transport, pollution from wastewater, and pollution from rural areas). Due to the potential for this option to decrease flows, this option has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. It is possible that a proposed weir modification presents an opportunity to implement a design that improves the hydromorphology of the river pending further information on the design changes.

If required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels, large woody debris) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone. There is also potential to tie in mitigation measures with investigations as part of the River Congresbury Yeo Project Eater Industry National Environment programme (WINEP).

Following further investigation, design development and implementation of any resultant targeted mitigation, this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, for this water body this option may be non-compliant under WFD.

**Table 4.13: BR-27a: Reduction of Blagdon Reservoir compensation release – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **GB109052021640** | Yeo - source to conf Congresbury Yeo | Low / Low | Possible | Possible | No | **3 (adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Congresbury Yeo, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls, large woody debris, flow deflectors) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary.<br><br>If following further investigation, a WFD risk is identified then an alternative for an option with a smaller reduction in compensation flows (less than 50%) could be considered to reduce risk to water body status. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone.<br><br>Modification of weir without significant changes to channel footprint and if possible designed to improve hydromorphology of river.<br><br>There is potential for mitigation measures to tie in with the work of the River Congresbury Yeo Project WINEP programme, which covers an investigation of how measures to prevent sediment concerns within the water course can be implemented. | | |

### 4.4.2 BR-27b: Blagdon Reservoir - delay water bank releases

For this option, one water body was identified as requiring further assessment: GB109052021640: Yeo – source to conf Congresbury Yeo, river water body. A summary of the Level 2 WFD assessment is included in Table 4.14 and detailed outputs are presented in Annex B.

This option is to reduce Blagdon Reservoir water bank releases until storage has recovered. The Level 2 WFD assessment for the downstream Yeo – source to conf Congresbury Yeo water body identified a risk to WFD compliance (impact score 3) to biological quality elements. This is primarily a result of the potential implications this reduction in discharge may have on sedimentation transport and deposition because of the subsequent loss in flow velocity and volume. The assessment also identified a potential risk to WFD compliance (impact score 2) to physico-chemical elements due to reduction in dilution potential downstream of the reservoir. Potential minor localised impacts (impact score 1) to hydro morphological quality elements and additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) were also identified.

For this water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information surrounding the compensation release conditions would aid in better understanding the potential impact of the proposed drought option on this water body.

This water body has RNAGs for phosphate due to water and wider Industry activities (pollution from towns, cities and transport, pollution from wastewater, and pollution from rural areas). Due to the potential for this option to decrease flows, this option has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. It is possible that a proposed weir modification presents an opportunity to implement a design that improves the hydromorphology of the river pending further information on the design changes.

If required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels, large woody debris) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone. There is also potential to tie in mitigation measures with investigations as part of the River Congresbury Yeo Project WINEP programme.

Following further investigation, design development and implementation of any resultant targeted mitigation, this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, for this water body this option may be non-compliant under WFD.

**Table 4.14: BR-27b: Reduction of Blagdon Reservoir water bank releases – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109052021640 | Yeo - source to conf Congresbury Yeo | Low / Low | Possible | Possible | No | **3 (adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Congresbury Yeo, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls, large woody debris, flow deflectors) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone.<br><br>Modification of weir without significant changes to channel footprint and if possible designed to improve hydromorphology of river.<br><br>There is potential for mitigation measures to tie in with the work of the River Congresbury Yeo Project WINEP programme, which covers an investigation of how measures to prevent sediment concerns within the water course can be implemented. | | |

### 4.4.3 BR-28a: Chew Valley Lake - reduce compensation flow

For this option, two water bodies were identified as requiring further assessment: GB109053021852: Chew - Chew Valley Lake to conf Winford Brook, and GB109053021950: Chew - conf Winford Bk to conf R Avon (Brist) river water bodies. A summary of the Level 2 WFD assessment is included in Table 4.15 and detailed outputs are presented in Annex B.

This option is to reduce compensation flow at Chew Valley Lake by up to 50% over the summer period, leading to reduced flows in the River Chew downstream of the reservoir. The Level 2 WFD assessment for the downstream Yeo – source to conf Congresbury Yeo and Chew - conf Winford Bk to conf R Avon (Brist) water bodies identified potential risks to WFD compliance (impact score 2) in each water body to biological quality elements, hydrological regime and physico-chemical elements. This is primarily a result of the potential implications this reduction in discharge may have on flow, sedimentation transport and deposition and a reduction in dilution potential downstream of the reservoir. Potential minor localised impacts (impact score 1) to hydro morphological quality elements and additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) were also identified.

For these water bodies, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information surrounding the compensation release conditions would aid in better understanding the potential impact of the proposed drought option on this water body.

The Chew - Chew Valley Lake to conf Winford Brook water body has RNAGs for phosphate due to Water industry and agricultural and rural land management (pollution from wastewater, and pollution from rural areas). Due to the potential for this option to increase the risk to physico-chemical quality elements, this has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. There are additional RNAGs for mitigation measures assessment, Mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

The Chew - conf Winford Bk to conf R Avon (Brist) water body has RNAGs for phosphate and macrophytes and phytobenthos due to Water industry and agricultural and rural land management (pollution from wastewater, and pollution from rural areas). Due to the potential for this option to increase the risk to biological and physico-chemical quality elements, this has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. There are additional RNAGs for mitigation measures assessment, Mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

If required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

Following further investigation, design development and implementation of any resultant targeted mitigation, this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, for these two water bodies this option may be non-compliant under WFD.

**Table 4.15: BR-28a: Reduction of Chew Valley Lake compensation release – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109053021852 | Chew - Chew Valley Lake to conf Winford Brook | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Chew, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary.<br><br>If following further investigation, a WFD risk is identified then an alternative for an option with a smaller reduction in compensation flows (less than 50%) could be considered to reduce risk to water body status. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109053021950 | Chew - conf Winford Bk to conf R Avon (Brist) | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Further hydroecology assessment and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Chew, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary.<br><br>If following further investigation, a WFD risk is identified then an alternative for an option with a smaller reduction in compensation flows (less than 50%) could be considered to reduce risk to water body status. |

### 4.4.4 BR-28b: Chew Valley Lake - delay water bank releases

For this option, two water bodies were identified as requiring further assessment: GB109053021852: Chew - Chew Valley Lake to conf Winford Brook, and GB109053021950: Chew - conf Winford Bk to conf R Avon (Brist) river water bodies. A summary of the Level 2 WFD assessment is included in Table 4.15 and detailed outputs are presented in Annex B.

This option is to delay Chew valley Lake water bank releases until storage has recovered, leading to reduced flows in the River Chew downstream of the reservoir. The Level 2 WFD assessment for the downstream Yeo – source to conf Congresbury Yeo and Chew - conf Winford Bk to conf R Avon (Brist) water bodies identified potential risks to WFD compliance (impact score 2) in each water body to biological quality elements, hydrological regime and physico-chemical elements. This is primarily a result of the potential implications this reduction in discharge may have on flow, sedimentation transport and deposition and a reduction in dilution potential downstream of the reservoir. Potential minor localised impacts (impact score 1) to hydro morphological quality elements and additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) were also identified.

For these water bodies, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information surrounding the compensation release conditions would aid in better understanding the potential impact of the proposed drought option on this water body.

The Chew - Chew Valley Lake to conf Winford Brook water body has RNAGs for phosphate due to Water industry and agricultural and rural land management (pollution from wastewater, and pollution from rural areas). Due to the potential for this option to increase the risk to physico-chemical quality elements, this has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. There are additional RNAGs for mitigation measures assessment, Mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

The Chew - conf Winford Bk to conf R Avon (Brist) water body has RNAGs for phosphate and macrophytes and phytobenthos due to Water industry and agricultural and rural land management (pollution from wastewater, and pollution from rural areas). Due to the potential for this option to increase the risk to biological and physico-chemical quality elements, this has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. There are additional RNAGs for mitigation measures assessment, Mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

If required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

Following further investigation, design development and implementation of any resultant targeted mitigation, this assessment concludes that there is **a potential for WFD deterioration risk** (impact score 2). Therefore, for these two water bodies this option may be non-compliant under WFD.

**Table 4.16: BR-28b: Reduction of Chew Valley Lake water bank releases– Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109053021852 | Chew - Chew Valley Lake to conf Winford Brook | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Chew, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes. | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | | |
| GB1090530219 50 | Chew - conf Winford Bk to conf R Avon (Brist) | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Further hydroecology assessment and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Chew, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates. | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | the compensation flow is reduced, rather than just an overall benefit. | Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | | |

### 4.4.5 BR-29: Chew Magna Reservoir - reduce compensation flow

For this option, two water bodies were identified as requiring further assessment: GB109053021900: Winford Bk - source to conf R Chew, and GB109053021950: Chew - conf Winford Bk to conf R Avon (Brist) river water bodies. A summary of the Level 2 WFD assessment is included in Table 4.17 and detailed outputs are presented in Annex 0

This option is to reduce compensation flow at Chew Magna Reservoir by up to 50% over the summer period. The Level 2 WFD assessment for the downstream Winford Bk - source to conf R Chew water body identified a potential risk to WFD compliance (impact score 2) to biological and hydromorphological quality elements. This is primarily a result of the potential implications this reduction in discharge may have on flow, sedimentation transport and deposition, and hydromorphology because of the subsequent loss in flow velocity and volume and on water quality due to the reduction in dilution potential downstream. Potential minor localised impacts (impact score 1) to hydro morphological quality elements and additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) were also identified.

The Winford Bk - source to conf R Chew water body has RNAGs for hydrological regime due to water industry (changes to the natural flow and levels of water); and fish due to water industry (physical modifications) and other. Due to the potential for this option to increase the risk to biological and hydromorphological quality elements, this has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. There are additional RNAGs for mitigation measures assessment, Mercury and its compounds, and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

For this water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information on current and proposed future operation of the compensation flow releases from Chew Magna is needed to more accurately assess the impact to the water body.

If required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. There is a potential opportunity for mitigation measures to tie in with the work of the River Chew Partnership WINEP programme, which covers an investigation of how management of Chew Magna Reservoir could be adapted to reduce impacts on Winford Brook.

Following further investigation, design development and implementation of any resultant targeted mitigation, this assessment concludes that there is **a potential for WFD deterioration risk** (impact score 2). Therefore, for this water body this option may be non-compliant under WFD.

The Level 2 WFD assessment for Chew - conf Winford Bk to conf R Avon (Brist) identified minor and localised impact to all quality elements due to reduction of existing discharge proposed by drought option (impact score 1). This is considered to be minor localised due to distance downstream from the reservoir and the influence of Winford Brook and other small tributaries on flow within the River Chew mean that this flow reduction will be unlikely to be significant at a water body scale.

This water body has RNAGs for macrophytes and phytobenthos, phosphate, mercury and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information on current and proposed future operation of the compensation flow releases from Chew Magna is needed to more accurately assess the impact to the water body.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD compliance risk will remain as minor localised (impact score 1).

**Table 4.17: BR-29: Reduction of Chew Magna Reservoir compensation release – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109053021900 | Winford Bk - source to conf R Chew | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of compensation flow reduction, hydromorphology, water quality and biology within the Winford Brook, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information on current and proposed future operation of the compensation flow releases from Chew | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in- | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary.<br><br>There is potential for investigations / mitigation measures to tie in with the work of the River Chew Partnership WINEP programme, which covers an investigation of how management of Chew Magna Reservoir could be adapted to reduce impacts on Winford Brook. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Magna is needed to more accurately assess the impact to the water body. | channel structures), additions of fish passes.<br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone.<br><br>There is potential for mitigation measures to tie in with the work of the River Chew Partnership WINEP programme, which covers an investigation of how management of Chew Magna Reservoir could be adapted to reduce impacts on Winford Brook. | | |
| **GB109053021950** | Chew - conf Winford Bk to conf R Avon (Brist) | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment as well as with a lack of option information that |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of compensation flow reduction, hydromorphology, water quality and biology within the Winford Brook, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information on current and proposed future operation of the compensation flow releases from Chew Magna is needed to more accurately assess the impact to the water body. | | | could assist the assessment process. As such its scoring is precautionary.<br><br>There is potential for investigations / mitigation measures to tie in with the work of the River Chew Partnership WINEP programme, which covers an investigation of how management of Chew Magna Reservoir could be adapted to reduce impacts on Winford Brook. |

### 4.4.6 BR-30: Cheddar Ponds - reduce compensation flow

For this option, two water bodies were identified as requiring further assessment: GB109052021540: Cheddar Yeo - source to conf River Axe, and GB109052021570: Axe - Cocklake to Brean Cross Sluice river water bodies. A summary of the Level 2 WFD assessment is included in Table 4.18 and detailed outputs are presented in Annex B.

This option is to reduce compensation flow at Cheddar Ponds by up to 50% year round. The Level 2 WFD assessment for the downstream Cheddar Yeo - source to conf River Axe water body identified a potential risk to WFD compliance (impact score 2) to biological, hydromorphological and physico chemical quality elements. This is primarily a result of the potential implications this reduction in discharge may have on flow, sedimentation transport and deposition, and hydromorphology because of the subsequent loss in flow velocity and volume and on water quality due to the reduction in dilution potential downstream. Potential minor localised impacts (impact score 1) to hydro morphological quality elements and additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) were also identified.

The Cheddar Yeo - source to conf River Axe water body has RNAGs for macrophytes and phytobenthos due to no sector responsible; hydrological regime due to water industry and under investigation sector (changes to the natural flow and levels of water); and phosphate due to water industry and agriculture and rural land management (pollution to wastewater and pollution from rural areas). Due to the potential for this option to increase the risk to biological, hydromorphological and physico-chemical quality elements, this has potential to exacerbate existing issues in this water body and may comprise water objectives and impede it from reaching good status. There are additional RNAGs for mitigation measures assessment, lead and its compounds, mercury and its compounds, zinc and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

For this water body, further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit.

If required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

Following further investigation, design development and implementation of any resultant targeted mitigation, this assessment concludes that there is a **potential for WFD deterioration risk** (impact score 2). Therefore, for this water body this option may be non-compliant under WFD.

The Level 2 WFD assessment for Axe - Cocklake to Brean Cross Sluice identified minor and localised impact to all quality elements due to reduction of existing discharge proposed by drought option (impact score 1). This is considered to be minor localised due to distance downstream from the reservoir and the influence of multiple major tributaries on flow mean that this flow reduction will be unlikely to be significant at a water body scale.

This water body has RNAGs for invertebrates, dissolved oxygen, phosphate, mercury and its compounds, lead and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to decreased discharge. Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD non-compliance risk will remain as minor localised (impact score 1).

**Table 4.18: BR-30: Reduction of Cheddar Ponds compensation release to Cheddar Yeo – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109052021540 | Cheddar Yeo - source to conf River Axe | Low / Low | Possible | Possible | No | **2 (adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Cheddar Yeo, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, | **2 (adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary.<br><br>If following further investigation a WFD risk is identified then an alternative for an option with a smaller reduction in compensation flows (less than 50%) could be considered to reduce risk to water body status. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | bank sides and / or within its riparian zone. | | |
| **GB109052021570** | Axe - Cocklake to Brean Cross Sluice | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of discharge cessation on flow, hydromorphology, water quality and biology within the Axe, should be undertaken to understand the local implications of this reduction in compensation flow.<br><br>Further information about option, including details on when / by how much the compensation flow is reduced, rather than just an overall benefit. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary.<br><br>If following further investigation a WFD risk is identified then an alternative for an option with a smaller reduction in compensation flows (less than 50%) could be considered to reduce risk to water body status. |

### 4.4.7 BR-31a: River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October

For this option, one water body was identified as requiring further assessment: GB109052021570: Axe - Cocklake to Brean Cross Sluice river water body. A summary of the Level 2 WFD assessment is included in Table 4.19 and detailed outputs are presented in Annex B.

This option is to extend the pump storage season for River Axe at Brinscombe to Cheddar Reservoir from November to April to include October. The option will maintain the same HOF conditions and water would only be abstracted if it is available. The Level 2 WFD assessment for Axe - Cocklake to Brean Cross Sluice identified minor and localised impacts to all quality elements due to increased abstraction season.

This water body has RNAGs for invertebrates, dissolved oxygen, phosphate, mercury and its compounds, lead and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to the increased abstraction period. Further information about option HOF / abstraction conditions and percentage take quantities to be collated.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD compliance risk will remain as minor localised (impact score 1).

**Table 4.19: BR-31a: River Axe – extend pump storage season – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109052021570 | Axe - Cocklake to Brean Cross Sluice | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Axe should be undertaken to understand the local implications of the pump storage extension.<br><br>Further information about option HOF / abstraction conditions and percentage take quantities to be collated. This will help to more accurately assess impact to water bodies affected by proposed option. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

### 4.4.8 BR-31b: River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include May

For this option, one water body was identified as requiring further assessment: GB109052021570: Axe - Cocklake to Brean Cross Sluice, river water body. A summary of the Level 2 WFD assessment is included in Table 4.20 and detailed outputs are presented in Annex B.

This option is to extend the pump storage season for River Axe at Brinscombe to Cheddar Reservoir from November to April to include May. The option will maintain the same HOF conditions and water would only be abstracted if it is available. The Level 2 WFD assessment for Axe - Cocklake to Brean Cross Sluice identified minor and localised impacts to all quality elements due to increased abstraction season.

This water body has RNAGs for invertebrates, dissolved oxygen, phosphate, mercury and its compounds, lead and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and could include hydrological assessment, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to the increased abstraction period. Further information about option HOF and abstraction conditions to be collated.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD compliance risk will remain as minor localised (impact score 1).

**Table 4.20: BR-31b: River Axe – extend pump storage season – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109052021570 | Axe - Cocklake to Brean Cross Sluice | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Axe should be undertaken to understand the local implications of the pump storage extension.<br><br>Further information about option HOF / abstraction conditions and percentage take quantities to be collated. This will help to more accurately assess impact to water bodies affected by proposed option. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

### 4.4.9 BR-47: River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction

For this option, one water body was identified as requiring further assessment: GB109052021570: Axe - Cocklake to Brean Cross Sluice, river water body. A summary of the Level 2 WFD assessment is included in Table 4.21 and detailed outputs are presented in Annex B.

This option is to extend the abstraction and transfer to Cheddar reservoir from November to April to include treatment commissioning and priming in October. The option will maintain the same HOF conditions and water would only be abstracted if it is available. The Level 2 WFD assessment for Axe - Cocklake to Brean Cross Sluice identified minor and localised impacts to all quality elements due to increased abstraction and discharge as part of early commissioning of River Axe abstraction.

This water body has RNAGs for invertebrates, dissolved oxygen, phosphate, mercury and its compounds, lead and its compounds, PFOS and PBDEs although it is not anticipated that the proposed option will exacerbate these existing issues.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward, is required for the drought plan. These investigations are required to better understand the impacts of this option and could include hydrological modelling, further hydro-ecological assessment, assessment of additional baseline ecological WFD data and an impact assessment of changes in flow due to increased abstraction period. Further information about option HOF / abstraction conditions and percentage take quantities to be collated.

Following further investigations, design development and implementation of any resultant targeted mitigation, it is anticipated that WFD compliance risk will remain as minor localised (impact score 1).

**Table 4.21: BR-47: River Axe commissioning – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB109052021570 | Axe - Cocklake to Brean Cross Sluice | Low / Low | No | No | No | **1 (minor localised impact)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology, hydromorphological survey, aquatic baseline survey and assessment and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Axe should be undertaken to understand the local implications of the pump storage extension.<br><br>Further information about option HOF / abstraction conditions and percentage take quantities to be collated. This will help to more accurately assess impact to water bodies affected by proposed option. | N/A | **1 (minor localised impact)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

## 4.5 Bournemouth WRZ

### 4.5.1 BN-04: River Stour at Longham - remove low flow constraint

For this option, one water body was identified as requiring further assessment: GB108043011040: Stour (Lower) river water body. A summary of the Level 2 WFD assessment is included in Table 4.22 and detailed outputs are presented in Annex B.

This option involves removal of the low flow constraint on the River Stour at Longham, allowing higher abstraction rates over a longer period of time. The option will allow the abstraction of up to 68Ml/d where the current restriction reduces abstraction to 44Ml/d when flow at Stour at Thoop if less than 344Ml/d (approx. Q82) (24Ml/d difference in abstraction). Q95 flow at the Stour at Throop gauge is ~193Ml/d. The Level 2 WFD assessment for Stour (Lower) identified potential WFD compliance risk (impact score 2) to biological quality elements, hydro-morphological and physico-chemical due to increase in low flow surface water abstraction. The assessment also identified potential minor localised impacts (impact score 1) to additional chemical quality elements (priority substances, priority hazardous substances, specific and other pollutants) also due to abstraction increase.

Further investigation will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option and are likely to include hydrological assessment of impacts on flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required.

This water body has RNAGs for:

- Macrophytes and phytobenthos combined due to water industry, agricultural and rural land management (pollution from waste water, and pollution from rural areas);
- Phosphate due to water industry and agricultural and rural land management (pollution from waste water, and pollution from rural areas); and,
- Mercury and its compounds and PBDEs due to no sector responsible.

The biological and phosphate RNAGs relate to pollution pressures. This option has the potential to exacerbate these existing issues in this water body by reducing the dilution potential downstream of the abstraction and compromise water body objectives and impediment to good status.

Should it be required following further investigation, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels, large woody debris) that could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone. Modification of weirs could also be considered if required, to improve river hydro morphology.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a **potential WFD deterioration risk** (impact score 2). Therefore, for the Stour (Lower) water body this option may be non-compliant under WFD.

**Table 4.22: BN-04: River Stour at Longham – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108043011040 | Stour (Lower) | Low / Low | Possible | Possible | No | **2 (moderate adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Stour, should be undertaken to understand the local implications of this increased abstraction.<br><br>Further information about option, including details on HOF conditions for abstraction | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls, large woody debris, flow deflectors) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates. | **2 (moderate adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | | |

### 4.5.2 BN-05: Stanbridge boreholes – increase daily abstraction limit

For this option, three water bodies was identified as requiring further assessment: GB108043015790: Allen (Headwaters), GB108043011090: Allen (Lower) river water bodies and GB40801G804500: Upper Dorset Stour groundwater body. A summary of the Level 2 WFD assessment is included in Table 4.23 and detailed outputs are presented in Annex B.

This option considers an increase in the daily abstraction licence at the Stanbridge boreholes, from 12.5Ml/d to 17.5Ml/d. The Level 2 WFD assessment for Upper Dorset Stour groundwater body identified potential WFD compliance risks (impact score 2) to quantitative status elements (dependent surface water body status and water balance) due to increased groundwater abstraction impact. This chalk groundwater body provides important baseflow to nearby watercourses. Although the water balance for the groundwater body is currently at Good status, an RNAG is still recorded in relation to the impact of water industry abstractions on water balance. Therefore, there is the potential that the proposed option will exacerbate these existing issues and lead to a deterioration in water balance status.

The River Allen is within the radius of influence of the Stanbridge abstraction boreholes which may result in localised changes to groundwater baseflow into the River Allen and adjacent watercourses. Although the River Allen is currently at ‘Supports Good’ for hydrological regime more information is needed into the impact of this increase in abstraction on this chalk river. Therefore, on a precautionary basis this a risk of deterioration is assessed on the quantitative dependent surface water body status. For a similar reason, the Level 2 WFD assessment for Allen (Headwaters) and Allen (Lower) waterbodies have identified potential WFD deterioration risks impacts (impact score 2) to biological quality elements, hydro-morphological and physico-chemical.

Although the Allen (Headwaters) water body is at ‘Supports good’ for hydrological regime, it has an RNAG recorded for hydrological regime due to water industry changes to the natural flow and levels of water). Due to the potential for this option to increase the risk to hydro morphological quality elements, this has potential to exacerbate existing issues in this water body.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option, and could include hydrogeological assessment of impacts on groundwater levels, river flow, hydromorphology, water quality and biological elements supported by additional assessment of ecological data and surveys where required.

Should it be found to be required following further investigations, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels, large woody debris) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a **potential WFD deterioration risk** (impact score 2). Therefore, for these three water bodies this option may be non-compliant under WFD

**Table 4.23: BN-05: Stanbridge boreholes 17.5Ml/d – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108043015790 | Allen (Head waters) | Low / Low | Possible | No | No | **2 (moderate adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological/hydrogeological modelling and assessment of the impacts of drought abstraction on hydromorphology, sedimentation, water quality and biology within the Allen, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on abstraction conditions. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | **2 (moderate adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108043011090 | Allen (Lower) | Low / Low | Possible | No | No | **2 (moderate adverse impact – risk of deterioration)** | Detailed review of all additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydrological/hydrogeological modelling and assessment of the impacts of drought abstraction on hydromorphology, sedimentation, water quality and biology within the Allen, should be undertaken to understand the local implications of this reduction in flow downstream of abstraction location.<br><br>Further information about option, including details on abstraction conditions. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br>.<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | **2 (moderate adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB40801 G804500 | Upper Dorset Stour | Low / Low | Possible | No | No | **2 (moderate adverse impact – risk of deterioration)** | Hydrogeological assessment of the impact of increased GW abstraction on groundwater flow and the connectivity with chalk stream river flows in the Allen. | To be designed following further investigation if deemed necessary. | **2 (moderate adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydrogeological assessment as well as with a lack of option information that could assist the assessment process. As such its scoring is precautionary. |

### 4.5.3 BN-12: River Stour at Longham - increase weekly abstraction limit

For this option, one water body was identified as requiring further assessment: GB108043011040: Stour (Lower), river water body. A summary of the Level 2 WFD assessment is included in Table 4.24 and detailed outputs are presented in Annex B.

At the River Stour at Longham a time limited licence condition expires in April 2028 which will reduce the allowed weekly abstraction total from 310.22 to 222.72Ml/wk. This option is to increase the weekly limit. The actual abstraction rates between 2021 and 2025 frequently exceeded the new 2028 limit. This option would be to increase the weekly limit from 22.72Ml/wk up to either 300Ml/wk or 290Ml/wk.

The Level 2 WFD assessment for Stour (Lower) identified potential WFD compliance risk (impact score 2) to biological quality elements, hydro-morphological and physico-chemical. This option could lead to potential changes to water quality due to changes in dilution potential downstream. Current phosphate status is poor and is linked to the moderate status of macrophytes in this water body. The reduced dilution could lead to exacerbating the pressure on phosphate status, and on a precautionary basis a potential risk of deterioration is assessed.

In this water body RNAGs for macrophytes and phytobenthos combined and phosphate are recorded due to water quality pressures from the water industry and agricultural and rural land management (pollution from waste water, and pollution from rural areas). The potential for this option to increase the risk to biological and physico-chemical quality elements, has the potential to exacerbate existing issues in this water body, and may comprise water objectives and impede it from reaching good status.

Further investigations will be undertaken at an appropriate time, in line with the date that the option, if taken forward. These investigations are required to better understand the impacts of this option on river flow and water quality and could include hydrological assessment of impacts on river flow, water quality, and biological elements supported by additional assessment of ecological data and surveys where required.

Should it be found to be required following further investigations, mitigation in the form of river restoration measures (bank/toe protection, 2 step channels, large woody debris) could be implemented in advance of or as part of a recovery effort following a drought event and / or the potential combined impact of a drought event and this options operation. Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within riparian zone. Modification of weir if required could be designed to improve river hydro morphology.

Until further investigation, design development and implementation of any resultant targeted mitigation, is complete this assessment concludes that there is a **potential WFD deterioration risk** (impact score 2). Therefore, for the Stour (Lower) water body this option may be non-compliant under WFD.

**Table 4.24: BN-12: River Stour at Longham - increase weekly abstraction total – Level 2 WFD Summary**

| Water body ID | Water body name | Confidence in WFD data and option design | Deterioration between status classes | Compromises water body objectives | Assists attainment of water body objectives | Maximum Level 2 impact score | Requirements to improve confidence | Mitigation measures | Post mitigation impact score | Further comments |
|---|---|---|---|---|---|---|---|---|---|---|
| GB108043011040 | Stour (Lower) | Low / Low | Possible | Possible | No | **2 (moderate adverse impact – risk of deterioration)** | Detailed review of any additional baseline ecological WFD data, including results of any surveys already undertaken for this scheme.<br><br>Hydroecology assessment, hydromorphological survey, aquatic baseline survey and hydrological modelling of the impacts of abstraction increase on flow, hydromorphology, water quality and biology within the Stour, should be undertaken to understand the local implications of this increased abstraction.<br><br>Further information about option HOF / abstraction conditions to be collated to better support accuracy of assessment. | River restoration measures (bank/toe protection, 2 step channels, berms, gravel riffles, coir rolls, large woody debris, flow deflectors) could be implemented in advance of or as part of a recovery effort following drought and the combined impact of a drought event and this option. These measures may assist in establishing a more natural hydrological regime, improving the morphological diversity of the river in low flow conditions, reducing the impacts of a loss in flow due to the options operation. Measures would be most effectively implemented immediately downstream of where the loss in flow originates.<br><br>Weir modification or removal (as well as removal of in-channel structures), additions of fish passes.<br><br>Localised mitigation for impact of reduced flow on dilution potential includes increased planting of native species in watercourse channel, bank sides and / or within its riparian zone. | **2 (moderate adverse impact – risk of deterioration)** | This assessment has been completed without modelling and hydroecological assessment. As such its scoring is precautionary. |

## 4.6 Isles of Scilly WRZ

No Isles of Scilly drought supply options have been assessed at Level 2 at this stage.

# 5 Cumulative / In-combination Effects

## 5.1 Preferred Plan

The options selected as part of the Preferred Plan for the SBB Drought Plan 2027 are presented in Table 5.1.

There has been ongoing work on the drought options and levels, and as the results of environmental assessments have become available, the environmental impact category and associated confidence levels have been reviewed and updated where necessary. The drought levels reported on reflect the expected drought levels for options at the time of undertaking the assessments.

**Table 5.1: SBB Drought Plan 2027 Preferred Plan options**

| WRZ | Option ID | Option Name | Drought Level |
|---|---|---|---|
| **Colliford** | C-03 | Restormel annual volume | 2 |
| | C-07a | Park Lake | |
| | C-37 | River Cober at Wendron - increase annual licence limit | |
| | C-04a | Stannon Lake | 3a |
| | C-06 | Colliford compensation flow | |
| | C-11 | Hawk's Tor Pit | |
| | C-30 | Siblyback - compensation flow | |
| | C-10 | Drift compensation flow | 3b |
| | C-17 | Stithians compensation flow | |
| | C-40 | Colliford fish bank | |
| **Roadford** | R-07 | Slade Reservoir | 2 |
| | R-11 | River Lyd Apr-May | |
| | R-45 | River Dart & Littlehempston boreholes | |
| | R-25 | Roadford Reservoir | 3a |
| | R-20 | Avon Reservoir | 3b |
| | R-21 | Burrator Reservoir | |
| | R-22 | Fernworthy Reservoir | |
| | R-23 | Trenchford Reservoir | |
| | R-24 | Meldon Reservoir | |
| | R-26 | Upper Tamar Lake | |
| | R-48 | Roadford fish bank | |
| **Wimbleball** | W-03 | Wimbleball compensation flow abstraction | 2 |
| | W-06 | Brampford Speke & Stoke Canon | |
| | W-09 | Wimbleball Reservoir (Extension of pumped storage scheme beyond Nov-Mar into Apr-May) | |
| | W-22 | Wimbleball fish bank | 2 |
| **Bristol** | BR-27b | Reduction of Blagdon Reservoir fish bank releases | 1 |
| | BR-28b | Reduction of Chew Valley Lake fish bank releases | |

| WRZ | Option ID | Option Name | Drought Level |
|---|---|---|---|
| | BR-47 | Early River Axe commissioning | 2 |
| | BR-27a | Reduction of Blagdon Reservoir compensation release | 3a |
| | BR-28a | Reduction of Chew Valley Lake compensation release | |
| | BR-29 | Reduction of Chew Magna Reservoir compensation release | |
| | BR-30 | Reduction of Cheddar Ponds compensation release to Cheddar Yeo | |
| | BR-31a | River Axe - extend pump storage season | |
| | BR-31b | River Axe - extend pump storage season | |
| **Bournemouth** | BN-04 | River Stour at Longham | 3b |
| | BN-05 | Stanbridge boreholes 17.5Ml/d | |
| | BN-12 | River Stour at Longham - increase weekly abstraction total | |
| **Isles of Scilly** | IS-18 | St Martins - increase abstraction from boreholes to greater than 20m$^3$/d | 3a |

Cumulative effects are assessed in this section by WRZ and drought level, whereby all options operating under the Preferred Plan at the same Drought Level and within the WRZ are assessed against each other. The purpose of this is to understand the potential cumulative impact of the proposed drought option within each zone while considering the timing of option implementation.

## 5.2 Colliford WRZ

### 5.2.1 Cumulative effects of options at Drought Level 2

Table 5.2 identifies water bodies which are impacted by more than one preferred plan option at Drought Level 2, but where high-level cumulative effects assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.2: Preferred Plan options within Colliford WRZ at Drought Level 2 water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB108048001420: Lower River Fowey | • C-03: River Fowey at Restormel - increase annual abstraction limit<br>• C-07a: Park Lake | C-03 involves a new or increased abstraction, C-07a involves the drought use of an abstraction. Cumulatively the change from these options could at a worst case be up to 16Ml/d. While cumulative effects are likely from the impacts of increased abstraction these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in the C-03 Level 2 assessment. Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the C-03 Level 2 assessment. |
| GB510804806400: FOWEY | • C-03: River Fowey at Restormel - increase annual abstraction limit<br>• C-07a: Park Lake | C-03 involves a new or increased abstraction. C-07a involves the drought use of an abstraction. Cumulatively the change from these options is anticipated to be approximately 16Ml/d. Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond that already described in Level 1 assessments of these options, due to transitional nature of this water body. Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |

| Water body name and ID | Options | Comments |
|---|---|---|
| GB40802G806600: Looe and Fowey | • C-03: River Fowey at Restormel - increase annual abstraction limit<br>• C-07a: Park Lake | C-07a involves the drought use of an abstraction. C-03 has no associated impacts to the underlying groundwater body.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per C-07a Level 1 assessment scoring. |

### 5.2.2 Cumulative effects of options at Drought Level 3a

Table 5.3 identifies water bodies which are impacted by more than one preferred plan option at Drought Level 2 and 3a, but where high-level cumulative effects assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.3: Preferred Plan options within Colliford WRZ at Drought Level 3a water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB108048007650: Fowey (Upper) | • Drought Level 2: C-07a: Park Lake<br>• C-30: Siblyback Reservoir - reduce compensation flow | C-30 involves the reduction / cessation of an existing discharge to a watercourse, whereas Drought Level 2 option C-07a involves the drought use of an abstraction. Cumulatively the change from these options is anticipated to be >6Ml/d.<br>While cumulative effects are likely from the impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond what is already described in the C-30 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the C-30 Level 2 assessment. |
| GB30846225: Colliford Lake | • Drought Level 2: C-03: Restormel annual volume<br>• Drought Level 2: C-07a: Park Lake<br>• C-06: Colliford Reservoir - reduce compensation flow<br>• C-11: Hawk's Tor Pit - abstract from new source | C-03, C-06 and C-11 options involve a discharge of the same quality water. C-11 involves the drought use of abstraction from this water body. For C-06, the scoring against the discharge activity refers to the conceptual 'gain' of water in the reservoir due to the reduction in release from Colliford.<br>Drought Level 2 options that will still be in operation include C-03 and C-07a which both involve a discharge of the same quality water to this water body.<br>It is not assumed that the operation of increased discharge to Colliford will increase the overall risk of deterioration beyond that already described in the Level 1 assessments.<br>Risk **remains as potential minor localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108048007640: St Neot River | • C-06: Colliford Reservoir - reduce compensation flow<br>• C-11: Hawk's Tor Pit - abstract from new source | C-06 involves the reduction / cessation of an existing discharge to a watercourse and C-11 involve the drought use of an abstraction.<br>Cumulatively the change from these options is anticipated to be approximately 9Ml/d.<br>While cumulative effects are likely from the impacts of abstraction and reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that already described in the Level 1 assessments.<br>Risk **remains as potential minor localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108048001410: Fowey (Warleggan to St Neot) | • Drought Level 2: C-07a: Park Lake | C-06, and C-30 involve the reduction of an existing discharge to a watercourse.<br>Drought Level 2 options that will still be in operation include C-07a which involves the drought use of an |

| Water body name and ID | Options | Comments |
|---|---|---|
| | • C-06: Colliford Reservoir - reduce compensation flow<br>• C-30: Siblyback Reservoir - reduce compensation flow | abstraction. Cumulatively the change from these options is anticipated to be approximately 10Ml/d. While cumulative effects are likely from the impacts of reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that already described in the C-30 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the C-30 Level 2 assessment. |
| GB108048001420: Lower River Fowey | • Drought Level 2: C-03: Restormel annual volume<br>• Drought Level 2: C-07a: Park Lake<br>• C-06: Colliford Reservoir - reduce compensation flow<br>• C-11: Hawk's Tor Pit - abstract from new source<br>• C-30: Siblyback Reservoir - reduce compensation flow | C-06, and C-30 involve the reduction / cessation of an existing discharge to a watercourse, whereas C-11 involves the drought use of an abstraction. Drought Level 2 options that will still be in operation include C-03 which involves a new or increased abstraction. C-07a involves the drought use of an abstraction.<br>Cumulatively the change from these options is anticipated to be approximately 26Ml/d.<br>While cumulative effects are likely from the impacts of abstraction and reduction / cessation in existing discharge to a watercourse, these cumulative effects are not assumed to increase the overall risk of deterioration beyond that already described in the C-30 Level 2 assessments.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the C-03 and C-30 Level 2 assessments. |
| GB510804806400: FOWEY | • Drought Level 2: C-03: Restormel annual volume<br>• Drought Level 2: C-07a: Park Lake<br>• C-06: Colliford Reservoir - reduce compensation flow<br>• C-11: Hawk's Tor Pit - abstract from new source<br>• C-30: Siblyback Reservoir - reduce compensation flow | C-06, and C-30 involve the reduction / cessation of an existing discharge to a watercourse, whereas C-11 involves the drought use of an abstraction. Drought Level 2 options that will still be in operation include C-03 which involves a new or increased abstraction. C-07a involves the drought use of an abstraction.<br>Cumulatively the change from these options is anticipated to be approximately 26Ml/d.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond that already described in Level 1 assessments of these options, due to transitional nature of this water body.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB40802G806600: Looe and Fowey | • Drought Level 2: C-03: Restormel annual volume<br>• Drought Level 2: C-07a: Park Lake<br>• C-06: Colliford Reservoir - reduce compensation flow<br>• C-11: Hawk's Tor Pit - abstract from new source<br>• C-30: Siblyback Reservoir - reduce compensation flow | Drought Level 2 C-07a and C-11 involve the drought use of an abstraction. Drought Level 2 C-03 as well as C-06 and C-30 have no associated impacts to the underlying groundwater body.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per C-07a and C-11 Level 1 assessment scoring. |

### 5.2.3 Cumulative effects of options at Drought Level 3b

C-10, C-17 and C-40 have no overlapping water bodies impacted by proposed option activities. As such no cumulative effects are assumed between the Colliford Drought Level 3b options.

However, these options would be in operation at the same time as the Drought Level 2 and 3a options, Table 5. summarises the potential cumulative effects but where assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.4: Preferred Plan options within Colliford WRZ at Drought Level 3b water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB30846225: Colliford Lake | • Drought Level 2: C-03: River Fowey at Restormel - increase annual abstraction limit<br>• Drought Level 2: C-07a: Park Lake<br>• Drought Level 3a: C-06: Colliford Reservoir - reduce compensation flow<br>• Drought Level 3a: C-11: Hawk's Tor Pit - abstract from new source<br>• C-40: Colliford Reservoir - reduce fish bank releases | Drought Level 3a options and C-40 involve a discharge of the same quality water. C-11 involves the drought use of abstraction from this water body. For C-06 and C-40, the scoring against the discharge activity refers to the conceptual 'gain' of water in the reservoir due to the reduction in release from Colliford. Drought Level 2 options that will still be in operation include C-03 and C-07a which both involve a discharge of the same quality water to this water body.<br>It is not assumed that the operation of increased discharge to and abstraction from Colliford will increase the overall risk of deterioration beyond that already described in the Level 1 assessments.<br>Risk **remains as potential minor localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108048007640: St Neot River | • Drought Level 3a: C-06: Colliford Reservoir - reduce compensation flow<br>• Drought Level 3a: C-11: Hawk's Tor Pit - abstract from new source<br>• C-40: Colliford Reservoir - reduce fish bank releases | Drought Level 3a option C-06 as well as C-40 involve the reduction / cessation of an existing discharge to a watercourse, whereas Drought Level 3a option C-11 involves the drought use of an abstraction. Cumulatively the change from these options is anticipated to be approximately 9Ml/d. While cumulative effects are likely from the impacts of abstraction and reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that already described in the Level 1 assessments.<br>Risk **remains as potential minor localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108048001410: Fowey (Warleggan to St Neot) | • Drought Level 2: C-07a: Park Lake<br>• Drought Level 3a: C-06: Colliford Reservoir - reduce compensation flow<br>• Drought Level 3a: C-30: Siblyback Reservoir - reduce compensation flow<br>• C-40: Colliford Reservoir - reduce fish bank releases | Drought Level 3a options C-06, and C-30 as well as C-40 involve the reduction / cessation of an existing discharge to a watercourse.<br>Drought Level 2 options that will still be in operation include C-07a which involves the drought use of an abstraction. Cumulatively the change from these options is anticipated to be approximately 10Ml/d. While cumulative effects are likely from the impacts of reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that already described in the C-30 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the C-30 Level 2 assessment. |
| GB108048001420: Lower River Fowey | • Drought Level 2: C-03: River Fowey at Restormel - increase annual abstraction limit<br>• Drought Level 2: C-07a: Park Lake<br>• Drought Level 3a: C-06: Colliford Reservoir - reduce compensation flow | Drought Level 3a options C-06, and C-30 as well as C-40 involve the reduction / cessation of an existing discharge to a watercourse, whereas Drought Level 3a option C-11 involves the drought use of an abstraction. Drought Level 2 options that will still be in operation include C-03 which involves a new or increased abstraction. C-07a involves the drought use of an abstraction.<br>Cumulatively the change from these options is anticipated to be approximately 26Ml/d.<br>While cumulative effects are likely from the impacts of abstraction and reduction / cessation in existing discharge to a watercourse, these cumulative effects |

| Water body name and ID | Options | Comments |
|---|---|---|
| | • Drought Level 3a: C-11: Hawk's Tor Pit - abstract from new source<br>• Drought Level 3a:C-30: Siblyback Reservoir - reduce compensation flow<br>• C-40: Colliford Reservoir - reduce fish bank releases | are not assumed to increase the overall risk of deterioration beyond that already described in the C-30 Level 2 assessments.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the C-03 and C-30 Level 2 assessments. |
| GB510804806400: FOWEY | • Drought Level 2: C-03: River Fowey at Restormel - increase annual abstraction limit<br>• Drought Level 2: C-07a: Park Lake<br>• Drought Level 3a: C-06: Colliford Reservoir - reduce compensation flow<br>• Drought Level 3a: C-11: Hawk's Tor Pit - abstract from new source<br>• Drought Level 3a: C-30: Siblyback Reservoir - reduce compensation flow<br>• C-40: Colliford Reservoir - reduce fish bank releases | Drought Level 3a C-06, and C-30 involve the reduction / cessation of an existing discharge to a watercourse, whereas C-11 involves the drought use of an abstraction. Drought Level 2 options that will still be in operation include C-03 which involves a new or increased abstraction. C-07a involves the drought use of an abstraction. Cumulatively the change from these options is anticipated to be approximately 26Ml/d.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond that already described in Level 1 assessments of these options, due to transitional nature of this water body.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB40802G806600: Looe and Fowey | • Drought Level 2: C-03: River Fowey at Restormel - increase annual abstraction limit<br>• Drought Level 2: C-07a: Park Lake<br>• Drought Level 3a: C-06: Colliford Reservoir - reduce compensation flow<br>• Drought Level 3a: C-11: Hawk's Tor Pit - abstract from new source<br>• Drought Level 3a: C-30: Siblyback Reservoir - reduce compensation flow<br>• C-40: Colliford Reservoir - reduce fish bank releases | Drought Level 2 C-07a and C-11 involve the drought use of an abstraction. Drought Level 2 C-03 as well as Drought Level 3a C-06 and C-30, and C-40 have no associated impacts to the underlying groundwater body.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per C-07a and C-11 Level 1 assessment scoring. |

## 5.3 Roadford WRZ

### 5.3.1 Cumulative effects of options at Drought Level 2

R-07, R-11 and R-45 have no overlapping water bodies impacted by proposed option activities. As such no cumulative effects are assumed between these options at Drought Level 2.

### 5.3.2 Cumulative effects of options at Drought Level 3a

One option (R-25) is proposed for implementation at Drought Level 3a. As such no cumulative effects assessment has been completed.

This option would be in operation at the same time as the Drought Level 2 options, Table 5. summarises the potential cumulative effects but where assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.5: Preferred Plan options within Roadford WRZ at Drought Level 3a water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB30847000: Roadford Lake | • Drought Level 2: R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May<br>• Drought Level 2: R-45: River Dart & Littlehempston boreholes - aggregate daily and annual licence limits<br>• R-25: Roadford Reservoir - reduce compensation flow | All options are assessed against the discharge activity, and this refers to the conceptual 'gain' of water in the reservoir due to the reduction in release from Roadford or increase in pumped storage.<br>It is not assumed that the operation of options I this water body will increase the overall risk of deterioration beyond that already described in R-11 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the R-11 Level 2 assessment. |
| GB108047007731: Lower River Lyd | • Drought Level 2: R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May<br>• R-25: Roadford Reservoir - reduce compensation flow | R-25 involves the reduction / cessation of an existing discharge to a watercourse, while Drought Level 2 option R-11 involves the drought use of an abstraction.<br>While cumulative effects are likely from the impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in the R-11 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the R-11 Level 2 assessment. |
| GB108047007910: Tamar (River Lyd to River Inny) | • Drought Level 2: R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May<br>• R-25: Roadford Reservoir - reduce compensation flow | R-25 involves the reduction / cessation of an existing discharge to a watercourse, while Drought Level 2 option R-11 involves the drought use of an abstraction.<br>While cumulative effects are likely from the impacts of impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in the Level 1 assessments.<br>Risk **remains as potential minor localised impact (impact score 1)** as per Level 1 assessment scoring. |

### 5.3.3 Cumulative effects of options at Drought Level 3b

Table 5. identifies water bodies which are impacted by more than one preferred plan option at Drought Level 3b, but where high-level cumulative effects assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale. This assessment also considers the continuation of operation of previous Drought Level options.

**Table 5.6: Preferred Plan options within Roadford WRZ at Drought Level 3b water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB108047008020: Wolf | • Drought Level 3a: R-25: Roadford Reservoir - reduce compensation flow | Drought Level 3a option R-25 and R-48 involve the reduction / cessation of an existing discharge to a watercourse.<br>While cumulative effects are likely possible due to the impacts of reduction / cessation in existing discharge to a watercourse these cumulative effects |

| Water body name and ID | Options | Comments |
|---|---|---|
| | • R-48: Roadford Reservoir - reduce fish bank releases | are not assumed to increase the overall risk of deterioration beyond that is already described in Level 1 assessments.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per R-48 Level 1 assessment scoring. |
| GB108047008010: Thrushel | • Drought Level 3a: R-25: Roadford Reservoir<br>• R-48: Roadford Reservoir - reduce fish bank releases | Drought Level 3a option R-25 and R-48 involve the reduction / cessation of an existing discharge to a watercourse.<br>While cumulative effects are likely possible due to the impacts of reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in Level 1 assessments.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per R-48 Level 1 assessment scoring. |
| GB108047007731: Lower River Lyd | • Drought Level 2: R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May<br>• Drought Level 3a: R-25: Roadford Reservoir - reduce compensation flow R-48: Roadford Reservoir - reduce fish bank releases | Drought Level 3a option R-25 and R-48 involve the reduction / cessation of an existing discharge to a watercourse, while Drought Level 2 option R-11 involves the drought use of an abstraction.<br>While cumulative effects are likely from the impacts of impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in the R-11 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the R-11 Level 2 assessment. |
| GB108047007910: Tamar (River Lyd to River Inny) | • Drought Level 2: R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May<br>• Drought Level 3a: R-25: Roadford Reservoir - reduce compensation flow<br>• R-48: Roadford Reservoir - reduce fish bank releases | Drought Level 3a option R-25 and R-48 involve the reduction / cessation of an existing discharge to a watercourse, while Drought Level 2 option R-11 involves the drought use of an abstraction.<br>While cumulative effects are likely from the impacts of impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in Level 1 assessments.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108047007860: Lower River Tamar | • Drought Level 3a: R-25: Roadford Reservoir - reduce compensation flow<br>• R-48: Roadford Reservoir - reduce fish bank releases | Drought Level 3a option R-25 and R-48 involve the reduction / cessation of an existing discharge to a watercourse.<br>While cumulative effects are likely possible due to the impacts of reduction / cessation in existing discharge to a watercourse these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in the R-25 Level 2 assessment.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per the post mitigation scoring of the R-25 Level 2 assessment. |
| GB520804714300: PLYMOUTH TAMAR | • Drought Level 3a: R-25: Roadford Reservoir - reduce compensation flow<br>• R-21: Burrator Reservoir - reduce compensation flow<br>• R-48: Roadford Reservoir - reduce fish bank releases | Drought Level 3a option R-25, R-21, and R-48 involve the reduction / cessation of an existing discharge to a watercourse. Cumulatively the change from these options is anticipated to be >4Ml/d.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments, due to transitional nature of this water body.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |

| Water body name and ID | Options | Comments |
|---|---|---|
| GB108046008540: Teign (Lower) | • R-22: Fernworthy Reservoir - reduce compensation flow<br>• R-23: Trenchford Reservoir - reduce compensation flow | Both R-22 and R-23 involve the reduction / cessation of an existing discharge to a watercourse. Cumulatively the change from these drought options is anticipated to be ~4Ml/d.<br>While no Level 2 assessment has been completed for R-22 or R-23, cumulatively it is assumed to be unlikely that impact to water body will increase beyond what is already described in the respective Level 1 assessments.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per Level 1 assessment scoring. |
| GB510804605800: TEIGN | • R-22: Fernworthy Reservoir - reduce compensation flow<br>• R-23: Trenchford Reservoir - reduce compensation flow | Both R-22 and R-23 involve the reduction / cessation of an existing discharge to a watercourse. Cumulatively the change from these drought options is anticipated to be ~4Ml/d.<br>While no Level 2 assessment has been completed for R-22 or R-23, cumulatively it is assumed to be unlikely that impact to water body will increase beyond what is already described in the respective Level 1 assessments, due to transitional nature of this water body.<br>Risk **remains as potential minor and localised impact (impact score 2)** as per Level 1 assessment scoring. |

## 5.4 Wimbleball WRZ

Table 5.7 identifies water bodies which are impacted by more than one preferred plan option at Drought Level 2, but where high-level cumulative effects assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.7: Preferred Plan options within Wimbleball WRZ at Drought Level 2 water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB30844471: Wimbleball Lake | • W-03: Wimbleball Reservoir - reduce compensation flow<br>• W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May<br>• W-22: Wimbleball Reservoir - reduce fish bank releases | All options are assessed against the discharge activity in this water body; however this refers to the conceptual 'gain' of water in the reservoir due to the reduction in release from or increase in pumped storage to Wimbleball Lake.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108045020900: Upper River Haddeo | • W-03: Wimbleball Reservoir - reduce compensation flow<br>• W-22: Wimbleball Reservoir - reduce fish bank releases | Both W-03 and W-22 involve the reduction / cessation of an existing discharge to a watercourse. Cumulatively the change from these drought options is anticipated to be >10Ml/d.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108045015090: Lower River Haddeo | • W-03: Wimbleball Reservoir - reduce compensation flow | Both W-03 and W-22 involve the reduction / cessation of an existing discharge to a watercourse. Cumulatively the change from these drought options is anticipated to be >10Ml/d.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of |

| Water body name and ID | Options | Comments |
|---|---|---|
| | • W-22: Wimbleball Reservoir - reduce fish bank releases | deterioration beyond what is already described in Level 1 assessments.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB108045015060: Exe (Haddeo to Barle) | • W-03: Wimbleball Reservoir - reduce compensation flow<br>• W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May<br>• W-22: Wimbleball Reservoir - reduce fish bank releases | Both W-03 and W-22 involve the reduction / cessation of an existing discharge to a watercourse. W-09 involves the emergency or drought use of existing surface water abstraction. Cumulatively the change from these drought options is anticipated to be >30Ml/d.<br>While cumulative effects are likely from the impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse, these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in the W-03 and W-09 Level 2 assessments.<br>Risk **remains as potential minor localised impact (impact score 1)** as per post mitigation scoring of W-03 and W-09 Level 2 assessment. |
| GB108045009040: Exe (Creedy to Estuary) | • W-03: Wimbleball Reservoir - reduce compensation flow<br>• W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May<br>• W-22: Wimbleball Reservoir - reduce fish bank releases | Both W-03 and W-22 involve the reduction / cessation of an existing discharge to a watercourse. W-09 involves the emergency or drought use of existing surface water abstraction. Cumulatively the change from these drought options is anticipated to be >30Ml/d.<br>While cumulative effects are likely from the impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse, these cumulative effects are not assumed to increase the overall risk of deterioration beyond that is already described in the W-03 and W-09 Level 2 assessments.<br>Risk **remains as potential minor localised impact (impact score 1)** as per post mitigation scoring of W-03 and W-09 Level 2 assessment. |
| GB510804505600: EXE | • W-03: Wimbleball Reservoir - reduce compensation flow<br>• W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May<br>• W-22: Wimbleball Reservoir - reduce fish bank releases | W-03 and W-22 involve a reduction / cessation of an existing discharge to this water body, whereas W-09 refers to the drought use of an abstraction. Cumulatively the change from these drought options is anticipated to be >30Ml/d.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments, due to transitional nature of this water body.<br>Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |

Table 5. identifies water bodies which are impacted by more than one preferred plan option at Drought Level 2, but where high-level cumulative effects assessment has shown that it is possible that the multiple Preferred Plan options could lead to a risk of WFD deterioration at the water body scale.

**Table 5.8: Preferred Plan options within Wimbleball WRZ at Drought Level 2 water bodies where cumulative effects could lead increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB108045015050: Exe (Barle to Culm) | • W-03: Wimbleball Reservoir - reduce compensation flow<br>• W-06: Brampford Speke & Stoke Canon - abstract from new source | Both W-03 and W-22 involve the reduction / cessation of an existing discharge to a watercourse. W-06 and W-09 involve the emergency or drought use of existing surface water abstraction. W-06 also involves the low volume discharge of water with a water quality element lower than the receiving water body. Cumulatively the change from these drought options is anticipated to be >38Ml/d. |

| | | |
|---|---|---|
| | • W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May<br>• W-22: Wimbleball Reservoir - reduce fish bank releases | Cumulative effects are likely from the impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse, as well as the possible major adverse impacts to water quality as a result of W-06 option operation. These cumulative effects are assumed to increase the overall risk of deterioration beyond that of the post mitigation scoring for W-03, W-06 and W-09 Level 2 assessments.<br>**Risk is increased to potential WFD deterioration risk (impact score 2).** |
| GB108045009060: Exe (Culm to Creedy) | • W-03: Wimbleball Reservoir - reduce compensation flow<br>• W-06: Brampford Speke & Stoke Canon<br>• W-09: River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May<br>• W-22: Wimbleball Reservoir - reduce fish bank releases | Both W-03 and W-22 involve the reduction / cessation of an existing discharge to a watercourse. W-09 involves the emergency or drought use of existing surface water abstraction. Cumulatively the change from these drought options is anticipated to be >30Ml/d.<br>W-06 involves the low volume discharge of water with a water quality element lower than the receiving water body.<br>Cumulative effects are likely from the impacts of increased abstraction and reduction / cessation in existing discharge to a watercourse, as well as the possible major adverse impacts to water quality as a result of W-06 option operation. These cumulative effects are assumed to increase the overall risk of deterioration beyond that of the post mitigation scoring for W-03, W-06 and W-09 Level 2 assessments.<br>**Risk is increased to potential WFD deterioration risk (impact score 2).** |

## 5.5 Bristol WRZ

### 5.5.1 Cumulative effects of options at Drought Level 1

Table 5.9 identifies water bodies which are impacted by more than one preferred plan option at Drought Level 1, but where high-level cumulative effects assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.9: Preferred Plan options within Bristol WRZ at Drought Level 1 water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB40902G804800: Bristol Triassic | • BR-27b: Blagdon Reservoir - delay water bank releases<br>• BR-28b: Chew Valley Lake - delay water bank releases | BR-27b involves the potential need to use below ground structures during proposed weir modification. BR-28b does not have any associated impacts to groundwater body. Risk **remains as potential minor and localised impact (impact score 1)** as per BR-27b Level 1 assessment scoring. |

### 5.5.2 Cumulative effects of options at Drought Level 2

Only one option (BR-47) is proposed for implementation at Drought Level 2 and does not have any overlapping impact with Drought Level 1 option impacts. As a result, additional cumulative effects at Drought Level 2 are not anticipated.

### 5.5.3 Cumulative effects of options at Drought Level 3a

Table 5.10 identifies water bodies which are impacted by more than one preferred plan option at Drought Level 3a, but where high-level cumulative effects assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.10: Preferred Plan options within Bristol WRZ at Drought Level 3a water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB30943348: Cheddar Reservoir | • Drought Level 2: BR-47: River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction<br>• BR-31a: River Axe - River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October<br>• BR-31b: River Axe - River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October | BR-31a, BR-13b and Drought Level 2 option BR-47 involve the use of a low volume discharge, with the scoring against this activity referring to the conceptual 'gain' of water in the reservoir. Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond that already described in Level 1 assessments.<br>Risk **remains as potential negligible impact (impact score 0)** as per Level 1 assessment scoring. |
| GB109052021540: Cheddar Yeo - source to conf River Axe | • Drought Level 2: BR-47: River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction<br>• BR-30: Reduction of Cheddar Ponds - reduce compensation flow<br>• BR-31a: River Axe - River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October<br>• BR-31b: River Axe - River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October | BR-30 involves the reduction of an existing discharge. All options involve the maintenance and use of an outfall. BR-30, BR-31a and BR-31b involve the maintenance of pipelines.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in the BR-30 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the BR-30 Level 2 assessment. |
| GB109052021570: Axe - Cocklake to Brean Cross Sluice | • Drought Level 2: BR-47: River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction<br>• BR-30: Reduction of Cheddar Ponds - reduce compensation flow<br>• BR-31a: River Axe - River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October<br>• BR-31b: River Axe - River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October | BR-30 involves the reduction of an existing discharge. BR-31a, BR-31b and Drought Level 2 option BR-47 involve the drought abstraction. The collective change is anticipated to be >22Ml/d. Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in the BR-30 Level 2 assessment.<br>Risk remains **as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the BR-30 Level 2 assessment. |

| Water body name and ID | Options | Comments |
|---|---|---|
| GB30943135: Blagdon Lake | • Drought Level 1: BR-27b: Blagdon Reservoir - delay water bank releases<br>• BR-27a: Blagdon Reservoir - reduce compensation flow | Both Drought Level 1 option BR-27b and BR-27a involve a discharge activity in this water body, however, refers to the conceptual 'gain' of water in the reservoir due to the reduction in release from Chew Valley Lake.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments. Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB109052021640: Yeo - source to conf Congresbury Yeo | • Drought Level 1: BR-27b: Blagdon Reservoir - delay water bank releases<br>• BR-27a: Blagdon Reservoir - reduce compensation flow | Both Drought Level 1 option BR-27b and BR-27a involve a reduction / cessation in an existing discharge to this water body and maintenance of an existing outfall.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in BR-27a and BR-27b Level 2 assessments. Risk remains **as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the BR-27a and BR-27b Level 2 assessments. |
| GB30943096: Chew Valley Lake | • Drought Level 1: BR-28b: Chew Valley Lake - delay water bank releases<br>• BR-28a: Chew Valley Lake - reduce compensation flow | Both Drought Level 1 option BR-28b and BR-28a involve a discharge activity in this water body, however, refers to the conceptual 'gain' of water in the reservoir due to the reduction in release from Chew Valley Lake.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments. Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB109053021950: Chew - conf Winford Bk to conf R Avon (Brist) | • Drought Level 1: BR-28b: Chew Valley Lake - delay water bank releases<br>• BR-28a: Chew Valley Lake - reduce compensation flow<br>• BR-29: Chew Magna Reservoir - reduce compensation flow | All options involve a reduction in an existing discharge to this water body.<br>Drought Level 1 options that will still be in operation include BR-28b which involves the drought use of an abstraction.<br>Cumulative effects of option operation is anticipated. Risk **remains as potential WFD deterioration risk (impact score 2)** as per the post mitigation scoring of the BR-28a and BR-28b Level 2 assessments. |
| GB109053027371: Bristol Avon (By Bk to Netham Weir) | • Drought Level 1: BR-28b: Chew Valley Lake - delay water bank releases<br>• BR-28a: Chew Valley Lake - reduce compensation flow | Both Drought Level 1 option BR-28b and BR-28a involve a reduction / cessation in an existing discharge to this water body.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments. Risk **remains as potential minor and localised impact (impact score 1)** as per Level 1 assessment scoring. |
| GB40902G804800: Bristol Triassic | • Drought Level 1: BR-27b: Blagdon Reservoir - delay water bank releases<br>• Drought Level 1: BR-28b: Chew Valley Lake - delay water bank releases<br>• BR-27a: Blagdon Reservoir - reduce compensation flow<br>• BR-28a: Chew Valley Lake - reduce compensation flow | BR-27a and Drought Level 1 BR-27b involve the potential need to use below ground structures during proposed weir modification. BR-28a and BR-29 as well as Drought Level 1 BR-28b do not have any associated impacts to groundwater body. Risk **remains as potential minor and localised impact (impact score 1)** as per BR-27a and BR-27bLevel 1 assessment scoring. |

| Water body name and ID | Options | Comments |
|---|---|---|
| | • BR-29: Chew Magna Reservoir - reduce compensation flow | |

## 5.6 Bournemouth WRZ – drought level 3b

All drought options proposed for implementation in Bournemouth WRZ are at Drought Level 3b. Table 5. identifies water bodies which are impacted by more than one preferred plan option, but where high-level cumulative effects assessment has shown that it is unlikely that the multiple Preferred Plan options will lead to a risk of WFD deterioration at the water body scale.

**Table 5.11: Preferred Plan options within Bournemouth WRZ at Drought Level 3b water bodies where cumulative effects are unlikely to lead to increased risk of WFD deterioration.**

| Water body name and ID | Options | Comments |
|---|---|---|
| GB108043011040: Stour (Lower) | • BN-04 River Stour at Longham - remove low flow constraint<br>• BN-12: River Stour at Longham - increase weekly abstraction limit | Both BN-04 and BN-12 involve changing the use of existing surface water abstraction outside of licence conditions during times of drought. BN-04 involves removal of the low flow constraint, while BN-12 involves an increase in future weekly abstraction total. Both options are proposed for implementation under severe drought conditions. BN-04 also involves a new low volume discharge of same quality water, and implementation of temporary pumps.<br>While cumulative effects are likely from the impacts of increased abstraction from both options, these cumulative effects are not assumed to increase the overall risk of deterioration beyond that already described in the BN-04 Level 2 assessment.<br>Risk **remains as potential WFD deterioration risk (impact score 2)** as per post mitigation scoring of BN-04 Level 2 assessment. |
| GB520804315900: CHRISTCHURCH HARBOUR | • BN-04: River Stour at Longham - remove low flow constraint<br>• BN-12: River Stour at Longham - increase weekly abstraction limit | Both BN-04 and BN-12 involve changing the use of existing surface water abstraction outside of licence conditions during times of drought. BN-04 involves removal of the low flow constraint, while BN-12 involves an increase in future weekly abstraction total. BN-04 also involves a new low volume discharge of same quality water, and implementation of temporary pumps.<br>Cumulative effects of option operation is not anticipated to lead to an increase in overall risk of deterioration beyond what is already described in Level 1 assessments of these options, due to transitional nature of this water body.<br>Risk **remains as potential minor and localised impact (impact score 1).** |

# 6 Further Investigations

## 6.1 Assessment Uncertainties

Due to the stage of option development there are some uncertainties in option design and operation, and as such assessments have been completed in line with a precautionary approach.

## 6.2 Further Assessments Required

Section 3.5 contains further investigation recommendations. The Level 2 WFD assessments identified of the 24 options assessed at Level 2, that 16 of these require further investigations to inform design of any required mitigation and to more accurately assess potential impacts to the water environment. These recommended further investigations are presented additionally below for those options with a potential post mitigation risk of deterioration to one or more water bodies, as well as for those associated with the cumulative impact of W-03, W-06 and W-09 options.

### 6.2.1 C-03: River Fowey at Restormel - increase annual abstraction limit

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to increased abstraction; and,
- Review of further information surrounding the abstraction / HOF conditions and percentage take quantity.

### 6.2.2 C-30: Siblyback Reservoir - reduce compensation flow

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to reduced discharge; and,
- Review of further information about option, including compensation flow release volumes and operation details on HOF / abstraction conditions and percentage take quantities at Trekeivesteps and Restormel.

### 6.2.3 C-37: River Cober at Wendron - increase annual licence limit

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment; and,
- Assessment of additional baseline ecological WFD data and surveys if necessary.

### 6.2.4 R-11: River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- INNS investigation for Roadford reservoir;
- Impact assessment of changes in flow due to increased abstraction
- Review of further information surrounding the abstraction / HOF conditions and percentage take quantities; and,
- Review of further information surrounding discharge quantities to Roadford.

### 6.2.5 R-45: River Dart & Littlehempston boreholes - aggregate daily and annual licence limits

Further investigations are required to better understand the impacts of this option and could include:

- Hydrogeological assessment and modelling of the impact of increased surface water abstraction and continuation of GW abstraction on groundwater flow and therefore on river flows.

### 6.2.6 W-06: Brampford Speke & Stoke Canon - abstract from new source

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Hydrogeological assessment; and,
- Further hydro-ecological assessment.

### 6.2.7 W-03, W-06 and W-09 cumulative impact

Further investigations are required to better understand the impacts of these options and could include:

- Hydrological and hydrogeological assessment of the interactions between surface and groundwater and the impact of proposed option activities on flow within the GB108045015050: Exe (Barle to Culm) water body.
- Review of further information about options.

### 6.2.8 BR-27a: Blagdon Reservoir - reduce compensation flow

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data; and,
- Impact assessment of changes in flow due to reduced discharge.

### 6.2.9 BR-27b: Blagdon Reservoir - delay water bank releases

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to reduced discharge; and,
- Review of further information surrounding discharge quantities of water bank releases.

### 6.2.10 BR-28a: Chew Valley Lake - reduce compensation flow

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data; and,
- Impact assessment of changes in flow due to reduced discharge.

### 6.2.11 BR-28b: Chew Valley Lake - delay water bank releases

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to reduced discharge; and,
- Review of further information surrounding discharge quantities of water bank releases.

### 6.2.12 BR-29: Chew Magna Reservoir - reduce compensation flow

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to reduced discharge; and,
- Review of further information surrounding current and proposed future operation of the compensation flow releases from Chew Magna.

### 6.2.13 BR-30: Cheddar Ponds - reduce compensation flow

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to reduced discharge; and,
- Review of further information about option, including details on when / by how much the compensation flow is reduced.

### 6.2.14 BN-04: River Stour at Longham - remove low flow constraint

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to increased abstraction; and,
- Review of further information surrounding the abstraction / HOF conditions and percentage take quantities.

### 6.2.15 BN-05: Stanbridge boreholes – increase daily abstraction limit

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Hydrogeological assessment of impact of abstraction on groundwater flow in Allen (chalk stream);
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to increased abstraction; and,
- Review of further information surrounding the abstraction / HOF conditions and percentage take quantities.

### 6.2.16 BN-12: River Stour at Longham - increase weekly abstraction limit

Further investigations are required to better understand the impacts of this option and could include:

- Hydrological assessment;
- Further hydro-ecological assessment;
- Assessment of additional baseline ecological WFD data;
- Impact assessment of changes in flow due to increased abstraction; and,
- Review of further information surrounding the abstraction / HOF conditions and percentage take quantities.

# 7 Conclusions

## 7.1 Level 1 Summary

There are 38 Drought Plan options that have been subject to a WFD Level 1 assessment.

The WFD Level 1 assessments indicated that of the 38 options assessed, two have a very low risk of impacting on WFD status and objectives. At the time of writing, these options are compliant with the WFD, and do not merit any further assessment. These options are set out in Table 7.1 below.

**Table 7.1: SBB Drought Plan 2027 permit options with no requirement for additional assessment**

| WRZ | Option ID | Option title |
|---|---|---|
| Colliford | C-07a | Park Lake - increase daily abstraction limit |
| Colliford | C-11 | Hawk's Tor Pit |

## 7.2 Level 2 Summary

WFD Level 2 assessments were required for the remaining 36 options, however only 24 have been completed as part of the environmental assessment process at this stage of Drought Plan development (Table 7.2).



Mott MacDonald Public

**Table 7.2: SBB Drought Plan 2027 permit options with no requirement for additional assessment**

| WRZ | Option ID | Option title |
|---|---|---|
| Colliford | C-03 | River Fowey at Restormel - increase annual abstraction limit |
| | C-04a | Stannon Lake - increase daily abstraction limit |
| | C-06 | Colliford Reservoir - reduce compensation flow |
| | C-30 | Siblyback Reservoir - reduce compensation flow |
| | C-37 | River Cober at Wendron - increase annual licence limit |
| Roadford | R-07 | Slade Reservoir - abstract from new source |
| | R-11 | River Lyd to Roadford Reservoir - extend pumped storage abstraction season to include April and May |
| | R-25 | Roadford Reservoir - reduce compensation flow |
| | R-45 | River Dart & Littlehempston boreholes - aggregate daily and annual licence limits |
| Wimbleball | W-03 | Wimbleball Reservoir - reduce compensation flow |
| | W-06 | Brampford Speke & Stoke Canon - abstract from new source |
| | W-09 | River Exe to Wimbleball Reservoir - extend pumped storage abstraction season to include April and May |
| Bristol | BR-27a | Blagdon Reservoir - reduce compensation flow |
| | BR-27b | Blagdon Reservoir - delay water bank releases |
| | BR-28a | Chew Valley Lake - reduce compensation flow |
| | BR-28b | Chew Valley Lake - delay water bank releases |
| | BR-29 | Chew Magna Reservoir - reduce compensation flow |
| | BR-30 | Cheddar Ponds - reduce compensation flow |
| | BR-31a | River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include October |
| | BR-31b | River Axe to Cheddar Reservoir - extend pumped storage abstraction season to include May |
| | BR-47 | River Axe to Cheddar Reservoir - early commissioning of pumped storage abstraction |
| Bournemouth | BN-04 | River Stour at Longham - remove low flow constraint |
| | BN-05 | Stanbridge boreholes – increase daily abstraction limit |
| | BN-12 | River Stour at Longham - increase weekly abstraction limit |

The majority of the options assessed have only been subject to high level design. If these options are taken forward, they would require additional design and assessment as they progress to the next stage of optioneering. Due to this, the confidence in the option design has been rated as low throughout most of the Level 2 assessments undertaken.

The findings indicate that there are precautionary WFD compliance risks for surface water bodies, associated primarily with the operation of additional/new abstractions, and reduced/ceased discharges (see summaries provided in Section 3.5). The potential hydrological effects of these activities, among several other varying impacts, could conflict with achieving WFD status objectives. This is particularly the case where hydrology/river flow is an existing limiting factor, recorded in WFD baseline data as a ‘reason for not achieving good.’ The potential biological effects, particularly on fish, and physio-chemical changes (for example, reduced dilution as a result of a new or increased abstraction) would require further assessment to improve certainty of the scale of effects.

For groundwater bodies, deterioration risks were primarily associated with changes to quantitative surface water body status as a result of new / increased groundwater abstractions.

Mitigation presented in these assessments largely covers nature-based measures to increase resilience within surface watercourses and to reduce impact of drought option activities.

## 7.3 Cumulative Effects Summary

The cumulative effects assessment included all options within the Preferred Plan and identified 33 water bodies across all WRZs where more than one option is proposed to operate:

- Three in Bournemouth WRZ
- Seven in Bristol WRZ
- Ten in Colliford WRZ
- Five in Roadford WRZ
- Seven in Wimbleball WRZ

The cumulative effects assessment suggests that there is unlikely to be an increased risk of WFD deterioration due to the combination of Preferred Plan options (at each Drought Level) for all except one water body within the Wimbleball WRZ. The cumulative effects assessment identified that the water bodies GB108045015050: Exe (Barle to Culm) and GB108045009060: Exe (Culm to Creedy) have an increased risk to this water body is based on the activities of three Drought Level 2 options that when combined could lead to a potential WFD deterioration risk.

## 7.4 Next Steps

Areas of future focus for any options carried forward include:

- Consultation with the Environment Agency to present and discuss key WFD risks and proposed approach to improving certainty of assessments;
- Collation and review of HMWB measures, programme of measures and mitigation measures assessments information from the Environment Agency for inclusion into the assessment of potential impediment to obtaining Good Ecological Potential (GEP);
- Collation and review of baseline data concerning WFD biological, physico-chemical and hydromorphological elements identified as being at yellow, amber, or red risk in the Level 2 assessments. This may include existing Environment Agency and South West Water long term WFD and water quality monitoring data within the relevant water bodies, and targeted baseline surveys being undertaken specifically for the option assessments;
- Further development of conceptual models linking together how potential hydrological changes (from abstractions or discharges) could influence water quality and the sensitivity of aquatic communities to those changes. This will include a diagrammatic/visual presentation of linkages between abstraction impacts and the direct and indirect effects on physico-chemical and biological WFD status elements, indicating thresholds of WFD classes or tolerance to change. This step would aid consultation and discussion with stakeholders and the requirement for/scoping of any modelling;
- Further assessment and investigations as set out in the WFD assessments;
- Further information on the design and operation of the options;
- Update Level 2 WFD assessments to incorporate any additional information;
- Carry out Level 2 WFD assessments on the 17 additional options flagged at Level 1 as requiring further assessment, with prioritisation of the 11 of these within preferred plan (C-10, C-17, C-40, R-20, R-21, R-22, R-23, R-24, R-26, R-48, and W-22).

# A. WFD Level 1 output tables

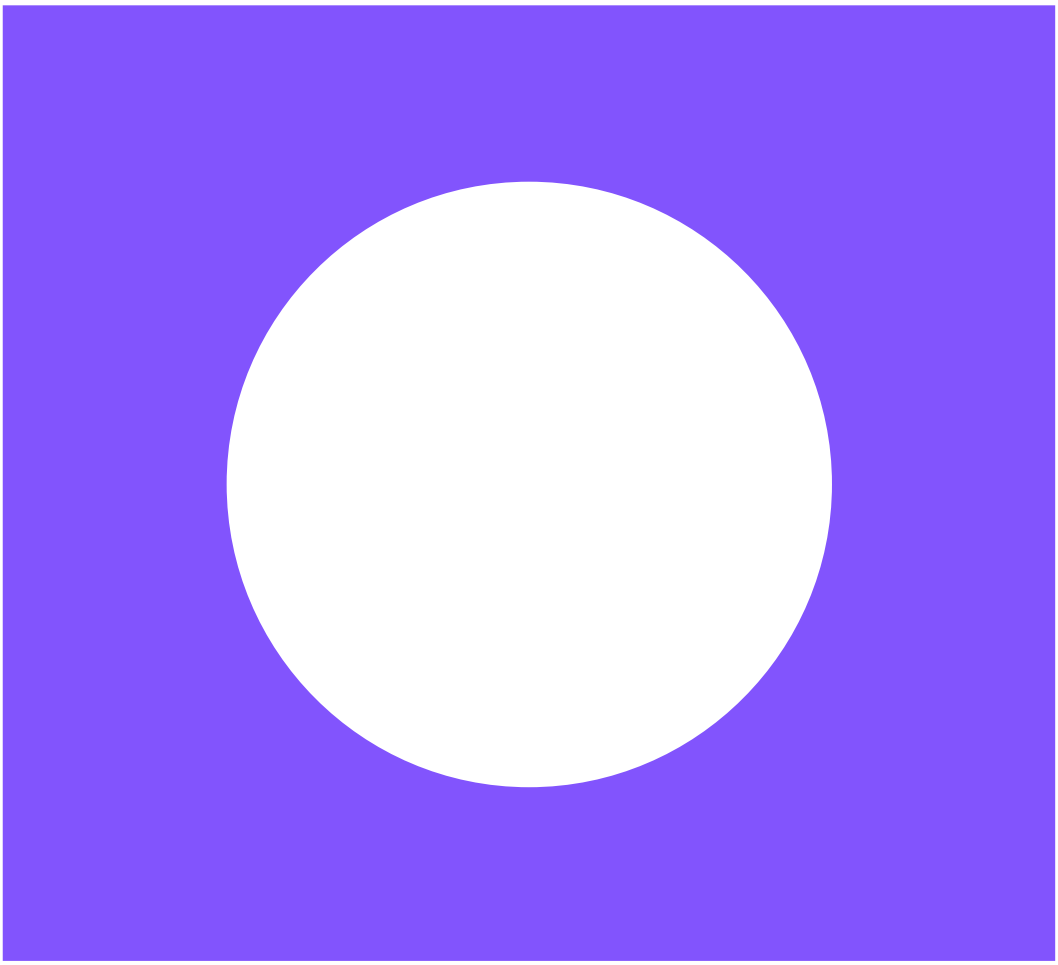
The SBB WFD Drought Plan 2027 Level 1 outputs can be provided upon request.



Mott MacDonald Public

# B. WFD Level 2 output tables

The SBB WFD Drought Plan 2027 Level 2 outputs can be provided upon request.



Mott MacDonald Public