



Severn Vale Abstraction Licensing Strategy

A strategy to manage water resources sustainably

August 2022

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1. About the licensing strategy

1.1. Overview

This strategy sets out how we manage new and existing [abstractions](#) and [impoundments](#) within the Severn Vale [Catchment](#). The Severn Vale catchment is in the Severn river basin district.

It ensures that we:

- meet river basin management plan (RBMP) objectives for water resources activities
- avoid deterioration within this catchment

We apply this approach to the [water body](#) in which the abstraction is located.

It also applies to:

- all downstream [surface water](#) bodies that may be affected by any reduction in abstraction related flow
- adjacent [groundwater](#) bodies affected by any reduction in groundwater level

The strategy also sets out local approaches to the sustainable management of water resources in collaboration with partners.

[Managing water abstraction](#) describes the technical explanation, legal and policy requirements behind the abstraction licensing strategies ([ALS](#)).

The [abstraction pages](#) advise on:

- who needs an abstraction or impoundment licence
- [how to apply](#) for a licence

1.2. How is the licensing strategy set out?

This ALS provides an overview of how water is sustainably managed in the Severn Vale catchment to:

- provide water for abstraction
- protect the environment

The following is a summary of what each section covers:

- [Catchment background](#) - sets out additional information about the catchment and the influences and pressures on water availability
- [Water resource availability](#) - explains how much water is available for abstraction in the catchment
- [How we manage water resource availability](#) - explains the local licensing approach for the catchment which is summarised in [Table 2 \(surface water\)](#) and [Table 3 \(groundwater\)](#). This includes the potential water available for licensing and the restrictions that would be required
- [Managing the catchment together](#) - details the actions we are taking where abstraction is currently unsustainable in the catchment. Approaches to ensure sustainable water management in the future are outlined, including information on licence trading
- [Related links](#) - are listed for further information on water resource management
- [Abbreviations](#) – lists the full text of abbreviations used in this document

- [Glossary](#) – explains technical terms included throughout this document
- [Contact details](#) – on how to get in touch

Note: whilst our assessment tools are continuously updated, we aim to update this document on a 3-year basis. Therefore, some details within this document, for example [hands off flow \(HoF\)](#) values may be outdated. Use this document as a guide to water availability, but for the most up to date information please [contact us](#).

1.3. Collaborative and sustainable water management

Our long-term goal is to develop a stronger catchment focus for water resources. We are working with abstractors and catchment groups to:

- develop local solutions to existing pressures
- to prepare for the future

Catchment groups may include a variety of different partnership groups such as:

- abstractor groups
- local catchment partnerships
- priority catchment groups
- environmental groups

Since the autumn of 2018, we have been collaborating with local partners. In several priority catchments across England we have explored:

- modern and innovative ways of improving access to water
- alternative ways to achieving sustainable abstraction

This strategy is a tool to make informed decisions on the choices abstractors make about their use of water. We want this strategy to help abstractors plan their water use and become more resilient in the face of climate change.

2. Catchment overview

The Severn Vale catchment covers just under 1,000 square kilometres. It spans a large part of Gloucestershire and smaller areas of Herefordshire and Worcestershire, and includes the urban centres of Cheltenham and Stroud.

2.1. Landscape and land use

The Severn Vale ALS can be divided into 5 general areas of topography:

- the Malvern Hills; a prominent ridge forming the highest ground in the catchment
- the land within the River Leadon and Glynch Brook catchments which is relatively low lying and gently undulating
- high ground to the south west of the catchment where the Cotswold escarpment causes the relief to rise steeply to the Cotswold Hills
- a wooded series of ridges and basins within the Forest of Dean area
- the flat and low-lying land of the River Severn floodplain where the Severn Vale catchments approach the River Severn

The majority of land within the Severn Vale ALS is grassland. Cheltenham and Stroud form the only significant urban centres. Agriculture primarily takes place within the fertile undulating lowlands of the River Leadon and Ell Brook catchments within the North

Western region. The land here is classified as being of Grade 1 or 2 in quality and therefore suitable for a wide variety of crops. Within the Forest of Dean to the South West, the forest dominates the landscape.

2.2. Water Resources

The Severn Vale ALS catchment begins downstream of the Teme and Severn confluence at Worcester. It ends in the Severn Estuary at Lydney on the west bank, and at the mouth of the River Frome on the East Bank. The catchment also extends slightly further south on the eastern side, incorporating the River Cam to its junction with the Gloucester and Sharpness Canal. The River Leadon and River Frome are the dominant catchments in the Severn Vale, but the area also incorporates the smaller catchments of:

- Carey's Brook
- Bushley Brook
- River Chelt
- Hatherley Brook
- River Cam
- Westbury Brook
- Cinderford Brook
- River Lyd

An area of Permo - Triassic sandstone occurs south of the Malvern Hills and north of Newent. This forms the high yielding aquifers of Bromsberrow and Oxenhall North and South groundwater management units (GWMUs). Together these GWMUs make up the Severn Vale Permo-Triassic Sandstone Newent groundwater body. These principal aquifers provide a locally significant, strategic resource for groundwater; supporting abstractions for:

- public drinking water supply
- industrial uses
- agricultural uses
- domestic uses

They also provide baseflows to watercourses crossing the sandstone aquifer. Extensive groundwater abstraction for public supply has resulted in baseflow derogation and low flow issues within the Glynch Brook. The Glynch Brook lies within the Bromsberrow GWMU.

94% of groundwater abstraction from the Newent Permo-Triassic Sandstone is solely for public water supply by Severn Trent Water. The other 6% is from private or other abstractors.

To the south east, the Cotswold Hills are composed of Jurassic limestones, bounded by the steep escarpment at their western edge. These limestones of the Great and Inferior Oolite constitute the Cotswold principal aquifer. These are fractured rocks which have a low storage and they intrinsically support baseflows to all springs and watercourses flowing off the Cotswold Hills. Throughout the central Severn Vale area Triassic and Jurassic clays and mudstones dominate. There are several other less significant sources of groundwater in strata defined as secondary aquifers. These include aquifers such as the Carboniferous Limestones; a principal aquifer, and Carboniferous Upper Coal measures and Limestones. This 90km² outcrop in the Forest of Dean supports a large public water supply abstraction at Buckshaft and several other industrial abstractions.

The main demand for water within the Severn Vale catchment comes from agriculture and to a lesser extent public water supply. Significant quantities are also used for power

generation, primarily within the south east of the region. The majority of public water supply abstractions occur from the:

- Bromsberrow and Oxenhall North GWMUs in the north west
- Cotswold springs known as the Chalford springs Public Water Supply

The environmental impacts caused by historical over-abstraction of water from the Bromsberrow GWMU is a significant water resource pressure within the catchment. A number of rivers in the catchment are used to supply the Gloucester and Sharpness Canal. This in turn provides an important source of water for other abstractors. For example Bristol Water abstract water from the canal at Purton for public supply purposes.

The [catchment data explorer](#) and Defra's [Magic Map](#) can help you explore and download information about the catchment and water environment.

2.3. Climate change

Climate change will likely impact on the quantity and seasonal availability of water resources within the catchment.

The projected climate change impacts on rainfall and river flow for the Midlands Region by the 2050s are for:

- rainfall to decrease by 34% in the summer but increase by 29% in the winter
- low flows to be 65% lower but peak river flows to be 30% higher

Climate change projections are estimated using data from UKCP09, consistent with a 4°C rise by 2100. Further details on the assumptions used can be found in the [Environment Agency climate impacts tool](#).

2.4. Environment and sustainability

Our licensing approach ensures that we avoid [deterioration](#) within this catchment in line with the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (WFD). The WFD Regulations (2017) seek environmental objectives to protect and enhance the water environment. It ensures the sustainable use of water resources for economic and social development.

We assess the impacts of new water abstraction applications to make sure that they comply with the WFD Regulations (2017). This includes ensuring water bodies will maintain a healthy ecology. If the ecology is not good, we ensure abstraction will not deteriorate the ecology further. WFD status is assessed at a water body scale. Water body WFD Regulations (2017) status can be:

- bad
- poor
- moderate
- good
- high

Groundwater body status is assessed with a separate set of tests, with the status reported as either good or poor.

3. Water resource availability in the Severn Vale catchment

3.1. Surface water availability

The method for calculating the water resource availability is explained in [managing water abstraction](#). Water availability is calculated at selected assessment points (APs). The maps show the water availability calculated at the AP; local water availability may differ.-

There are 15 APs in the Severn Vale ALS:

AP1

This covers the whole of the Careys Brook catchment from its source near Great Malvern to its confluence with the River Severn downstream of Worcester. It includes the Whippets Brook tributary. The catchment is underlain by secondary aquifers comprising mainly mudstones with some siltstone, limestones and sandstones.

AP2

This covers the whole of the Bushley Brook catchment from source to its confluence with the River Severn upstream of Tewkesbury. It includes the tributaries:

- Marlbank Brook
- China Brook
- Mill Brook
- Longdon Brook

The majority of this catchment is underlain by secondary aquifers comprising mainly mudstones. To the far west, the fractured igneous rocks of the Precambrian Malverns Complex are found forming the Malvern Hills.

AP3

This covers the whole of the Glynch Brook catchment from its source to the east of Ledbury to its confluence with the River Leadon. It includes the Wynd Brook tributary. The catchment is mainly underlain by secondary aquifer but it also has a small area of principal aquifer. The principal aquifer of the Permo-Triassic Sandstone Newent groundwater body is located in the middle of the catchment. Either side of this is secondary aquifer comprising mainly mudstones with some siltstone, limestones and shales.

AP4

This covers the whole of the Ell Brook catchment through Newent to its tributary with the River Leadon upstream of the Wedderburn Bridge gauging station. The catchment is underlain by both secondary and principal aquifers. The principal aquifer of the Permo-Triassic Sandstone Newent groundwater body is located in the middle of the catchment. Either side of this is secondary aquifer comprising mainly mudstones with some interbedded siltstone layers.

AP5

This covers the River Leadon from its source North of Ledbury to the Wedderburn Bridge gauging station. It includes the tributaries:

- Steens Brook
- Catley Brook
- Stony Brook

- Stores Brook
- Colliers Brook

The catchment is underlain by both secondary and principal aquifers. The principal aquifer of the Permo-Triassic Sandstone Newent groundwater Body is located in the middle of the catchment. Either side of this is secondary aquifer comprising mainly mudstones with some interbedded siltstone layers.

AP6

This covers the whole of the Red Brook catchment. This is from its source to its confluence with the River Leadon downstream of the Wedderburn Bridge gauging station. The catchment is underlain by secondary aquifers comprising mainly mudstones with some siltstone, limestones and sandstones. There is some minor outcrop of principal aquifer of the Permo-Triassic Sandstone.

AP7

This covers the River Chelt from its source in Cheltenham to its confluence with the River Severn. It includes the tributaries:

- Lilley Brook
- Ham Brook
- Leigh Brook
- Colliers Brook

The catchment is underlain by mainly secondary aquifers comprising mainly mudstones with some siltstone, limestones and sandstones. There is some minor outcrop of principal aquifer of the Cotswold Jurassic Limestone to the east on the escarpment.

AP8

This covers the whole of the Painswick Stream from its source to its confluence with the River Frome at Stroud. It includes the Wash Brook tributary. The catchment is underlain by interbedded rocks comprising the principal aquifer of the Cotswold Jurassic Limestone on the tops with interbedded mudstones in the valleys.

AP9

This covers the upper reaches of the River Frome from its source to the gauging station at Ebley Mill. It includes the Holy Brook and Ruscombe Brook tributaries. The catchment is underlain by principal aquifer of the Cotswold Jurassic Limestone with some minor interbedded mudstones in the valley bottom.

AP10

This covers the whole of the Nailsworth stream. This is from its source near Cherington to its confluence with the River Frome upstream of Ebley Mill gauging station. The catchment is underlain by principal aquifer of the Cotswold Jurassic Limestone with some minor interbedded mudstones in the valley bottom.

AP11

This covers the lower reaches of the River Frome. This is downstream of Ebley Mill gauging station to just upstream of its confluence with the River Severn Estuary. The catchment is underlain by mainly secondary aquifer mudstones. The mudstone is in the lower valley with some minor outcrops of principal aquifer of the Cotswold Jurassic Limestone on the tops.

AP12

This covers the whole of the Westbury Brook from its source to its confluence with the River Severn Estuary downstream of Gloucester. It includes the Longhope Brook tributary. The catchment is underlain by mainly secondary aquifer interbedded mudstones in the lower valley with sandstones on higher ground. Some minor outcrops of principal aquifer of the Carboniferous Limestone are on the ridge tops.

AP13

This covers the whole of the Cinderford Brook from its source to its confluence with the River Severn Estuary. The catchment is underlain by mainly secondary aquifer interbedded mudstones in the lower valley with sandstones on higher ground. Some minor outcrops of principal aquifer of the Carboniferous Limestone are on the ridge tops.

AP14

This covers the River Cam from its source to its intersection with the Gloucester and Sharpness Canal adjacent to the River Severn Estuary. The catchment is underlain by mainly secondary aquifer mudstones. The mudstone is in the lower valley with some minor outcrops of principal aquifer of the Cotswold Jurassic Limestone on the tops.

AP15

This covers the whole of the River Lyd from its source to its confluence with the Severn Estuary at Lydney. The catchment is underlain by secondary aquifer interbedded mudstones in the lower valley with sandstones on higher ground.

3.1.1 Water resource availability colours and implications for licensing

We use colours to represent different surface water availability at a range of flows:

Water available for licensing

Green 

There is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts. Licences will be issued with a hands off flow (HoF) restriction to protect environmental requirements at lower flows.

Restricted water available for licensing

Yellow 

Full Licensed flows fall below the [environmental flow indicator \(EFI\)](#).

If all licensed water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted. It is likely we'll be taking action to reduce full licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.

Water not available for licensing

Red 

Recent actual flows are below the EFI.

This scenario highlights water bodies where flows are below the indicative flow requirement to help support a healthy ecology in our rivers. We call this 'Good Ecological Status' ([GES](#)) or 'Good Ecological Potential' ([GEP](#)) where a water body is heavily modified for reasons other than water resources.

We are currently taking action in water bodies that are not supporting GES or GEP. We will not grant further licences. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder.

Heavily Modified Water Bodies ([HMWBs](#)) (and/or [discharge rich water bodies](#))

Grey



These water bodies have a modified flow that is influenced by reservoir compensation releases or they have flows that are augmented. These are often known as 'regulated rivers'. They may be managed through an operating agreement, often held by a water company. The availability of water is dependent on these operating agreements.

There may be water available for abstraction in discharge rich catchments, you need to [contact us](#) to find out more.

The water resource availability is calculated and the colour assigned at 4 different flows:

- Q30 – the flow of a river which is exceeded on average for 30% of the time, therefore you would expect the river flow to be lower than Q30 on 256 days in an average year - Q30 is a high flow
- Q50 – the flow of a river which is exceeded on average 50% of the time, therefore you would expect the river flow to be lower than Q50 on 183 days in an average year
- Q70 – the flow of a river which is exceeded on average for 70% of the time, therefore you would expect the river flow to be lower than Q70 on 110 days in an average year
- Q95 – the flow of a river which is exceeded on average for 95% of the time, therefore you would expect the river flow to be lower than Q95 on 18 days in an average year - Q95 is a low flow

3.1.2. Water availability maps

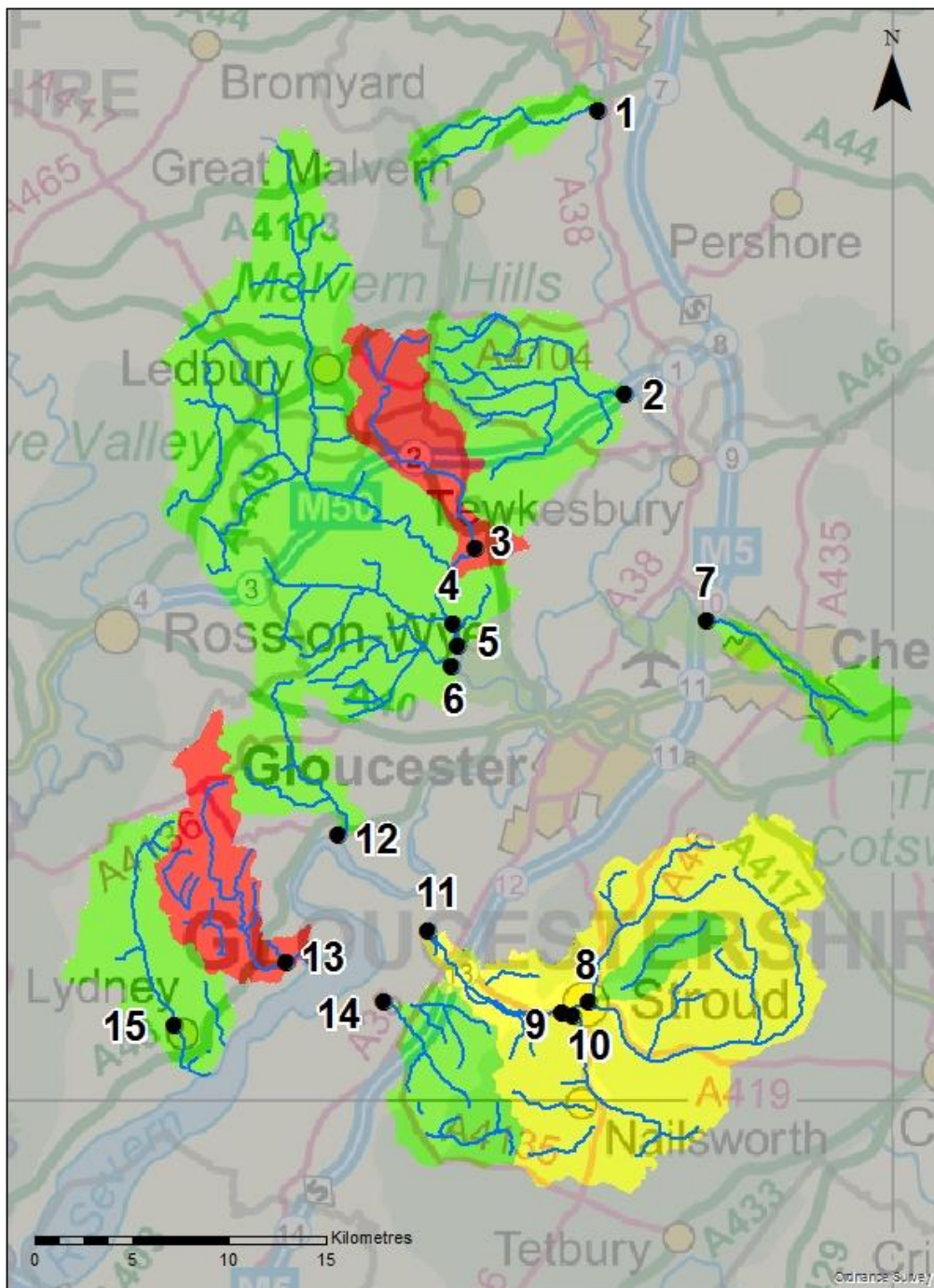
The water availability colours for the Severn Vale catchment are presented in maps 1 to 4.

Table 1: summary of maps 1 to 4 showing the water availability at each assessment point by flow category

Assessment Point	Name	Q30	Q50	Q70	Q95
1	Careys Brook	Available	Available	Available	Restricted
2	Bushley Brook	Available	Available	Available	Restricted
3	Glynch Brook at Bromsberrow gauging station	Not available	Not available	Not available	Not available
4	Ell Brook	Available	Available	Not available	Not available

Assessment Point	Name	Q30	Q50	Q70	Q95
5	River Leadon at Wedderburn Bridge gauging station	Available	Available	Restricted	Not available
6	Red Brook	Available	Available	Restricted	Restricted
7	River Chelt at Slate Mill gauging station	Available	Available	Available	Restricted
8	Painswick Stream	Restricted	Restricted	Restricted	Restricted
9	River Frome at Ebley Mill gauging station	Restricted	Restricted	Restricted	Restricted
10	Nailsworth Stream	Restricted	Restricted	Restricted	Not available
11	River Frome at Wheatenhurst	Restricted	Restricted	Restricted	Restricted
12	Westbury Brook	Available	Available	Available	Restricted
13	Cinderford Brook	Not available	Not available	Not available	Not available
14	River Cam at Cambridge gauging station	Available	Available	Available	Restricted
15	River Lyd at Parkend gauging station	Available	Available	Available	Restricted

Map 1: water resource availability colours at Q30 for Severn Vale ALS

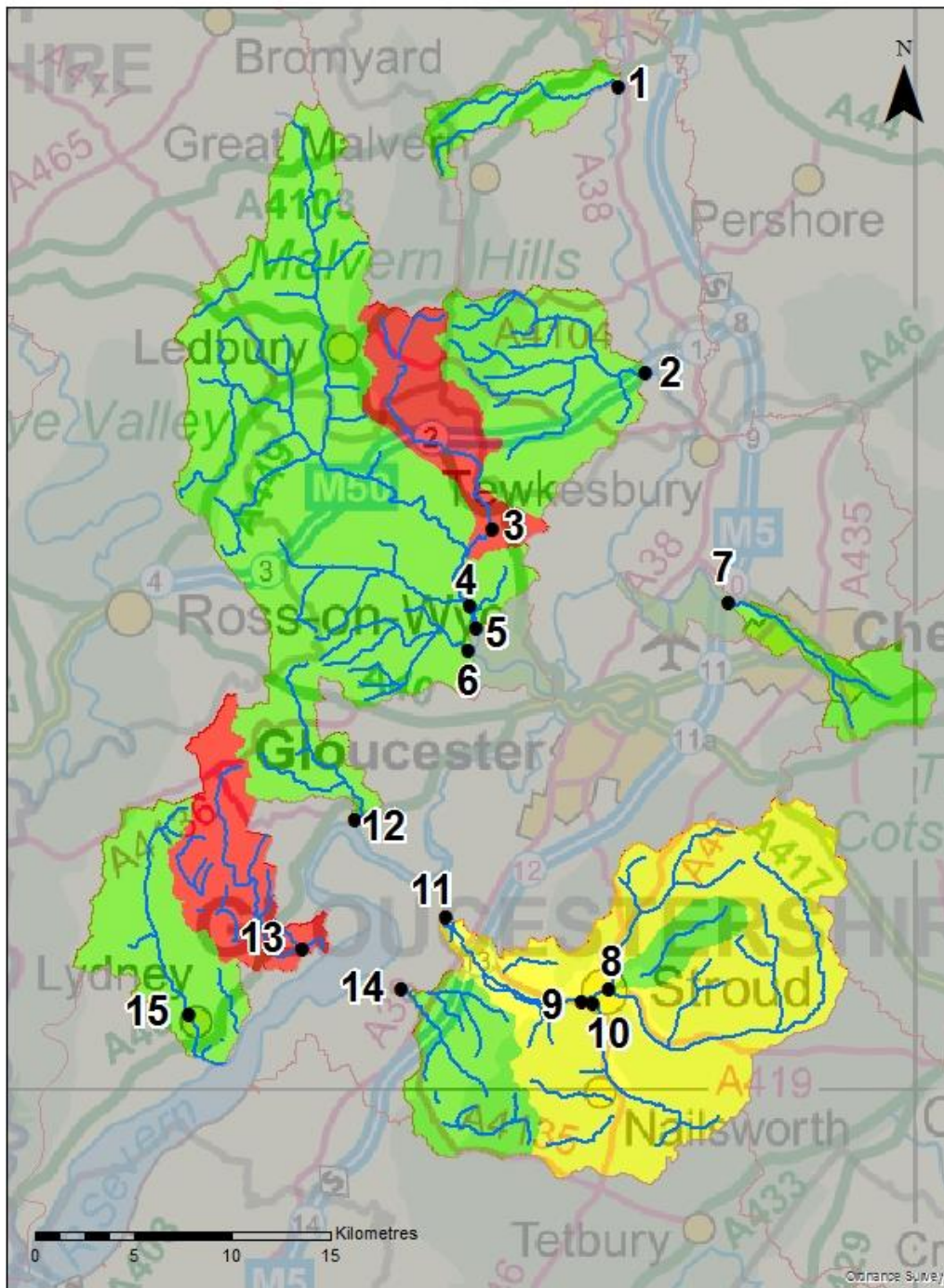


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Legend

- Assessment Points (APs)
- Rivers
- Water available
- Restricted water available
- Water not available

Map 2: water resource availability colours at Q50 for Severn Vale ALS

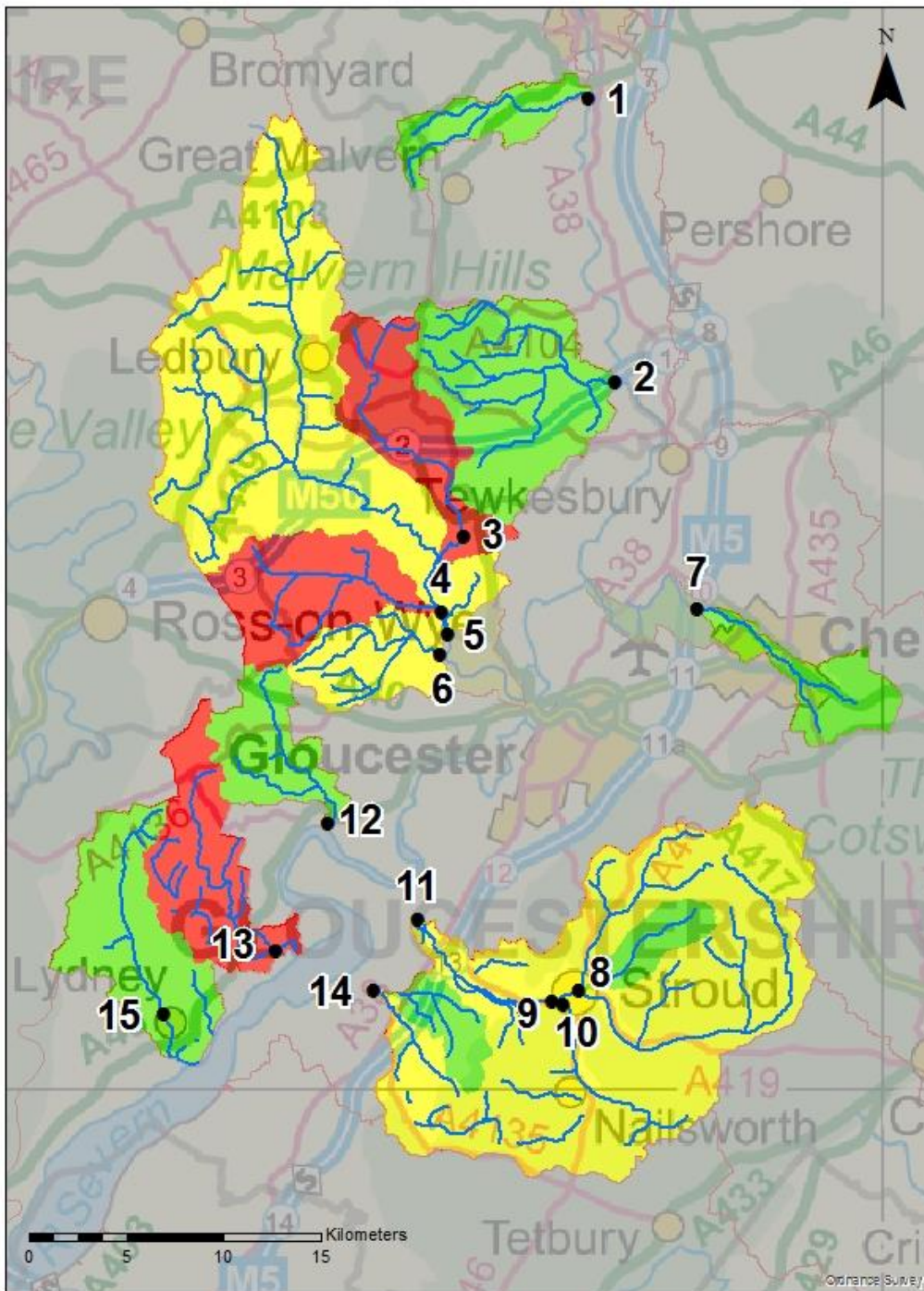


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Legend

- Assessment Points (APs)
- Rivers
- Water available
- Restricted water available
- Water not available

Map 3: water resource availability colours at Q70 for Severn Vale ALS

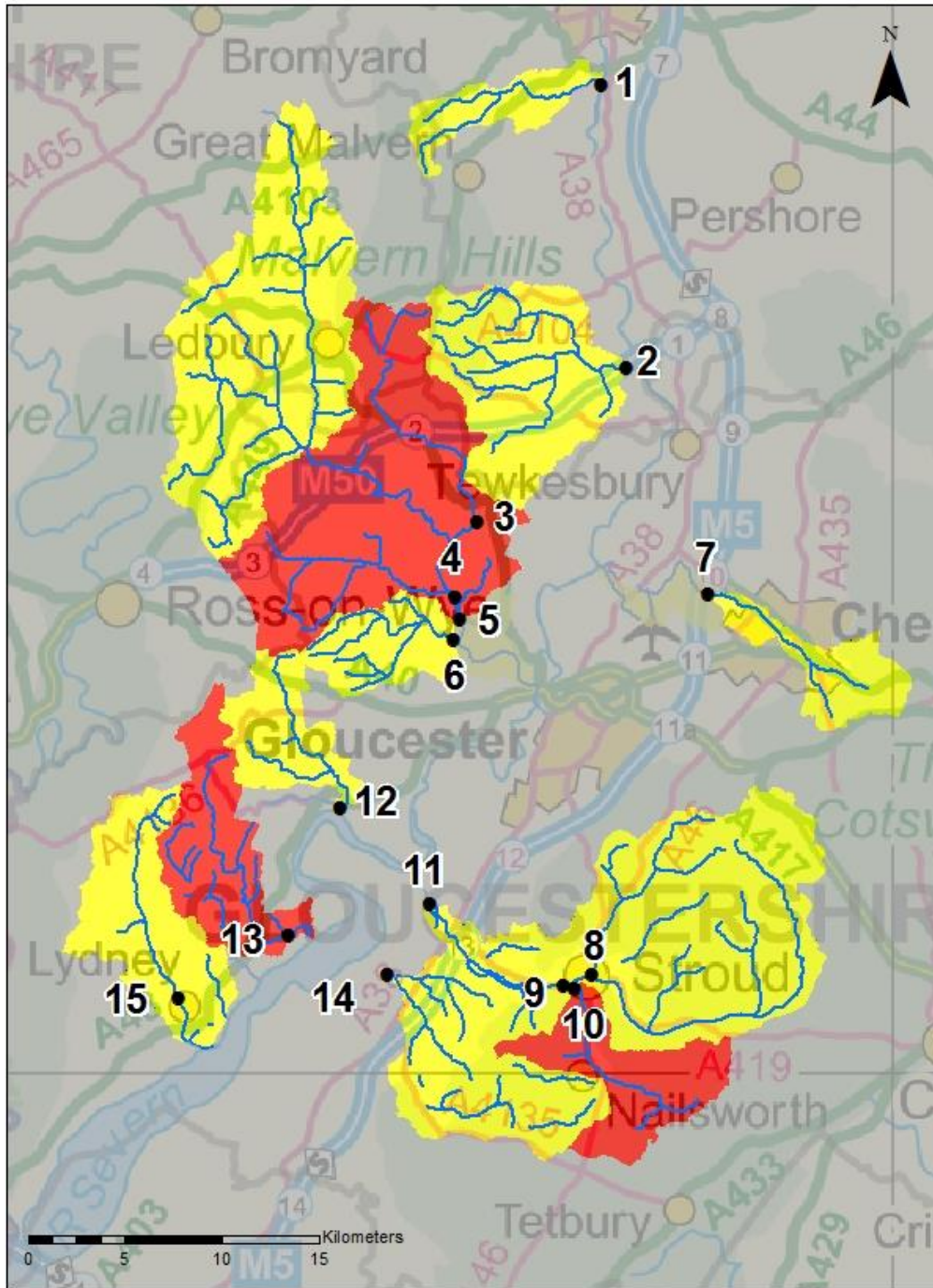


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Legend

- Assessment Points (APs)
- Rivers
- Water available
- Restricted water available
- Water not available

Map 4: water resource availability colours at Q95 for Severn Vale ALS



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Legend

- Assessment Points (APs)
- Rivers
- Water available
- Restricted water available
- Water not available

3.2. Groundwater resource availability

Groundwater availability is guided by the surface water resource availability unless we:

- have better information on principal aquifers
- are aware of local issues we need to protect

For the principal aquifers in the Severn Vale ALS area, water availability has been assessed using a number of tests. This assessment may include:

- consideration of available monitoring data
- numerical groundwater modelling
- surface water availability
- the need to protect groundwater dependent features including designated conservation sites

For secondary aquifers, where we typically have less information, groundwater availability is guided by the surface water availability.

In certain areas, resource concerns over groundwater mean that the standard water resource availability colours have been overridden.

Under the WFD Regulations (2017), aquifers are designated as named groundwater bodies (GWBs). We may divide GWBs into groundwater management units (GWMUs). In the case of principal aquifers, we use the information and assessments on these units to determine water availability and licence restrictions. Within the Severn Vale catchment, groundwater has been assessed using both GWBs and GWMUs to represent the water resource status for groundwater.

The Permo-Triassic Sandstone is a strategically important aquifer within the Severn Vale ALS Area. Designated as a Principal Aquifer, it comprises one GWB, the Severn Vale Permo-Triassic Sandstone Newent and 3 different GWMUs (see Map 5 and Table 3):

- Bromsberrow
- Oxenhall North
- Oxenhall South

The Jurassic Limestones in the south east of the catchment is split. It includes 2 GWBs:

- Severn Vale Jurassic Limestone Cotswold Edge South
- Warwickshire Avon Jurassic Limestone Cotswold Edge North

It includes 2 different GWMUs:

- Cotswolds North
- Cotswolds South

Only a very small area of the Severn Vale catchment falls within the Warwickshire Avon – Jurassic Limestone Cotswold Edge North groundwater body. There is therefore no specific detail about this water body within this ALS. The area covered by the [Warwickshire Avon Abstraction Licensing Strategy](#) includes a larger proportion of this groundwater body.

The following secondary aquifer groundwater body also outcrops within the Severn Vale ALS area:

- Severn Vale – secondary combined (GB40902G204900)

3.2.1. Groundwater resource availability colours and implications for licensing

We use colours to represent different groundwater availability:

Water available for licensing

Green 

Groundwater management unit balance shows groundwater is available for licensing. New licences can be considered depending on their impacts on other abstractors and providing there will be no significant impact on:

- surface water flows
- dependent wetlands
- groundwater levels
- causing saline intrusions

Restricted water available for licensing

Yellow 

Groundwater management unit balance shows more water is licensed than the amount available, but that recent actual abstractions are lower than the amount available. OR that there are known local impacts on surface water flows, dependent wetlands, groundwater levels or saline intrusions, but with management options in place.

In restricted groundwater management units no new consumptive licences will be granted if the groundwater balance and/or surface water flows or groundwater dependent wetlands are at risk of becoming unsustainable as a result of existing licensed abstraction. It will be appropriate to take action to reduce fully licensed risks.

Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.

There may be restrictions in some areas, for example in relation to saline intrusion or surface water flows. Where flow impacts are a concern, hands off flows may be applied.

Water not available for licensing

Red 

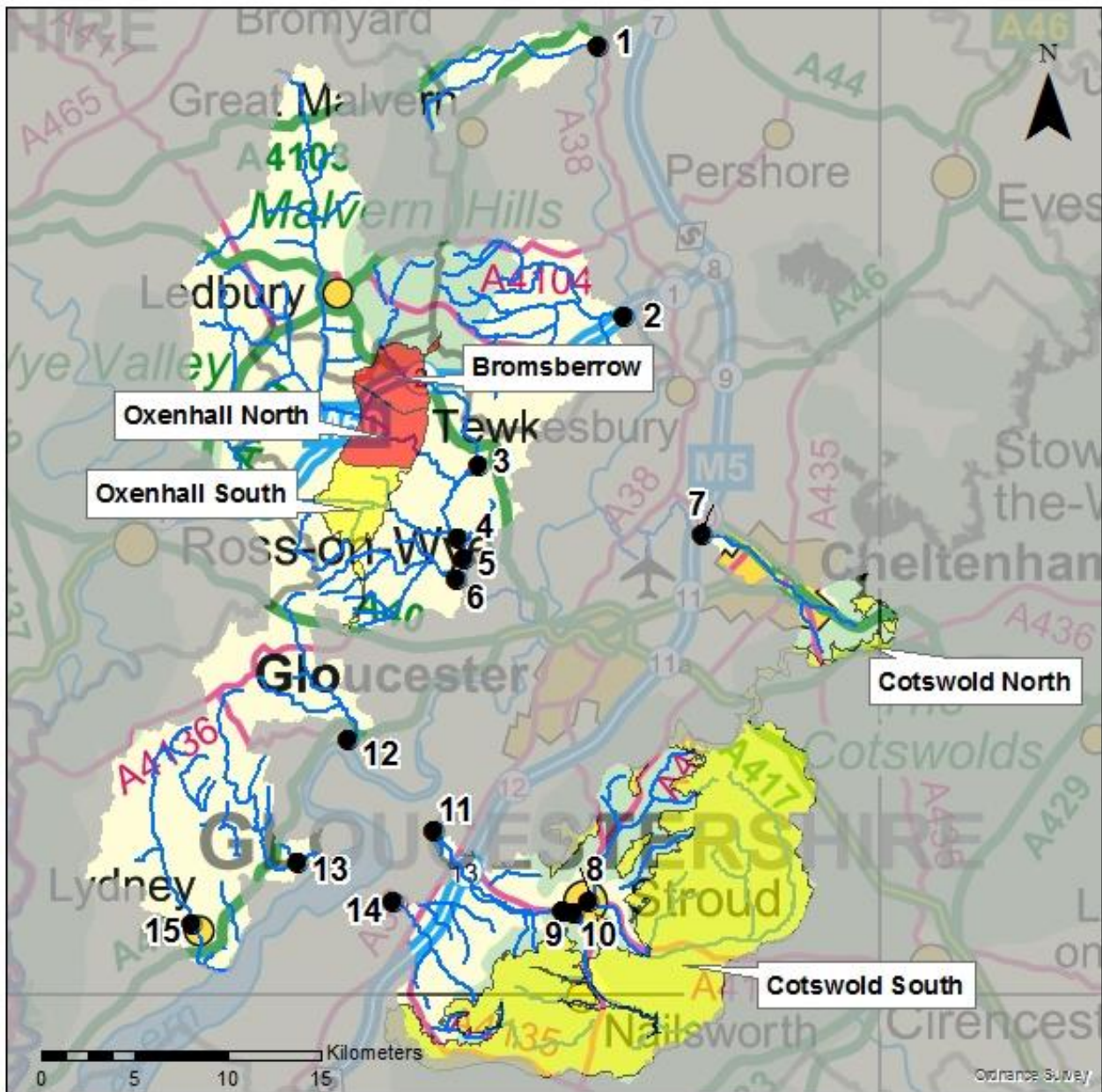
Groundwater unit balance shows more water has been abstracted based on recent amounts than the amount available.

We will not grant further consumptive licences. It will be appropriate to take action to reduce fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.

For further information about licence trading please refer to section 5.3.

3.2.2. Groundwater availability map

Map 5: groundwater availability in the Severn Vale area



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- Water Available GWMU
- Restricted Water Available GWMU
- No Water Available GWMU
- Assessment Points (APs)
- Rivers

3.3. Resource reliability

If you want to apply for a licence, it's worth considering the reliability of your abstraction.

By assessing the quantity of water available at different flows it's possible to see:

- when there is a surplus or deficit of water
- the associated reliability of an abstraction

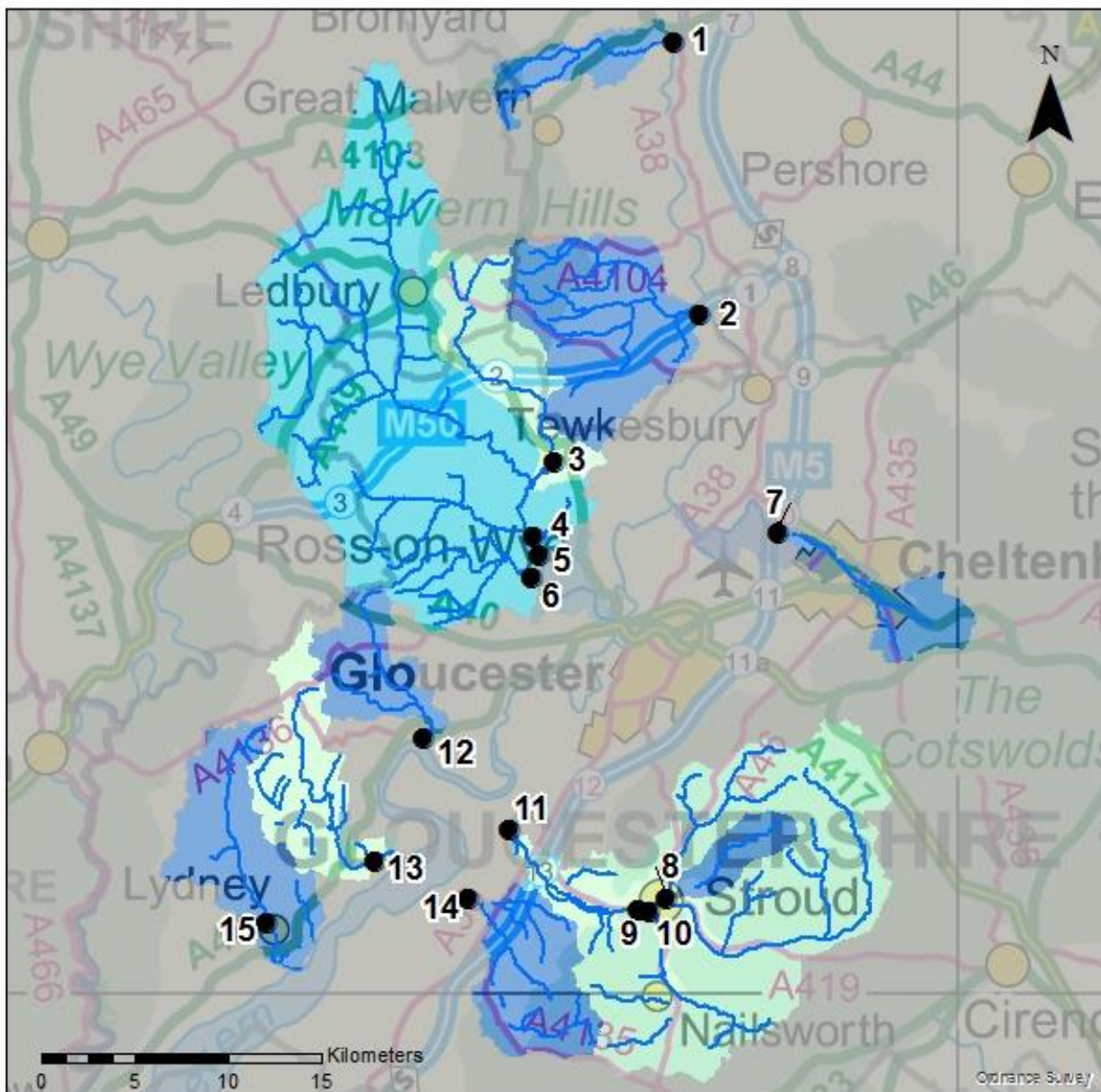
This is an indication only. Actual reliability of a licence will be discussed when you apply.

Map 6 gives an indication of the resource availability for [consumptive abstraction](#) in the Severn Vale area expressed as a percentage of time.

In this catchment, consumptive abstraction is available:

- less than 30% of the time at APs, 3, 8, 9, 10, 11 and 13
- at least 50% of the time at APs 4 5 and 6
- at least 70% of the time at APs 1, 2, 7 12, 14 and 15

Map 6: water resource reliability of the Severn Vale ALS expressed as percentage of time available



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Resource Reliability (% of the time)

- less than 30%
- at least 30%
- at least 50%
- at least 70%
- at least 95%

● Assessment Points (APs)

— Rivers

3.4. Other considerations for resource availability and reliability

We will add constraints to licences such as hands off flow (HoF) conditions to protect:

- the environment
- the rights of other abstractors

As a result, when we grant a licence, it doesn't mean that we guarantee a supply of water. These conditions specify that if the flow in the river drops below what's needed to protect the environment, abstraction must reduce or stop. In dry years, restrictions are likely to apply more often. This will affect the reliability of supply.

There is no guarantee that we will grant licences even where water is available for abstraction. This is because we determine each application on its own merits. Local factors may mean we're either unable to grant a licence as applied for, or even at all.

New licences within a catchment are usually given a Common End Date ([CED](#)), which allows them to be reviewed at the same time. The next CED for this ALS is 31 March 2039 and the subsequent one is 31 March 2051.

3.5. Impoundments

Applications for impoundments will be dealt with on a case-by-case basis. More information may be found on our [water management web pages](#).

4. How we manage water availability in the Severn Vale ALS

4.1. Surface water

We assess surface water flows at assessment points (APs). These are significant points on a river, often where 2 major rivers join or at a gauging station. APs cover multiple surface water bodies.

To protect the environment we will issue licences with a condition referred to as a hands off flow (HoF). It means that if flow in the river drops below that which is required to protect the environment, abstraction must stop, hence 'hands off flow'.

Each HoF is linked to an AP and is dependent on the assessment of the river at that AP and downstream. This determines the water resource availability at that AP. In some cases additional restrictions may apply to licences where there is a more critical resource availability downstream. This is to protect the ecological requirements of the river.

All abstraction licence applications are subject to an assessment to take account of any local and downstream issues.

Where groundwater abstractions directly impact on surface water flows, the impact is measured at the surface water AP. Surface waters are supported by groundwater where they interact with aquifers:

- springs feed headwaters or contribute further downstream
- baseflow supports flow through riverbeds along the watercourse route

Groundwater abstractions can lower the water table. This could reduce groundwater inputs via springs and baseflow so reducing surface water flows and impacting ecology. The potential for groundwater abstraction to affect groundwater and surface water connectivity is included in the assessment of any groundwater resource status and risk.

In this catchment, the Permo-Triassic sandstone principal aquifer comprises the Severn Vale Permo-Triassic sandstone Newent groundwater body. Groundwater abstraction from this either impacts or has the potential to impact the watercourses that rise on it or flow across it. Key APs where surface water flows over the sandstone aquifer, which are likely to be impacted by this groundwater abstraction are identified in Section 3.1.

The Jurassic Limestone Principal Aquifer in the Severn Vale comprises the Cotswold Edge South groundwater body. Groundwater abstraction from this either impacts or has the potential to impact the watercourses that rise on it or flow across it. Key APs where surface water flows over the limestone aquifer, which are likely to be impacted by this groundwater abstraction are identified in Section 3.1.

Table 2 gives an indication of:

- how much water is available for further abstraction from surface water
- the associated restrictions we may have to apply to new and varied [abstraction licences](#) from the main river

Depending on the nature of the catchment, tributaries to the main river may be subject to different restrictions and quantities. This may be assessed locally on a case-by-case basis.

Reading from top to bottom in Table 2 are the APs in the Severn Vale ALS area. Reading across the columns you can see:

- the potential HoF that may be applied to a licence
- the number of days water may be available under this restriction
- the approximate volume of water in [MI/d](#) that may be available

Across the Severn Vale area, the HoF restrictions are driven by the need to protect flows going into the River Severn. Flows of 2,271 MI/d are needed in the River Severn at Bewdley. Flows of 2,568 MI/d are needed in the River Severn at Deerhurst. These are required to protect resources for existing abstractors and the river ecology. All HoFs in the catchment have therefore been set at flows which are equivalent to, or higher than these. Where watercourses need further protection of flows due to unfavourable local water resource situations, then the HoFs are set at a suitable higher flow.

The Cannop Brook flows directly to the River Severn and has no assessment point on it.

The conditions in Table 2 apply to new or varied consumptive abstractions. They may not apply if the abstraction is [non-consumptive](#) or if the licence results in an overall environmental benefit. Increase in volume applications on existing licences will be subject to the same conditions as new licences on the increased part of the licence only.

To protect fish and eels we may also require a correctly sized intake screen and a fish or eel pass. These will mitigate delays or barriers to the movement of fish and eels.

The strategy outlined in Table 2 depends on the resource situation remaining as it is currently. Any changes to major abstractions from or discharges to the catchment may change this licensing strategy or the volumes of water available.

The volumes stated are the maximum acceptable volume at that point; less water will be available upstream and from tributaries due to reduced flows. All volumes applied for will be assessed individually to ensure the impacts are sustainable both locally and further downstream.

Table 2: summary of licensing approach for the assessment points of the Severn Vale ALS

AP	Name	AP National Grid Reference	Water Resource Availability	HoF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?	Additional restrictions
1	Careys Brook	SO 84888 50917	Restricted water available for licensing	2,568 MI/d (at Deerhurst gauging station on the River Severn)	285	172 MI/d (from the whole of the catchment upstream of Deerhurst. Less will be available from tributaries)	No	A lower restriction of 2,428 MI/d will apply when water company abstractions are reduced.
2	Bushley Brook	SO 86242 36361	Restricted water available for licensing	2,568 MI/d (at Deerhurst gauging station on the River Severn)	285	172 MI/d (from the whole of the catchment upstream of Deerhurst. Less will be available from tributaries)	No	A lower restriction of 2,428 MI/d will apply when water company abstractions are reduced
3	Glynch Brook at Bromsberrow gauging station	SO 78508 28438	Restricted water available for licensing	19 MI/d	91	9 MI/d	Yes	New abstraction from the Glynch Brook catchment will be assessed on a case-by-case basis due to concerns over sustainability.

AP	Name	AP National Grid Reference	Water Resource Availability	HoF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?	Additional restrictions
4	Ell Brook	SO 77370 24530	Restricted water available for licensing	74 MI/d (at Wedderburn Bridge gauging station on the River Leadon)	204	1.8 MI/d	No	
5	River Leadon at Wedderburn Bridge gauging station	SO 77646 23442	Restricted water available for licensing	48 MI/d	234	0.7 MI/d (for the whole of the catchment upstream of Wedderburn Bridge GS. Less will be available upstream and from tributaries).	Yes	
6	Red Brook	SO 77295 22314	Restricted water available for licensing	48 MI/d (at Wedderburn Bridge gauging station on the River Leadon)	234	See AP5	No	
7	River Chelt at Slate Mill	SO 90446 24684	Restricted water available for	2,568 MI/d (at Deerhurst	285	172 MI/d (from the whole of	Yes	A lower restriction of

AP	Name	AP National Grid Reference	Water Resource Availability	HoF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?	Additional restrictions
	gauging station		licensing	gauging station on the River Severn)		the catchment upstream of Deerhurst. Less will be available from tributaries)		2,428 MI/d will apply when water company abstractions are reduced
8	Painswick Stream	SO 84410 05066	Restricted water available for licensing	260 MI/d (at the Ebley Mill gauging station on the River Frome)	110	See AP9	No	
9	River Frome at Ebley Mill gauging station	SO 83000 04487	Restricted water available for licensing	260 MI/d	110	20.6 MI/d (from the whole of the Frome catchment. Less will be available upstream and from tributaries)	Yes	
10	Nailsworth Stream	SO 83579 04400	Restricted water available for licensing	260 MI/d (at the Ebley Mill gauging station on the River Frome)	110	See AP9	No	

AP	Name	AP National Grid Reference	Water Resource Availability	HoF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?	Additional restrictions
11	River Frome at Wheatenhurst	SO 76096 08769	Restricted water available for licensing	260 MI/d (at the Ebley Mill gauging station on the River Frome)	110	See AP9	No	
12	Westbury Brook	SO 71467 13667	Restricted water available for licensing	6 MI/d (at the Parkend gauging station on the River Lyd)	285	0.4 MI/d	No	A lower restriction of 5 MI/d will apply when water company abstractions are reduced
13	Cinderford Brook	SO 68823 07117	No water available					Catchment closed to further abstraction
14	River Cam	SO 73867 05069	Restricted water available for licensing	112 MI/d (at the Ebley Mill gauging station on the River Frome)	285	0.3 MI/d	No	A lower restriction of 98 MI/d will apply when water company abstractions are reduced
15	River Lyd	SO 63092 03844	Restricted water available for licensing	6 MI/d (at the Parkend gauging station on the	285	0.3 MI/d	No	A lower restriction of 5 MI/d will apply when water

AP	Name	AP National Grid Reference	Water Resource Availability	HoF Restriction (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP?	Additional restrictions
				River Lyd)				company abstractions are reduced

Glynch Brook at Bromsberrow - new consumptive abstraction will only be available during high/flood flows. Applications will need to be supported by a local hydrological assessment to demonstrate that the abstraction is sustainable. A restrictive HoF will be used to limit the abstraction to high flows. Investment will be required from abstractors to install a local flow measuring structure to ensure compliance with the HoF.

4.2. Groundwater

Principal aquifers are designated as named groundwater bodies (GWB). We may divide principal aquifers into groundwater management units (GWMU), which are sub-divisions of the groundwater bodies. In these cases we use the status and objectives of the GWBs with information and assessments on GWMUs to determine water availability and licence restrictions. GWMU water availability status may be overridden to support GWB objectives.

Where groundwater abstractions directly impact on surface water flows the impact is measured at the surface water AP. This includes where the impact reduces baseflow. In these cases, restrictions may be applied to licences, such as hands off level ([HoL](#)) or hands off flow (HoF) conditions. The HoL is a groundwater level below which an abstractor is required to reduce or stop abstraction. The HoF is applied when flows fall below a certain rate in a connected watercourse.

Other restrictions may apply where availability is limited or to protect the environment, for example to prevent saline intrusion.

Licence restrictions on groundwater abstractions in the Severn Vale ALS area

As set out in Section 3.2 there are 5 GWMUs and associated superficial unconsolidated deposits within the boundary of the Severn Vale catchment.

Table 3 details water availability status for these GWMUs and the associated superficial deposits. It sets out the restrictions that might be applied to abstractions likely to impact on groundwater-dependent environments. Overall, limited water is available for licensing from groundwater sources. This is to protect groundwater resources, river baseflow and dependent environments and manage the status and risk of the groundwater body.

Table 3: summary of licensing approach for the GWMUs of the Severn Vale ALS

Groundwater body	Groundwater body status	Groundwater management unit	Water resource availability colour	Licence restriction
Severn Vale – PT Sandstone Newent	Poor quantitative status and risk of deterioration	Bromsberrow Oxenhall North	Water not available for licensing. No new consumptive abstractions will be granted.	Opportunities to reduce fully licensed risks will be taken. Time limited licence renewals will require changes to reflect historic usage in order to manage the risk of future deterioration to the environment.
Severn Vale – PT Sandstone Newent	Poor quantitative status and risk of deterioration	Oxenhall South	Restricted water available for licensing No new consumptive abstractions will be granted.	Opportunities to reduce fully licensed risks will be taken. Time limited licence renewals will require changes to reflect historic usage in order to manage the risk of future deterioration to the environment.

<p>Warwickshire Avon - Jurassic Limestone Cotswold Edge North</p>	<p>Good quantitative status and not at risk of deterioration</p>	<p>Cotswold North</p>	<p>Restricted water available for licensing.</p> <p>Resources may be available from this unit for further groundwater development.</p> <p>The resource assessment has been overridden to restricted water available. This is to protect Public Water Supply abstractions reliant on spring discharges and the downstream status of the Severn Estuary.</p> <p>The unit covers many catchments and has a strong linkage with surface water. A HoF will be applied to new abstractions according to the surface water catchment influenced by the abstraction.</p>	<p>Any application will be subject to the assessment of impacts on existing water users, groundwater dependent terrestrial ecosystems, surface water level and flow impacts. This is to ensure that no deterioration of the water environment is allowed to occur.</p> <p>Opportunities to reduce fully licensed risks will be taken where surface water body deterioration is a risk. In these locations, time limited licence renewals will require changes to reflect historic usage to manage the risk of future deterioration to the environment.</p>
<p>Severn Vale - Jurassic Limestone Cotswold Edge South</p>	<p>Good quantitative status and not at risk of deterioration</p>	<p>Cotswold South</p>	<p>Restricted water available for licensing.</p> <p>Resources are available from this unit for further groundwater development.</p> <p>New groundwater licences from this unit will be granted with a HoF condition to be measured at Ebley Mill gauging station. The condition will offer the same level of protection as the surface water HoF on the River Frome. This is required as the surface water and groundwater in this area is extremely well connected.</p>	<p>Any application will be subject to the assessment of impacts on existing water users, groundwater dependent terrestrial ecosystems, surface water level and flow impacts. This is to ensure that no deterioration of the water environment is allowed to occur.</p> <p>Opportunities to reduce fully licensed risks will be taken where surface water body deterioration is a risk. In these locations, time limited licence renewals will require changes to reflect historic usage to manage the risk of future deterioration to the environment.</p>

Secondary aquifers

New groundwater licence applications for abstraction outside of the principal aquifers will continue to be assessed on a case-by-case basis. Consideration will include potential impacts on:

- existing water users
- groundwater dependent terrestrial ecosystems

- groundwater resources
- surface water level and flow

We must ensure that no deterioration of the water environment is allowed to occur.

4.3. Coasts and estuaries

The Severn Estuary supports a wide array of habitats and species and is designated as a:

- Site of Special Scientific Interest (SSSI)
- Habitats Directive Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- wetland of international importance under the Ramsar Convention (Ramsar Site)

The intertidal mudflats, sand banks, rocky platforms and salt marsh are among the largest and most important in Britain. They support internationally important populations of:

- waterfowl
- invertebrate populations of considerable interest
- large populations of migratory fish including atlantic salmon, sea trout, allis and twaite shad, sea and river lamprey and european eels

The estuary receives a significant proportion of its flow from the River Severn catchment. We have an obligation to protect all Habitats Directive sites. The River Severn and its tributaries must be managed using appropriate flow restrictions to protect the environmental needs of the estuary. HoFs applied to new licences within the River Severn catchment must be equal to or more restrictive than the flow required by the estuarine ecology.

4.4. Protected sites

The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) provides a very high level of protection to:

- Special Areas of Conservation ([SAC](#)), which contribute to biodiversity by maintaining and restoring habitats and species
- Special Protection Area ([SPA](#)), which provides protection to birds and their nests, eggs and habitats

Government policy treats Ramsar sites (internationally important wetland sites) in the same way as SACs and SPAs. Ramsars, SACs and SPAs are referred to collectively as European sites. Sites of Special Scientific Interest ([SSSI](#)) also carry a high level of environmental importance.

Conservation objectives are the main objectives for European and SSSI protected sites to maintain at, or to reach, favourable condition. These are set by Natural England. The process for setting targets is described through the Joint nature conservation committee approved '[Common Standards Monitoring Guidance](#)' (CSMG). Natural England use these targets to assess the condition of European and SSSI protected sites. These quantitative targets are considered by Natural England as a pre-requisite for achieving the conservation objectives for European or SSSI designated sites. We have a duty to have

regard to Natural England’s advice when determining licence applications that may impact on a designated site.

We may need more detailed supporting information when a licence application could impact on a designated conservation site. This will allow us to complete the required statutory assessment.

Table 4: important local features that may affect water availability

Designation	Site name
Special Area of Conservation	Cotswold Beechwoods (Severn Estuary is a SAC downstream of the Severn Vale ALS area.)
Site of Special Scientific Interest	Aileshurst Coppice New Inn Meadow Malvern Hills Rye Street Meadows Burley Dene Meadows Malthouse Farm Meadows Castlemorton Common Micklefield Meadow Lineover Wood Nagshead Soundley Ponds Clarke’s Pool Meadow Cotswold Common and Beechwoods Kingscote and Horsley Woods, Minchinhampton Common Woodchester Park Strawberry Banks Busley Muzzard-Brimpsfield Collinpark Wood Dymock Woods May Hill Eastnor Park Aston Ingham Meadows Dymock Woods

5. Managing the catchment together

5.1. Action on unsustainable abstraction

[Managing water abstraction](#) gives details on:

- what an unsustainable abstraction is
- the measures available to resolve environmental issues caused by abstraction

There are a series of actions that we are taking to address unsustainable abstraction. These are listed here and are followed by work that is being done in individual catchments.

Revocation for non-use / reduction of under used licences

The Environment Agency has an unused licences programme. It is addressing the large volume of water licensed within abstraction licences that has not been abstracted for a number of years. This limits water availability for those that need it. In some cases it presents a significant environmental risk if abstraction were to be restarted. The majority of changes to licensed quantities are made voluntarily. However, where there is risk of environmental damage, the Environment Agency can propose the revocation of unused licences. This is done using legal powers under section 52 of the Water Resources Act 1991.

During the 3 phases of this programme so far, we have contacted over 60 abstractors in the Severn Vale area. The sum of water reduced or revoked so far within this catchment is 221,040 cubic metres per year.

We will continue to target unused and underused licences in the catchment with the aim of reducing licensed abstraction which is not being used. This helps to remove the risk of future deterioration and may release unused water for future licensing.

Water Industry National Environment Programme (WINEP) and Asset Management Plans (AMP)

We are working with Water Companies to investigate and deliver environmental improvements. These are needed to meet Water Framework Directive and national targets. Water companies will be carrying out investigations in AMP7 (2020 to 2025). This is to understand the risk of deterioration due to planned sustained increases in abstraction utilising [headroom](#) on already licensed abstractions. If the investigations show a risk of deterioration, they will need to carry out an Options Appraisal. This is to identify measures to mitigate the risks and prevent deterioration of WFD status. Mitigation or changes to abstraction to prevent deterioration will need to be implemented before deterioration is predicted to occur.

Water companies will also be delivering changes to the management of other abstractions in the Severn Vale GWB.

This will take the form of:

- licence reductions
- altering the management of the sources
- providing mitigations

These will be carried out under the No Deterioration AMP7 driver. The measures are known as Sustainability Change and Adaptive Management measures.

Restoring Sustainable Abstraction (RSA)

This is the Environment Agency's programme of work to review unsustainable abstraction. We have been changing or revoking existing abstraction licences in order to achieve a sustainable abstraction regime. We have done this for water abstractions that cause or potentially cause actual flows to fall short of the EFIs and result in environmental damage.

Changing Licences to Prevent Deterioration

The Environment Agency must take action to prevent water bodies from deteriorating in status. This is in accordance with its duties under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The Environment Agency's principal intervention to prevent deterioration is to reduce licensed quantities. The scale of any reduction is dependent on the deterioration risk and how current levels of abstraction impact the environment. Licence changes to prevent deterioration will need to commence as part of the renewal of time limited abstraction licences. Changes to licences held by statutory water undertakers to prevent deterioration will normally be progressed through the Water Industry National Environment Programme. Changes to permanent licences not held by statutory water undertakers will be progressed as and when circumstances allow. Further changes may be required to licences to meet other environmental obligations in addition to preventing deterioration.

Serious Damage

In order to be classified as being at Serious Damage a surface water body must meet the following 3 criteria:

- be identified as being Band 3 non-compliant for flow - this means that they are experiencing severe levels of abstraction pressure causing recent actual flows to fall into deficit against the EFI
- have an overall WFD Regulations (2017) status of less than 'Good'
- have the abstraction of water and subsequent low flows confirmed as the reason, or contributing to the reason, for not achieving 'Good' WFD Regulations (2017) status

New applications for abstraction from water bodies that are classified as being at, or at risk of, Serious Damage will be assessed on a case-by-case basis. This is to ensure that no deterioration of the water environment is allowed to occur.

In the Severn Vale catchment there are currently 2 surface water bodies confirmed as being at Serious Damage. These are the:

- Glynch Brook - source to confluence River Leadon (GB109054039620)
- Cinderford Brook - source to confluence Blackpool Brook (GB109054032710)

One further water body is at risk of Serious Damage. This is the:

- Ell Brook - source to confluence River Leadon (GB109054032520)

For a groundwater body, Serious Damage occurs when:

- there is a deterioration in combined overall WFD Regulations (2017) groundwater body status from good to poor

- there is a deterioration in combined overall WFD Regulations (2017) groundwater status from poor (low confidence) to Poor (High confidence)
- the WFD Regulations (2017) Groundwater Dependent Terrestrial Ecosystem (wetlands) test is assessed as poor

A groundwater body is at risk of Serious Damage where the full licence conditions could result in:

- the deterioration in combined overall WFD Regulations (2017) groundwater body status from good to poor
- the deterioration in combined overall WFD Regulations (2017) groundwater status from poor (low confidence) to Poor (High confidence)

The Newent Permo-Triassic Sandstone GWB has an overall quantitative status of poor (high confidence) under recent actual abstraction. The GWB is also at risk of deterioration as a result of the significant amount of [licence headroom](#) held on public water supply licences. More information on these programmes is available in our [abstraction plan](#).

Changes to time limited licences

Where environmental sustainability is not in question renewal of time limited licences will be considered subject to local considerations and the following criteria:

- there is a continued justification of need for the water
- the water is used efficiently

Where these 2 criteria are met but the abstraction of water is unsustainable we will require licence changes to reflect historic usage. To manage the risk of future deterioration to the groundwater or surface water body we would not wish to see growth into licensed [headroom](#). This would result in a sustained increase in abstraction and damage to the environment. We may also issue renewed licences with a short time-limit.

Water availability colours for surface water at Q30, Q50, Q70 and Q95 can be found on maps 1 to 4. Water availability for each groundwater management unit can be found on map 5.

Surface water abstraction licences

Surface water licences will be renewed on the following broad principles around environmental sustainability:

Water available for licensing

Green 

We will consider renewing the licence at the same quantities, subject to the renewal criteria. The water body, and downstream water bodies, need to have environmentally sustainable rates of water abstraction - both now and at times when abstractors take their full licensed quantities of water.

Restricted water available for licensing

Yellow



On renewal of abstractions in water bodies where full licensed flows have fallen below the EFI, we may seek to reduce unused portions of licensed quantities. This is to reduce the risk of surface water bodies becoming unsustainable at fully licensed rates of abstraction. It will also help to prevent the ecology deteriorating compared to the River Basin Management Plan (RBMP) 2015 baseline.

Water not available for licensing

Red



These surface water bodies are already subject to unsustainable rates of abstraction. We will need to renew the licences with measures to help restore that water body to a sustainable level of abstraction.

On renewal, time limited licences may be capped at historic maximum abstraction. This will reduce the risk of abstraction from surface water bodies becoming increasingly unsustainable at fully licensed rates of abstraction. It will also help to prevent the ecology deteriorating compared to the River Basin Management Plan (RBMP) 2015 baseline. We will also consider more restrictive terms and conditions such as hands off flow/level conditions.

Where measures are still under investigation, licences would be renewed with a cap at historic maximum uptake and may be time-limited to an earlier date.

Groundwater abstraction licences

Individual groundwater management unit status and water availability is summarised in Section 4.2.

Groundwater licences will be renewed on the following broad principles around environmental sustainability:

Water available for licensing

Green



We will consider renewing the licence at the same quantities. The groundwater body/groundwater management unit, overlying rivers and associated wetland habitats need to have environmentally sustainable rates of water abstraction - both now, and at times when abstractors take their full licensed quantities of water.

Restricted water available for licensing

Yellow



Groundwater/surface water bodies and/or the groundwater management unit in which the groundwater abstraction sits are at risk of deterioration. Time limited renewals will require licence changes to reflect historic usage and reduce the fully licensed risk in order to manage the risk of deterioration.

Water not available for licensing

Red



Groundwater/surface water bodies and/or the groundwater management unit in which the groundwater abstraction sits are already subject to unsustainable rates of abstraction. We will renew the licence with measures to help restore a more sustainable level of abstraction. These measures could be licence quantity reductions or hands off flow/level conditions. Where 'water body' scale measures are still under investigation, then licence changes to reflect historic usage and a short time-limit will be applied. Requirements for any further licence changes (reductions, HoFs etc.) can then be assessed on the subsequent renewal.

5.2. Action that has been taken on unsustainable abstraction in this catchment

Five Regional Groups have been created to develop long-term water resources plans up to 2050 and beyond. The Severn Vale area falls in the Water Resources West group. The area covered by this group includes the North-West, the Midlands and cross-border catchments between Wales and England. It is a multi-sector group that includes representatives from the:

- Water companies
- National Farmers Union
- Canal and River Trust
- Energy UK

The Regional Groups have been tasked with considering the challenges and producing multi-sector regional plans. These will set out how water supply and demand will be managed over the long-term for people, businesses and agriculture, whilst protecting the environment. They will need to understand environmental needs and develop the long-term environmental destination for water resources ensuring:

- no deterioration
- addressing unsustainable abstraction
- improving environmental resilience in the face of climate change

The regional plans will set out the actions that water companies and other abstractors will need to take to reach the long-term environmental destination.

We have provided information to this group to help them identify catchments with existing or potential problems.

This catchment also lies within water company supply zones which have been classified by DEFRA as being under serious water stress. This is where the current or future demand for water is a high proportion of the rainfall available to meet that demand. The classification informs:

- water companies on whether to consider metering
- local authorities on whether to request more stringent consumption standards in new developments

Further detail is available in our [water stressed areas – 2021 classification](#).

The following actions are being undertaken in the catchment:

Glynch Brook

Unsustainable groundwater abstraction from the Bromsberrow groundwater management unit has resulted in the depletion of flows along the Glynch Brook catchment. To mitigate these impacts water is pumped during low flow periods from a borehole at Bromsberrow to supplement flows within the brook.

Cinderford Brook

Unsustainable groundwater abstraction within the Cinderford Brook catchment has resulted in a reduction in baseflows to the brook where it flows over the carboniferous limestone. Flows have also been reduced as a result of historical mining within the catchment. To mitigate these impacts a solution was proposed under AMP6 for implementation during AMP7 (2020 to 2025) to reduce public water supply groundwater abstraction.

Environmental measures such as habitat restoration and channel morphology techniques are also being used to improve the resilience of river ecology to low river flows. A new wetland complex has been created at Crumpmeadow and a second phase of measures is currently under review for catchment wide solutions. These are likely to include in-channel habitat modifications such as:

- the introduction of woody debris and boulders
- removal of fish migration barriers
- lowering of river banks to improve connectivity with floodplains

Severn Vale – PT Sandstone (Bromsberrow, Oxenhall North and Oxenhall South GWMUs)

Unsustainable groundwater abstraction and the associated environmental impacts are largely linked with the high yielding principal aquifers. In this case the Severn Vale Permo-Triassic Sandstone Newent groundwater body and related groundwater management units. As a result of historical licensing, the groundwater resource balance is unsustainable for the Bromsberrow and Oxenhall North groundwater management units. Oxenhall South groundwater management unit has restricted water available. This gives rise to level and flow impacts on groundwater and surface water baseflows in several parts of the ALS area. This groundwater body is therefore, considered to be at overall poor quantitative status, with a large unused licence headroom and at risk of deterioration. No new consumptive abstractions will be granted in Bromsberrow, Oxenhall North or Oxenhall South groundwater management units. We will take opportunities to reduce fully licensed risks.

We will prevent further deterioration of this groundwater body and levels/flows in the associated watercourses that cross the Permo-Triassic sandstone aquifer. We will achieve this by taking the following actions to reduce abstraction:

- no new consumptive abstractions will be granted
- take opportunities to reduce fully licensed risks
- new authorisations will be determined based on historic use
- time limited licences will be capped on renewal to reflect historic use

- only accept licence trades if the trade is consistent with achieving water body objectives
- seek a voluntary approach to change permanent non-water company licences
- water companies will undertake further investigation to identify measures to comply with the WFD Regulations (2017) no deterioration requirements and implement sustainability changes where required
- address unused and underused groundwater abstraction licences to reduce the licenced headroom and the risk of deterioration defined by the WFD Regulations (2017)

5.3 Water rights trading

A water rights trade is where a person sells all or part of their water right, as defined by their abstraction licence(s), to another person. This could be on a permanent or temporary basis. In the majority of cases a trade will involve a change in abstraction location and/or use. We will need to approve through the issue or variation of abstraction licences.

In licensing trades, as with new abstraction licences, we need to make sure that we don't cause any deterioration in water body status. This is both:

- within the water body / bodies where the trade will take place
- to downstream water bodies

This section provides a guide to the potential for trading in water bodies of a particular ALS water resource availability colour. Water availability colours are shown in maps 1 to 4 (surface water) and map 5 (groundwater).

Guide to potential trading based on water resource availability

Water available for licensing

Green 

There may be opportunities to allow trades of recent actual abstraction and licensed abstraction. But little demand for trading expected within the water body as water is available for new abstractions.

Restricted water available for licensing

Yellow 

There may be opportunities for licence holders to trade up to their full licensed quantities. But the quantities of water available to trade may be restricted once levels of actual abstraction reach sustainable limits. We will not permit licence trades in water bodies or groundwater management units where we are taking action to prevent deterioration. The exception to this is if the trade is consistent with achieving water body objectives.

Water not available for licensing

Red 

We will only trade up to recent actual abstraction but no increase in recent actual abstraction is permitted in these water bodies/groundwater management units. Licensed abstraction will be recovered for the environment.

HMWBs

Grey 

Opportunities for trading will depend on local operating agreements and local management.

5.3.1 Groundwater rights trading

The principles detailed in Section 5.3 apply to permanent trading of groundwater within the same GWMU. The following additional principles apply for the permanent trading of groundwater between groundwater management units (GWMU) within the same groundwater body (GWB):

- the trade must be compatible with this abstraction licensing strategy for the recipient GWMU and surface water bodies
- there is a presumption against trading between GWMUs that are in deficit - a deficit balance within a GWMU can also be read as restricted water available or no water available (Section 4.2)
- licence trades will only be considered where the recipient GWMU water balance is in surplus - a surplus balance within a GWMU can also be read as water available (Section 4.2)
- the trade must not result in deterioration of the status on any groundwater body or surface water body test
- the trade should be compatible with the ambition to maintain good or the pathway to achieving good status - the ambition should be realistic and cost beneficial
- the trade must not cause any environmental damage
- the trade must not derogate any [protected right](#) and must have due regard to lawful users - a pump test is likely to be required to assess potential impacts on these and other water features
- there is a presumption against trading to a non-compliant surface water body
- the receiving trade abstraction point(s) must consider the distributed impact across surface water bodies - there is a presumption against trading where the distributed impact results in depleting flows within a non-compliant surface water body

To find out more about licence trading please go to our [water management web pages](#). [Help for trading water rights map](#): this may help abstractors to identify potential trades - it provides information on nearby licences and an indication of the potential for a trade.

6. Related links

[Agriculture and Horticulture Development Board \(AHDB\) website](#) - provides information on effective use of water on livestock farms_

[Catchment Based Approach community website](#) - provides further information on the catchment based approach

[UK Centre for Ecology and Hydrology Drought Portal](#) - is an interactive portal presenting information on the latest hydrological situation across the UK

[Environment Agency, how to apply for a water abstraction or impoundment licence web pages](#) - provide all the information needed to go through the application process to get a licence

[Environment Agency manage your water abstraction or impoundment licence online web service](#) - allows abstractors to view and share licence information and submit abstraction returns

[Environment Agency priority catchments website](#) - provides further information about the priority catchment work

[Environment Agency National Framework for Water Resources](#) - explores England's long-term water needs and the importance of planning at the regional scale and link to the catchment scale

[Linking Environment and Farming \(LEAF\) Simply Sustainable Water guide](#) – explains 6 simple steps for managing water quality and industrial use

[National Farmer's Union web pages on Irrigation and water resources](#) – provide useful information

[Natural England's website](#) provides further information on protected sites and species

[The UK Irrigation Association and Cranfield University](#) - provide a range of irrigation_ booklets that tackle key issues

Waste and Resources Action Programme website has [guidance on water efficiency in the food and drink industry](#)

Waste and Resources Action Programme website has a [roadmap towards water security for food and drink supply](#)

7. List of abbreviations

ALS

Abstraction Licensing Strategy

AMP

Asset Management Plan

AP

Assessment Point

CaBA

Catchment Based Approach

CED

Common End Date

Defra

Department of Environment Food and Rural Affairs

EFI

Environmental Flow Indicator

GEP

Good Ecological Potential

GES

Good Ecological Status

GW

Groundwater

GWB

Groundwater body

GWMU

Groundwater management unit

HMWB

Heavily Modified Water Body

HoF

Hands off flow

HoL

Hands off level

MI/d

Megalitres per day

RBMP

River basin management plan

SAC

Special Areas of Conservation

SPA

Special Protection Areas

SSSI

Sites of Special Scientific Interest

UKTAG

United Kingdom's Technical Advisory Group

WB

Water body

WINEP

Water Industry National Environment Programme

8. Glossary

Abstraction

Removal of water from a source of supply (surface or groundwater).

Abstraction licence

The authorisation granted by the Environment Agency to allow the removal of water.

Assessment point

A significant point on a river, often where 2 major rivers join or at a gauging station.

Asset Management Plan

Every 5 years Ofwat assesses water company business plans, including spending and investment. The Water Industry National Environment Programme (WINEP) is included in the business plans and is considered by Ofwat in the determination of water company prices. The WINEP consists of investigations, monitoring, options appraisals and schemes to improve, prevent deterioration and protect the water environment. These form part of a water company's Asset Management Plan (AMP). We are currently in AMP7 with measures being delivered between 2020 and 2025.

Catchment

The area from which precipitation and groundwater will collect and contribute to the flow of a specific river.

Catchment based approach

Partnership working at the river catchment scale to deliver a range of environmental, social and economic benefits while protecting our precious water environments for the benefit of all.

Consumptive abstraction

Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation.

Deterioration

Deterioration is a change in the class of any one of the quality elements used to determine the WFD regulations (2017) status in a water body from the 2015 baseline classification to the class below, or any deterioration within the lowest class. It is not change within a class unless already in the lowest class.

Discharge

The release of substances (for example, water, treated sewage effluent) into surface waters.

Environmental flow indicator

Flow indicator to prevent environmental deterioration of rivers, set in line with new UK standards set by UKTAG.

Groundwater

Water that is contained in underground rocks.

Hands off flow

A condition attached to an abstraction licence which states that if flow (in the river) falls below the level specified on the licence, the abstractor will be required to reduce or stop the abstraction.

Headroom

Water that is licensed but not being used.

Impoundment

A structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.

Maximum peak abstraction

The maximum volume of water abstracted in any one year during the representative abstraction period.

Non-consumptive abstraction

Abstraction that does not result in a loss of water to any part of the catchment.

Pathway to good measures

Actions that are taken to move a water body at a 'less than good' status towards good status'.

Protected Right

A protected right is simply a right to abstract. The Environment Agency has a statutory duty to not take away from, or weaken a protected right, by granting another licence.

Recent actual average abstraction

The total volume of water abstracted during the representative recent actual period divided by the number of years in that period.

Surface water

This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.

Water body

Units of either surface water or groundwater which we use to assess water availability.

Water Industry National Environment Programme 2020 to 2025

A schedule of environmental enhancement obligations, drawn up by the Environment Agency and signed off by the Secretary of State at Department of Environment, Food and Rural Affairs.

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