Worcestershire Middle Severn Abstraction Licensing Strategy

A strategy to manage water resources sustainably

June 2022

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We help people and wildlife adapt to climate change and reduce its impacts, including flooding, drought, sea level rise and coastal erosion.

We improve the quality of our water, land and air by tackling pollution. We work with businesses to help them comply with environmental regulations. A healthy and diverse environment enhances people's lives and contributes to economic growth.

We can't do this alone. We work as part of the Defra group (Department for Environment, Food & Rural Affairs), with the rest of government, local councils, businesses, civil society groups and local communities to create a better place for people and wildlife.

Published by:

Environment Agency
Horizon House, Deanery Road,
Bristol BS1 5AH

www.gov.uk/environment-agency

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Contents

1. About the licensing strategy

1.1. Overview

This strategy sets out how we manage new and existing abstractions and Impoundments within the Worcestershire Middle Severn Catchment 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 Worcestershire Middle Severn 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 Worcestershire Middle Severn area lies to the west of the West Midlands conurbation covering parts of the counties of:

- Shropshire
- Staffordshire
- Worcestershire
- the West Midlands

It incorporates the towns of:

- Kidderminster
- Stourbridge
- Telford
- parts of Bridgnorth, Wolverhampton, Dudley and Bromsgrove

2.1. Landscape and land use

The catchment covers an area of approximately 1,000 km^2. It is relatively low lying with only the Clent Hills to the southeast and the Wrekin to the north. Much of the catchment is rural, particularly to the west, and is therefore characterised by productive agricultural land. The east of the catchment is more urbanised covering:

- parts of the Black Country and Kidderminster
- Telford to the north
- Worcester to the south

2.2. Water Resources

The Worcestershire Middle Severn area comprises numerous tributaries and several larger rivers such as the Stour and Worfe. All of which eventually flow into the River Severn. The ALS area is effectively divided in 2 by the River Severn. Catchments to the west display less developed characteristics than the heavily influenced watercourses to the eastern side of the Severn. The River Severn is not included in this ALS as it is covered in the Severn Corridor ALS.

The area includes the catchments of the:

- River Salwarpe
- River Stour
- River Worfe
- Battlefield Brook
- Hadley Brook

These natural drainage boundaries comprise the boundary of the Worcestershire Middle Severn ALS.

The western part of the area includes the:

- Dowles Brook
- Dick Brook
- Borle Brook
- Mor Brook

A number of historic canals lie within the area including the Staffordshire and Worcestershire Canal and the Droitwich Canal.

The area contains significant quantities of groundwater within the Permo-Triassic Sandstone aquifers. These are high yielding strategically important principal aquifers that support significant abstraction for:

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

They also provide important flows (known as baseflow) to connected rivers and wetlands. Such flows are particularly important during the drier seasons.

Historical licensing approaches have resulted in the groundwater within this area being over-abstracted, predominantly for public water supply. The consequence has been falling groundwater levels and flow or water level impacts on watercourses and wetlands. New groundwater licences have therefore not been granted from the Permo-Triassic sandstone aquifer in this area for a number of years.
The area also contains geological deposits with more variable permeability where water is encountered in sufficient but lower quantities. These are capable of supporting locally important abstractions for both agricultural and domestic purposes and are known as Secondary Aquifers.
Overall, more licences are for agricultural purposes than for any other purpose. The largest volume of water is licensed to be abstracted for public water supply, with the majority being groundwater. The 2 main water companies operating within the area are Severn Trent Water and South Staffordshire Water.
Over 95% of water licensed for consumptive abstraction in the catchment is from the sandstone aquifers and other groundwater sources.

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^{o}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 Worcestershire Middle Severn 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 10 APs in the Worcestershire Middle Severn ALS:

AP1
This covers the whole of the River Worfe catchment from its source at Sheriffhales to its confluence with the River Severn upstream of Bridgnorth. It includes the Wesley Brook, Neachley Brook and Albrighton Brook tributaries. The majority of the catchment is underlain by the principal sandstone aquifer. It has areas of overlying unconsolidated geological deposits comprising clays through to sands and gravels.

AP2
This covers the whole of the Dowles Brook from its source to its confluence with the River Severn upstream of Bewdley. The catchment is underlain by secondary aquifers comprising mudstones, siltstone and sandstones.

AP3
This covers the upper reaches of the River Stour catchment from its source to Stourbridge. The catchment is underlain by secondary aquifers comprising mudstones, siltstone and sandstones. Only the most downstream (westerly) part is underlain by the principal sandstone aquifer. It has areas of overlying unconsolidated geological deposits comprising clays through to sands and gravels.

AP4
This covers the whole of the Smestow Brook catchment from its source west of Wolverhampton, to its confluence with the River Stour near Stourton. It includes the Wom Brook, Dawley Brook, Spittle Brook, Merryhill Brook and Bobs-Holbeche Brook tributaries. The upper parts of the catchment are underlain by secondary aquifers comprising mudstones, siltstone and sandstones. The mid to lower sections are underlain by the principal sandstone aquifer. It has patches of overlying unconsolidated geological deposits comprising clays through to sands and gravels.

AP5
This covers the section of the River Stour from Stourbridge through Stourton (where the Smestow Brook joins) to Caunsall. The catchment is underlain by the principal sandstone aquifer with patches of overlying unconsolidated geological deposits comprising clays through to sands and gravels

AP6
This covers the section of the River Stour from Caunsall to Kiddermister. It includes the Blakedown and Drakelow Brook tributaries. The majority of the catchment is underlain by the principal sandstone aquifer. It has patches of overlying unconsolidated geological deposits comprising clays through to sands and gravels. The most eastern and western extremes are underlain by secondary aquifers comprising mudstones, siltstone and

sandstones.

AP7
This covers the lower stretches of the River Stour from Kiddermister to its confluence with the River Severn at Stourport on Severn. It includes the Hoo Brook tributary. The majority of the catchment is underlain by the principal sandstone aquifer. It has areas of overlying unconsolidated geological deposits comprising clays through to sands and gravels.

AP8
This covers the upper reaches of the River Salwarpe catchment around Bromsgrove. It includes the Battlefield Brook and Spadesbourne Brook tributaries. The majority of the catchment is underlain by the principal sandstone aquifer. Only the most southerly part is underlain by secondary aquifers comprising mudstones, siltstone and sandstones.

AP9
This covers the whole of the Hadley Brook catchment from its source to just upstream of its confluence with the River Salwarpe near Droitwich Spa. Approximately half the catchment is underlain by the principal sandstone aquifer and half by secondary aquifers comprising mudstones, siltstone and sandstones.

AP10
This covers lower reaches of the River Salwarpe from Bromsgrove to just upstream of its confluence with the River Severn upstream of Worcester. It includes the Elmbridge Brook tributary. The catchment is underlain by secondary aquifers comprising mudstones, siltstone and sandstones.

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 four 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

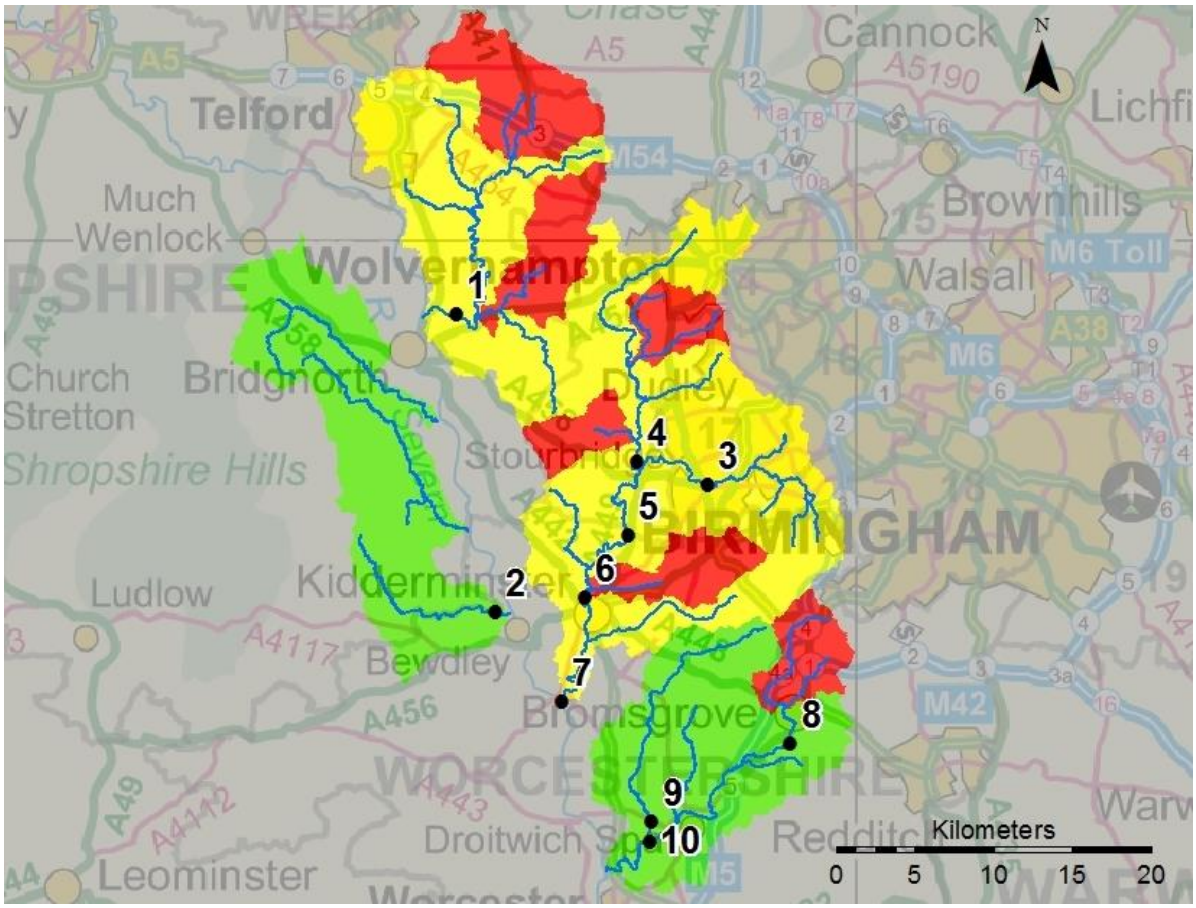
3.1.2. Water availability maps

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

Assessment Point	Name	Q30	Q50	Q70	Q95
1	River Worfe at Burcote	Restricted	Not available	Not available	Not available
2	Dowles Brook at Oak Cottage	Available	Available	Restricted	Restricted
3	River Stour at Stourbridge	Restricted	Restricted	Restricted	Restricted
4	Smestow Brook at Stourton	Restricted	Restricted	Restricted	Restricted
5	River Stour at Caunsall	Restricted	Restricted	Restricted	Restricted
6	River Stour at Puxton	Restricted	Restricted	Restricted	Restricted
7	River Stour at Stourport-on-Severn	Restricted	Restricted	Restricted	Restricted
8	River Salwarpe at Bromsgrove	Restricted	Not available	Not available	Not available
9	Hadley Brook at Wards Bridge	Available	Restricted	Restricted	Not available
10	River Salwarpe at Harford Hill	Available	Restricted	Restricted	Not available

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

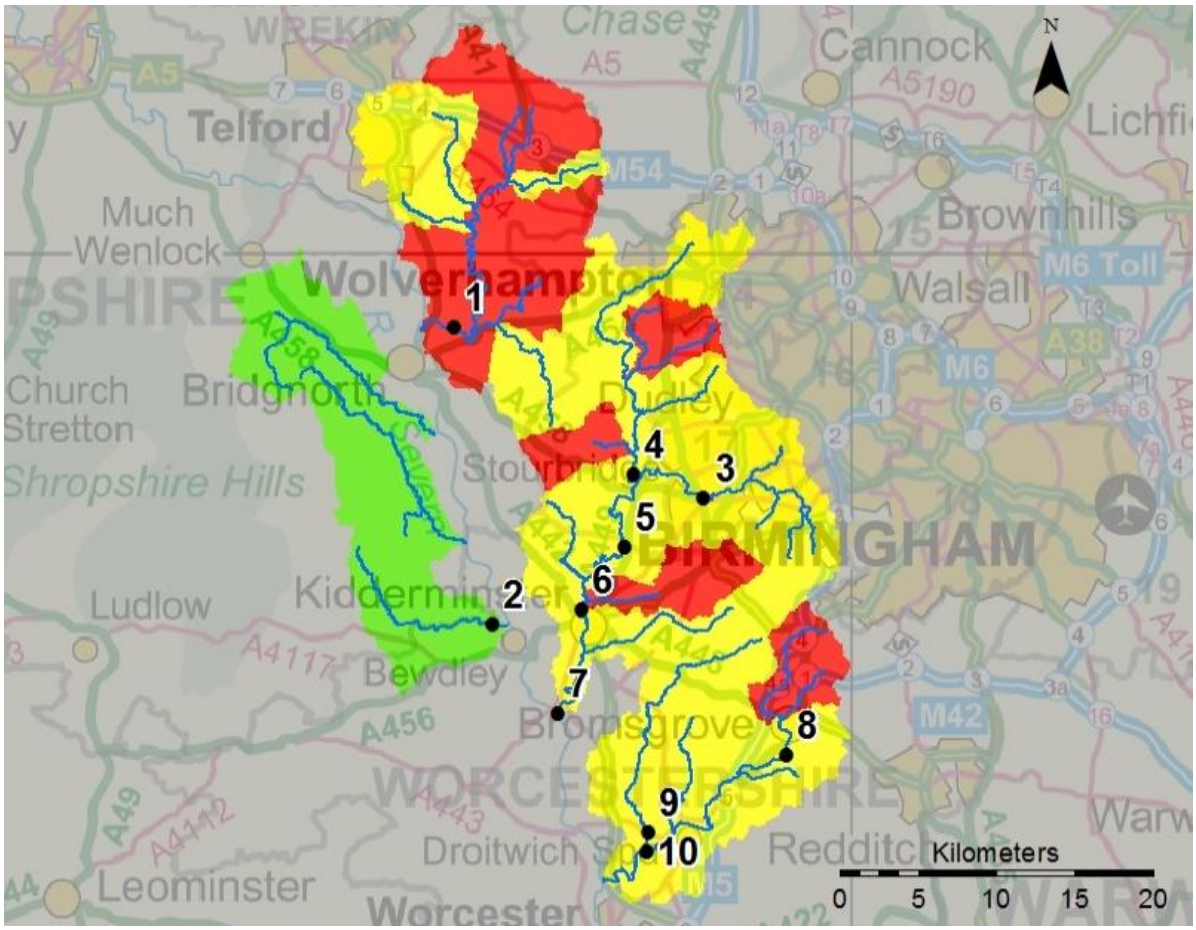
Map 1: water resource availability colours at Q30 for Worcestershire Middle Severn ALS.



Legend

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

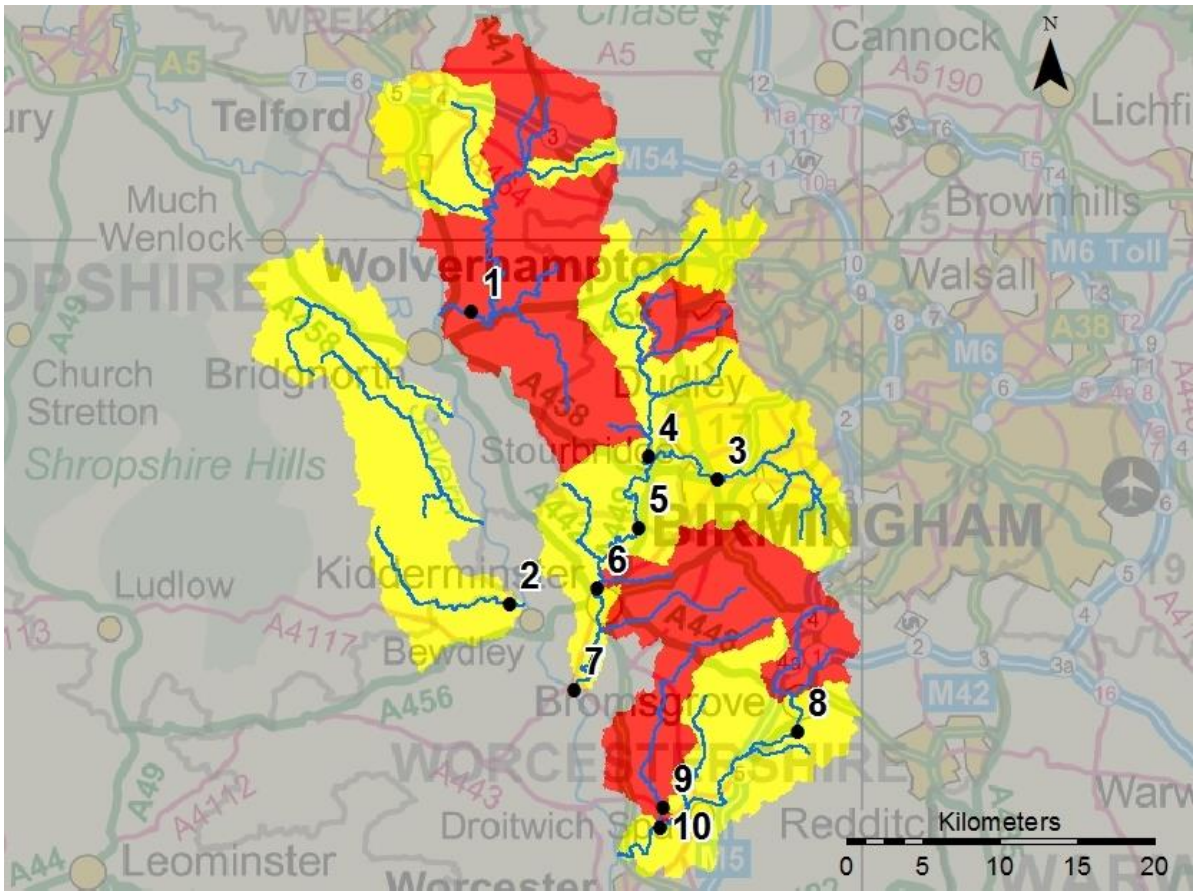
Map 2: water resource availability colours at Q50 for Worcestershire Middle Severn ALS



Legend

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

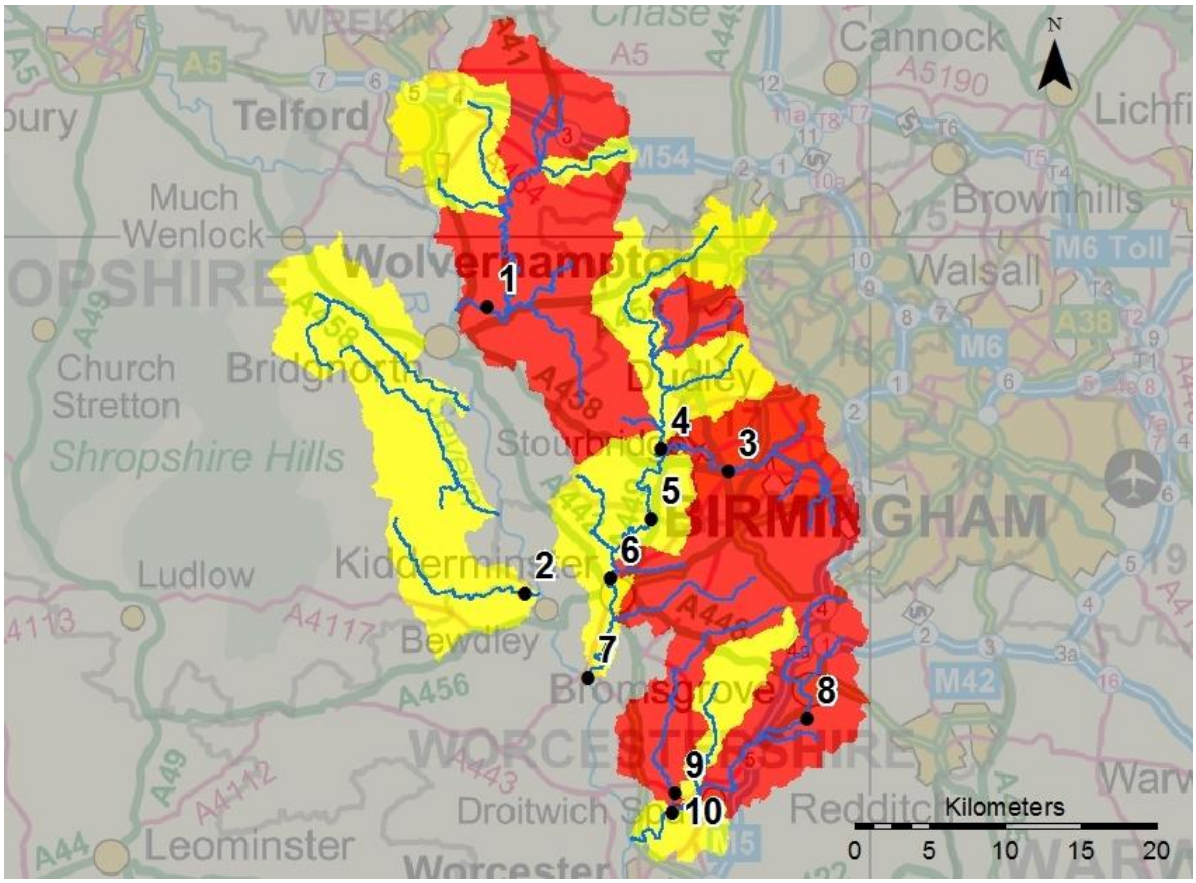
Map 3: water resource availability colours at Q70 for Worcestershire Middle Severn ALS.



Legend

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

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



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 Worcestershire Middle Severn ALS area, water availability has been assessed using a number of tests. This assessment may include:

- consideration of available monitoring data
- numerical 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 Worcestershire Middle Severn 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 Worcestershire Middle Severn ALS Area. Designated as a Principal Aquifer, it provides a large proportion of the population in the West Midlands and surrounding areas with its drinking water supply. The Permo-Triassic Sandstone has a large outcrop area within the Worcestershire Middle Severn catchment. It is split into one GWB, the Worcestershire Middle Severn Permo-Triassic Sandstone GWB, and 7 different GWMUs (see Map 5 and Table 3):

- Cosford
- Worfield
- Wombourne
- Stourbridge
- Kidderminster and Stourport
- Astley and Ombersley
- Bromsgrove West

The following Secondary aquifer groundwater bodies also outcrop within the Worcestershire Middle Severn ALS Area:

- Shropshire Middle Severn - Secondary Combined (GB40902G303300)
- Staffordshire Trent Valley - Merica Mudstone West (GB40402G300400)
- Worcestershire Middle Severn - Mercia Mudstone (GB40902G927000)

- Shropshire Middle Severn - Coal Measures Dudley (GB40902G304100)

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 likely to occur on:

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

but with management options in place.

In restricted groundwater management units no new consumptive licences will be granted where the groundwater balance and/or:

- surface water flows
- 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.

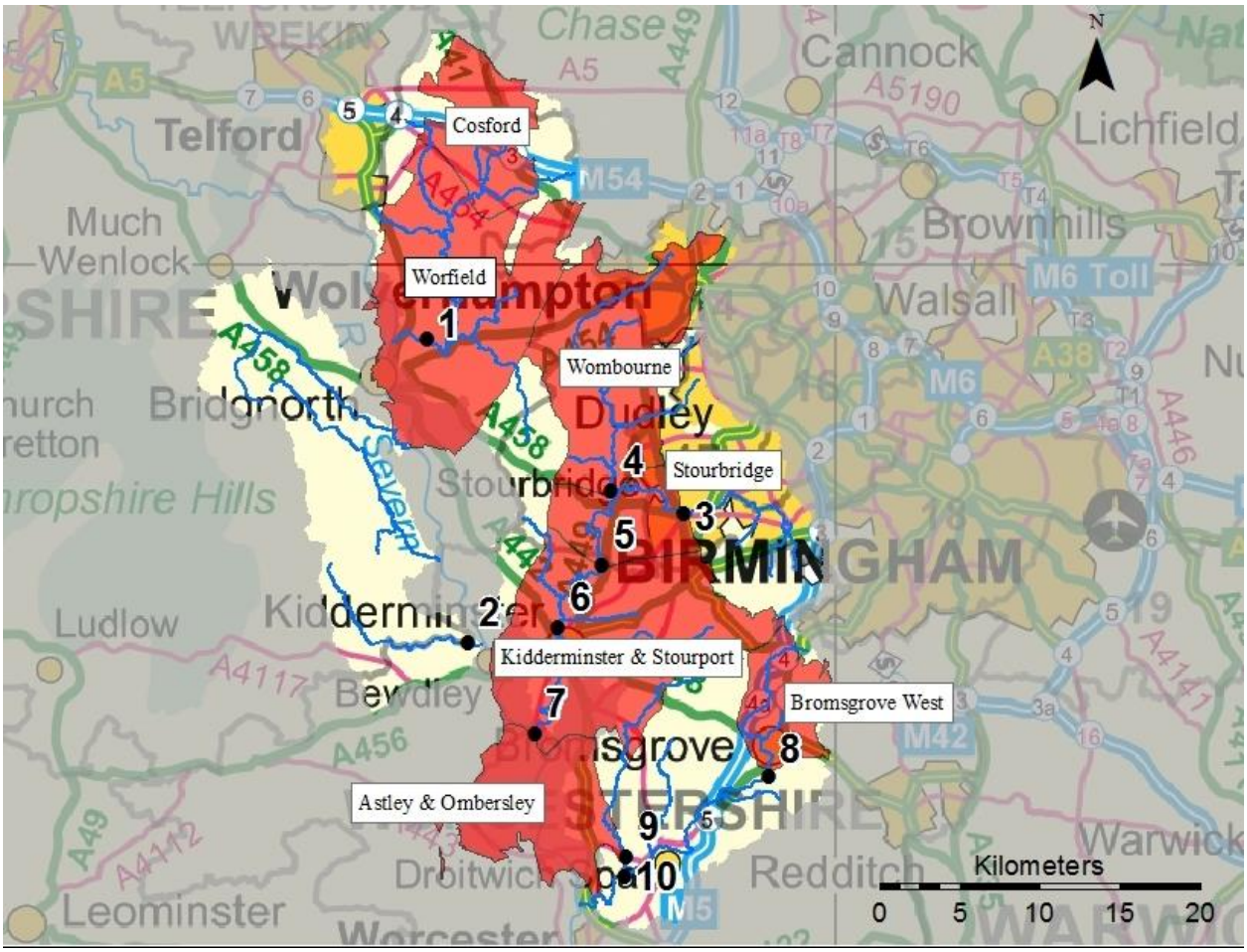
There may be restrictions in some areas, for example in relation to saline intrusion or surface water flows. Where flow impacts are a concern, a hands off flows may be applied.

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 Worcestershire Middle Severn area



Legend

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:

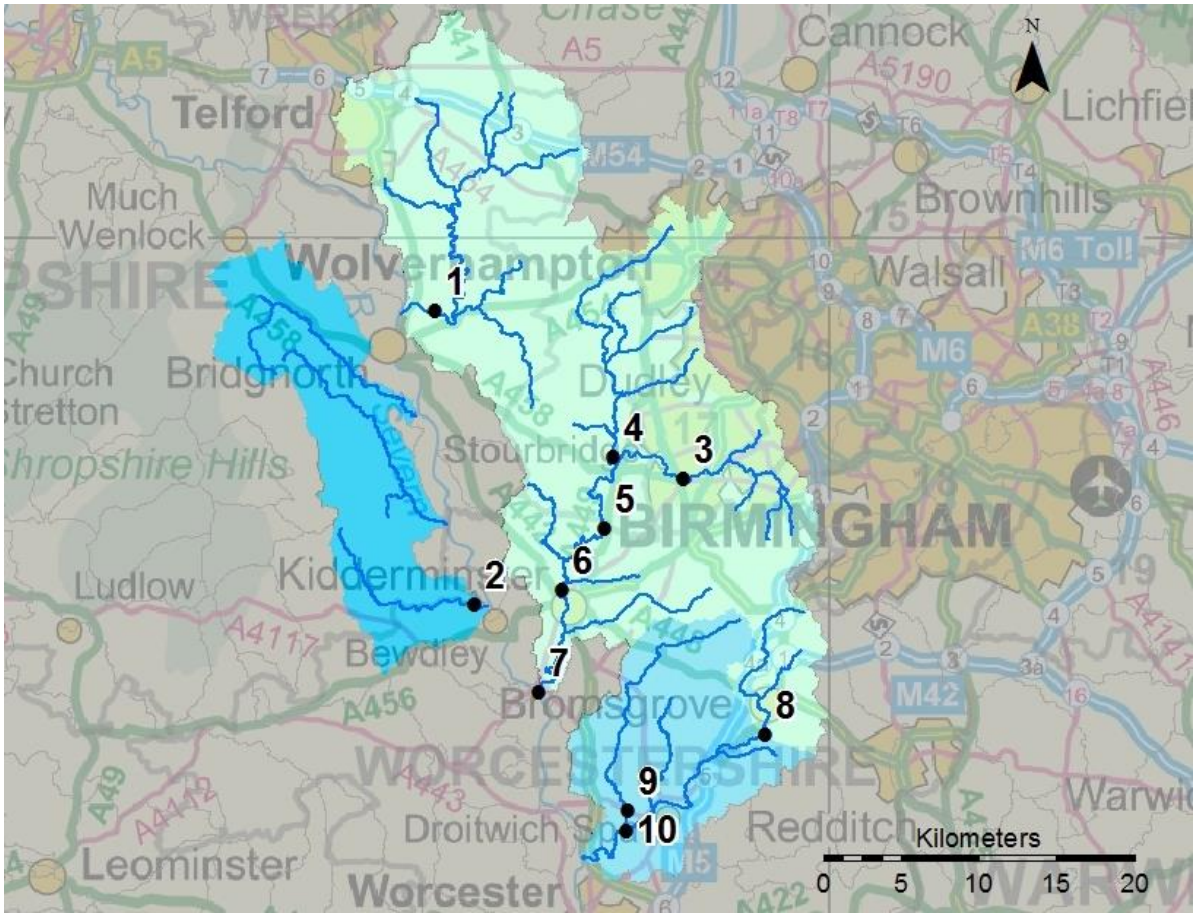
- when there is a surplus or deficit of water
- the associated reliability of an abstraction

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 Worcestershire Middle Severn area expressed as a percentage of time.

In this catchment, consumptive abstraction is available:

- less than 30% of the time at, or upstream of AP's 1,3,4,5,6,7 and 8
- at least 30% of the time at, or upstream of AP's 9 and 10
- at least 50 % of the time at AP 2

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



Resource Reliability (% of the time)

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

- 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 have to 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 2038 and the subsequent one is 31 March 2050.

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 Worcestershire Middle Severn 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 Worcestershire Middle Severn Permo-Triassic Sandstone groundwater body. Groundwater abstraction from this either impacts or has the potential to impact the watercourses that rises 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.

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 Worcestershire Middle Severn 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 Ml/d that may be available

Across the Worcestershire Middle Severn area, the HoF restrictions are driven by the need to protect flows going into the River Severn. Flows of 2,271 Ml/d are needed in the River Severn at Bewdley. Flows of 2,568 Ml/d are needed in the River Severn at Deerhurst. This is 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 following watercourses flow directly to the River Severn, and have no assessment point on them:

- Mor Brook (including its tributary the Beaconhill Brook)
- Borle Brook (including its tributary the Chorley Brook)

The conditions in Table 2 apply to new or varied consumptive abstractions and may not apply if the abstraction is non-consumptive or environmentally beneficial. 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 the installation of a correctly-sized screen and/or fish pass.

The strategy outlined in Table 2 depends on the resource situation remaining as it is currently. Any changes to major abstractions or discharges in 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.

AP	Name	AP National Grid Reference	Water Resource Availability	HoF Restriction (Ml/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (Ml/d)	Is there a gauging station at this AP?	Additional restrictions
1	River Worfe at Burcote	SO 74609 95351	Restricted water available for licensing	174 Ml/d	36	13 Ml/d	Yes	* New abstraction from the River Worfe catchment will be assessed on a case-by-case basis due to concerns over sustainability.
2	Dowles Brook at Oak Cottage	SO 77096 76417	Restricted water available for licensing	8 Ml/d	219	1.3 Ml/d	Yes	
3	River Stour at Stourbridge	SO 90549 84464	Restricted water available for licensing	260 Ml/d (at Puxton gauging station)	91	See AP 6	Yes	
4	Smestow Brook at Stourton	SO 86081 85948	Restricted water available for licensing	260 Ml/d (at Puxton gauging station)	91	See AP 6	Yes	
5	River Stour at Caunsall	SO 85494 81309	Restricted water available for licensing	260 Ml/d (at Puxton gauging station)	91	See AP 6	No	
6	River Stour at Puxton, Kiddermister	SO 82759 77381	Restricted water available for licensing	260 Ml/d	91	40 Ml/d	Yes	

AP	Name	AP National Grid Reference	Water Resource Availability	HoF Restriction (Ml/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (Ml/d)	Is there a gauging station at this AP?	Additional restrictions
7	River Stour at Stourport-on-Severn	SO 81264 70770	Restricted water available for licensing	260 Ml/d (at Puxton gauging station)	91	See AP 6	No	
8	River Salwarpe at Bromsgrove	SO 95827 68097	Restricted water available for licensing	263 Ml/d (at Harford Hill gauging station)	29	7.1 Ml/d	No	* New abstraction from the River Salwarpe catchment upstream of AP8 will be assessed on a case by case basis due to concerns over sustainability.
9	Hadley Brook at Wards Bridge	SO 87024 63138	Restricted water available for licensing	70 Ml/d (at Harford Hill gauging station)	124	See AP 10	Yes	
10	River Salwarpe at Harford Hill	SO 86884 61894	Restricted water available for licensing	70 Ml/d	124	5 Ml/d	Yes	

Table 2: summary of licensing approach for the assessment points of the Worcestershire Middle Severn ALS.

* 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 Worcestershire Middle Severn ALS area

As set out in Section 3.2 there are 7 GWMUs and associated superficial unconsolidated deposits within the boundary of the Worcestershire Middle Severn 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 no new water is available for licensing from the groundwater resources. This is to protect groundwater resources, river baseflow and dependent environments and manage the status and risk of the groundwater body.

Groundwater body	Groundwater body status	Groundwater management unit	Water resource availability colour	Licence restriction
Worcestershire Middle Severn PT Sandstone	Poor quantitative status and at risk of deterioration	Worfield Astley & Ombersley Cosford Wombourne Stourbridge Kiddermister & Stourport Bromsgrove West	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.

Table 3: summary of licensing approach for the GWMUs of the Worcestershire Middle Severn ALS.

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 all of its tributaries must be managed using appropriate flow restrictions to protect the environmental needs of the Estuary. All HoFs applied to surface water licences granted on the River Severn and its tributaries will 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.

Designation	Site name
Special Area of Conservation	Fens Pool
Site of Special Scientific Interest	Fens Pool Brewins canal section Checkhill Bogs The Wilderness & Vermin valley Illey Pastures Romsley Manor Farm Stourvale Marsh Hurcott & Podmore Pools Puxton Marsh Hartlebury Common & Hilditch Coppice Wilden Marsh & Meadows River Stour Flood Plain Feckenham Forest Shrawley Wood Upton Warren Pools Westward Great Pool Oakley Pool

Table 4: important local features that may affect water availability

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 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 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 100 abstractors in the Worcestershire Middle Severn area. The sum of water reduced or revoked so far within this catchment is 561,536 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 WMS 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.

Within the Lower Worfe catchment river and habitat restoration techniques to improve ecological resilience to low flows will be carried out. This is to mitigate

against low flows caused by public water supply abstractions and identified and investigated in previous AMP cycles.

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 Worcestershire Middle Severn catchment there are currently 7 surface water bodies confirmed as being at Serious Damage. These are the:

- Spadesbourne Brook from source to confluence with Battlefield Brook (GB109054044230)
- Blakedown Brook from source to confluence with River Stour (GB109054044570)

- Neachley Brook from source to confluence with Burlington Brook (GB109054050070)
- Burlington Brook from source to confluence with Neachley Brook (GB109054050080)
- Spittle Brook from source to confluence with Smestow Brook (GB109054044740)
- Merryhill Brook from source to confluence with Wom-Penn Brook (GB109054044930)
- Wom-Penn Brook from source to confluence with Smestow Brook (GB109054044811)

3 further water bodies are at risk of Serious Damage. These are:

- Battlefield Brook from source to confluence with Spadesbourne Brook (GB109054044240)
- Stratford Brook from source to confluence with River Worfe (GB109054050250)
- Worfe from confluence with Wesley Brook to confluence with River Severn (GB109054050260)

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 Worcestershire Middle Severn Permo-Triassic Sandstone GWB has an overall quantitative status of poor (High confidence) under recent actual abstraction. It is also classed as Serious Damage due to the failure of the Groundwater Dependent Terrestrial Ecosystem (wetland) test. 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 and/or surface water body(ies) 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 Worcestershire Middle Severn 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:

- Water companies
- NFU
- 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 by:

- 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:

River Worfe catchment

There has been unsustainable groundwater abstraction from the Cosford and Worfield groundwater management units. This has resulted in a depletion of flows in the upper reaches of the River Worfe. To mitigate these impacts, water is currently pumped from a borehole in the upper reaches of the catchment to supplement low flows in the Worfe. During AMP6 and into AMP7 monitoring has been undertaken to assess the efficiency of the augmentation scheme. Changes may be made to the scheme subject to these monitoring results. Reductions have also been made to public water supply abstraction licences to address the current operational impacts and the potential for WFD deterioration.

Blakedown Brook catchment

The Blakedown Brook and tributaries flow across the outcrop of the Kidderminster Groundwater Management Unit. Historically natural base flows have been reduced by abstraction such that tributaries and associated pools have been either dry or considerably reduced in flow. To protect water levels in the area from further reduction, the groundwater unit was closed to all new and increased abstractions in 1990. A number of augmentation schemes (boreholes used to top up pool levels) have historically been operated within the catchment. This is to support water levels in these pools. A reduction has been made to public water supply abstraction to address impacts and the potential for WFD deterioration. In response to a reduction in groundwater abstraction, since at least 2010, pool levels have been self-sustaining and augmentation schemes have not been required.
Flow in the Blakedown Brook, which supports the Hurcott and Podmore Pools SSSI, continues to be supplemented via a constant discharge. This is pumped into the brook in the upper reaches near Hagley. Future trials will aim to assess the management of this discharge to ensure flow and water quality targets are

maintained in Hurcott and Podmore SSSI. After the flow trial, we will work with water companies and others to determine the long term water resource management plan for the Blakedown Brook.

Battlefield Brook catchment

There has been unsustainable groundwater abstraction for public water supply from the Bromsgrove groundwater management unit. This has resulted in falling groundwater levels and the depletion of flows along the Battlefield Brook and lower Spadesbourne Brook.

A flow augmentation borehole in the upper part of the Battlefield Brook catchment supports flows to the brook. During AMP6 and AMP7 the effectiveness of the augmentation has/will be improved by new flow monitoring infrastructure and automation. Further changes to the augmentation flows may be made once the impact of these improvements has been assessed. Changes have also been made to the associated public water supply and augmentation borehole licences to address the potential for WFD deterioration.

Within the Spadesbourne Brook catchment no specific measures were feasible to be taken forward due to multiple pressures including water quality, geomorphology/channel modifications. Monitoring continues within this catchment. Future redesign of the watercourse within the town centre, where it is highly modified, may result in further potential improvement measures becoming available.

Hadley Brook catchment

A borehole within the Astley & Ombersley groundwater management unit is used to supplement flows in three tributaries of the Hadley Brook. This is to mitigate the impacts of abstraction for public water supply. The 3 tributaries being:

- Sytchampton Brook
- Woodfield Brook
- Yardings Farm Brook

This scheme is designed to address flows in these local tributaries only.

Merryhill / Warstones Brook catchment

A borehole within the Wombourne groundwater management unit is used to supplement flows in the brook known either as Merryhill or Warstones Brook. This is to mitigate the impacts of abstraction for public water supply. This scheme is designed to address low flows from approximately a third of the way along the brook to its confluence with Wom Brook. Monitoring is being undertaken in AMP7 to assess the efficiency of the augmentation scheme. Changes may be made to the scheme subject to these monitoring results.

Worcestershire Middle Severn – PT Sandstone (Including Worfield, Astley & Ombersley, Cosford, Wombourne, Stourbridge, Kidderminster & Stourport and Bromsgrove West GWMU's)

Unsustainable groundwater abstraction and the associated environmental impacts are largely linked with the high yielding principal aquifers. In this case the Worcestershire Middle Severn – Permo-Triassic Sandstone and related groundwater management units. As a result of historical licensing, the groundwater resource balance is unsustainable for all of the Groundwater Management Units. This gives rise to level and flow impacts on groundwater, surface water and wetland systems in several parts of the ALS area. This groundwater body is therefore considered to be:

- at overall poor quantitative status
- classed as Serious Damage
- at risk of deterioration, due to the large unused licence headroom

No new consumptive abstractions will be granted. We will take opportunities to reduce fully licensed risks.

Groundwater abstraction, predominantly for public water supply, has resulted in reduced groundwater levels and flow impacts on surface watercourses/wetland systems. Previous investigations have been undertaken into groundwater abstraction impacts on the:

- River Worfe
- Battlefield Brook
- Blakedown Brook
- Hadley Brook
- Hoo Brook
- Merryhill Brook
- Hurcott and Podmore SSSI
- Hartlebury Bog SSSI
- Puxton & Stourvale SSSI
- Checkhill Bogs SSSI

We will prevent further deterioration of this groundwater body and levels/flows in the associated watercourses/wetlands that rise on or cross the outcrop. 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 licenced headroom to reduce 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 water body as water 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 GWMU's 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
Ecological 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.

Ml/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 two major rivers join or at a gauging station.

Asset Management Plan

Every five 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 where there is no overall loss of water from the catchment.

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.

9. Copyright - maps

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