



Wye Abstraction Licensing Strategy

**A licensing strategy to manage water resources
sustainably**

September 2015

About Natural Resources Wales

Natural Resources Wales brings together the work of the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales, as well as some functions of Welsh Government. Our purpose is to ensure that the natural resources of Wales are sustainably maintained, enhanced and used, now and in the future.

Wales' landscape, environment and wildlife are amongst its greatest resource, worth more than £8bn to the Welsh economy.

- we work for Wales' economy and enable the sustainable use of natural resources to support jobs and enterprise. We help businesses and developers to understand and consider environmental impacts when they make important decisions
- we work for the communities of Wales to protect people and their homes as much as possible from environmental incidents like flooding and pollution. We provide opportunities for them to learn, use and benefit from Wales' natural resources
- we work to maintain and improve the quality of the environment for everyone. We work towards making the environment and natural resources more resilient to climate change and other pressures

We are the principal adviser to the Welsh Government on the environment, enabling the sustainable development of Wales' natural resources for the benefit of people, the economy and wildlife.

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About the Environment Agency

We protect and improve the environment.

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.

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Foreword

Water is the most essential of our natural resources and it is Natural Resources Wales and the Environment Agency's job to ensure that we manage and use it effectively and sustainably.

The latest population growth and climate change predictions show that pressure on water resources is likely to increase in the future. In light of this, we have to ensure that we continue to maintain and improve sustainable abstraction, balancing the needs of society, the economy and the environment.

Water is one of the key elements of the environment and business of people in the Wye river catchment. Public water supply and agriculture are the two dominant users of water within this catchment. The Wye river catchment also contains designated sites that carry a high level of environmental importance.

This licensing strategy sets out our licensing principles and provides you with information on water availability for further abstraction and how we will manage existing abstraction licences.

The Wye Abstraction Licensing Strategy area is a cross border catchment spanning both England and Wales. Natural Resources Wales and the Environment Agency are committed to working together to jointly manage water resources in the River Wye catchment.

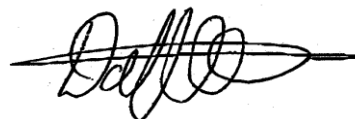
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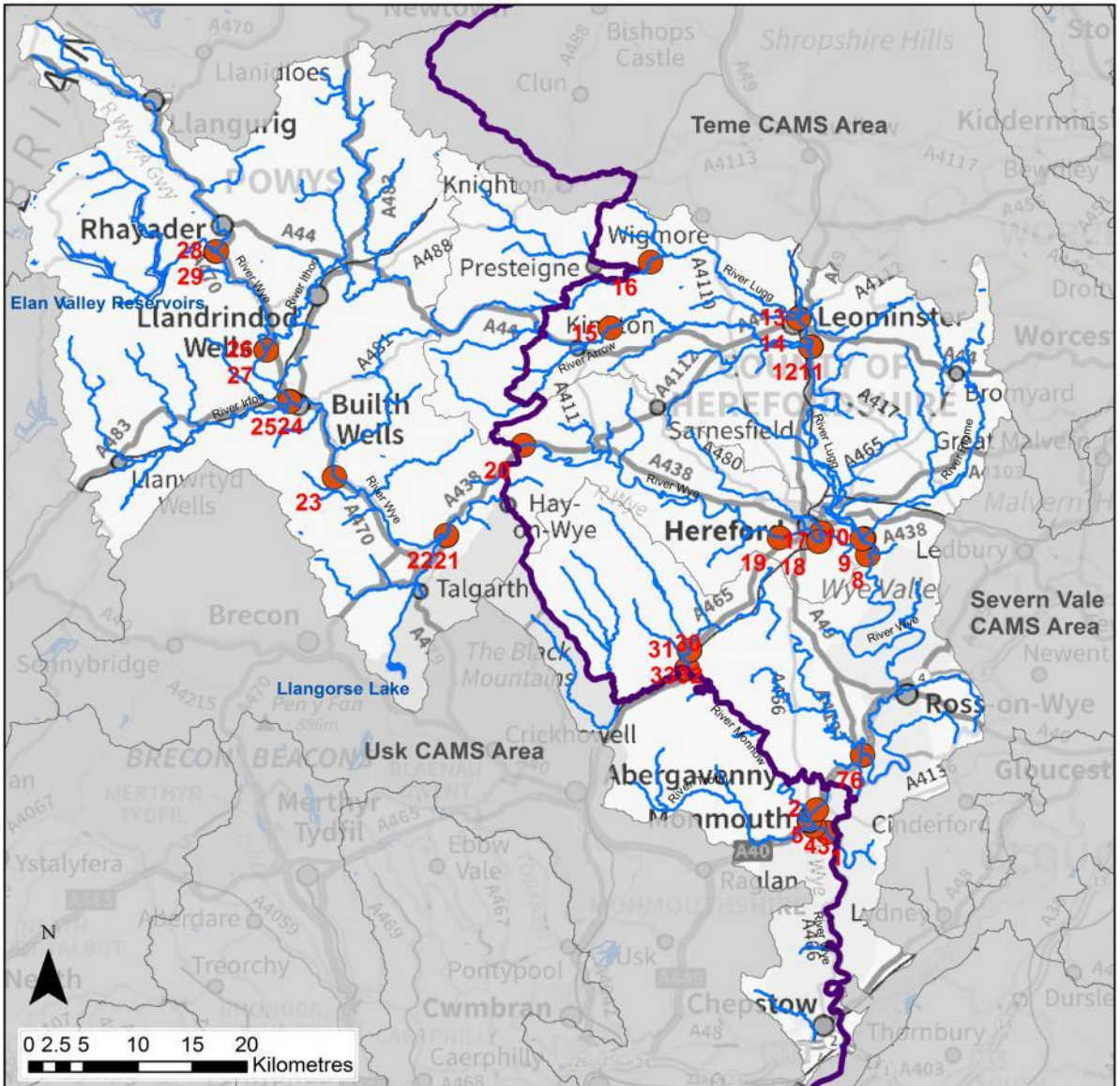


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Environment Agency

Map 1: A map showing the outline of the River Wye and its major tributaries, along with the Wales/England boundary and the water availability Assessment Points.

Wye CAMS Area



Legend

- Wye catchment main rivers
- Main reservoirs & Lakes
- Assessment Points (numbered)
- Wye CAMS Area
- Surrounding CAMS Areas
- England/Wales Boundary

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1. About the Licensing Strategy

This **Abstraction Licensing Strategy** (ALS) sets out how water resources are managed in the River Wye catchment (Map 1). It provides information about where water is available for abstraction and an indication of how reliable a new abstraction licence may be. It also outlines where we may need to reduce current rates of abstraction and our approach on time limiting licences.

This strategy was produced in September 2015 and it supersedes the strategy issued in March 2008 and the December 2010 update. As a result of the Public Sector Bodies (Websites and Mobile Applications) (No. 2) Accessibility Regulations 2018, this strategy has been reprinted in December 2021. The September 2015 licensing policy has not been changed but adjustments have been made to the document text to aid content accessibility. Minor edits have also been made to out of date content. A review of the Wye catchment abstraction licensing strategy is due in 2022 and a fully accessible updated online document will be published thereafter.

As part of the 2021 reprint, Section 1.3 has also been inserted to provide information on the Environment Agency's Priority Catchment initiative being implemented in the English part of the Wye catchment.

We now assess water resources at a sub-catchment level called [water bodies](#). This means that we can provide more detailed information on the availability of water resources in the Wye catchment compared to the scale used previously. Abstraction licensing strategies are part of our Catchment Abstraction Management System ([CAMS](#)) process which provides a consistent and structured approach to local water resource management.

1.1 When is an abstraction licence required?

You need a licence from either Natural Resources Wales or the Environment Agency if you want to abstract more than 20m³/day (4,400 gallons) of water per day from a:

- river or stream
- reservoir, lake or pond
- canal
- spring or
- an underground source

Whether or not a licence is granted depends on the amount of water available after the needs of the environment and existing abstractors are met and whether the justification for the abstraction is reasonable.

If you want to apply for an abstraction licence, or make changes to a licence that you already have, you need to know whether the point where you wish to abstract from is in Wales or England and then contact:

For an abstraction point in Wales

Natural Resources Wales General Enquiries:

- by telephone on 0300 065 3000 (Monday to Friday, 8am to 6pm)
- by email using enquiries@naturalresourceswales.gov.uk
- or visit the website at www.cyfoethnaturiolcymru.gov.uk

For an abstraction point in England

Environment Agency National Customer Contact Centre:

- by telephone on 03708 506 506 (Monday to Friday, 8am to 6pm)
- by email using enquiries@environment-agency.gov.uk
- or visit the website at www.gov.uk/environment-agency

1.2 Sustainable abstraction

We need to make sure that abstraction is sustainable and does not damage the environment. Through the CAMS process we consider the impact of abstraction at all flows, from low flows to high flows. This helps to manage future abstraction more sustainably and allows us to assess the sustainability of existing licences.

The River Wye and many of its tributaries are designated as a riverine Special Area of Conservation (SAC) under the European Union Habitats Directive (1992), transposed into UK legislation in 1994 as the then Conservation (Natural Habitats, &c.) Regulations. As a result, the habitats and species that exist there have been identified as being of a higher value and requiring more stringent river flow protection than provided by the CAMS process alone. This level of protection has been determined through a process known as the Habitats Directive Review of Consents (HDRoC). The conclusions of the River Wye HDRoC significantly affect the management of water resources in the Wye catchment. The results of the Wye HDRoC process have been integrated with the principles of CAMS to set this licensing strategy.

How CAMS contribute to achieving environmental objectives under the Water Framework Directive

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (WFD) main objectives are to protect and enhance the water environment and ensure the sustainable use of water resources for economic and social development.

Abstraction licensing strategies set out how we will manage the water resources of a catchment and contribute to implementing the WFD Regulations (2017).

CAMS contribute to the WFD Regulations (2017) by:

- providing a water resource assessment of rivers, lakes, reservoirs, estuaries and groundwater referred to as water bodies under the WFD Regulations (2017)
- identifying water bodies that fail flow conditions expected to support good ecological status
- preventing deterioration of water body status due to new abstractions
- providing results which inform [River Basin Management Plans \(RBMPs\)](#)

Information on the Severn River Basin District (led by the Environment Agency) which encompasses the River Wye catchment can be found on the Natural Resources Wales' web pages at '[Improving Water Quality](#)'. The division of the River Wye catchment into its constituent water bodies is depicted on Map 3.

The background, aims and principles of the Abstraction Licensing Strategies, the overarching principles we use when managing abstraction licences and links with other initiatives are detailed in the Environment Agency's document 'Managing Water Abstraction', found at [Managing Water Abstraction webpage](#) as an April 2021 update. The May 2013 version is available at [May 2013 MWA document](#).

1.3 Priority Catchment Initiative in England

In 2017, Defra published the Water Abstraction Plan and set out how we will reform and modernize the way we manage abstraction in England. To help achieve this, the Environment Agency identified areas, known as [Priority Catchments](#), throughout England. The Wye in England was nominated as a Priority catchment.

In these priority catchments we intend to promote a catchment based approach, and set the direction for future working within the Wye catchment in England. More information on this initiative can be found in the **Appendix - Wye Abstraction Licensing Strategy. A Catchment approach for sustainable management of Water Resources in the Wye (England)**, produced by the Environment Agency West Midlands Region. The Appendix can be located by following the links in the Environment Agency's '[Abstraction licensing strategies \(CAMS process\)](#)', webpages, under West Midlands.

2. Wye Catchment area

2.1 Catchment overview

The Wye catchment comprises the River Wye and its tributaries, including the Monnow, Lugg, Ithon and Elan. The varied and changing character of the River Wye, which transforms from an upland stream to an estuarine, silty lowland river, is a product of its topography, underlying geology, soil types, adjacent land use and hydrology. The River Wye is the sixth largest river in the UK and is a premier salmon rod fishery and a major national focus for canoeing and other water sports.

Hydrology

The Wye catchment has a total area of 4,171 km² spanning both England and Wales. From its source in the Cambrian Mountains of mid-Wales, the main river Wye flows for approximately 250 km (150 miles) and is varied in its character as it transforms from an upland stream to a lowland river. The river is tidal for approximately 23 km (14 miles) from the tidal limit at Bigsweir Bridge (NGR SO 5387 0510) to Chepstow where it flows into the Severn Estuary.

The annual average rainfall across the area varies between 2,200 mm in the mountainous headwaters, to 700 mm in the lower catchment. The river can be [flashy](#) in nature and respond quickly following rainfall in the upper parts of the catchment, due to the low permeability of the underlying geology. Prolonged rainfall can lead to large flood events, conversely, river levels can drop quickly particularly during very dry periods. The lower Wye catchment has slightly more permeable geology with groundwater providing a contribution to river flow, this along with the lowland topography and the larger catchment area which it has to drain contributes to a slower response to rainfall events.

The River Wye is known as a 'regulated river'. Water is released from the Elan Valley Reservoirs to support public water supply and other abstractions in the lower reaches of the Wye, when flows, as measured at Redbrook gauging station, fall below a certain threshold. Reservoir releases are managed under the Wye Regulation Scheme under an agreement between Dwr Cymru Welsh Water and Natural Resources Wales. Dwr Cymru Welsh Water is required to provide a continuous compensation flow into the River Elan.

Geology and Hydrogeology

The solid geology underlying the catchment range in age from the Precambrian to the early Jurassic. These are overlain with a patchy veneer of superficial deposits laid down during the last Ice Age and by more recent alluvial processes. The main [aquifer](#) is the Lower Old Red Sandstone covering 67% of the catchment area. This is a Secondary (Minor) aquifer in which groundwater storage and flow is principally within joints and fault-related fracture systems. The other significant aquifers are the Carboniferous Limestone (a Principal aquifer) in the south of the catchment and the drift deposits located along the valley floors. The remaining geological

strata yield small volumes of groundwater but are still important for small scale abstractions in the more remote areas.

Topography

The River Wye catchment comprises some of the most diverse rural landscapes in England and Wales, ranging from the mountainous uplands through highly developed agricultural land of the lower catchment. The River Wye rises on the slopes of Plynlimon in the Cambrian Mountains of mid-Wales at an altitude of 680 m. In its upper reaches, it is a typical fast flowing upland river with steep gradients. In its middle and lower reaches, it flows through the flatter agricultural plains of Herefordshire, and becomes siltier and slower flowing as it nears the Severn Estuary at Chepstow.

Its distinctive landscape has afforded the Wye Valley with the designation of an Area of Outstanding Natural Beauty (AONB), since 1971. The AONB is a 58 mile/92km reach straddling the border between England and Wales from Hereford to Chepstow and is considered to be one of the finest lowland river landscapes in Britain. A small part of the catchment, around the area of Talgarth, falls within the Brecon Beacons National Park.

Land Use

Agriculture is the major land use in the catchment area. There are large variations in the type of farming across the catchment linked to the quality of the soil. The main urban areas within the catchment are Hereford, Monmouth, Leominster, Ross-on-Wye and Hay-on-Wye. Tourism is a major contributor to the rural economy.

Main Water Resources Pressures

Surface water is the main source of supply for abstraction. In the upper catchment the headwaters of the Elan River are impounded, creating the Elan Valley system of reservoirs. These are vital in providing potable water for Birmingham, Gloucestershire and South Wales. Aside from public water supply, the main pressure on water resources in the catchment is from agricultural businesses where water is required for trickle and spray irrigation and other agricultural uses. Other sectors requiring water for abstraction include the food and drink manufacturers, quarry operators and golf clubs.

2.2 Ecological importance

The River Wye system acts as an important wildlife corridor, an essential migration route and a key breeding area for many nationally and internationally important species. The ecological value of the river and its tributaries is recognised through their national designation as Sites of Special Scientific Interest (SSSIs) and as a riverine SAC under the European Union Habitats Directive (1992). The SAC designation applies to the River Wye itself and some of its tributaries including the

Rivers Llynfi, Bachhowy, Edw, Duhonw, Irfon, Dulas, Ithon, Aran, Elan and Lugg (up to Hampton Court Weir).

The River Wye SAC has been designated for its range of migratory fish, particularly salmon, shad and lamprey species, which spawn mainly in the gravel shoals in the middle and upper catchment. Other SAC species include the white-clawed crayfish, which occur in coarser sediments along its length; otters which live and breed in the river and along the banks throughout the catchment; and bullheads which are widespread. Also of importance are the communities of water crowfoot (*Ranunculus*) and a small area of watershed mire. All these features are considered potentially sensitive to abstraction pressures.

The River Wye and its tributaries also support UK Biodiversity Action Plan ([BAP](#)) species, many of which are at risk from abstraction. These include otter, water vole, twaite and allis shad, depressed river and freshwater pearl mussels, white-clawed crayfish (a seriously threatened species), river lamprey, fine lined pea mussel and river jelly lichen, common frog, toad, palmate and smooth newt. Other species within the system depend on still waters and damp habitats and are equally vulnerable to changes in hydrology and groundwater levels.

The River Wye is the only UK river that supports all six unionid mussels found in the UK. The rare pearl mussel and depressed river mussel (both UK BAP priority species) have been recorded. These species live on silty river margins and are vulnerable to abstraction. Rare invertebrates are present throughout the catchment. The River Monnow supports nationally rare shoal invertebrates, while a rare diving beetle is present in the Wye at Glasbury and Rhayader. The Wye catchment makes an ideal environment for migratory fish and also supports many species of coarse fish.

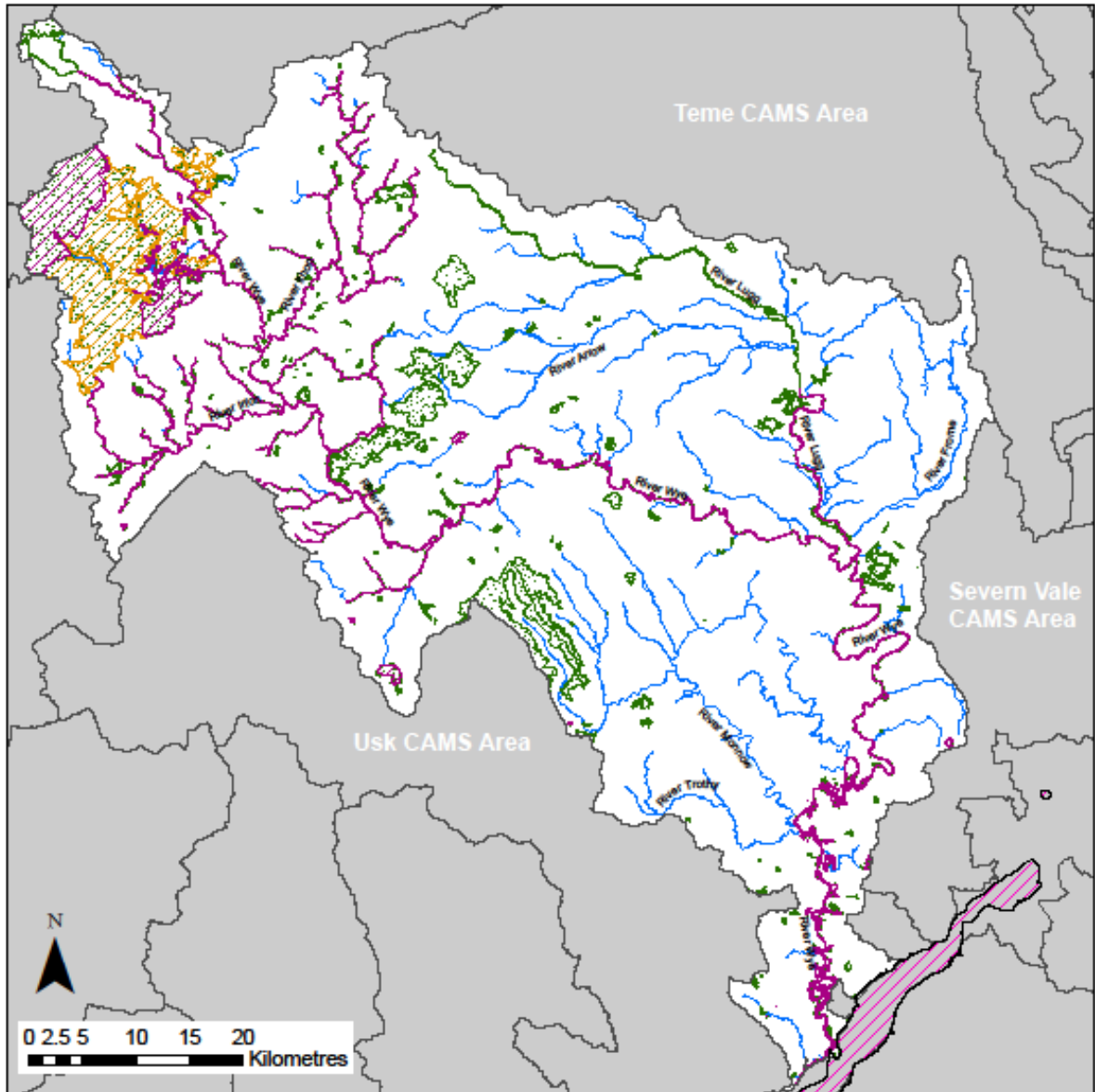
The River Wye flows into the Wye Estuary (SAC designation), and subsequently the Severn Estuary, which is designated as a SSSI, a Habitats Directive Special Protection Area (SPA) and SAC. The Severn Estuary is included on the list of wetlands of international importance under the Ramsar Convention (Ramsar Site).

Over time, development pressure and changing agricultural practices have adversely affected water bodies and watercourses within the catchment and caused significant loss or deterioration of wetland habitats. This has led to many of the remaining water related habitats being formally recognised through statutory protection and / or by the UK and local BAPs.








The main designated sites are shown on Map 2. Map 2 displays the location of the main designated sites within the Wye catchment. These include the Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSI); along with the River Severn RAMSAR site into which the River Wye flows.

Map 2: Designated sites in the River Wye Catchment

**Wye CAMS Area
Designated Sites**



Legend

-  SAC
-  SPA
-  SSSI
-  Ramsar - Severn Estuary
-  Wye catchment main rivers
-  Wye CAMS Area
-  Surrounding CAMS Areas

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3. Water resource availability of the Wye Catchment

3.1 Resource assessment

By taking into account the amount of water already licensed for abstraction and how much water the environment needs, we can determine how much water is potentially available for further abstraction.

Resource assessment is at the heart of abstraction management. Natural Resources Wales and the Environment Agency have a monitoring network to measure river flows and groundwater levels. We use this data along with our knowledge of human influences and environmental needs to establish a baseline of water availability for each water body that builds into a picture for the catchment. The main components of this assessment that help us to understand the availability of water resources are:

- river flows – measured at gauging stations
- groundwater levels – measured at borehole monitoring stations
- licensed abstraction quantities – the abstraction quantities stipulated on licences, termed the Fully Licensed (FL) scenario
- actual quantities of water abstracted– the amount of water that has actually been abstracted on average over the previous six years, termed the Recent Actual (RA) scenario
- consented discharges – water returned to rivers, streams and groundwater
- a water resource allocation for the environment defined as a proportion of [natural flow](#) known as the [Environmental Flow Indicator](#) (EFI). As a result of the River Wye HDRoC, it has been necessary to replace the EFI with a more stringent river flow indicator that offers greater environmental protection for the SAC species and their habitats

Together, this information gives a realistic picture of what the current resource availability is within a water body.

3.2 Resource availability

3.2.1 Surface water

The availability of water for abstraction is determined by the relationship between the FL scenario and the RA scenario in comparison to the needs of the environment (EFI) and whether there is an environmental flow deficit or a risk of a deficit. If you want to abstract water, you therefore need to know what water resources are available. To show catchment resource availability the Environment Agency developed a colour coded classification system which indicates:

- the relative balance between the environmental requirements for water and how much is licensed for abstraction
- whether water is available for further abstraction
- areas where abstraction may need to be reduced

The Wye catchment water resource availability colours are explained in Table 1 along with the abstraction licensing implications. The colours in use are green, yellow, red and grey.

River flows change naturally throughout the year, so we need to protect flow variability in our rivers from low to high flow conditions. We use flow statistics to help to do this. Flow statistics are expressed as the percentage of time that flow is exceeded. Resource availability is calculated at four different flows, Q95 (lowest), Q70, Q50 and Q30 (highest) at points along the river network. These points are called [Assessment Points](#) (APs) and are shown on Map 1. Q95 low flows reflect dry, low rainfall conditions and Q30 high flows reflect very wet, high rainfall conditions. There are 33 APs in the Wye catchment. Resource availability at the water body sub-catchment level is derived based on a simple interpolation between APs.

Following the River Wye HDRoC, we have concerns about water availability at low flows. For [consumptive](#) abstraction water may only be available at medium to high flows. The water resources availability as colours and text against the four flows Q95, Q70, Q50 and Q30 for the Wye catchment is shown at the water body scale as Map 3.

Additional information on resource availability can be found in '[Managing Water Abstraction](#)'.

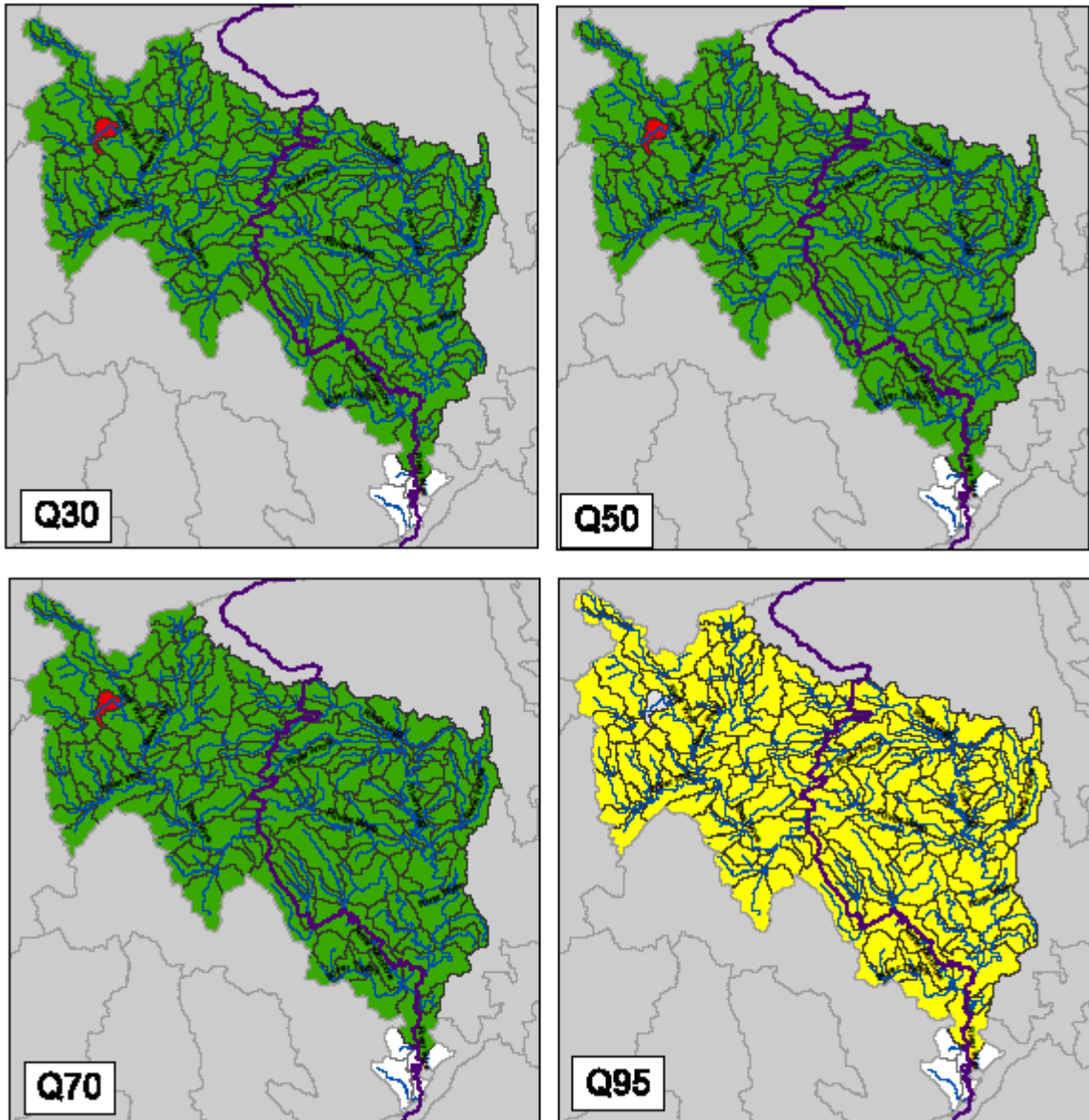
Table 1: Implications of surface water resource availability colours

Water resource availability colour	Implication for licensing in the Wye catchment
Water available for licensing (green colour)	<p>There is more water than required to meet the needs of the environment at the flows stated in Map 3. Water is available for abstraction but only at higher flows. This means that the availability of water is only likely to occur during the wetter times of the year.</p> <p>New licences will be considered depending on local and downstream impacts (refer to Section 4.2).</p> <ul style="list-style-type: none"> • any consumptive licence issued will have abstraction restrictions to protect medium and low flows • non-consumptive licences can be issued but local flow restrictions will be applied

<p>Restricted water available for licensing (yellow colour)</p>	<p>At these flows shown on Map 3, the volume of water licensed compromises the needs of the environment. If all licensed water is abstracted, there will not be enough water left for the environment. This means at the flows stated in Map 3:</p> <ul style="list-style-type: none"> • no further consumptive licences will be granted • non-consumptive licences can be issued but local flow restrictions will be applied <p>In this situation, water may be available if you can ‘buy’ (known as licence trading) the entitlement to abstract water from an existing licence holder (see Section 4.7).</p>
<p>Water not available for licensing (red colour) and (grey colour)</p>	<p>Afon Elan only (red & grey colours): This tributary catchment has a flow that is influenced by reservoir releases. Compensation water is released, as per an operational agreement and a licence, to protect river flows from the effect of the dam. It results in a modified flow regime that is greater than the natural regime at times of low flows (grey colour on Map 3) whereas at moderate to high flows, flows are below the indicative flow requirement to support WFD ecological objectives (red colour on Map 3). As part of our licensing policy we will protect the release of statutory compensation flows. This means at the flows stated in Map 3:</p> <ul style="list-style-type: none"> • no further consumptive licences will be granted • non-consumptive licences can be issued but local flow restrictions will be applied <p>Water may be available if you can ‘buy’ (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder (see Section 4.7).</p>

Map 3: Wye catchment water resource availability colours

**Wye CAMS Area
Water Resource Availability**



Legend

- Afon Elan modified flow
- Water available for licensing
- Restricted water available for licensing
- Water not available for licensing
- Wye Estuary & coastal areas
- Wye catchment main rivers
- Water bodies
- Surrounding CAMS Areas
- England/Wales Boundary

0 5 10 20 30 40
Kilometres

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3.2.2 Groundwater

The degree of connection between the watercourses in the Wye catchment and the regional groundwater needs to be assessed on a case by case basis.

Groundwater within the bedrock and drift deposits is assumed to mirror topography with groundwater discharging into the streams and rivers within the catchment area. However, the differing nature of the aquifers present across the area, from fractured limestones to mudstones, to drift deposits means that the volume of water that can actually/physically be abstracted from the strata will be naturally highly variable.

Abstraction from groundwater such as the river gravels would likely have a direct impact on surface water and therefore be subject to the same licensing controls as surface water. In this case, groundwater availability would be represented by the surface water resource availability colours (Map 3). On a local scale the groundwater and surface water interactions are likely to be complex and dependant on the groundwater level and river stage, permeability of the river sediment beds and the aquifer properties. Given the presence of drift deposits along the main rivers, potentially the surface water may be perched above the regional groundwater.

The majority of the strata present are classed as Secondary aquifers, the main one being the Lower Old Red Sandstone (comprising the Raglan Mudstone, St Maughan's Formation, Brownstones and Senni Formations) which covers 67% of the catchment area. The other significant Secondary aquifers comprise the drift deposits located along the valley floors. These strata contain permeable layers that are generally capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of [base flow](#) to rivers. In some areas these strata are able to support larger scale commercial and public water supply abstraction.

The only Principal aquifer within the area is the Carboniferous Limestone. The Main Limestone Series consists of the Lower Limestone Shale, Lower Dolomite, Crease Limestone, Whitehead Limestone and the Drybrook Sandstone Group which includes the Drybrook Limestone. These strata are capable of supporting larger scale abstractions for commercial and public water supply and can in places provide base flow to local watercourses.

3.3 Resource reliability

When issuing a licence we do not guarantee abstraction reliability i.e. the supply of water. Reliability is the amount of time a licence holder would be able to abstract water and is limited by the restrictions added to the licence and available resource. If you want to apply for a licence it is worth considering that a new licence may not be 100% reliable as abstraction conditions such as [Hands-off Flow](#) and [Hands-off Level](#) may be applied. Abstraction reliability information is based on resource availability colours and is a way of presenting the reliability of new abstractions.

With the need for a high level of environmental protection of the Wye SAC species and their habitats, a newly licensed consumptive abstraction from the River Wye catchment, with a Hands of Flow (HOF) based on the 1,900 Ml/day set at the Redbrook gauging station, could be restricted for up to 95 days (26% of the time) in an average flow year and up to 162 days (44% of the time) in a dry year. Abstractions are most likely to be restricted from late spring to early autumn as these are the periods when we tend to see lower river flows which trigger the abstraction constraints.

The above indicative figures do not apply to non-consumptive abstraction (surface water and groundwater) or a consumptive groundwater abstraction assessed not to have an adverse impact on the Wye catchment SAC species and/or habitats. In these instances application of abstraction restrictions will be assessed on a case by case basis and resource reliability discussed with you during application determination.

This section aims to highlight that abstraction of water will not be available for a significant proportion of the year. Therefore to ensure you have a reliable source of water for your needs throughout the year, you may need to consider additional provisions such as water storage.

4. How we manage abstractions in the Wye Catchment

4.1 National licensing principles

The May 2013 document 'Managing Water Abstraction' outlines the over-arching principles that we jointly follow in managing our water resources. If you want to abstract water in the Wye catchment this section outlines where water is available for further abstraction and the principles we follow in assessing your application for a licence.

Further information can be found on our respective web sites.

For a site in Wales:

[Natural Resources Wales / Apply for a water abstraction or impoundment licence](#)

For a site in England:

<https://www.gov.uk/water-management-abstract-or-impound-water>

Abstraction licence application process

Anyone wanting to take more than 20m³/day (4,400 gallons) from a 'source of supply' (river, stream, lake, well, groundwater, etc) must have an abstraction licence. The application process is similar to the planning process in that we may require the application to be advertised and may require supporting environmental information. All abstraction licence applications are subject to an assessment to take account of any local and downstream issues. When considering the application we check that the quantities applied for and the abstraction purpose(s) are reasonable, that there is sufficient water available to support it and that the potential impacts on the environment and other water users are acceptable.

Each application is determined on its own merits

Whilst this document may indicate that some water is available for further abstraction, this does not guarantee that all applications will be successful. We'll determine each application upon its own merits and any local impacts. In certain cases we may have to refuse the application. Any applicant who is not happy with our determination (decision) has the right to appeal against it.

A licence does not guarantee that water is available

It's important to understand that when we issue a licence we do not guarantee the supply of water. We also have to protect the environment and rights of other abstractors. To do this we may add constraints to licences which require abstraction to stop when the river flow or groundwater levels fall below a certain amount. Licence holders need to understand the implications of this as it affects

the reliability of supply. For example, in drier years it's more likely that Hands-off Flow conditions will come into effect and abstraction is more likely to be stopped.

Abstractions are managed to protect the environment & WFD objectives

We assess the impact of new applications for water to make sure that the resultant river flows will:

- maintain a good ecology or if the ecology is not good, will not deteriorate the ecology of the water body further
- maintain the near pristine condition of high ecological status water bodies

To do this we may issue a licence with an abstraction restriction condition – see below Hands-off Flow condition and Hands-off Level condition.

We'll also take action if necessary to limit the increase in existing licensed abstractions, if we think this will lead to deterioration of the ecology or the near pristine condition of our high hydrological regime water bodies.

These principles apply to the water body in which the abstraction is located and also to all downstream water bodies that may be affected by any reduction in abstraction related flow. Doing this means that we will maintain the water body status as reported in the 2015 RBMPs and ensure compliance with WFD.

Hands-off Flow conditions

To protect the environment we may issue a licence with a condition referred to as a 'Hands-off Flow' (HOF). This specifies that if the flow in the river drops below that which is required to protect the environment abstraction must stop, hence 'Hands-off Flow'.

Hands-off Level conditions

Where groundwater abstractions are likely to impact surface water features, or reduce baseflow to a river, a Hands-off Level (HOL) condition may be applied to the abstraction. This is groundwater level below which an abstractor is required to reduce or stop abstraction. A HOF condition may also be applied to a groundwater licence.

Time limited licences

Since 2001, in recognition of changing pressures on water resources, all new licences and variations (other than downward variations or minor variations having no environmental impact) have had a time limit imposed. This allows for the periodic review of these licences and allows changes to be made to licence conditions where circumstances have altered since the licence was granted.

All time limited licences within an ALS area have a **common end date** (CED) so they can be reviewed at the same time. When a licence application is made within six years of the CED, we will generally apply the next CED to any renewed licence granted. This is to avoid issuing shorter and shorter duration licences as the CED

approaches. This means that the initial CED on a licence may be between six and 18 years duration. On renewal the normal duration will then usually be 12 years.

However, where we are uncertain about the long term environmental impacts of an abstraction, we will grant a short term licence during which time potential impacts are monitored.

Approximately 14% of abstraction licences in the Wye ALS area are time-limited. The current CED for the Wye ALS is 31st March 2039.

Water efficiency and demand management

We encourage all new abstractors to adopt water efficiency measures and water management measures as we need to make the best use of our existing water resources. Water efficiency is one of the tests that will need to be satisfied before we grant a new licence or replace a time limited licence. We will promote the wise and efficient use of water and actions to limit demand (and reduce leakage) to curb the growth in abstraction and limit the impact on flows and any consequent impact on the ecology.

4.2 Surface water licences

Any application for a new licence or upwards variation to an existing licence will need consideration as to its impact on the River Wye SAC. Licences will only be granted if it can be demonstrated that the abstractions (with appropriate restrictions) will have “no adverse effect” on the [site integrity](#) of the River Wye SAC alone and in-combination with all other licensed abstractions. Whilst there are parts of the Wye catchment that are not included within the River Wye SAC designation, abstractions in these areas still have the potential to impact on the SAC. For example, watercourses upstream of the SAC designation will eventually flow into the River Wye SAC river network.

Table 2 gives an indication of the flow restrictions that will be applied to **new and varied consumptive licences** and the reliability of any abstraction within the Wye catchment. Each HOF is linked to an Assessment Point (AP) and is dependent on the water resource availability at that AP. Reading from top to bottom in Table 2 are the APs in the Wye catchment (APs are shown on Map 1). Reading across the columns you can see the potential HOF that may be applied to a licence and the number of days water may be available under this restriction. Abstractions are most likely to be restricted from late spring to early autumn as these are the periods when we tend to see lower river flows which trigger the abstraction constraints.

For non-consumptive licences, where water is returned close to the point of abstraction, there is no need to protect flows at a wider catchment level. These licences will have a nearby gauging station or local restriction placed on them to protect flows between the point of abstraction and the point of discharge. The level of the restriction will depend on the site-specific conditions. Each application will be dealt with on a case by case basis.

For new surface water licences, the following principles will apply:

- all licence applications will be considered on a case by case basis
- the protection of designated features (e.g. SAC, SSSI, UK BAP, Ramsar), important local features and the rights of other water users will be taken into consideration
- we will not issue a licence that would cause deterioration in the ecological quality of a water body
- all licences will be issued with flow restrictions
- for a new consumptive licence, the current HOF restriction is equivalent to 1,900 MI/d (418 mgd) at Redbrook gauging station on the River Wye
 - our main HOF is measured at Redbrook gauging station but other gauging stations in the catchment may be more appropriate depending on where the abstraction is located
 - the appropriate HOF location will be determined as part of any licence application and the HOF set will be equivalent to 1,900 MI/d (418 mgd) at Redbrook gauging station on the River Wye
- as more of the 'available' water is allocated to consumptive abstraction, we will issue licences with increasingly restrictive HOF conditions to ensure sufficient water continues to be available for the environment and to protect existing abstractions
- in most cases a time limit of 31 March 2039 will be applied. A shorter time period may be applied if we feel there is a need to review an abstraction earlier so we can monitor the effect of the abstraction on the SAC and change the licence conditions if necessary. In exceptional circumstances we may grant longer term licences
- the following conditions may also be applied:
 - fish or eel screens on abstraction intakes to help minimise entrainment and impingement from pumping
 - conditions to minimise [sub-daily pumping](#) to prevent the rapid exposure of riverine marginal habitat

Table 2: Wye ALS potential restrictions for new consumptive licences
(MI/d – Mega litres per day; mgd – million gallons per day)

AP	Name	Water Resource Availability Colour	HOF Restriction (MI/d)	HOF Restriction (mgd)	Approx number of days per annum abstraction may be available	Is there a gauging station at this AP?
1	Wye @ Redbrook G/S	Restricted Water Available (yellow)	1,900 MI/d at Redbrook gauging station on the River Wye	418 mgd at Redbrook gauging station on the River Wye	270	Yes
2	Trothy u/s of Wye	Restricted Water Available (yellow)	129 MI/d at Grosmont Rhosllwyn gauging station on the River Monnow	28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow	270	No
3	Monnow u/s of Wye	Restricted Water Available (yellow)	129 MI/d at Grosmont Rhosllwyn gauging station on the River Monnow	28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow	270	No
4	Wye u/s of Monnow	Restricted Water Available (yellow)	1,900 MI/d at Redbrook gauging station on the River Wye	418 mgd at Redbrook gauging station on the River Wye	270	No
5	Wye @ Monmouth P/S	Restricted Water Available (yellow)	1,900 MI/d at Redbrook gauging station on the River Wye	418 mgd at Redbrook gauging station on the River Wye	270	No
6	Wye u/s of Garren	Restricted Water Available (yellow)	1,900 MI/d at Redbrook gauging station on the River Wye	418 mgd at Redbrook gauging station on the River Wye	270	No
7	Garren and Gamber u/s of Wye	Restricted Water Available (yellow)	29 MI/d at Marstow Mill gauging station on the Garren Brook	6 mgd at Marstow Mill gauging station on the Garren Brook	270	No
8	Wye u/s of Lugg	Restricted Water Available (yellow)	1,179 MI/d at Belmont gauging station on the River Wye	259 mgd at Belmont gauging station on the River Wye	270	No
9	Frome u/s of Lugg	Restricted Water Available (yellow)	26 MI/d at Yarkhill gauging station on the River Frome	6 mgd at Yarkhill gauging station on the River Frome	270	No

AP	Name	Water Resource Availability Colour	HOF Restriction (MI/d)	HOF Restriction (mgd)	Approx number of days per annum abstraction may be available	Is there a gauging station at this AP?
10	Lugg u/s of Frome	Restricted Water Available (yellow)	264 MI/d at Lugwardine gauging station on the River Lugg	58 mgd at Lugwardine gauging station on the River Lugg	270	No
11	Lugg u/s of Arrow	Restricted Water Available (yellow)	168 MI/d at Butts Bridge gauging station on the River Lugg	37 mgd at Butts Bridge gauging station on the River Lugg	270	No
12	Arrow u/s of Lugg	Restricted Water Available (yellow)	53 MI/d at Titley Mill gauging station on the River Arrow	12 mgd at Titley Mill gauging station on the River Arrow	270	No
13	Lugg u/s of Pinsley Brook	Restricted Water Available (yellow)	168 MI/d at Butts Bridge gauging station on the River Lugg	37 mgd at Butts Bridge gauging station on the River Lugg	270	No
14	Pinsley Brook u/s of Lugg	Restricted Water Available (yellow)	Local HoF equivalent to 1,900 MI/d at Redbrook gauging station on the River Wye	Local HoF equivalent to 418 mgd at Redbrook gauging station on the River Wye	270	No
15	Arrow @ Titley Mill G/S	Restricted Water Available (yellow)	53 MI/d at Titley Mill gauging station on the River Arrow	12 mgd at Titley Mill gauging station on the River Arrow	270	Yes
16	Lugg @ Byton G/S	Restricted Water Available (yellow)	105 MI/d at Byton gauging station on the River Lugg	23 mgd at Byton gauging station on the River Lugg	270	Yes
17	Eign Brook/ Yazor Brook	Restricted Water Available (yellow)	2.1 MI/d at Three Elms gauging station on the Eign/Yazor Brook	0.5 mgd at Three Elms gauging station on the Eign/Yazor Brook	270	No
18	Wye u/s Eign Brook	Restricted Water Available (yellow)	1,179 MI/d at Belmont gauging station on the River Wye	259 mgd at Belmont gauging station on the River Wye	270	No
19	Wye @ Belmont G/S	Restricted Water Available (yellow)	1,179 MI/d at Belmont gauging station on the River Wye	259 mgd at Belmont gauging station on the River Wye	270	Yes

AP	Name	Water Resource Availability Colour	HOF Restriction (MI/d)	HOF Restriction (mgd)	Approx number of days per annum abstraction may be available	Is there a gauging station at this AP?
20	Wye at Rhydspence	Restricted Water Available (yellow)	1,179 MI/d at Belmont gauging station on the River Wye	259 mgd at Belmont gauging station on the River Wye	270	No
21	Llynfi u/s of Wye	Restricted Water Available (yellow)	43 MI/d at Three Cocks gauging station on the River Llynfi	9 mgd at Three Cocks gauging station on the River Llynfi	270	No
22	Wye u/s Llynfi	Restricted Water Available (yellow)	658 MI/d at Erwood gauging station on the River Wye	145 mgd at Erwood gauging station on the River Wye	270	No
23	Wye @ Erwood G/S	Restricted Water Available (yellow)	658 MI/d at Erwood gauging station on the River Wye	145 mgd at Erwood gauging station on the River Wye	270	Yes
24	Wye u/s Irfon	Restricted Water Available (yellow)	658 MI/d at Erwood gauging station on the River Wye	145 mgd at Erwood gauging station on the River Wye	270	No
25	Irfon u/s of Wye	Restricted Water Available (yellow)	180 MI/d at Cilmerly gauging station on the River Irfon	40 mgd at Cilmerly gauging station on the River Irfon	270	No
26	Wye u/s of Ithon	Restricted Water Available (yellow)	658 MI/d at Erwood gauging station on the River Wye	145 mgd at Erwood gauging station on the River Wye	270	No
27	Ithon u/s of Wye	Restricted Water Available (yellow)	130 MI/d at Disserth gauging station on the River Ithon	29 mgd at Disserth gauging station on the River Ithon	270	No
28	Elan u/s of Wye	Water not available for licensing (red)	2003 MI/d at Ddol Farm gauging station on the River Wye	441 mgd at Ddol Farm gauging station on the River Wye	29	No
29	Wye u/s of Elan	Restricted Water Available (yellow)	135 MI/d at Ddol Farm gauging station on the River Wye	30 mgd at Ddol Farm gauging station on the River Wye	270	No

AP	Name	Water Resource Availability Colour	HOF Restriction (Ml/d)	HOF Restriction (mgd)	Approx number of days per annum abstraction may be available	Is there a gauging station at this AP?
30	Monnow u/s of Dore	Restricted Water Available (yellow)	129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow	28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow	270	No
31	Dore u/s of Monnow	Restricted Water Available (yellow)	129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow	28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow	270	No
32	Worm Brook u/s of Dore	Restricted Water Available (yellow)	129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow	28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow	270	No
33	Dore u/s of Worm	Restricted Water Available (yellow)	129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow	28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow	270	No

For **existing time limited** and **non-time limited surface water licences**, the following principles apply:

- there is the presumption of renewal for time limited licences, subject to the three renewal criteria (environmental sustainability, continued justification of need, and efficient use of water) and local considerations; however,
 - where recent actual (RA) flows have fallen below the EFI, we may seek to reduce licensed quantities as part of the renewal process
 - where fully licensed (FL) flows have fallen below the EFI, we may seek to reduce unused portions of licensed quantities as part of the renewal process
 - conditions may be replaced with more restrictive terms and conditions to protect the environment e.g. as a result of a WFD assessment
 - renewal may be subject to minor changes including the addition of water efficiency conditions, and
 - we will also take into account any objections received to the renewal of the licence
- we will endeavour to give six years notice if a time limited licence will not be renewed or is to be renewed but on more restrictive terms that significantly impact on the use of the licence

- any existing consumptive licence which the holder applies to have formally varied to increase the volume abstracted will be subject to the 1,900 MI/d (418 mgd) HOF restriction at Redbrook gauging station on the increased part of the licence only
- as CAMS resource assessments and WFD assessments are reviewed and updated, we may identify water resources pressures that will need to be investigated

4.3 Hydropower licences

Water abstraction for hydropower schemes is non-consumptive, with all water used returned to the watercourse. Applications are assessed based on the environmental risk for each scheme.

Hydropower licence applications in Wales are determined in line with Natural Resources Wales' hydropower policy. For further information please refer to the guidance on Natural Resources Wales hydropower [website](#) pages.

Hydropower licence applications in England are determined in line with the Environment Agency's hydropower policy. For further information please refer to the relevant pages on the Environment Agency's section of the www.gov.uk/environment-agency site at [website](#).

4.4 Groundwater licences

There is no separate groundwater licensing policy as such and surface water availability may override local groundwater availability. Licences will only be granted if it can be demonstrated that the abstractions (with appropriate restrictions) will have "no adverse effect" on the integrity of the River Wye SAC alone and in-combination with all other licensed abstractions. The following principles will apply:

- any application for a new groundwater abstraction licence or upwards variation to an existing licence will be treated on a case by case basis
- applications will be assessed as to their impact on designated sites and local features of importance such as watercourses, and other groundwater users
- we will not issue a licence that would cause deterioration in the ecological quality of a water body
- abstraction restrictions will be dependent upon aspects such as aquifer type, the depth of the borehole/well, the proximity to a surface water course, the proximity to a designated site and local features of importance, the quantity of water applied for and purpose (how consumptive the abstraction will be).
- where a groundwater application is found to adversely impact flows in the River Wye SAC or designated tributaries then the surface water HOF equivalent of 1,900 MI/d (418 mgd) restriction at Redbrook gauging station will be applied. The appropriate HOF location will be based on the point of impact of the groundwater abstraction and determined during the licence application process

- in most cases a time limit of 31 March 2039 will be applied. A shorter time period may be applied if we feel there is a need to review an abstraction earlier so we can monitor the effect of the abstraction on the SAC and change the licence conditions if necessary. In exceptional circumstances we may grant longer term licences
- there is the presumption of renewal for **time limited licences**, subject to the three renewal criteria (environmental sustainability, continued justification of need, and efficient use of water) and local considerations such as connectivity to watercourses and wetland sites, however:
 - conditions may be replaced with more restrictive terms and conditions to protect the environment e.g. as a result of a WFD assessment
 - renewals may be subject to minor changes including the addition of water efficiency conditions
 - we will also take into account any objections received to the renewal of the licence
 - where connectivity to a watercourse is a factor and the RA flows have fallen below the EFI, we may seek to reduce licensed quantities as part of the renewal process, and
 - where connectivity to a watercourse is a factor and the FL flows have fallen below the EFI, we may seek to reduce unused portions of licensed quantities as part of the renewal process
- we will endeavour to give six years notice if a time limited licence will not be renewed or is to be renewed but on more restrictive terms that significantly impact on the use of the licence
- as CAMS resource assessments and WFD assessments are reviewed and updated, we may identify water resources pressures that will need to be investigated

To apply for a groundwater abstraction licence in Wales you will need to submit a groundwater impact assessment with your licence application. Details on what this assessment is and how to prepare one can be found on NRW's webpage '[Prepare an application for a groundwater investigation consent](#)'.

Subject to the initial assessment of water availability, for English sites a water features survey and Section 32(3) groundwater investigation consent will be required to drill and/or test a groundwater borehole or well. This is necessary to determine the availability of water and assess the impacts on the environment and other water users. Only once it has been demonstrated that no adverse effect will arise will a full licence application be considered favourably. If you want to abstract groundwater from a borehole or well in England [contact the Environment Agency](#), for further advice.

4.5 Estuaries/coastal areas

Due to the ecological importance of the Wye and Severn estuaries we have an obligation to protect their environmental needs. Any application for a new licence or upwards variation to an existing licence within the estuarine and coastal areas

of the Wye catchment will need consideration as to its impact on the Wye and Severn estuaries. The river is tidal for approximately 23 km (14 miles) from the tidal limit at Bigsweir Bridge (NGR SO 5387 0510) to Chepstow.

Estuaries

Estuaries are not included in the CAMS resource assessment as tidally influenced waters cannot be assessed in the same way as inland waters. Applications for abstractions from estuarine resources or from the small river catchments draining into the Wye Estuary will be assessed on a case-by-case basis.

Coastal streams

Many streams within the Wye coastal area have not been assessed using the CAMS resource assessment methodology. Compared to the CAMS assessed rivers, these smaller streams provide a relatively small resource. The CAMS resource assessment is undertaken at a catchment scale with catchment significant resources. Coastal streams generally have a catchment area of less than 20km² and lack hydrological and ecological data to support any assessment of resources.

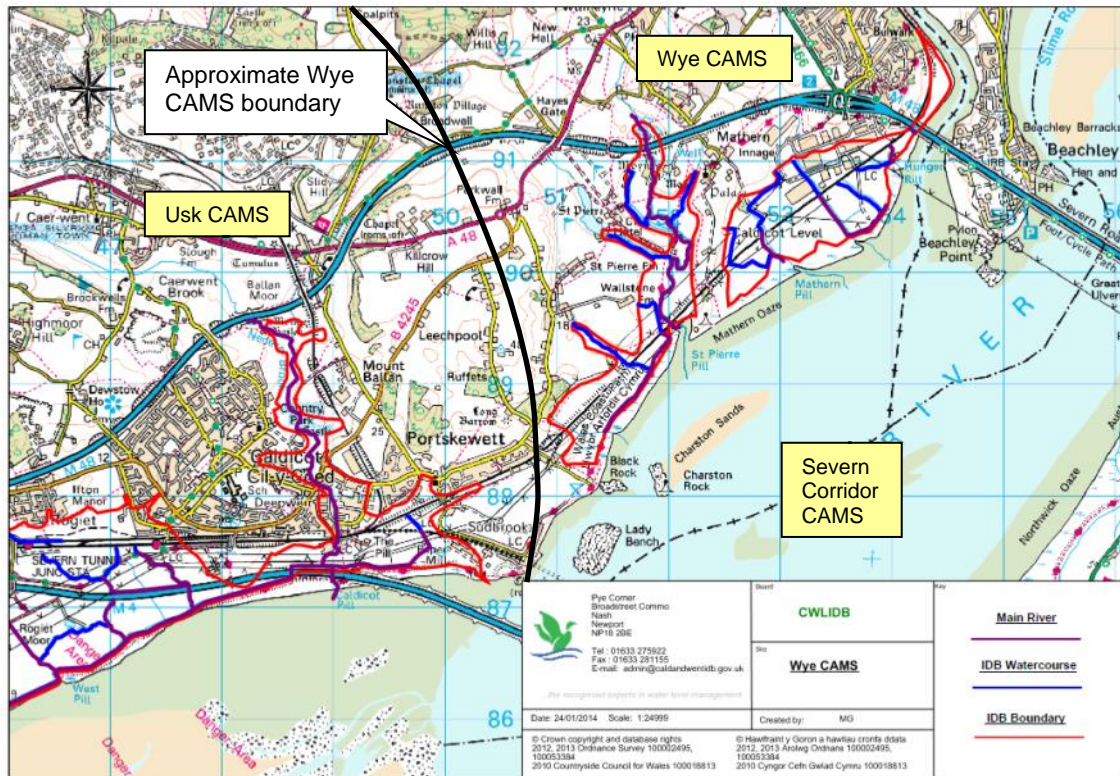
Applications for abstractions, both surface water and groundwater, from resources in coastal catchments will be assessed on a case-by-case basis.

Water Level Dependent Areas

There are small reclaimed low-lying coastal areas within the Wye catchment that are [water level dependent](#), collectively known as the Caldicot Levels and are shown on Map 4. The Levels span from west to east between Cardiff and Chepstow along the low lying plain of the Severn Estuary and are known overall as the Gwent Levels. Up until April 2015 the Levels were managed by the Caldicot & Wentlooge Internal Drainage Board (CWIDB) in a way that supports a variety of functions, including land drainage, reducing flood risk, agriculture, conservation and development. Since April 2015 the functions carried out by the Board have been transferred to Natural Resources Wales.

Please contact Natural Resources Wales if you wish to abstract from the Levels so that we can advise you on your application.

Map 4: Wye catchment Water Level Dependent Areas within the Caldicot Levels



Reproduced with the permission of Caldicot & Wentlooge Internal Drainage Board

Map 4 shows the boundary of the Caldicot Levels (as a red outline) with the principle watercourses that are within the boundary (blue colour).

4.6 Impoundment licences

Applications for impoundment licences will be dealt with on a case-by-case basis and take into account the requirements of our HD obligations for designated sites and WFD obligations such as ensuring no likelihood of water body ecological deterioration. An impoundment is a dam, weir or other construction in an inland waterway that obstructs or impedes flow and/or raises water levels. Our assessment of an impoundment application takes into consideration its potential impacts on the environment (such as fish migration), flood risk, downstream water users and flow modification. In line with current legislation, we do not time limit impoundment licences.

You must have an impoundment licence before you start to construct, alter, repair or remove an impoundment structure, even in an emergency. However, in certain circumstances licence exemptions apply and if we deem there is little or no impact on the environment and other water users, you may not need a licence. Please contact Natural Resources Wales (Welsh sites) or the Environment Agency (English sites) if you intend to construct, alter, repair or remove an impoundment structure so that we may advise you whether a licence is required. The Environment Agency’s document ‘Low Risk Impoundment’ offers guidance on when you need to apply for an impoundment licence. To access this guidance please follow the link given in the Natural Resources Wales’ [website](#).

4.7 Opportunities for licence trading

We want to make it easier to trade water rights. A water rights trade is where a Licence Holder sells all or part of their water right, as defined by their abstraction licence(s), to another Licence Holder on a permanent or temporary basis. In the majority of cases a trade will involve a change in abstraction location and/or use which we will need to approve through the issue or variation of abstraction licences. Our approach to licensing water rights trades will depend on the water resource availability where the buyer and seller are located.

In licensing trades, as with new abstraction licences, we need to make sure that we do not impact SAC designated species and habitats nor cause any ecological deterioration in WFD water body status either within the water body / bodies where the trade will take place or to downstream water bodies. Table 3 provides a guide to the potential for trading in the water bodies of the Wye CAMS based on the water resource availability colour (Map 3).

Table 3: Guide for the potential for licence trading in the Wye catchment

CAMS water resource availability colour	Our joint approach to trading in the Wye catchment
Water available for licensing (green colour)	Trading acceptable.

CAMS water resource availability colour	Our joint approach to trading in the Wye catchment
Restricted water available for licensing (yellow colour)	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.

All applications for licence trading will be assessed on a case-by-case basis. To ensure sufficient environmental protection and to ensure abstraction does not derogate (interfere with the rights of) other licensed abstractors, any changes in use, consumptiveness and/or location of abstractions will be subject to the licensing restrictions as outlined in the sections above. The final decision on whether trading would be allowed lies with Natural Resources Wales for sites in Wales and the Environment Agency for sites in England.

To find out more about trading water rights please go to the [water management web pages on gov.uk](https://www.gov.uk/government/topics/water-management).

4.8 New authorisations

The Water Act 2003 brought all significant water abstraction under licensing control. Previously exempt abstractions for trickle irrigation, dewatering of mines, quarries and engineering works, land drainage (including Internal Drainage Districts), navigation, ports and harbours now need to be licensed if the daily quantity abstracted is greater than 20m³/day. Other local exemptions that applied to various geographic areas were also affected by this change.

Where we had information on these exempt abstractions in the Wye catchment, we included them in our HDRoC water resources assessment to consider how they impacted flows and groundwater levels. This 2015 licensing strategy was developed with the inclusion of what we knew about exempt activities at the time to determine the availability of water resources.

4.9 Action on unsustainable abstraction

WFD Regulations (2017)

The WFD Regulations (2017) help us to focus on the ecological ‘health’ of our water environment. Its primary objectives are to prevent deterioration of ecological status or potential (for heavily modified water bodies), and where necessary, to restore ‘good ecological status/potential’ for surface water or ‘good status’ for groundwater. The flow regime is a supporting element to attaining good ecological status.

We will investigate where reduced water flow is contributing to environmental concerns attributed to licensed abstraction. Investigations into the impact caused by these such licences may result in options being developed with licence holders on how to improve the sustainability of their abstraction. Options will include a cost/benefit analysis.

Habitats Directive Review of Consents

The Directive on the *Conservation of Natural Habitats and of Wild Flora and Fauna* (referred to as the Habitats Directive) is a major piece of European legislation, which along with the EU Wild Birds Directive (1979), was implemented in UK law through the then *Conservation (Natural Habitats, &c.) Regulations 1994*; now amended as The Conservation of Habitats and Species Regulations 2017, with Brexit update in 2019. The Habitats Regulations require measures to be taken to maintain or restore natural habitats and wild species at a favourable conservation status.

Under the Habitats Regulations we have assessed the effects of all existing licensed abstraction in the Wye catchment to make sure these permitted activities do not have a likely significant effect on the River Wye SAC, the Wye SAC estuary and the River Severn Estuary SAC. A small number of licences were found to pose a risk, in-combination, on River Wye SAC site integrity and have been modified to remove this risk.

The outcome of the Wye HDRoC process and recovery of water from existing licences have been integrated with the principles of CAMS in setting this 2015 licensing strategy, to ensure ongoing sustainable abstraction in the Wye catchment.

Glossary of terms

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by Natural Resources Wales and the Environment Agency to allow the removal of water.
Aquifer	An underground layer of permeable rock, sediment, or soil that can contain and yields water. Esp. one that supplies the water for wells, springs, etc.
Assessment Point	Point on a watercourse at which the flow from the upstream catchment is assessed.
Baseflow	The flow entering surface watercourses from groundwater i.e. the level of groundwater contribution supporting stream flow in catchments.
Biodiversity Action Plan	The UK BAP was published in 1994, in response to the Convention on Biological Diversity, which the UK signed up to in 1992. The UK BAP described the biological resources of the UK and provided detailed plans for conservation of these resources. UK BAP priority species and habitats were those that were identified as being the most threatened and requiring conservation action. The UK BAP has been succeeded. Many of the UK BAP species and habitats are now recognised as being 'species and habitats of principal importance' under Sections 41 and 42 of the NERC Act 2006. In the UK we are currently working to the 'UK Post-2010 Biodiversity Framework' (July 2012).
Catchment	The area specific to a river network from which precipitation (e.g. rainfall) and groundwater will collect and contribute to the flow of that network.
Consumptive abstraction	Abstraction where a significant proportion of the water abstracted is not returned either directly or indirectly to the source of supply after use. For example spray irrigation.
Discharge	The release of substances (i. e. water, sewage, etc.) into surface waters.
Environmental flow indicator	A proportion of the natural flow in a river is set aside for the ecological health of the water course. This is called the environmental flow indicator and we use it to prevent ecological deterioration of rivers. It is set in line with new UK standards set by UKTAG.
Flashy flow regime	A water course that exhibits significantly increased flows immediately following the onset of a precipitation event and a rapid return to pre-rain conditions shortly after the end of the precipitation; and after dry spells, flows become very low.
Groundwater	Water that is contained in underground rocks or superficial deposits.

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.
Hands-off level	A river flow or borehole (groundwater) level below which an abstractor is required to reduce or stop abstraction.
Heavily modified water body	These are water bodies which have in some way been altered by human activities. These can be classified modified for many reasons but for water resources they are classified if they contain a lake and/or reservoir that artificially influence the downstream flow regime of the river. The downstream 'flow modified' water bodies are also classified as heavily modified.
Impoundment	An impoundment is a structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.
Natural flow	In hydrological assessments it refers to a flow in a water course that has no anthropogenic influences such as abstractions and discharges. Very few watercourses are truly natural as most catchments are affected by indirect anthropogenic influences including channel modification, land use change and urbanisation. Under WFD watercourses with (near to) pristine natural flows are defined to have a high hydrological regime.
Non-consumptive abstraction	Abstraction where all the water abstracted is returned to the source of supply a relatively short distance downstream of the abstraction point. For example, abstractions for fish farms and hydropower schemes are considered non-consumptive abstractions.
River Basin Management Plan	A River Basin Management Plan sets out measures to improve water in rivers, estuaries, coasts and aquifers. They are drawn up for different river basin districts under the Water Framework Directive and reviewed and updated every six years. The plans have been developed through consultations with organisations and individuals. They contain the main issues for the water environment and information on what we all need to do to tackle these issues.
Site Integrity	Defined as the coherence of its ecological structure and function, across its whole area, or the habitats that enables it to sustain the habitat and/or populations of species for which it the site was designated.
Sub-daily pumping	The abstraction of the daily licensed quantity in less than a twenty four hour period.
Surface water	This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.
Water body	A basic unit of surface water management at which assessments are completed for WFD. It is an entire (or part) stream, river or canal, lake or reservoir, and estuary or stretch of coastal water out to one nautical mile offshore. Water bodies altered by human activity may be classified as heavily modified water bodies (HMWB) or artificial water bodies (AWB).

	A body of groundwater is a distinct volume of underground water within one or more aquifers.
Water level dependent	Low lying (often below sea level) reclaimed coastal wet pasture areas, where water level is careful managed through the year to prevent flooding via a system of drainage ditches.

List of abbreviations

ALS	Abstraction licensing strategy
AONB	Area of Outstanding Natural Beauty
AP	Assessment Point
BAP	Biodiversity Action Plans
CAMS	Previously Catchment Abstraction Management Strategies, renamed in 2020 to Catchment Abstraction Management System
CED	Common End Date
CWIDB	Caldicot & Wentlooge Internal Drainage Board
EFI	Environmental Flow Indicator
FL	Full Licensed (scenario)
HDRoC	Habitats Directive Review of Consents
HOF	Hands-off Flow
HOL	Hands-off Level
MI/d	Megalitres per day
mgd	Million gallons per day
NGR	National Grid Reference
Q95	The flow of a river which is equalled or exceeded on average for 95% of the time.
RA	Recent Actual (scenario)
RSA	Restoring Sustainable Abstraction
RBMP	River Basin Management Plans
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest
UKTAG	United Kingdom's Technical Advisory Group
WFD	Water Framework Directive