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

It's our job to look after your environment and make it a better place - for you, and for future generations.

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The Environment Agency. Out there, making your environment a better place.

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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 Catchment Abstraction Management 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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Natural Resources Wales

Environment Agency
Map 1: Wye Catchment Abstraction Management Strategy (CAMS) Area

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 Licensing Strategy 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.

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 Abstraction Management Strategy (CAMS) area compared to the scale used in the previous strategy.

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 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
- by email at 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). 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 Framework Directive’s (WFD) main objectives are to protect and enhance the water environment and ensure the sustainable use of water resources for economic and social development.

CAMS set out how we will manage the water resources of a catchment and contribute to implementing the WFD.

CAMS contribute to the WFD by:

- providing a water resource assessment of rivers, lakes, reservoirs, estuaries and groundwater referred to as water bodies under the WFD;
- 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 CAMS, 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’. It is useful to read ‘Managing Water Abstraction’ when reading this catchment specific licensing strategy. ‘Managing Water Abstraction’ is available on the www.gov.uk/environment-agency website or can be accessed from our CAMS web pages under ‘Other websites’.
2. Wye CAMS area

2.1 Catchment overview

The Wye CAMS area comprises the River Wye and a number of substantial 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 CAMS has a total catchment 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 CAMS area 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 CAMS 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 lives 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: Designated sites in the River Wye CAMS Area

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 CAMS area

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 CAMS 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 CAMS 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 CAMS 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 CAMS FL scenario and the CAMS 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.
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 CAMS 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 CAMS APs in the Wye CAMS area. Resource availability at the water body sub-catchment level is derived based on a simple interpolation between CAMS APs.

Following the River Wye HDRoC, we have concerns about water availability at low flows. The Wye CAMS area water resource availability colours and licensing implications are explained in Table 1. The resource availability for the Wye catchment is shown at the water body scale as Map 3. For consumptive abstraction water may only be available at medium to high flows.

Additional information on resource availability can be found in ‘Managing Water Abstraction’.

<table>
<thead>
<tr>
<th>Water resource availability colour</th>
<th>Implication for licensing in the Wye CAMS Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water available for licensing</td>
<td>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. New licences will be considered depending on local and downstream impacts (refer to Section 4.2). • Any consumptive licence issued will have abstraction restrictions to protect medium and low flows, and • Non-consumptive licences can be issued but local flow restrictions will be applied.</td>
</tr>
<tr>
<td>Restricted water available for licensing</td>
<td>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: • No further consumptive licences will be granted. • Non-consumptive licences can be issued but local flow restrictions will be applied.</td>
</tr>
</tbody>
</table>

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).

We are managing this environmental deficit under the Restoring Sustainable Abstraction Programme (see Section 4.9).

**Water not available for licensing**

Afon Elan only: 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:

- No further consumptive licences will be granted.
- Non-consumptive licences can be issued but local flow restrictions will be applied.

Water may be available if you can ‘buy’ (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder.

**Table 1**: Implications of surface water resource availability colours

### 3.2.2 Groundwater

The degree of connection between the watercourses in the CAMS area 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
CAMS 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 CAMS 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 on application.

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.
Map 3: Wye CAMS 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

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4. How we manage abstractions in the Wye CAMS area

4.1 National licensing principles

The 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 CAMS area 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 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, as part of our Restoring Sustainable Abstraction Programme.

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 2009 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 a CAMS 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 CAMS area are time-limited. The current CED for the Wye CAMS is 31st March 2027.

**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. 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** within the Wye catchment. Each HOF is linked to an Assessment Point (AP) and is dependent on the resource availability at that AP. Reading from top to bottom in Table 2 are the APs in the Wye CAMS area (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 Ml/d (418 mgd) at Redbrook gauging station on the River Wye. Our main HOF is measured at Redbook 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 Ml/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 2027 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>
<thead>
<tr>
<th>AP</th>
<th>Name</th>
<th>Water Resource Availability Colour</th>
<th>HOF Restriction (Ml/d)</th>
<th>HOF Restriction (mgd)</th>
<th>Approx number of days per annum abstraction may be available</th>
<th>Is there a gauging station at this AP?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wye @ Redbrook G/S</td>
<td>Restricted Water Available</td>
<td>1,900 Ml/d at Redbrook gauging station on the River Wye</td>
<td>418 mgd at Redbrook gauging station on the River Wye</td>
<td>270</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Trothy u/s of Wye</td>
<td>Restricted Water Available</td>
<td>129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Monnow u/s of Wye</td>
<td>Restricted Water Available</td>
<td>129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>Wye u/s of Monnow</td>
<td>Restricted Water Available</td>
<td>1,900 Ml/d at Redbrook gauging station on the River Wye</td>
<td>418 mgd at Redbrook gauging station on the River Wye</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>Wye @ Monmouth P/S</td>
<td>Restricted Water Available</td>
<td>1,900 Ml/d at Redbrook gauging station on the River Wye</td>
<td>418 mgd at Redbrook gauging station on the River Wye</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>Wye u/s of Garren</td>
<td>Restricted Water Available</td>
<td>1,900 Ml/d at Redbrook gauging station on the River Wye</td>
<td>418 mgd at Redbrook gauging station on the River Wye</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>Garren and Gamber u/s of Wye</td>
<td>Restricted Water Available</td>
<td>29 Ml/d at Marstow Mill gauging station on the Garren Brook</td>
<td>6 mgd at Marstow Mill gauging station on the Garren Brook</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>Wye u/s of Lugg</td>
<td>Restricted Water Available</td>
<td>1,179 Ml/d at Belmont gauging station on the River Wye</td>
<td>259 mgd at Belmont gauging station on the River Wye</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>Frome u/s of Lugg</td>
<td>Restricted Water Available</td>
<td>26 Ml/d at Yarkhill gauging station on the River Frome</td>
<td>6 mgd at Yarkhill gauging station on the River Frome</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>AP</td>
<td>Name</td>
<td>Water Resource Availability Colour</td>
<td>HOF Restriction (Ml/d)</td>
<td>HOF Restriction (mgd)</td>
<td>Approx number of days per annum abstraction may be available</td>
<td>Is there a gauging station at this AP?</td>
</tr>
<tr>
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<td>--------------------------------------------------------------------------------------</td>
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<td>----------------------------------------</td>
</tr>
<tr>
<td>10</td>
<td>Lugg u/s of Frome</td>
<td>Restricted Water Available</td>
<td>264 Ml/d at Lugwardine gauging station on the River Lugg</td>
<td>58 mgd at Lugwardine gauging station on the River Lugg</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>Lugg u/s of Arrow</td>
<td>Restricted Water Available</td>
<td>168 Ml/d at Butts Bridge gauging station on the River Lugg</td>
<td>37 mgd at Butts Bridge gauging station on the River Lugg</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>12</td>
<td>Arrow u/s of Lugg</td>
<td>Restricted Water Available</td>
<td>53 Ml/d at Titley Mill gauging station on the River Arrow</td>
<td>12 mgd at Titley Mill gauging station on the River Arrow</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>13</td>
<td>Lugg u/s of Pinsley Brook</td>
<td>Restricted Water Available</td>
<td>168 Ml/d at Butts Bridge gauging station on the River Lugg</td>
<td>37 mgd at Butts Bridge gauging station on the River Lugg</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>14</td>
<td>Pinsley Brook u/s of Lugg</td>
<td>Restricted Water Available</td>
<td>Local HoF equivalent to 1,900 Ml/d at Redbrook gauging station on the River Wye</td>
<td>Local HoF equivalent to 418 mgd at Redbrook gauging station on the River Wye</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>15</td>
<td>Arrow @ Titley Mill G/S</td>
<td>Restricted Water Available</td>
<td>53 Ml/d at Titley Mill gauging station on the River Arrow</td>
<td>12 mgd at Titley Mill gauging station on the River Arrow</td>
<td>270</td>
<td>Yes</td>
</tr>
<tr>
<td>16</td>
<td>Lugg @ Byton G/S</td>
<td>Restricted Water Available</td>
<td>105 Ml/d at Byton gauging station on the River Lugg</td>
<td>23 mgd at Byton gauging station on the River Lugg</td>
<td>270</td>
<td>Yes</td>
</tr>
<tr>
<td>17</td>
<td>Eign Brook/ Yazor Brook</td>
<td>Restricted Water Available</td>
<td>2.1 Ml/d at Three Elms gauging station on the Eign/Yazor Brook</td>
<td>0.5 mgd at Three Elms gauging station on the Eign/Yazor Brook</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>18</td>
<td>Wye u/s Eign Brook</td>
<td>Restricted Water Available</td>
<td>1,179 Ml/d at Belmont gauging station on the River Wye</td>
<td>259 mgd at Belmont gauging station on the River Wye</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>19</td>
<td>Wye @ Belmont G/S</td>
<td>Restricted Water Available</td>
<td>1,179 Ml/d at Belmont gauging station on the River Wye</td>
<td>259 mgd at Belmont gauging station on the River Wye</td>
<td>270</td>
<td>Yes</td>
</tr>
<tr>
<td>AP</td>
<td>Name</td>
<td>Water Resource Availability Colour</td>
<td>HOF Restriction (Ml/d)</td>
<td>HOF Restriction (mgd)</td>
<td>270</td>
<td>Is there a gauging station at this AP?</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------------</td>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-----</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>20</td>
<td>Wye at Rhydspence</td>
<td>Restricted Water Available</td>
<td>1,179 Ml/d at Belmont gauging station on the River Wye</td>
<td>259 mgd at Belmont gauging station on the River Wye</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>21</td>
<td>Llynfi u/s of Wye</td>
<td>Restricted Water Available</td>
<td>43 Ml/d at Three Cocks gauging station on the River Lynfi</td>
<td>9 mgd at Three Cocks gauging station on the River Lynfi</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>22</td>
<td>Wye u/s Llynfi</td>
<td>Restricted Water Available</td>
<td>658 Ml/d at Erwood gauging station on the River Wye</td>
<td>145 mgd at Erwood gauging station on the River Wye</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>23</td>
<td>Wye @ Erwood G/S</td>
<td>Restricted Water Available</td>
<td>658 Ml/d at Erwood gauging station on the River Wye</td>
<td>145 mgd at Erwood gauging station on the River Wye</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>24</td>
<td>Wye u/s Irfon</td>
<td>Restricted Water Available</td>
<td>658 Ml/d at Erwood gauging station on the River Wye</td>
<td>145 mgd at Erwood gauging station on the River Wye</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>25</td>
<td>Irfon u/s of Wye</td>
<td>Restricted Water Available</td>
<td>180 Ml/d at Cilmery gauging station on the River Irfon</td>
<td>40 mgd at Cilmery gauging station on the River Irfon</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>26</td>
<td>Wye u/s of Ithon</td>
<td>Restricted Water Available</td>
<td>658 Ml/d at Erwood gauging station on the River Wye</td>
<td>145 mgd at Erwood gauging station on the River Wye</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>27</td>
<td>Ithon u/s of Wye</td>
<td>Restricted Water Available</td>
<td>130 Ml/d at Disserth gauging station on the River Ithon</td>
<td>29 mgd at Disserth gauging station on the River Ithon</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>28</td>
<td>Elan u/s of Wye</td>
<td>Restricted Water Available</td>
<td>135 Ml/d at Ddol Farm gauging station on the River Wye</td>
<td>30 mgd at Ddol Farm gauging station on the River Wye</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>29</td>
<td>Wye u/s of Elan</td>
<td>Restricted Water Available</td>
<td>135 Ml/d at Ddol Farm gauging station on the River Wye</td>
<td>30 mgd at Ddol Farm gauging station on the River Wye</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>AP</td>
<td>Name</td>
<td>Water Resource Availability Colour</td>
<td>HOF Restriction (Ml/d)</td>
<td>HOF Restriction (mgd)</td>
<td>Approx number of days per annum abstraction may be available</td>
<td>Is there a gauging station at this AP?</td>
</tr>
<tr>
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<td>---------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>30</td>
<td>Monnow u/s of Dore</td>
<td>Restricted Water Available</td>
<td>129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>31</td>
<td>Dore u/s of Monnow</td>
<td>Restricted Water Available</td>
<td>129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>32</td>
<td>Worm Brook u/s of Dore</td>
<td>Restricted Water Available</td>
<td>129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>270</td>
<td>No</td>
</tr>
<tr>
<td>33</td>
<td>Dore u/s of Worm</td>
<td>Restricted Water Available</td>
<td>129 Ml/d at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>28 mgd at Grosmont Rhosllwyn gauging station on the River Monnow</td>
<td>270</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 2: Potential restrictions for new consumptive licences in the Wye CAMS
(Ml/d – Mega litres per day; mgd – million gallons per day)

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 Ml/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 through our Restoring Sustainable Abstraction programme (or future equivalent).

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. Natural Resources Wales have recently agreed a new approach for setting flow requirements for hydropower schemes. Details of the new standards and guidance on flow availability can be found at 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 website 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. 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 Ml/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 2027 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 through our Restoring Sustainable Abstraction programme (or
future equivalent, if applicable).

A pre-application water features survey and groundwater investigation consent to drill
and test pump an abstraction borehole/well are required. The groundwater
investigation consent allows applicants to drill and test the borehole (or other source)
to find out what water is available, whether it’s suitable for its intended purpose, and
to assess the impact on other water interests before having to apply for a licence.
Anybody wishing to obtain such consent should contact Natural Resources Wales
(Welsh sites) or the Environment Agency (English sites). On completion the water
features survey and test pumping results will need to be submitted to Natural
Resources Wales (Welsh sites) or the Environment Agency (English sites) prior to a full licence application. Only when the water features survey and test data demonstrate that the above criteria are met will a full licence application be considered favourably.

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 coastal streams within this CAMS 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 20km$^2$ 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 CAMS area that are water level dependent, collectively known as the Caldicot Levels (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.
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. The table below (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>
<thead>
<tr>
<th>CAMS water resource availability colour</th>
<th>Our joint approach to trading in the Wye catchment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water available for licensing</td>
<td>Trading acceptable.</td>
</tr>
<tr>
<td>Restricted water available for licensing</td>
<td>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.</td>
</tr>
</tbody>
</table>

Table 3: Potential for licence trading in the Wye catchment

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 [www.gov.uk/environment-agency](http://www.gov.uk/environment-agency).

4.8 New authorisations

The Water Act 2003 brought all significant water abstraction under licensing control. This will result in previously exempt abstractions for trickle irrigation, dewatering of mines, quarries and engineering works, land drainage (including Internal Drainage Districts), navigation, ports and harbours coming into the licensing regime. Other
local exemptions that applied to various geographic areas will also be affected by this change.

These changes will allow us to meet the requirements of the Water Framework Directive and, as a result we'll be able to manage water resources more effectively by ensuring that all significant activities influencing the availability of water and its impact on the environment are undertaken in a sustainable manner.

The implementation of this legislation has yet to commence and Government are still developing their policies as to how to resolve some of the issues raised during the consultation process. Government will publish their proposals before new regulations are implemented and expect to do this at least 3 months before commencement so that we can issue guidance to those affected by the changes.

Where we have information on these exempt abstractions we have included them in our water resources assessments to consider how they impact flows and groundwater levels in the catchment, and in determining the availability of water resources for licensing.

There are a high number of licence exempt trickle irrigation abstractions in the Wye catchment. Existing trickle irrigators are encouraged to maintain records of water abstracted to ensure they can justify the quantities they wish to apply for when this activity is bought into the licensing regime.

4.9 Restoring sustainable abstraction

Where existing licensed abstractions result in environmental damage or present a risk of significant damage, we may need to change or even revoke those licences in order to achieve a sustainable abstraction regime. Abstraction licences within water bodies that cause these issues are being investigated either individually and/or cumulatively as part of the Restoring Sustainable Abstraction (RSA) programme. Investigations into the impact caused by these licences may result in options being developed with licence holders on how to improve the sustainability of their abstraction. Information on how licences in the RSA programme are dealt with can be found in the Environment Agency’s guide, ‘Changing Water Abstraction & Impoundment Licences’, available on the www.gov.uk/environment-agency website.

WFD

The WFD helps 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 are currently investigating whether reduced water flow caused by licensed abstraction may be contributing to environmental concerns under the WFD. Options on how to improve the sustainability of an abstraction 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), is implemented in UK law through the *Conservation (Natural Habitats, &c.) Regulations 1994* (amended in 2010). 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 CAMS area to make sure they 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. These licences require modifications to remove this risk. Some licences have already been modified in agreement with the licence holders. We are working with the remaining licence holders to amend their licences.
## Glossary of terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Abstraction</td>
<td>Removal of water from a source of supply (surface or groundwater).</td>
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<tr>
<td>Abstraction licence</td>
<td>The authorisation granted by Natural Resources Wales and the Environment Agency to allow the removal of water.</td>
</tr>
<tr>
<td>Aquifer</td>
<td>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.</td>
</tr>
<tr>
<td>Assessment Point</td>
<td>Point on a watercourse at which the flow from the upstream catchment is assessed.</td>
</tr>
<tr>
<td>Baseflow</td>
<td>The flow entering surface watercourses from groundwater i.e. the level of groundwater contribution to stream flow in catchments.</td>
</tr>
<tr>
<td>Biodiversity Action Plan</td>
<td>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).</td>
</tr>
<tr>
<td>Catchment</td>
<td>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.</td>
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<tr>
<td>Consumptive abstraction</td>
<td>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.</td>
</tr>
<tr>
<td>Discharge</td>
<td>The release of substances (i.e. water, sewage, etc.) into surface waters.</td>
</tr>
<tr>
<td>Environmental flow indicator</td>
<td>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.</td>
</tr>
<tr>
<td>Flashy flow regime</td>
<td>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.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>Water that is contained in underground rocks or superficial deposits.</td>
</tr>
<tr>
<td>Hands-off flow</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Hands-off level</strong></td>
<td>A river flow or borehole (groundwater) level below which an abstractor is required to reduce or stop abstraction.</td>
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<tr>
<td><strong>Heavily modified water body</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Impoundment</strong></td>
<td>An impoundment is a structure that obstructs or impedes the flow of inland water, such as a dam, weir or other constructed works.</td>
</tr>
<tr>
<td><strong>Natural flow</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Non-consumptive abstraction</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>River Basin Management Plan</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Site Integrity</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Sub-daily pumping</strong></td>
<td>The abstraction of the daily licensed quantity in less than a twenty four hour period.</td>
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<tr>
<td><strong>Surface water</strong></td>
<td>This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.</td>
</tr>
<tr>
<td><strong>Water body</strong></td>
<td>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.</td>
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<tr>
<td>Water level dependent</td>
<td>Low lying (often below sea level) reclaimed coastal wet pasture areas, where water level is carefully managed through the year to prevent flooding via a system of drainage ditches.</td>
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# List of abbreviations

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