River Usk
Abstraction Licensing Strategy

A licensing strategy to manage water resources sustainably

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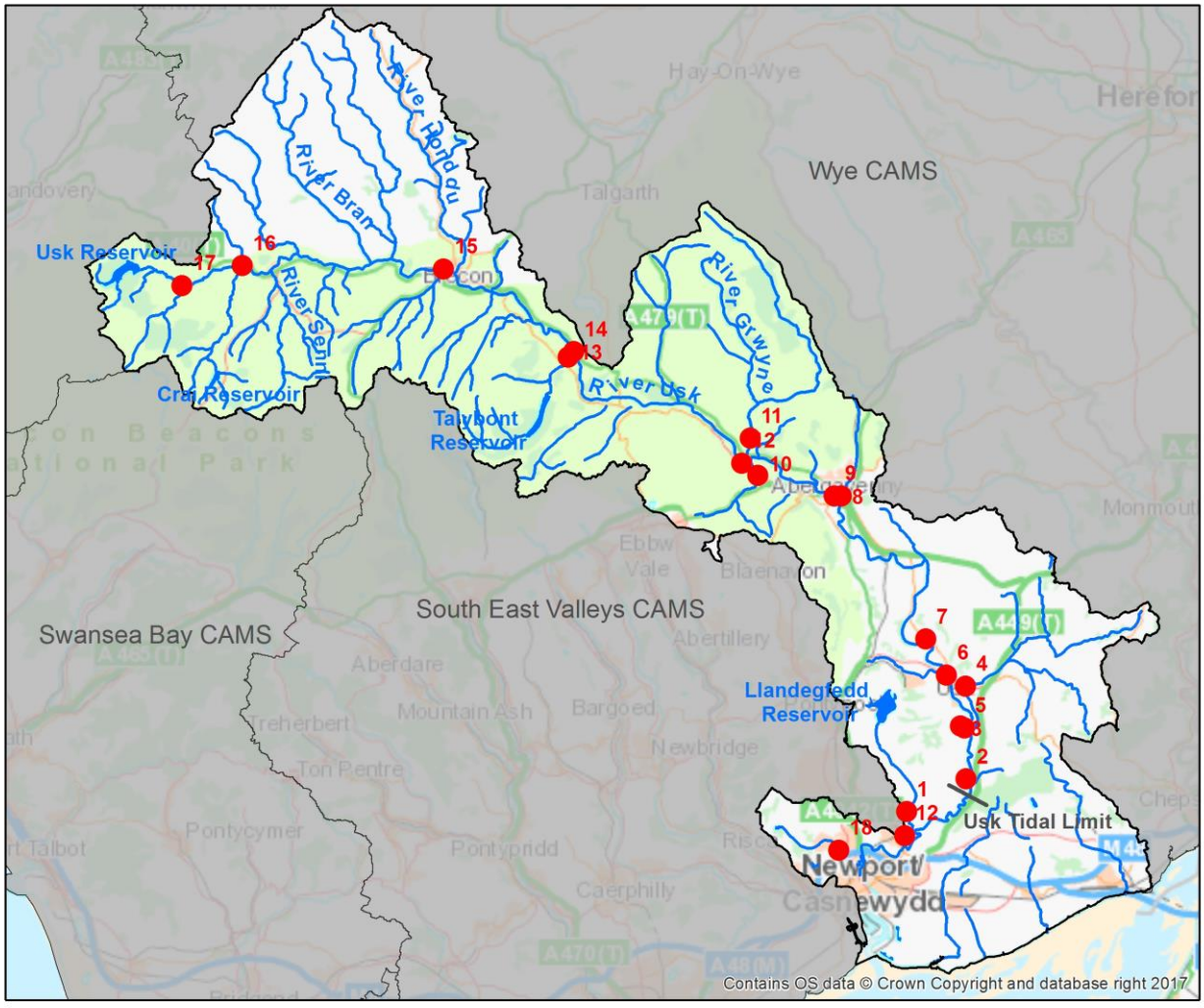
This publication is also available in Welsh.

Map 1 Usk Catchment Abstraction Management Strategy Area

Cyfoeth Naturiol Cymru
Natural Resources Wales

Usk CAMS Area

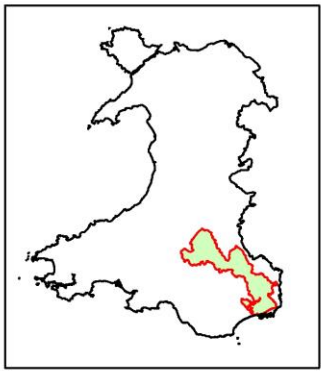


Legend

- Assessment Points (numbered)
- Main Reservoirs
- Usk Catchment Main Rivers
- Surrounding CAMS Areas
- Usk CAMS Area

0 1.5 3 6 9 km

N



Content

1. About the Licensing Strategy

This **Licensing Strategy** sets out how water resources are managed in the River Usk 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 our general licensing principles.

This strategy has been issued in July 2017 and it supersedes the strategy issued in March 2007 and the December 2010 update.

We now assess water resources at a sub-catchment level called water bodies in line with the Water Framework Directive. This means that we can provide more detailed information on the availability of water resources in the Usk Catchment Abstraction Management Strategy (CAMS) area compared to the scale used in the previous strategy.

This licensing strategy has been produced following the outcome of the River Usk Special Area of Conservation Habitats Directive Review of Consents process.

1.1 When is an abstraction licence required?

You need a licence from us if you want to abstract more than 20m^3/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 then please contact:

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

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 Usk 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 Usk HDRoC significantly affect the management of water resources in the Usk catchment. The results of the Usk 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.

The CAMS process incorporates the WFD principles and contributes to the WFD objectives 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 Usk catchment can be found on the Natural Resources Wales' web pages at 'Improving Water Quality'. The division of the River Usk 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. Usk CAMS Area

2.1 The CAMS area

The Usk CAMS area extends from the mountainous landscape of the Brecon Beacons in the north to the low-lying agricultural land in the south. It is predominantly a rural landscape. It includes the River Usk and its tributaries, along with the Sor Brook and Malpas Brook, which both drain directly into the Usk Estuary. It also includes the low-lying shoreline of the Caldicot levels (Map 1). The catchment is of considerable ecological, agricultural and recreational value.

The River Usk is approximately 121km long and the catchment size 1,169km^2. The climate is mild and wet, receiving an annual average rainfall of 1,700mm in the uplands and 1,100mm in the lowlands compared with 1,310mm for Wales as a whole. The upper part of the Usk catchment has a flashy flow regime, as a result of rapid rainfall runoff caused by the steep sided narrow valleys and thin soils underlain by mainly impermeable rock. This gives rise to the lower reach flood plains becoming inundated during periods of heavy rainfall. The lower Usk tends to be less responsive to rainfall due to the larger catchment area and lowland relief, and is a rare example of a large lowland river which has not been subject to significant modification by man.

The catchment is underlain by solid rocks ranging in age from the Silurian to the early Jurassic (approximately 420 to 200 million years Bp). These are locally overlain by a thin veneer of unconsolidated Quaternary deposits dating from the last Ice Age and also sediments laid down by the modern river system (approximately 122 000 to 0 years Bp). The main aquifers in the Usk CAMS area are the Old Red Sandstone (ORS), Carboniferous Limestone and drift materials outcropping along the river valley floors. Groundwater contributions to river flows are modest, mainly emanating from the Old Red Sandstone, the Coal Measures or from sands and gravels along the river channels.

Artificial influences, in particular reservoirs in the upper catchment and water company abstractions and discharges in the lower catchment, affect the flow regime of the River Usk.

2.2 Main water resources pressures

Surface water is the main abstraction resource, with less than 1% of the total daily volume licensed for abstraction coming from groundwater aquifers.

The most significant abstraction pressure in the River Usk catchment is public water supply. Abstraction for this purpose accounts for approximately 94%[1] of the catchment's total annual abstraction. The catchment is a key strategic resource for supplying potable water to much of South East Wales and an extensive system of

[1] This data includes unlicensed abstractions.

water transfers has been developed to distribute this water across the region. There are six public water supply impoundment reservoirs in the catchment. These comprise the Usk and Crai reservoirs located in the headwaters; the Talybont (designated a Site of Special Scientific Interest SSSI) and Grwyne Fawr reservoirs in the catchment's mid reaches; Llandegfedd reservoir (designated a SSSI) at the head of the Sor Brook; and the Pantyreos Reservoir in the Malpas Brook catchment.

Compensation flow releases are made from the Usk, Crai, Talybont, Grwyne Fawr and Llandegfedd reservoirs; these artificially increase low flows above what would naturally occur. The Usk reservoir is utilised by Dŵr Cymru Welsh Water as a 'put and take' reservoir at times of low flows; water is discharged from the reservoir for abstraction lower down in the catchment at Usk town. The presence of the reservoirs results in reduced downstream flow variability affecting the middle and lower flow range. These supported flows means that the River Usk has unnaturally high 'low' flows and that the river environment is most vulnerable at medium flows.

There are a large number of agricultural licences within the catchment, however they represent a small percentage of the total daily volume authorised for abstraction. Along with industrial and amenity / environmental purposes, agricultural accounts for less than 1% of the total annual licensed abstraction. The number of hydropower generation licences has steadily increased within the catchment, currently accounting for 6% of the total annual licensed abstraction.

Another significant abstraction in the catchment is the supply of water to the Monmouthshire and Brecon Canal at Brecon for navigation purposes. This abstraction is currently licence exempt. The abstraction is managed by an informal operating agreement between Natural Resources Wales and the Canal and River Trust (CRT). There are several smaller licence exempt abstractions that support flow in the canal. Surface water transfers into the canal account for 3%[1] of the total volume abstracted within the CAMS Area.

CRT's current abstractions will be brought into the abstraction licensing regime in the near future under the 'New Authorisations' (NA) process, which involves the removal of exempt abstractions.

2.3 Ecological importance

The River Usk and its tributaries provide an important wildlife corridor, an essential migration route and key breeding area for many nationally and internationally important species. Its character spans a wide range of types from an upland base-poor stream to a large lowland river with an extensive tidal reach. Its ecological diversity is a product of its geology, soil types, adjacent land use and hydrology.

The designation of the main river, its upper tributaries and estuary as Sites of Special Scientific Interest (SSSIs) and a riverine Special Area of Conservation (SAC) is in recognition of the ecological value of the River Usk. This SAC designation is for the habitat it provides for the following nine nationally and internationally important species, which are rare or threatened within a European context - Atlantic salmon,

bullhead, allis shad, twaite shad, brook lamprey, sea lamprey, river lamprey, European otter and water crowfoot.

The River Usk and its tributaries also support UK Biodiversity Action Plan (BAP) species, many of which are at risk from abstraction. Species include otter, water vole, twaite and allis shad, river lamprey, white-clawed crayfish, bats and river jelly lichen, common frog, toad, palmate and smooth newt. Other species within the system depend on still waters and damp / wet habitats and are equally vulnerable to changes in hydrology and groundwater levels such as the marsh fritillary butterfly.

The River Usk salmon and brown trout fisheries are of national importance. The river is renowned as a brown trout fishery throughout its catchment and is probably the best wild brown trout river fishery in Wales. It is also the most important salmon fishery in Wales. Salmon are distributed along its entire length. They spawn in most of the tributaries and in the main river down to Usk town. There is a small but significant run of sea trout in the Usk. They tend to spawn in a few of the tributaries, notably the Hydfer at the top of the catchment, and the Sor Brook and Olway Brook at the lower end of the catchment. The River Usk coarse fishery is of lower to comparable quality to the neighbouring River Wye and lower River Taff. Species include chub, dace, roach, gudgeon and some perch and barbel. Large numbers of elvers migrate up the river with spring tides.

The majority of the River Usk tributaries support aquatic plant communities typical of moderately nutrient rich waters. Extensive areas of semi-natural riparian habitats can still be found next to the tributaries. These include semi-natural woodland, dry and marshy grassland, stands of tall fen and marsh vegetation and gravel banks.

There is a good representation of wetland habitat pockets and associated species, despite the significant loss of wetland habitat as a result of development pressures, wet habitat types in addition to the river and its tributaries include lakes and reservoirs, fens, reed beds, ponds, rhos pasture, blanket and raised bog, wet woodland and wet heath.

The Monmouthshire and Brecon Canal also represents an important biodiversity resource in the Usk catchment.

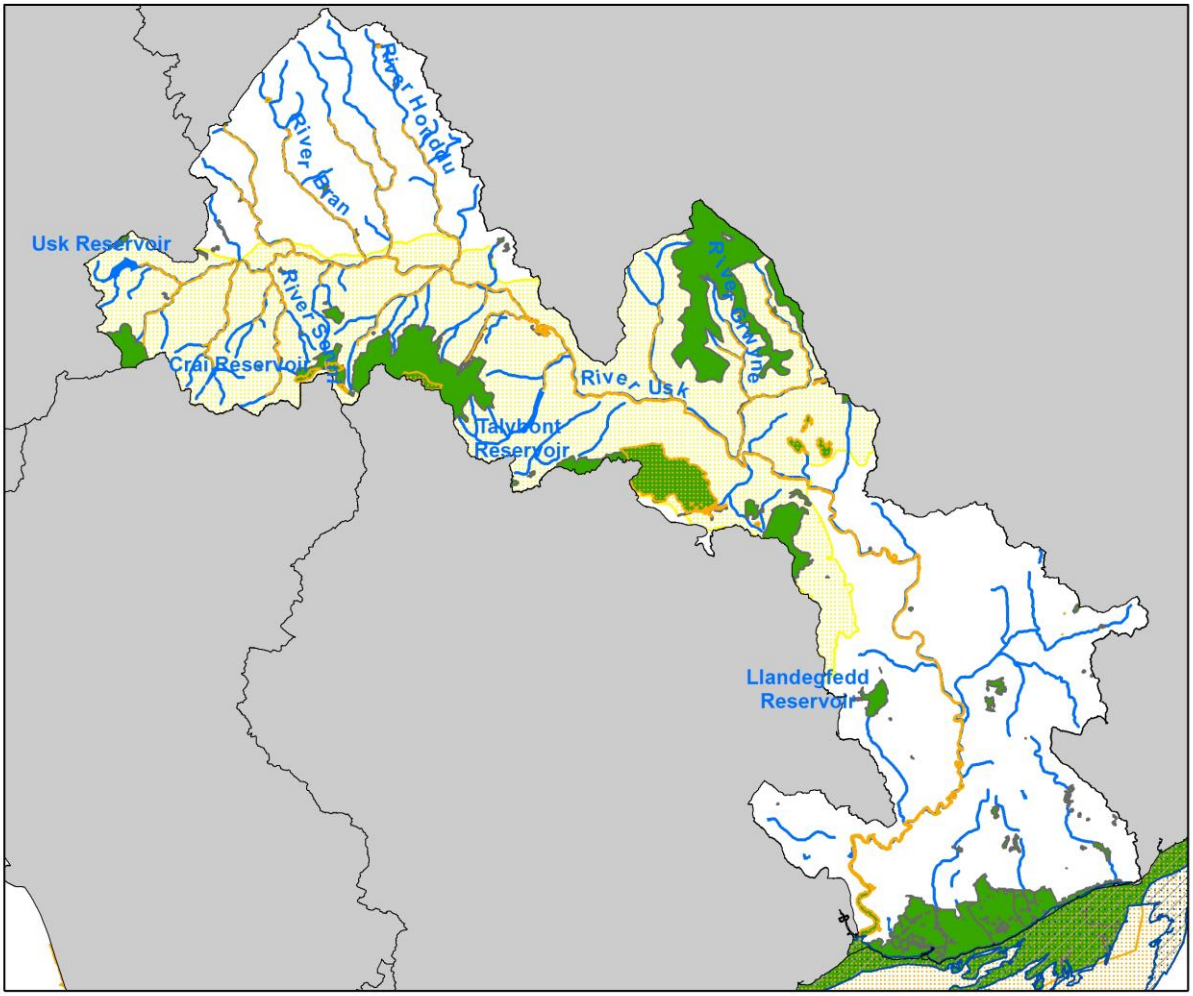
The River Usk flows into the Usk Estuary and subsequently the Severn Estuary, which is designated as a SSSI, a Habitats Directive Special Protection Area (SPA) and SAC. The Severn Estuary is included on the list of wetlands of international importance under the Ramsar Convention (Ramsar Site).

The main designated sites are shown on Map 2.

Map 2 Designated sites in the River Usk CAMS Area

Cyfoeth Naturiol Cymru
Natural Resources Wales

Usk CAMS Area Designated Sites



Legend

- Special Protection Areas
- Special Areas of Conservation
- Ramsar Sites
- Sites of Special Scientific Interest
- Brecon Beacons National Park
- Usk Main Rivers
- Main Reservoirs
- Usk CAMS Area

3. Water Resource Availability in the Usk 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. We 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 and known as the Environmental Flow Indicator (EFI).

As a result of the designation of the River Usk as a SAC, the EFI for the main River Usk and its tributaries upstream of the tidal limit has been apportioned a higher environmental protection suitable for the SAC species and their habitats. Whereas the catchments of the Sor and Malpas Brooks have a CAMS EFI determined for non-designated rivers.

3.2 Resource availability

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.

3.2.1 Surface water

To show catchment resource availability we use 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 reflects average flow conditions. There are 18 CAMS APs in the Usk CAMS area. Resource availability at the water body sub-catchment level is derived based on a simple interpolation between CAMS APs.

The Usk CAMS area water resource availability colours and licensing implications are explained in Table 1. Resource availability at the water body scale is shown in Maps 3 and 4.

Following the HDRoC, water availability in the River Usk catchment upstream of the tidal limit is very limited. We have recovered water authorised to be abstracted from several licences in the catchment for the SAC riverine environment and this water is now protected from being licensed for future abstraction. This means that for consumptive abstraction, water may only be available at high flows (Map 4).

Our HDRoC and CAMS assessments have also shown that flows below the Usk and Talybont Reservoirs are significantly affected by the presence of the reservoirs, even though both reservoirs have statutory compensation releases to mitigate for the presence of the dams. At low flows the compensation releases elevate flows above natural but at all other times, flows are less than what would naturally occur in the watercourses below the dams. Alterations to the releases from Usk and Talybont Reservoirs are being managed through the outcomes of the HDRoC and WFD projects. However, the River Usk reach below Usk Reservoir and the Nant Caerfanell below Talybont Reservoirs are now closed to any consumptive abstraction (Maps 3 & 4).

Water resource availability colour	**Implication for licensing in the Usk CAMS Area**
Water available for licensing	At these flows shown on Maps 3 & 4, there is more water than required to meet the needs of the environment. New licences will be considered depending on local and downstream impacts (refer to Section 4.2). • Consumptive licences can be issued but will have abstraction restriction conditions, and • Non-consumptive licences can be issued but local flow restrictions will be applied.

Restricted water available for licensing	At these flows shown on Maps 3 & 4, 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 on Maps 3 & 4: • No further consumptive licences will be granted. • Non-consumptive licences can be issued but local flow restrictions will be applied. In this situation, water may be available if you can 'buy' the entitlement to abstract water from an existing licence holder (known as licence trading, see Section 4.7). We are managing this risk of environmental deficit under the Restoring Sustainable Abstraction Programme (see Section 4.8).
Water not available for licensing	At these flows shown on Maps 3 & 4, the amount of water that is actually abstracted and / or the presence of a reservoir, compromises the flow needs of the riverine ecology. Flows in water bodies are below the indicative flow requirement to help support WFD and / or HD ecological objectives. This means at the flows stated on Maps 3 & 4: • 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. We are addressing / managing these environmental deficits under the Restoring Sustainable Abstraction Programme (see Section 4. 8).

Table 1: Implications of surface water resource availability colour

3.2.2 Groundwater

Groundwater resource availability needs to be assessed on a case by case basis on application for a groundwater abstraction licence. The differing nature of the aquifers across the area, from fractured limestones to mudstones, to drift deposits means that the volume of water that can be abstracted from the strata will be naturally highly variable.

Across the catchment, there is limited information on the degree of connection between the watercourses and the regional groundwater. It is assumed that

regionally groundwater discharges into the streams and rivers within the catchment (mirroring the topography), providing baseflow to the watercourses. However, the rocks present within the catchment record several phases of tectonic deformation, uplift and erosion resulting in structural folds and faulting. These structural features are likely to influence groundwater flow within them.

Groundwater abstraction from sediments present along the valley floors would likely have a direct impact on watercourses and therefore be subject to the same licensing controls as surface water. In this case, groundwater resource availability would be represented by the surface water resource availability colours (Map 3).

The only Principal aquifer within the area is the Carboniferous Limestone, but outcrops are limited to the eastern edge around Llangynidir, Llangattock and Llanover (south of Abergavenny) and in the south around Chepstow. These rocks are capable of supporting large scale abstractions for commercial and public water supply and can in places provide a significant baseflow to local watercourses. Across the rest of the Usk CAMS area the rocks are classed as Secondary aquifers as well as the drift deposits located along the valley floors. These rocks 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 baseflow to rivers. In places, these rocks are able to support larger scale commercial and public water supply abstraction.

On a local scale the groundwater and surface water interactions are likely to be complex and dependant on the groundwater level, river stage, permeability of the river sediment beds and the aquifer properties.

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 and may be applied. Abstraction reliability information is based on CAMS resource availability colours and is a way of presenting the reliability of new consumptive abstractions.

Map 5 gives an indication of the resource reliability in the Usk catchment expressed as a percentage of time. It shows where water availability may be more reliable and therefore available for a greater percentage of the year than other areas.

Based on the current licensed scenario (CAMS FL) and the need for a high level of environmental protection of the River Usk SAC species and their habitats, a newly licensed consumptive abstraction from the River Usk catchment, upstream of the tidal limit, could be restricted for up to 314 days (86% of the time) in an average year.

What this means is that water is only available for consumptive abstraction at very high river flows and you may only have 51 days in the year when water could be available for abstraction. More than likely this availability will be during the winter

months. If we have a low rainfall, dry winter, then the number of days you may be able to abstract could be less than 51 days.

Water availability within the Malpas Brook catchment is also limited due to the quantity of water already licensed in this catchment. A newly licensed consumptive abstraction could be restricted for up to 266 days (73% of the time) in an average year and up to 313 days (86% of the time) in a dry year. Abstractions are most likely to be restricted from spring to autumn as these are the periods when we tend to see lower river flows which trigger the abstraction restrictions.

A newly licensed consumptive abstraction from the Sor Brook catchment could be restricted for up to 18 days (5% of the time) in an average year and up to 93 days (25% of the time) in a dry year.

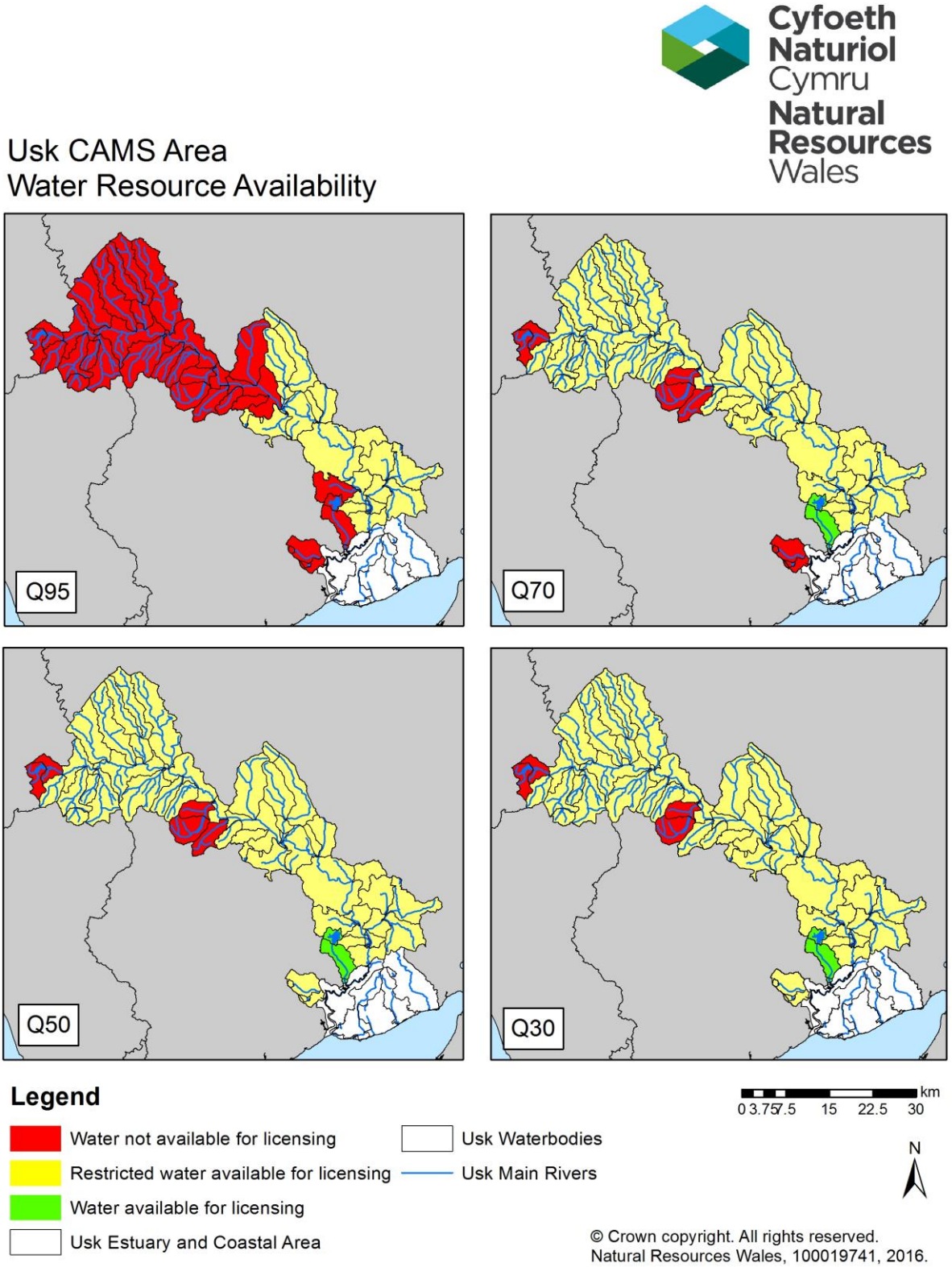
As there is only a moderate groundwater baseflow component to the surface watercourses in these catchments, river flows are responsive to rainfall events including lack of rainfall.

The above indicative figures do not apply to non-consumptive abstraction (surface water and groundwater) or a consumptive groundwater abstraction if assessed not to have a negative impact on designated and local species and / or habitats or other existing water users. In these instances application of abstraction constraints will be assessed on a case by case basis and resource reliability discussed with you on submission of an application.

These reliability figures are indicative and do not take into account times of drought when the number of days abstraction may not be possible will be greater.

This section aims to highlight that abstraction of water will not be available for a significant proportion of the year across most of the River Usk catchment. 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 storage.

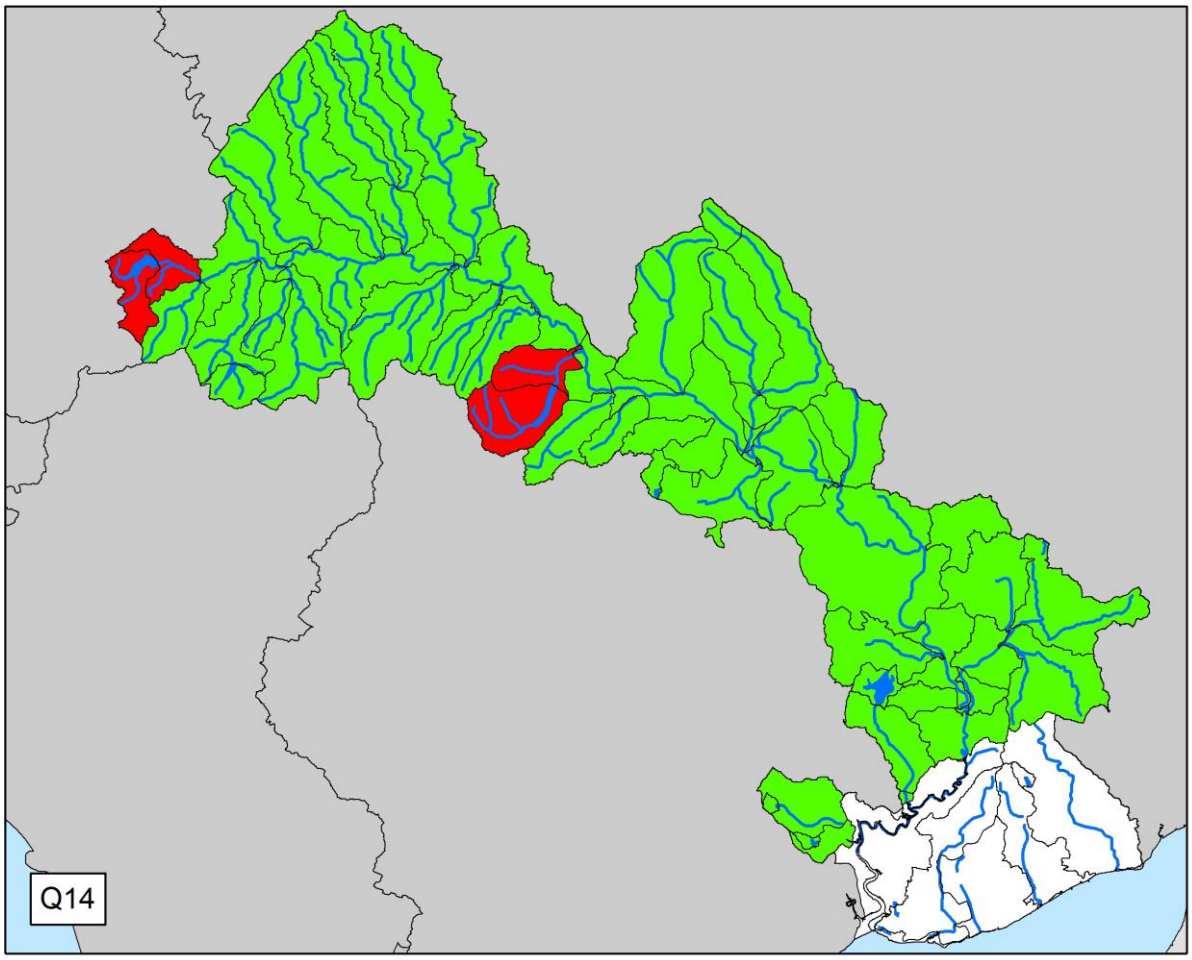
Map 3 Water resource availability colours for the Usk CAMS



Map 4 Water resource availability colours for the Usk CAMS at Q_{14}

Cyfoeth Naturiol Cymru
Natural Resources Wales

Usk CAMS Area
Water Resource Availability at Q14



Legend

- Water available for licensing
- Water not available for licensing
- Usk Estuary and Coastal Areas
- Usk Main Rivers
- Usk Waterbodies

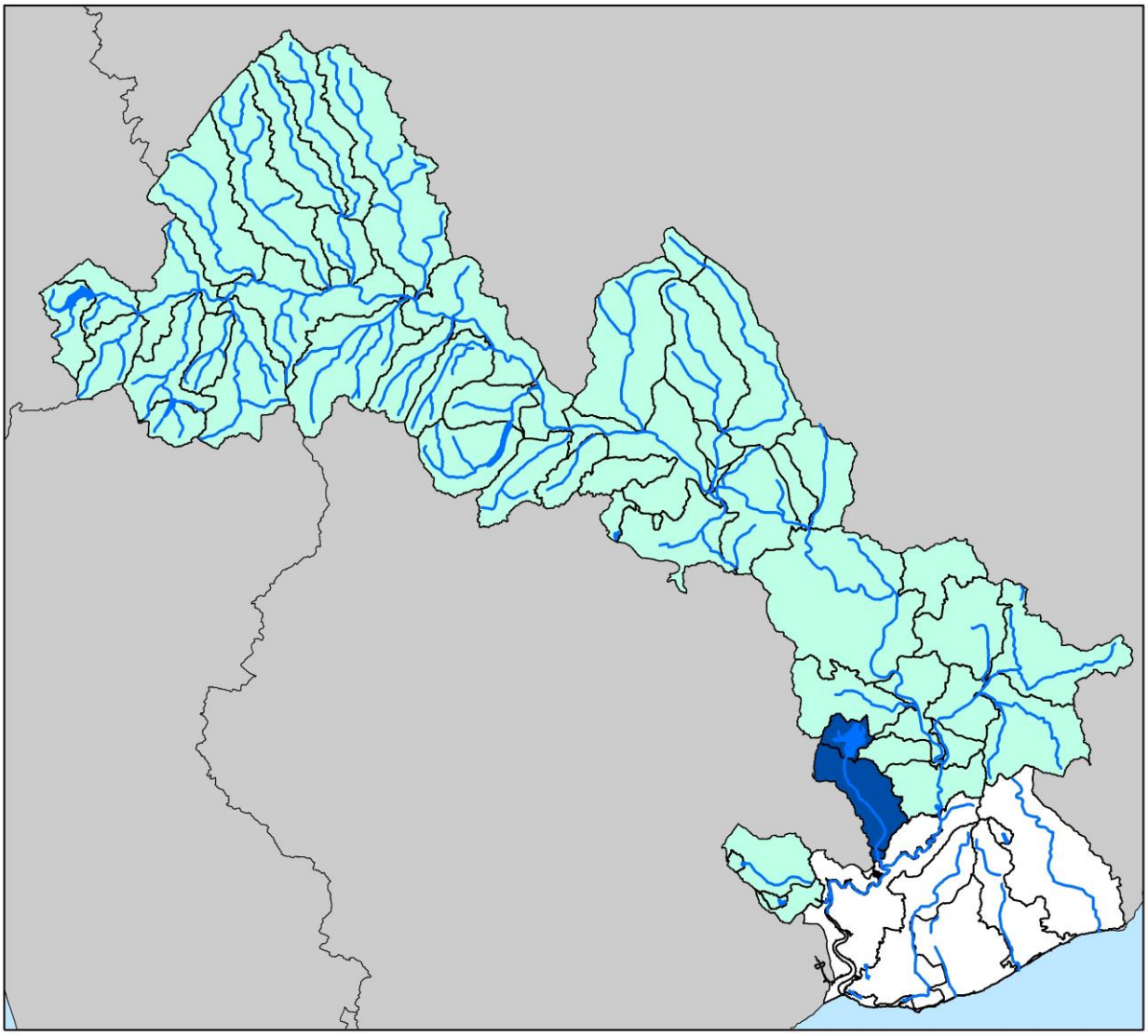
0 1.753.5 7 10.5 14 km

N

Map 5 Water resource reliability in the Usk CAMS

Cyfoeth Naturiol Cymru
Natural Resources Wales

Usk CAMS Area
Resource Reliability (% of time)



Legend

- Water resources available at least 95%
- Water resources available at least 70%
- Water resources available at least 50%
- Water resources available at least 30%
- Water resources available less than 30%
- Usk Main Rivers
- Usk Waterbodies

0 1.5 3 6 9 12 km

N

4. How we manage abstraction in the Usk CAMS Area

4.1 National licensing principles

If you want to abstract water in the Usk CAMS area this section outlines the licensing principles we follow in assessing your application for a licence.

Further information can be found on our website at;

Natural Resources Wales / Water abstraction and impoundment licensing

Abstraction licence application process
Anyone wanting to take more than 20m^3/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.

Pre-application Enquiry
We offer pre-application enquiry advice prior to submitting a formal application. This gives us a good idea about the proposal before a formal application is submitted. The benefit of completing a pre-application enquiry prior to a formal application is that we will be able to consult on the applicant's proposal and indicate to the applicant how successful the application is likely to be. We can inform the applicant of any potential show stoppers or surveys that would be required to support a formal application along with other useful information regarding advertising costs / requirements and timescales.

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 formal 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 will 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 (see section 4.8).

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 a groundwater level below which an abstractor is required to reduce or stop abstraction.

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 renewal 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.

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 19% of abstraction licences in the Usk CAMS area are time-limited.

The current CED for the Usk CAMS is 31st March 2026.

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 licensing policy

Any application for a new licence or upwards variation to an existing licence will need consideration as to its impact on the River Usk SAC depending on location. 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 Usk SAC. Whilst there are tributaries of the River Usk catchment upstream of the tidal limit not included within the SAC designation, abstractions in these areas still have the potential to impact the SAC. These tributaries provide supporting habitat and flow into the River Usk SAC.

The following subsections outline our current licensing policy in the following Usk CAMS area:

4.2.1 River Usk catchment upstream of the estuarine tidal limit
4.2.2 Malpas Brook catchment
4.2.3 Sor Brook catchment

Surface water licensing policy common to all three catchments:

- All licence applications will be considered on a case by case basis.
- The protection of designated features (e.g. SAC, SSSI, UK BAP, and 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 new consumptive licences will be issued with flow restrictions.
- An appropriate HOF reference location will be determined as part of the licence application. For consumptive abstractions it may be a local HOF or the equivalent flow at a relevant gauging station. There are a number of gauging stations in the Usk CAMS Area. Gauging station location will be confirmed upon your application.

- 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 2026 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.
- 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,
  - renewals 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 replaced or is to be replaced 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).

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 may still be restricted 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.

4.2.1 Usk catchment upstream of tidal limit at Newbridge

There is very limited water availability in this catchment after application of the outcome of the Habitats Directive Review of Consents (see Section 4.8).

For new surface water licences, the following flow restriction will apply:

- For a new consumptive licence, the current HOF restriction is equivalent to 4,000 Ml/d (880 mgd) at Trostrey gauging station on the River Usk. Our main HOF is measured at Trostrey gauging station but other gauging stations in the catchment may be more appropriate to be included on a licence 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 4,000 Ml/d (880 mgd) at Trostrey gauging station.
- For a non-consumptive licence, the HOF restriction applied will be dependent on site specific conditions.

For **existing licences**, the following flow restriction will apply:

- Any existing consumptive licence where the licence holder formally applies to increase the permitted abstraction volume will be subject to the 4,000 Ml/d (880 mgd) at Trostrey gauging station on the River Usk on the increased part of the licence only.
- For a quantity increase on a non-consumptive licence, the HOF restriction applied will be dependent on site specific conditions.

4.2.2 Malpas Brook catchment

We have concerns about water availability in this catchment; the catchment currently has over committed resources.

For new surface water licences, the following flow restriction will apply:

- For a new consumptive licence, water is only available at high river flows. The current HOF restriction is equivalent to 24.5 Ml/d (5.4 mgd) at CAMS AP – AP18. An appropriate HOF measurement location will be determined as part of a licence application.
- For a non-consumptive licence, the HOF restriction applied will be dependent on site specific conditions.

For **existing licences**, the following flow restriction will apply:

- Any existing consumptive licence where the licence holder formally applies to increase the permitted abstraction volume will be subject to the 24.5 Ml/d (5.4 mgd) at CAMS AP – AP18 on the increased part of the licence only.

- For a quantity increase on a non-consumptive licence, the HOF restriction applied will be dependent on site specific conditions.

4.2.3 Sor Brook catchment

There is water available for licensing in this catchment during all flows except low flows.

For new surface water licences, the following flow restriction will apply:

- For a new consumptive licence, the current HOF restriction is equivalent to 3.7 Ml/d (0.8 mgd) at CAMS AP – AP1. An appropriate HOF measurement location will be determined as part of a licence application.
- For a non-consumptive licence, the HOF restriction applied will be dependent on site specific conditions.

For **existing licences**, the following flow restriction will apply:

- Any existing consumptive licence where the licence holder formally applies to increase the permitted abstraction volume will be subject to the 3.7 Ml/d (0.8 mgd) at CAMS AP – AP1 on the increased part of the licence only.
- For a quantity increase on a non-consumptive licence, the HOF restriction applied will be dependent on site specific conditions.

4.3 Hydropower licensing policy

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

Hydropower licence applications are determined in line with Natural Resources Wales' hydropower policy, updated in 2014. Details of the new standards and guidance on flow availability can be found at Natural Resources Wales hydropower website pages.

4.4 Groundwater licensing policy

Due to the low number of existing groundwater abstractions and low demand for new groundwater abstractions within the Usk catchment, there isn't a separate groundwater licensing policy. 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 Usk SAC. Licences will be granted based on the following principles:

- 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 wetland sites and watercourses, and other groundwater users.
- HOF or HOL restrictions may be applied to the licence.
- 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).
- Surface water availability may override local groundwater availability if it is demonstrated that the abstraction impacts river flows. This means that the surface water HOF restrictions outlined in section 4.2 will apply. The appropriate HOF location will be based on the point of impact of the groundwater abstraction and determined during the licence application process.
- We will not issue a licence that would cause deterioration in the ecological quality of a water body.
- Where a groundwater application is found to adversely impact flows in the River Usk SAC then the surface water HOF equivalent of 4,000 Ml/d (880 mgd) at Trostrey gauging station on the River Usk 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.
- As more of the 'available' water is allocated to consumptive abstractions, 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 2026 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, and
  - 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,

  - 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 applying for a licence. Anybody wishing to obtain such consent should contact us. On completion the water features survey and test pumping results will need to be submitted to us 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 licensing policy

Due to the ecological importance and environmental designations of the River Usk and River Severn estuaries we have an obligation to protect their environmental needs including their fresh water flow requirements. Any application for a new licence or upwards variation to an existing licence within the estuarine and coastal areas of the Usk catchment will need consideration as to its impact on the Usk and Severn estuaries.

Estuaries
Estuaries are not included in the CAMS resource assessment as tidally influenced waters cannot be assessed in the same way as inland waters. Surface water abstraction from the Usk Estuary is not considered to require the same level of protection as that required for the area upstream of the tidal limit. This means that water may be available for abstraction at a wider range of flows. The tidal limit of the Usk Estuary is at Newbridge-on-Usk (NGR ST 38564 94729); shown on Map 1.

Applications for abstractions from tidally influenced waters will be assessed on a case-by-case basis. The protection of Usk Estuary designations (SAC, SSSI), will be taken into consideration.

Coastal streams
Many coastal streams within this CAMS area and streams draining into the Usk estuary have not been assessed using the CAMS resource assessment. 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 plains within the Usk CAMS area that are water level dependent, collectively known as the Caldicot Levels (Map 6). Overall, the Gwent Levels span from west to east between Cardiff and Chepstow along the low lying plain of the Severn Estuary of which the Caldicot Levels are part of. The Levels are managed by Natural Resources Wales in a way that supports a variety of functions, including land drainage, reducing flood risk, agriculture, conservation and development. Within the Usk CAMS' Caldicot Levels there are four SSSIs.

Abstraction is managed in the Levels as reducing the amount of water available in this managed water system could lower the water table, resulting in the risk of land subsidence.

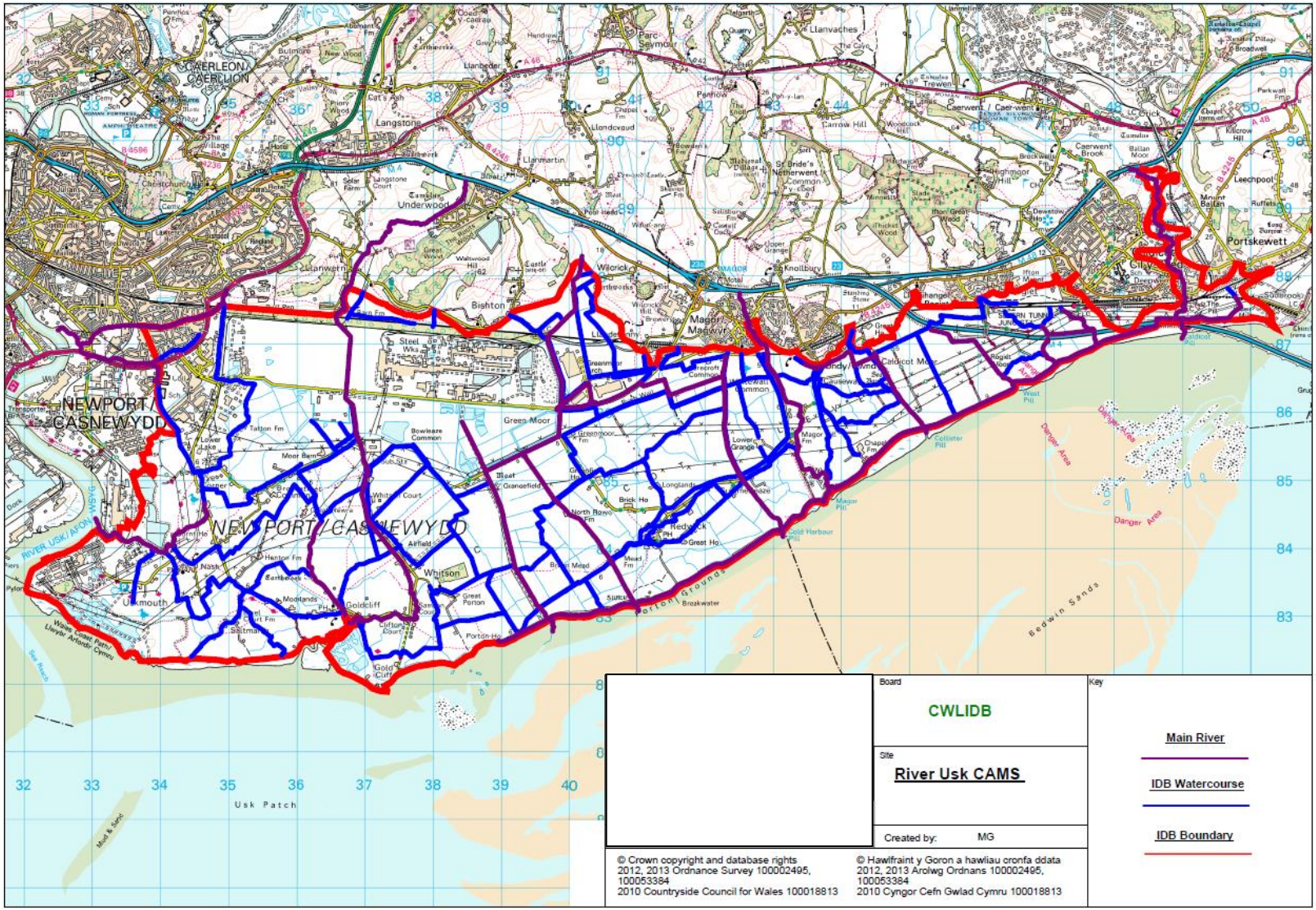
Please contact us if you wish to abstract from the Levels so that we can advise you on your application.

4.6 Impoundment licensing policy

Applications for impoundment licences will be dealt with on a case-by-case basis and take into account the requirements of our statutory 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 us 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 and can be found by following the 'other websites' link given on our web page at: Natural Resources Wales / Apply for a water abstraction or impoundment licence.

Map 6 Usk CAMS Water Level Dependent Areas



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 Usk CAMS based on the water resource availability colour (Map 3 and Map 4).

CAMS water resource availability colour	**Our approach to trading in the Usk catchment**
Water available for licensing	Trading acceptable.
Restricted water available for licensing	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. Once this limit is reached, we will then only allow trades of recent actual abstraction (i.e. the quantity of water traded cannot exceed the quantity currently abstracted).
Water not available for licensing	We will only trade recent actual. No increase in recent actual abstraction is permitted in a water body. We may recover unused water for the environment as part of a trade.

Table 3: Potential for licence trading in the Usk 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 Section 4. The final decision on whether trading would be allowed lies with Natural Resources Wales.

To find out more about licence trading please go to the www.gov.uk website.

4.8 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 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 website.

The RSA programme has provided us with a framework for undertaking WFD water resources investigations. We are currently investigating whether reduced river flow caused by licensed abstraction may be contributing to environmental concerns within water bodies, under the principles of this Directive. Options on how to improve the sustainability of an abstraction 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 (as 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 abstractions in the Usk CAMS area, through the Habitats Directive Review of Consents (HDRoC) process, as to their likely significant effect on the River Usk SAC, its estuary and the River Severn Estuary SAC. The assessment included both licensed and abstractions exempt from licensing control, to ensure that changes to licensed abstractions, if necessary, were proportional to their effects on the SAC.

The conclusion of the review was that there were a small number of licences found to pose a risk, alone and in-combination, on the River Usk SAC site integrity based on the quantities authorised to be abstracted and unscreened abstraction intakes. These licences require modifications to remove these risks and restore flow in the river. We are working with the licence holder to amend their licences. When we recover a quantity of water from an existing licence, that water is protected for the environment and is not available for future licensing.

4.9 Removal of exempt activities

The Water Act 2003 made some changes to the way we need to regulate abstractions and impoundments. These changes include the removal of existing exemptions for particular activities (referred to as 'New Authorisations'), bringing

them into the water abstraction licensing system. The exemptions that will be removed are as follows:

- all forms of irrigation (other than spray irrigation, which is already licensable) and the use of land drainage systems in reverse to maintain field water levels
- warping (abstraction of water containing silt for use as fertiliser)
- dewatering of mines, quarries and engineering works
- abstraction of water in to Internal Drainage Districts
- transfers of water by navigation, port and harbour authorities
- abstractions within currently geographically exempt areas
- majority of abstractions covered by Crown and visiting forces exemptions

These changes will allow us 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 approximately 2 months before commencement so that we can issue guidance to those affected by the changes.

Existing licence exempt abstractors are encouraged to maintain records of water abstracted to ensure they can justify the quantities they wish to apply for when the exemptions are removed and these abstractions are bought into the licensing regime.

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.

Exempt abstractions in the River Usk catchment

There are a few licence exempt purposes in the Usk catchment. The principle abstractor is the Canal and River Trust who abstract from surface watercourses to supply the Monmouthshire and Brecon Canal.

In addition, there are geographical licence exempt areas within the Usk CAMS catchment. These exempt areas are detailed in the Usk River Authority (Exceptions from Control) Order 1973 and fall within the Brecon Area. Abstractions from inland waters in this area, which are not coloured blue on the ‘Order’ maps, do not currently require a licence. This will change with commencement of licensing control under the Water Act 2003.

4.10 Future changes to the current licensing system

Following formal joint consultation in 2014 with Defra, the Welsh Government has now published their consultation response which sets out plans for introducing a reformed abstraction management system in Wales in the early 2020s. The consultation response sets out how the new system will balance the needs of different water users and the environment in the face of pressures from climate

change and increasing water demand. More information can be found on the Welsh Government website and Defra links within.

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	A geological formation, group of formations or part of a formation that can store and transmit water in significant quantities.
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 to 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 (ie. 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 United Kingdom's Technical Advisory Group (UKTAG).
Flashy	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.
Flow regime	The statistical pattern of a river's constantly varying (mean daily) flow rates.
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.
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.
Q95	The flow of a river which is equalled or exceeded on average for 95% of the time. Thus Qx is x% of the time.
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

AP	Assessment Point
BAP	Biodiversity Action Plans
Bp	Before present
CAMS	Catchment Abstraction Management Strategies
CED	Common End Date
CWIDB	Caldicot and Wentlooge Internal Drainage Board (now incorporated into NRW)
EFI	Environmental Flow Indicator
FL	Full Licensed (scenario)
HDRoC	Habitats Directive Review of Consents
HOF	Hands-off Flow
HOL	Hands-off Level
Ml/d	Mega litres per day
mgd	Million gallons per day
NGR	National Grid Reference
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
WFD	Water Framework Directive