South East Valleys Abstraction Licensing Strategy

A licensing strategy to manage water resources sustainably

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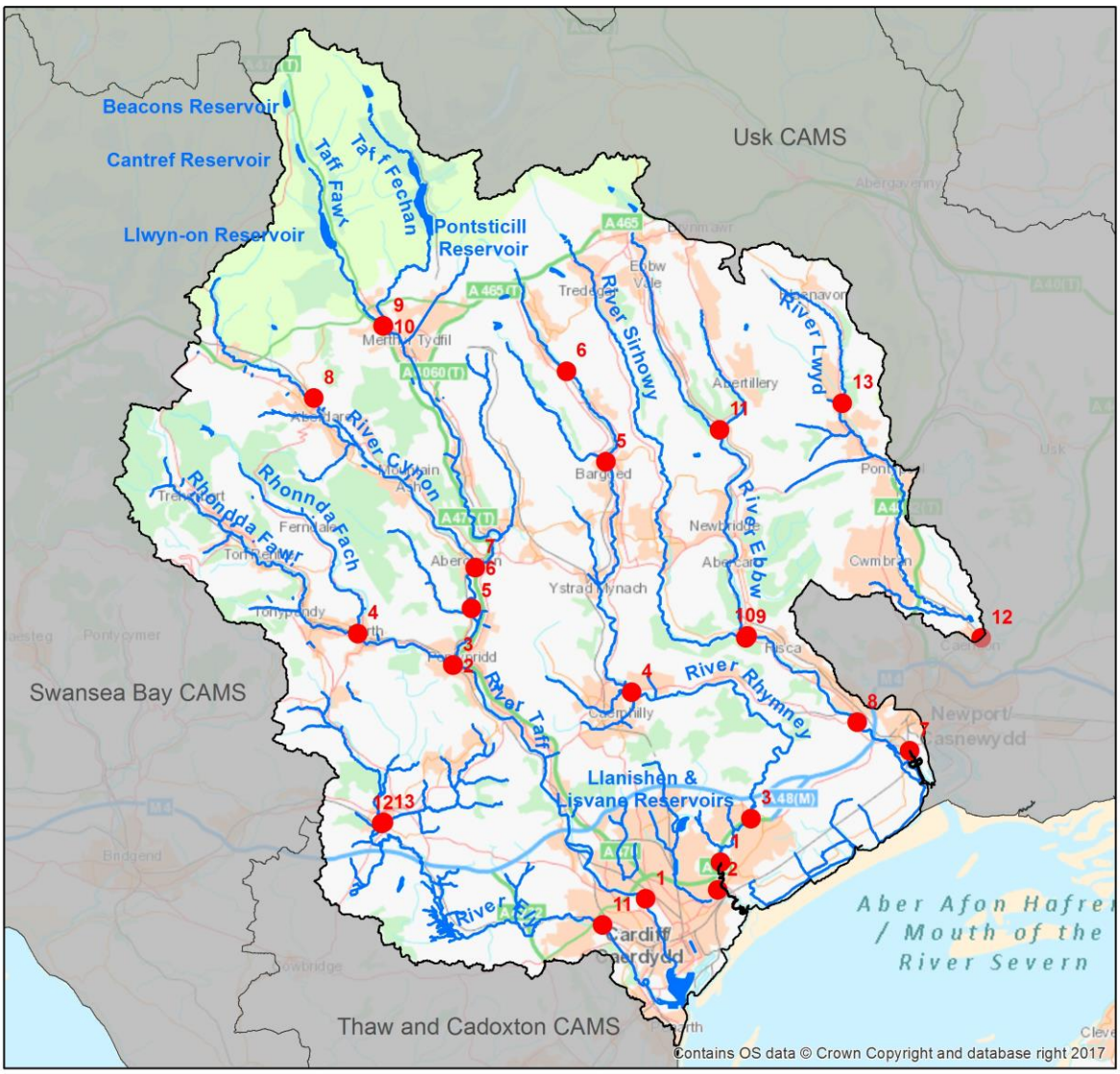
Map 1: South East Valleys Catchment Abstraction Management Strategy Area

Cyfoeth Naturiol Cymru
Natural Resources Wales

South East Valleys CAMS Area



Legend

- Assessment Points (numbered)
- Main Reservoirs and Lakes
- South East Valleys Catchment Main Rivers
- Surrounding CAMS Areas
- South East Valleys CAMS Area

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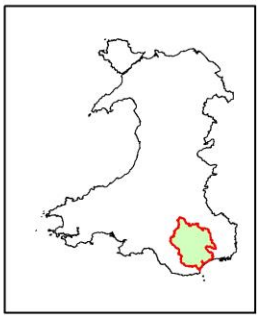


Contents

1. About the Licensing Strategy

This **Licensing Strategy** sets out how water resources are managed in the South East Valleys river catchments (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 licensing principles.

This strategy was produced in November 2017 and it supersedes the individual strategies covering the Rhymney, Taff and Ely and Ebbw and Lwyd river catchments, issued in March 2006, June 2006 and August 2006 respectively. As well as 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 compared to the scale used in the previous strategies.

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 'source of supply' such as:

- river or stream
- reservoir, lake or pond
- canal
- spring or
- any 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 conditions. This helps to manage future

abstraction more sustainably and allows us to assess the sustainability of existing licences.

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 South East Valleys catchments can be found on the Natural Resources Wales' web pages at 'Improving Water Quality'. The division of the South East Valleys river catchments into their 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. South East Valleys CAMS Area

2.1 The CAMS area

The South East Valleys CAMS area encompasses approximately 1124 km^2 of mountainous terrain with steep river channels and heavily urbanised valley floors. The area includes the following major watercourses – Ely, Clun, Taff, Rhondda, Cynon, Clydach, Taff Bargoed, Rhymney, Roath Brook, Ebbw, Sirhowy, Lwyd and Dowlais Brook. The CAMS area also includes the Glamorgan canal and part of the Monmouthshire and Brecon canal (Map 1).

The CAMS area is predominantly managed grassland and forest with a large number of urban areas concentrated around Cardiff and into the South Wales Valleys. Cardiff Bay was created in 2000 by fully impounding the Rivers Taff and Ely.

The area is underlain by solid rocks that range from Silurian to Jurassic in age (approximately 428 to 180 million years Bp.). The solid geology is overlain by an irregular veneer of unconsolidated drift deposits of Quaternary age that were deposited during, and immediately after, the last ice age and in modern, post-glacial river systems (approximately 122,000 to 0 years Bp.)

The annual average rainfall for this CAMS area varies between 800 mm to 2300 mm, which is above average compared with Wales (1310 mm). The lowest annual average rainfall is in coastal areas and increases inland to the headwaters of the rivers in the uplands. The Valleys' rivers have a flashy flow regime due to steep sided narrow valleys, underlain by predominantly impermeable rock. The flashiness of the Valleys' rivers is compounded by the heavily urbanised valley floors. Artificial influences including, reservoirs, abstractions, discharges and minewater discharges affect the flow regime of the valleys' rivers.

2.2 Main water resources pressures

There is a moderate to low demand for abstraction licences in these catchments. Public water supply accounts for 53% of the total annual abstraction. The main pressures on water resources are centred on several public water supply reservoirs at the top of the Taff, Rhymney, Rhondda, Cynon, and Ebbw catchments, the maintenance of Cardiff Bay and the large unlicensed dock feeder abstractions from the downstream end of the Rivers Taff and Ebbw.

2.3 Ecological importance

The combined result of the underlying geology, the coastal location but with high inland topography and land management practices across the south wales valleys has produced a diverse variety of habitats. There are several designated sites which demonstrate the ecological importance of this CAMS area.

This CAMS area is valuable for butterflies, birds, amphibians and mammals. The UK Biodiversity Action Plan (BAP) priority species recorded in the area include great crested newts, the marsh fritillary butterfly, buttoned snout moth (classified as nationally scarce), the double line moth (classified as nationally scarce), otters and water voles.

The river corridor habitat is also important for breeding birds, which are protected by the Wildlife and Countryside Act 1981. A number of dragonfly species have also been recorded throughout the catchment.

Other water dependant habitats in the South East Valleys CAMS area include fens, reedbeds, ponds, rhos pasture, blanket bog, swamps, wet woodland, wet heath and floodplain marsh.

All the South East Valleys CAMS rivers eventually flow into the Severn Estuary. The Severn Estuary is designated as a:

- Ramsar site (Ramsar Convention on Wetlands of International Importance Especially as waterfowl Habitat)
- Special Protection Area (SPA) (EC Birds Directive 1979)
- Special Area of Conservation (SAC) (EC Habitats Directive 1992)
- Site of Special Scientific Interest (SSSI) (Wildlife and Countryside Act 1981(as amended)).

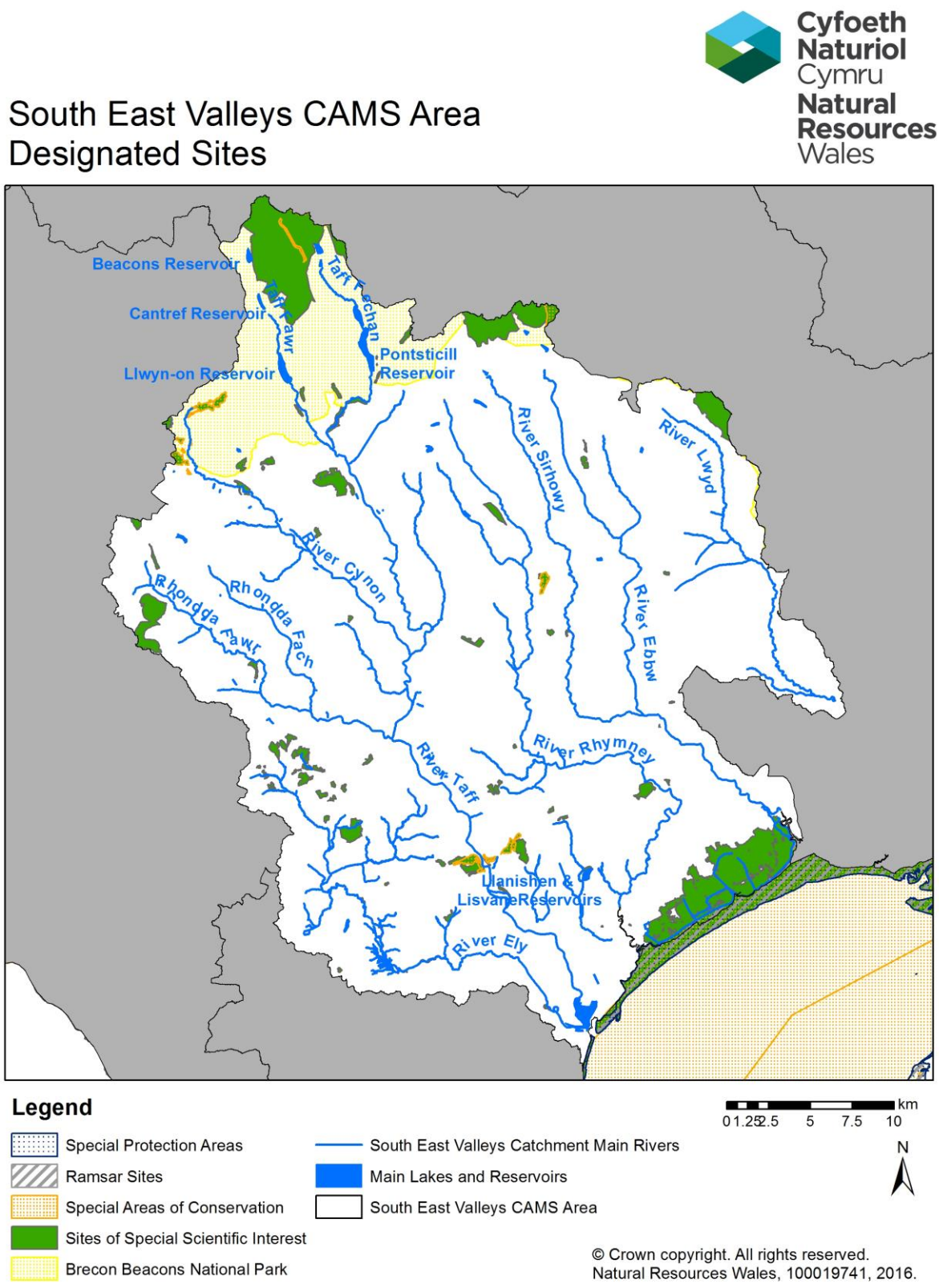
The Estuary's freshwater requirements need to be considered in the water resource management of rivers that discharge into the Estuary. To date there are no volumetric flow requirements given for the Estuary's freshwater needs.

The rivers of the South East Valleys and their tributaries provide good habitat for Eels as well as breeding and nursery areas for salmon, brown trout, coarse fish and bullhead. The Ebbw, Rhymney and Ely also provide breeding and nursery grounds for grayling and lamprey as well as the species listed above. Some rivers, especially the tributaries in the lower Lwyd, are important for native white clawed crayfish.

Part of the Brecon Beacons National Park also sits within the northern parts of the South East Valleys CAMS Area.

The main designated sites are shown on Map 2.

Map 2: Designated sites in the South East Valleys CAMS Area



3. Water Resource Availability of the South East Valleys 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 the natural flow and known as the Environmental Flow Indicator (EFI).

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 high flows reflect average flow conditions. There are 26 CAMS APs in the South East Valleys CAMS area – shown on Map 1 and listed in Tables 2 to 9. Resource availability at the WFD water body sub-catchment level is derived based on a simple interpolation between CAMS APs.

The South East Valleys 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.

After reviewing the CAMS process for this strategy, we have concerns about the amount of water abstracted within the catchments of the River Ebbw, River Taff, Roath Brook (Cardiff), Nant Glandulas (Cardiff) and the upper catchment of the River Rhymney. For new licensed consumptive abstraction in these catchments, water availability for abstraction is restricted.

Additional information on resource availability can be found in 'Managing Water Abstraction' accessed from our CAMS web pages under 'Other Websites'.

Water resource availability colour	**Implication for licensing in the South East Valleys CAMS Area**
Water available for licensing	At these flows shown on Map 3, 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 Sections 4.2 and 4.4). • 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 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 may 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).

Water not available for licensing	At these flows shown on Map 3, the amount of water that is actually abstracted and/or the presence of a reservoir(s), compromises the flow needs of the riverine ecology. Flows in these water bodies are below the indicative flow requirement to help support WFD ecological objectives. This means at the flows stated in Map 3: • No further consumptive licences will be granted. • Non-consumptive licences may 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 (see section 4.7). This environmental flow deficit is under review in the Restoring Sustainable Abstraction Programme (see Section 4. 8).

Table 1: Implications of surface water resource availability colour

3.2.2 Groundwater

There is limited data on groundwater levels and flows within the South East Valleys CAMS area. Groundwater resource availability will be assessed on a case by case basis on application for a groundwater abstraction licence.

The main aquifers in the CAMS area comprise the Old Red Sandstone, Carboniferous Limestone and the Coal Measures and to a lesser degree the Jurassic and Triassic strata. The latter two strata types only cover a small proportion of the CAMS area.

All of the groundwater abstractions (private and licensed) are from a variety of geological strata within the catchment and can range from shallow abstractions from the drift and the weathered zone to deep bedrock boreholes. Overall, 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 highly variable.

Groundwater is assumed to discharge into the streams and rivers within the catchment area. Within the Carboniferous Limestone groundwater flow is likely to be along dip, but dominated by the fissure and fracture system within the limestone. Groundwater flow within the Coal Measures has been altered by mining activities – though likely to be now stable, localised areas may still be recovering. These groundwater and surface water interactions are likely to be complex and dependent on the groundwater level and river stage, permeability of the river sediment beds and the aquifer properties. Given the presence of drift deposits (mainly alluvium and glaciofluvial) along the main rivers, the surface water will potentially be perched above the regional groundwater. The degree of connection between the river

(perched water) and the regional groundwater is unknown and difficult to assess with the data that we have.

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 consumptive abstractions.

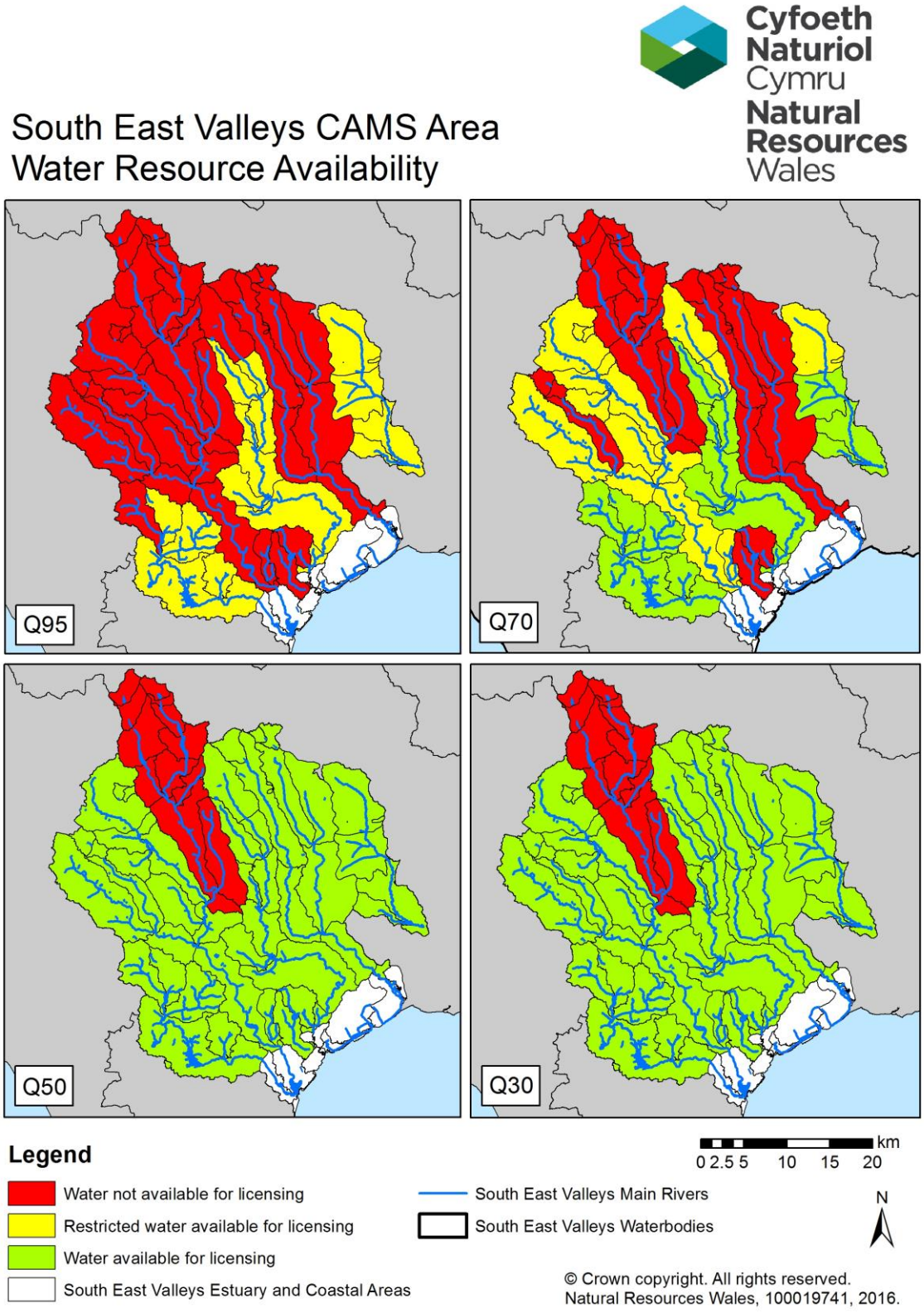
Map 4 gives an indication of the resource reliability in the South East Valleys CAMS area expressed as a percentage of time. It shows where water availability may be more reliable and therefore available for a greater percentage of the year than other areas. Abstractions are most likely to be restricted during the spring to autumn months as these are the periods when we tend to see lower river flows which trigger the abstraction restrictions.

These reliability figures shown on Map 4 and given in Tables 2 to 9, are indicative and do not take into account times of drought when the number of days abstraction may not be possible will be greater. There is only a moderate groundwater baseflow component to the surface watercourses in these catchments and therefore river flows are responsive to rainfall events including lack of rainfall.

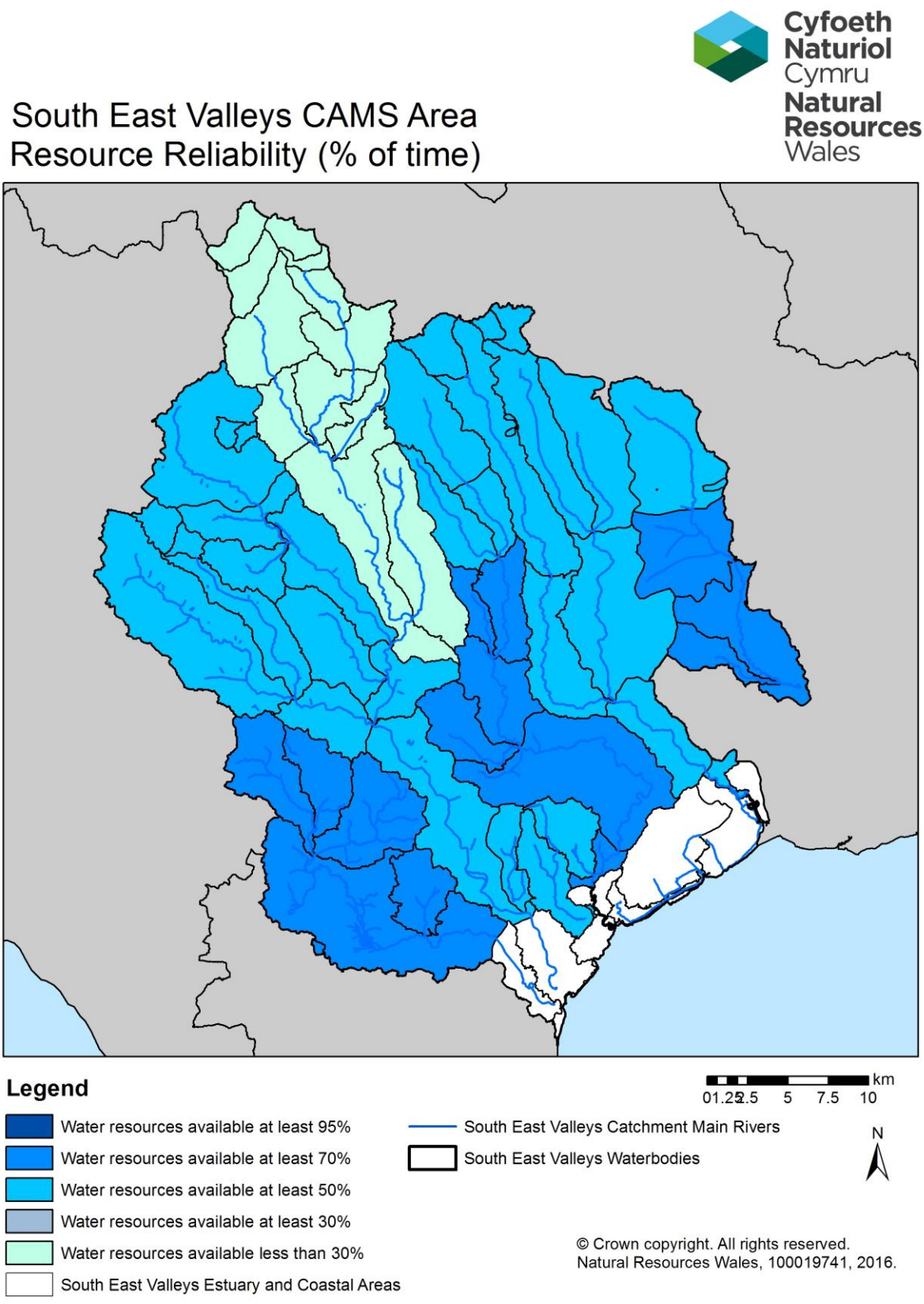
The above indicative figures do not apply to non-consumptive abstraction (surface water and groundwater) or a consumptive groundwater abstraction if assessed not to have a negative impact on designated and local species and / or habitats or other existing water users. In these instances, application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

This section aims to highlight that abstraction of water will not be available for a significant proportion of the year across parts of the South East Valleys CAMS area. 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 South East Valleys CAMS Area



Map 4: Water resource reliability in the South East Valleys CAMS Area



4. How we manage abstractions in the South East Valleys CAMS Area

4.1 National licensing principles

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

Further information can be found on our web site 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 applications, 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 a pre-application enquiry advice service 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. Our pre-application enquiry advice service is free of charge.

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.

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 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 16% of abstraction licences in the South East Valleys CAMS area are time-limited.

The current CED for the South East Valleys CAMS is 31st March 2029.

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, take 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

The following subsections outline the restrictions that will be placed on new consumptive licences or upward varied existing licences, and indicates the amount of available water at the APs at the time this document was produced. The amount of water available for abstraction will be less than that indicated in Tables 2 to 9 the further upstream the abstraction site is away from the AP location. Please contact us with a pre-application enquiry so that we can advise on the water availability at a specific location. AP locations are shown on Map 1.

4.2.1 River Taff – Cardiff Bay to Abercynon, the Cynon and Rhondda Valleys
4.2.2 River Taff – Abercynon to Merthyr
4.2.3 Taf Fechan and Taf Fawr river catchments
4.2.4 River Ely catchment
4.2.5 River Rhymney – downstream of Bargoed
4.2.6 River Rhymney – upstream of Bargoed
4.2.7 Roath Brook in Cardiff
4.2.8 River Ebbw catchment
4.2.9 River Lwyd catchment

Surface water licensing policy common to all nine catchments:

- All licence applications will be considered on a case by case basis.
- The protection of designated features (e.g. SAC, SSSI, UK BAP), 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 WFD ecological quality of a water body.
- All new consumptive licences will be issued with flow restrictions based on naturalised river flow, Q_N.
- 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 for the catchment. There are a number of gauging stations in the South East Valleys 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 2029 will be applied. A shorter time period may be applied if we feel there is a need to review an abstraction earlier so that the effect of the abstraction on the environment can be monitored and the licence conditions changed 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, entrapment and impingement from pumping;
  - Conditions to minimise sub-daily pumping to prevent the rapid exposure of riverine marginal habitat.
- There is a 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 renewals 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,
  - 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.
- 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.

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 restriction given in the tables below, dependant on the abstraction location, 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.

4.2.1 River Taff – Cardiff Bay to Abercynon, the Cynon and Rhondda Valleys

This includes the River Taff from its flow into Cardiff Bay up to Abercynon and the tributary river catchments Rhondda Fawr, Rhondda Fach, Nant Clydach and Afon Cynon and other minor tributaries. Water resources are managed under several APs.

AP1 & AP2 – River Taff from Blackweir (Cardiff) to Abercynon
AP3 & AP4 – Afon Rhondda Fawr catchment
AP5 – Nant Clydach catchment
AP7 & AP8 – Afon Cynon catchment

We have concerns over the degree of existing licensed abstraction on low river flows and the effect of reservoirs in the headwater catchments on river flows. As a result, water is only available for new consumptive abstraction at medium to high river flows.

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

Q_N HOF Restriction	**Amount of water available (Ml/day) for licensing at**							**Average number of days a year abstraction allowed**
	AP1	**AP2**	**AP3**	**AP4**	**AP5**	**AP7**	**AP8**	
HOF 4 at Q65	74.7	74.7	46.4	31.0	5.8	33.3	2.5	237
Once the available water has been licensed HOF 5 at Q50 will be applied to licences.								
HOF 5 (Q50)	160.4	130.0	66.1	40.8	7.4	33.5	8.4	183
Once the available water has been licensed HOF6 will be applied to licences.								

Table 2: River Taff, Cardiff Bay to Abercynon, the Cynon and Rhondda Valleys - restrictions for new consumptive licences in an average rainfall year.

4.2.2 River Taff – Abercynon to Merthyr

This river reach catchment is managed under AP6 and covers the River Taff and tributaries between the confluence with the Taf Fechan & Taf Fawr Rivers and Abercynon at AP6. Tributaries include the Dowlais Brook, Taf Bargoed and the Nant Mafon.

Flow issues in the upstream Taf Fechan and Taf Fawr rivers are seen in the River Taff in this reach as there is not a significant inflow into this section of the river from supporting tributaries. As a result, water availability is very restricted and there is only water available for new consumptive abstraction at high flows.

Applications for non-consumptive purposes will be dealt with on a case by case basis. We cannot guarantee water will be available for non-consumptive purposes. We advise anyone considering a non-consumptive abstraction to submit a pre-application enquiry to us in the first instance.

Q_N HOF Restriction	Amount of water available (Ml/day) for licensing at	Average number of days a year abstraction allowed
	AP6	
HOF 6 at Q35	107.4	128

Table 3: River Taff, Abercynon to Merthyr - restrictions for new consumptive licences in an average rainfall year.

4.2.3 Taf Fechan and Taf Fawr river catchments

Water resources in these catchments are managed under AP9 and AP10.

There are water availability issues in these catchments driven by existing licensed abstraction and the effect of reservoirs in the headwater catchments, impacting river flows. Water is no longer available for consumptive licencing. New consumptive abstractions will not be issued in these catchments. For existing consumptive licences, a variation to increase the abstraction quantity will not be issued.

Applications for non-consumptive purposes will be dealt with on a case by case basis. We cannot guarantee water will be available for non-consumptive purposes. We advise anyone considering a non-consumptive abstraction in these catchments to submit a pre-application enquiry to us in the first instance.

These river catchments are in the Resorting Sustainable Catchment (WFD) Programme (see section 4.8). We are working with licences holders in these catchments to address identified flow issues.

4.2.4 River Ely catchment

Water resources are managed under three APs in the River Ely catchment.

AP11 & AP12 – River Ely and tributaries
AP13 – River Clun catchment

For **new consumptive surface water licences** the following flow restrictions will be applied:

Q_N HOF Restriction	Amount of water available (Ml/day) for licensing at			Average number of days a year abstraction allowed
	AP11	AP12	AP13	
HOF at Q95	8.6	1.1	3.2	347
Once the available water has been licensed HOF 2 will be applied to licences.				
HOF 2 (Q85)	9.7	3.1	2.3	310
Once the available water has been licensed HOF 3 at Q75 will be applied to licences.				

Table 4: River Ely - restrictions for new consumptive licences in an average rainfall year.

4.2.5 River Rhymney - downstream of Bargoed

There are several APs all on the main River Rhymney under which water resources are managed.

AP1 – River Rhymney through Cardiff to its tidal limit, including the small tributary catchments. The Nant Glandulas however is excluded due to water availability concerns – see below.
AP3 – River Rhymney at Llanedern Bridge, including the tributary catchments such as Nant yr Aber and Nant y Draethen.
AP4 – River Rhymney at Caerphilly, including tributary catchments such as the Nant Bargoed Rhymni and Nant Cylla.

There are flow pressures in the Nant Glandulas as a result of existing licensed abstractions. There is restricted water available for further abstraction, with no water available at low or medium range flows. Water is available for consumptive abstraction in the higher flow range. Should you wish to apply for an abstraction licence in this catchment please submit a pre-application enquiry to us so that we can advise on water availability and HOF restrictions.

For **new consumptive surface water licences** the following flow restrictions will be applied:

Q_N HOF Restriction	Amount of water available (Ml/day) for licensing at			Average number of days a year abstraction allowed
	AP1	AP3	AP4	
HOF at Q95	6.7	6.7	3.3	347
Once the available water has been licensed HOF 2 will be applied to licences.				
HOF 2 (Q85)	11.6	10.9	7.8	310
Once the available water has been licensed HOF 3 at Q75 will be applied to licences.				

Table 5: Rhymney downstream of Bargoed - restrictions for new consumptive licences in an average rainfall year.

4.2.6 River Rhymney – upstream of Bargoed

Above Bargoed there are two APs on the main River Rhymney under which water resources are manged.

AP5 – River Rhymney at Bargoed, upstream of the Nant Bargoed Rhymni confluence to and inclusive of the Nant Tysswg catchment.
AP6 – River Rhymney and its head water catchment area above the Nant Tysswg confluence.

There are river flow pressures on the upper reaches of the River Rhymney from existing licensed abstractions and reservoirs.

For **new consumptive surface water licences** the following flow restrictions will be applied:

Q_N HOF Restriction	Amount of water available (Ml/day) for licensing at		Average number of days a year abstraction allowed
	AP5	AP6	
HOF at Q75	2.7	0	274
Once the available water has been licensed HOF 4 will be applied to licences.			
HOF 4 (Q65)	6.5	3.2	237
Once the available water has been licensed HOF 5 at Q50 will be applied to licences.			
HOF 5 (Q50)	12.2	8.1	183
Once the available water has been licensed HOF 6 at Q35 will be applied to licences.			

Table 6: River Rhymney upstream to Bargoed - restrictions for new consumptive licences in an average rainfall year.

4.2.7 Roath Brook in Cardiff

Roath Brook catchment water resources are managed at AP2 (tidal limit with the Rhymney Estuary) and includes the tributaries the Nant Fawr and the Llanishen Brook, as well as Roath Park Lake, and Llanishen and Lisvane Reservoirs.

We have concerns about the pressure on flows within the brook from existing licensed abstraction. Water availability is restricted. Water is available for consumptive abstraction but at medium to high flows. This river catchment is in the Resorting Sustainable Catchment (WFD) Programme (see section 4.8). We are working with the principle abstraction licence holder to address identified flow issues.

As an urbanised catchment, with Roath Brook flowing into and out of Roath Park Lake, the amount of water available shown in Table 7 is indicative only. How much water is available will depend on where in the catchment the proposed abstraction is located and the influence of Roath Park Lake.

For **new consumptive surface water licences** the following flow restrictions will be applied:

Q_N HOF Restriction	**Amount of water available (Ml/day) for licensing at AP2**	**Average number of days a year abstraction allowed**
HOF at Q65	0.5	237
Once the available water has been licensed HOF 5 will be applied to licences.		
HOF 5 (Q50)	2.0	183
Once the available water has been licensed HOF 6 at Q35 will be applied to licences.		
HOF 6 (Q35)	6.6	128

Table 7: Roath Brook – restrictions for new consumptive licences in an average rainfall year.

4.2.8 River Ebbw catchment

The water resources of the River Ebbw catchment are managed under several APs:

AP7 – River Ebbw at its tidal limit
AP8 – River Ebbw at Bassaleg Weir to Aberbeeg
AP9 – Sirhowy River catchment
AP10 – River Ebbw upstream of Aberbeeg
AP11 – Afon Ebwy Fach catchment

The main abstraction pressure in this catchment is the licence exempt dock feeder supply to Newport Docks at Bassaleg Weir. It's the water requirement for the docks that affects the availability of water for further abstraction in the Ebbw catchment.

For **new consumptive surface water licences** the following flow restrictions will be applied:

Q_N HOF Restriction	Amount of water available (Ml/day) for licensing at					Average number of days a year abstraction allowed
	AP7	AP8	AP9	AP10	AP11	
HOF at Q75	11.0	11.0	9.3	11.0	4.0	274
Once the available water has been licensed HOF4 will be applied to licences.						
HOF4 (Q65)	45.1	33.0	9.6	20.5	5.6	237
Once the available water has been licensed HOF 5 at Q50 will be applied to licences.						

Table 8: River Ebbw catchments - restrictions for new consumptive licences in an average rainfall year.

4.2.9 River Lwyd catchment

The water resources of the River Lwyd catchment are managed under two APs:

AP12 – River Lwyd catchment from the tidal limit to Abersychan
AP13 – River Lwyd catchment above Abersychan.

For **new consumptive surface water licences** the following flow restrictions will be applied:

Q_N HOF Restriction	Amount of water available (Ml/day) for licensing at		Average number of days a year abstraction allowed
	AP12	AP13	
HOF at Q95	6.3	0	347
Once the available water has been licensed HOF 2 will be applied to licences.			
HOF 2 (Q85)	10.9	0	310
Once the available water has been licensed HOF 3 at Q75 will be applied to licences.			
HOF 3 (Q75)	12.5	1.0	274
Once the available water has been licensed HOF 4 at Q 65will be applied to licences.			
HOF 4 (Q65)	21.7	4.2	237
Once the available water has been licensed HOF 5 at Q50 will be applied to licences.			

Table 9: Afon Lwyd - restrictions for new consumptive licences in an average rainfall year.

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, guidance on flow availability and how to apply 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 South East Valleys catchments, there isn't a separate groundwater licensing policy. 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 surface 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 WFD ecological quality of a water body.
- 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 2029 will be applied. A shorter time period may be applied if we feel there is a need to review an abstraction earlier so that the effect of the abstraction on the environment can be monitored and the licence conditions changed 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:
  - existing 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. The water features survey and test pumping results will need to be submitted to us with a full licence application.

4.5 Estuaries / coastal areas licensing policy

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 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 River Rhymney and the Rivers Ebbw and Lwyd flow directly into the River Severn estuary however inflows from the Rivers Taff and Ely into the Severn Estuary are controlled by the Cardiff Bay Barrage (Map 3).

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

Cardiff Bay (Rivers Taff & Ely)
The Cardiff Bay Barrage impounds the Rivers Taff and Ely. In accordance with provisions within the Cardiff Bay Barrage Act 1993, the operators of the barrage, Cardiff City Council, aim to maintain the bay level at a near constant level of about 4.5m above OD; this is managed through operation of 1 or more of the 5 sluice gates. When tide levels are higher than the bay level, the sluices are closed to prevent saline incursion into the freshwater bay. During these 'tide-lock' events, the bay stores river flows; when the tide level falls to below that of the bay, the sluices are opened to return the bay level to the required height.

Certain barrage operations require a supply of freshwater such as the provision of a constant flow for the fish pass and the regular use of navigation locks. There is an operating agreement that governs apportionment of available water amongst the different users at the barrage during low flow periods. Combined river flow volumes below a certain threshold are therefore fully allocated.

Please contact us if you wish to abstract water from Cardiff Bay or within the tidally influenced reach of the River Taff or the River Ely so that we can advise you on your application.

Water Level Dependent areas
There are small reclaimed low-lying coastal plains within the South East Valleys CAMS area that are water level dependent, collectively known as the Wentlooge Levels. 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 Wentlooge 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.

Abstraction within the Levels is controlled 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 and impoundment licence.

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 10) provides a guide to the potential for trading in the water bodies of the South East Valleys CAMS area based on the water resource availability colour (Map 3).

CAMS water resource availability colour	**Our approach to trading in the South East Valleys CAMS 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 abstraction. 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 10: Potential for licence trading in the South East Valleys CAMS area

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 rests 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 or impoundments 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. 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 and/or impoundment structures may be contributing to environmental concerns within water bodies under the WFD. Options on how to improve the sustainability of an abstraction include a cost / benefit analysis.

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.

From 1 January 2018, most previously exempt abstractions (if over 20m³/day exemption threshold) will require a licence to continue legally abstracting water. For information on the exemption removal and how to apply for a licence please go to: Natural Resources Wales / Changes to water abstraction licensing exemptions.

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 (i.e. water, sewage, etc.) into surface waters.
Environmental flow indicator	A proportion of the natural flow in a river is set aside for the ecological health of the water course. This is called the environmental flow indicator and we use it to prevent ecological deterioration of rivers. It is set in line with new UK standards set by UKTAG.
Flashy	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. In Qx, x is % of the time.
Q_N	The expected natural flow of a river without any manmade influences.
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.
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
EFI	Environmental Flow Indicator
FL	Full Licensed (scenario)
HOF	Hands-off Flow
HOL	Hands-off Level
Ml/d	Megalitres per day
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

END