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South Cumbria abstraction licensing strategy

February 2013

A licensing strategy to manage water resources sustainably

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

Published by:

Environment Agency
Rio House
Waterside Drive, Aztec West
Almondsbury, Bristol BS32 4UD
Tel: 0870 8506506
Email: enquiriesatenvironment-agency.gov.uk
www.environment-agency.gov.uk

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Foreword

Water is the most essential of our natural resources, and it is our job to ensure that we manage and use it effectively and sustainably. The latest population growth and climate change predictions show that pressure on water resources is likely to increase in the future. In light of this, we have to ensure that we continue to maintain and improve sustainable abstraction and balance the needs of society, the economy and the environment.

This licence strategy area is diverse, including rivers and lakes in the lake district fells as well as rivers in coastal areas. The catchment is largely rural with significant industrial water abstractors along the coast. Water resources in Cumbria are used for a range of activities including recreation, angling, industry, agriculture and public water supply.

This licensing strategy sets out how we will manage water resources in the South Cumbria area and provides you with information on how we will manage existing abstraction licences and water availability for further abstraction.

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1. About the Licensing Strategy

This **Licensing Strategy** sets out how water resources are managed in the South Cumbria area. It provides information about where water is available for further abstraction and an indication of how reliable a new abstraction licence may be.

The South Cumbria Catchment Abstraction Licensing Strategy supersedes the South Cumbria Catchment Abstraction Strategy (issued in September 2007).

How CAMS contributes to achieving environmental objectives under the (WFD) Water Framework Directive

The Water Framework Directive's main objectives are to protect and enhance the water environment and ensure the sustainable use of water resources for economic and social development.

Catchment Abstraction Management Strategies (CAMS) set out how we will manage the water resources of a catchment and contribute to implementing the WFD.

CAMS contribute to the WFD by:

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

When is an abstraction licence required?

You need a licence from us if you want to abstract more than 20m³/day (4400 gallons) of water per day from a:

- river or stream
- reservoir, lake or pond
- 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
- whether the justification for the abstraction is reasonable
- the abstractor has considered water efficiency measures

If you want to apply for an abstraction licence or make changes to a licence that you already have, please contact us:

by telephone on 03708 506 506

by email at enquiriesatenvironment-agency.gov.uk

or visit our website at www.environment-agency.gov.uk.

Sustainable abstraction

This licensing strategy has been produced using evidence and information gathered during the Catchment Abstraction Management Strategy (CAMS) process. Through this process we consider the impact of abstraction at all flows. This helps to manage future abstraction more sustainably.

We now assess water resources at a sub-catchment level called water bodies. This means that we can provide more detailed information on the availability of water resources in the South Cumbria CAMS area compared to the scale used in the previous strategy.

Within this strategy we also outline where we may need to reduce current rates of abstraction and our approach on time limiting licences.

The background, aims and principles of CAMS, the over arching principles we use when managing abstraction licences and links with other initiatives are detailed in our document: [Managing Water Abstraction](#). You should refer to Managing Water Abstraction alongside this licensing strategy document.

2. South Cumbria CAMS area

The South Cumbria CAMS is formed from the merger of the Kent CAMS, Leven & Crake CAMS and Duddon catchment from the Derwent, West Cumbria and Duddon CAMS. It covers a total area of approximately 1200.7km².

The South Cumbria CAMS borders the Lune/Wyre CAMS areas to the east, and the Eden and Esk CAMS area and Derwent and West Cumbria CAMS areas to the North.

A large part of the catchment is within in the Lake District National Park and includes many sites of national and international conservation importance due to the characteristic fauna, flora and habitats present.

2.1 Kent catchment

The upper reaches of the River Kent and its tributaries; the Rivers Gowan, Mint and Sprint rise within the south-eastern fells of the Lake District and drain an area of 170.22km². The lower River Kent drains a lowland area of 48.65 km² into the Kent Estuary and Morecambe Bay. Kentmere Reservoir, Kentmere Tarn and Dubbs Reservoir are included within this catchment.

The River Bela drains an area of 131.79 km². The main tributaries (Peasey Beck, Stainton Beck and Lupton Beck) originate in the foothills of the Howgill Fells. Water for the Lancaster Canal comes from the tributaries of the River Bela and releases are made from Killington Reservoir for the canal's water supply. The canal was built between 1792 and 1819 with the intention to link Kendal and Wigan as a transport route for coal and other industrial materials. The stretch of canal north of Tewitfield Locks has been closed since the M6 crossed the route in 1968. However, there are plans to re-open the northern reaches of the canal to Kendal in the future.

The main towns in the area are Kendal which is situated on the lower River Kent, Milnthorpe, Carnforth and Arnside to the south of the area. Smaller urban areas of Beetham and Heversham are situated on the River Bela, and Staveley, Burneside and Bowston are on the upper River Kent.

The Rivers Winster and Gilpin rise in the lower fells in the south of the Lake District and drain an area of 59.5 and 60.56 km² respectively. Much of the lower agricultural land in the Lyth Valley has been drained extensively to improve its quality for agriculture. The lower reaches of the Winster and Gilpin, which were modified at the end of the 19th century to cope with higher flows resulting from this agricultural drainage. The rivers enter into the Kent Estuary directly. Both these rivers are entirely within the Lake District National Park.

There are a number of surface and groundwater abstractions in the Kent catchment area for a variety of uses including industrial, agricultural and public water supply. Water is also used for the Lancaster Canal.

2.2 Leven, Crake and Duddon catchments

The River Leven drains an area of 254 km² and is the only river to drain Windermere, the largest natural lake in England, covering a distance of only 5 km between the lake and tidal limit. A number of major tributaries enter the catchment, including the River Rothay, River Brathay and Troutbeck. The River Leven feeds directly into the Leven Estuary.

The River Crake drains Coniston Water, an area of 92 km². The catchment has a number of tributaries feeding Coniston Water, including Torver Beck, Church Beck and Yewdale Beck. The River Crake meets the Leven Estuary at Greenodd where the estuary originates before flowing into Morecambe Bay.

Deep Meadow Beck, Levy Beck, Newland Beck, Colton Beck, Rusland Pool and River Eea are discrete catchments neighbouring the River Leven and River Crake. The catchments are smaller in size than the Leven and Crake, covering a geographical extent from 8.27km² to 31.21km², and are coastal feeding into the Leven Estuary.

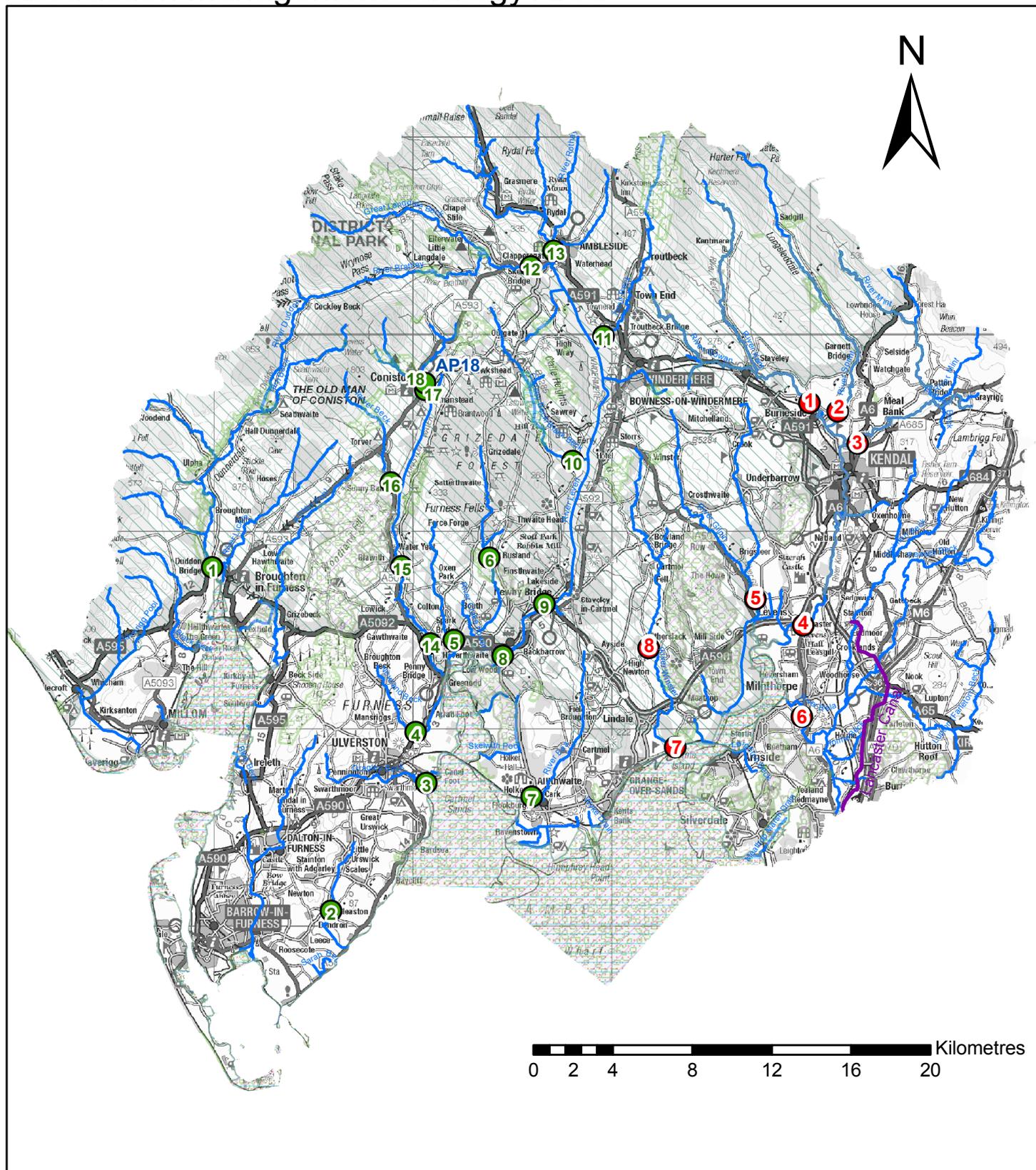
The main towns in the Leven and Crake catchment are Ambleside, Coniston, Windermere and Ulverston, which is the largest with the most urban development. The small towns and villages in the area were originally based on an agricultural economy although most of these have now become more reliant on tourist and leisure activities.

There are a number of surface and groundwater abstractions in the Leven and Crake catchment, which range from small abstractions for domestic and agricultural use to large volume abstractions for industrial and energy generation purposes. Windermere provides a significant resource to public water supply in the North West.

The River Duddon forms near the south of Wrynose Fell and runs through a substantial part of the South-Western Lake District. At Seathwaite the Tarn Beck which flows from Seathwaite Tarn joins the River Duddon and collectively flows to the tidal limit of the Duddon Channel. The main towns are Barrow in Furness, Broughton in Furness, Askam in Furness and Millom.

Map 1 shows the South Cumbria area with designated sites.

Map 1 South Cumbria Catchment Abstraction Management Strategy Area



Legend

- Kent CAMS APs
- Leaven, Crake & Duddon CAMs APs
- South Cumbria Canals
- South Cumbria Rivers
-  Ramsar
-  SAC
-  SPA
-  SSSI
-  National Parks

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3. Water resource availability of the South Cumbria area

3.1 Resource assessment

Resource assessment is at the heart of abstraction management. To manage water effectively we need to understand how much is available and where it is available, after considering the needs of the environment. 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:

- A resource allocation for the environment defined as a proportion of natural flow, known as the Environmental Flow Indicator (EFI);
- The Fully Licensed (FL) scenario - the situation if all abstraction licences were being used to full capacity;
- The Recent Actual (RA) scenario – the amount of water which has actually been abstracted on average over the previous six years.

River flows change naturally throughout the year, so we want 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). For example, Q95 is flow that is equalled or exceeded for 95% of the time. It's termed a low flow because only 5% of the time is flow less than this.

This information gives a realistic picture of what the current resource availability is within a given water body. Water bodies are sub-catchment surface water units or groundwater units on which we carry out assessments and map results.

3.2 Resource availability

3.2.1 Surface water

If you want to abstract water, you need to know what water resources are available within a catchment and where abstraction for consumptive purposes is allowed. To show this we have developed a classification system which indicates:

- The relative balance between the environmental requirements for water and how much is licensed for abstraction;
- Whether water is available for further abstraction;
- Areas where abstraction may need to be reduced.

The availability of water for abstraction is determined by the relationship between the fully licensed and recent actual flows in relation to the EFI. The results mapped onto these water bodies are represented by different water resource availability colours showing the availability of water resource for further abstraction. The water resource availability colours are explained in Table 1.

In addition to these water resource availability colours we've classified some surface water bodies as 'high hydrological status' which are coloured blue on the maps. In these water bodies very little actual abstraction occurs and they show virtually undisturbed, or close to natural, flow conditions.

Another category of water body is Heavily Modified Water bodies (HMWB). These can be classified for many reasons but for water resources they are classified if they may contain a modified lake and/or reservoir that influence the downstream flow regime of the river.

We'll add any conditions necessary to protect flows to a new licence during the licence determination procedure. We'll base these on the water resource availability colours from high to low flows. Table 1 lists the implications for licensing for each water resource availability colour:

Water resource availability colour	Implication for licensing
High hydrological regime	There is more water than required to meet the needs of the environment. However, due to the need to maintain the near pristine nature of the water body, further abstraction is severely restricted.
Water available for licensing	There is more water than required to meet the needs of the environment. New licences will be considered depending on local and downstream impacts.
Restricted water available for licensing	Full Licensed flows fall below the EFIs. No new consumptive licences would be granted. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder).
Water not available for licensing	Recent actual flows are below the EFI. This scenario highlights water bodies where flows are below the indicative flow requirement to help support Good Ecological Status (as required by the Water Framework Directive Note: we are currently investigating water bodies that are not supporting GES / GEP. No further consumptive licences will be granted. Water may be available if you can buy (known as licence trading) the amount equivalent to recently abstracted from an existing licence holder).
HMWBs	These water bodies have a modified flow that is influenced by reservoir compensation releases or they have flows that are augmented. These are often known as 'regulated rivers'. They may be managed through an operating agreement, often held by a water company. The availability of water is dependent on these operating agreements. More detail if applicable can be found in section 4.3.1 Surface Water. There may be water available for abstraction in discharge rich catchments; you need to contact the Environment Agency to find out more.

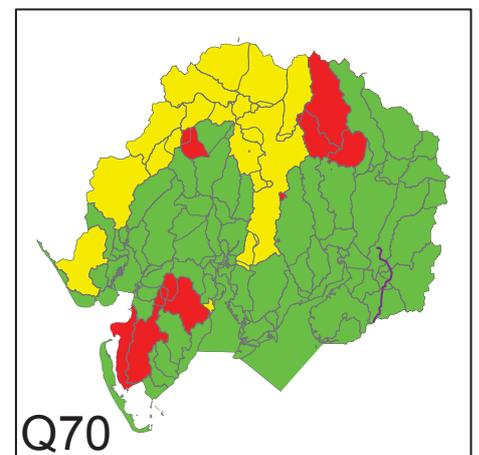
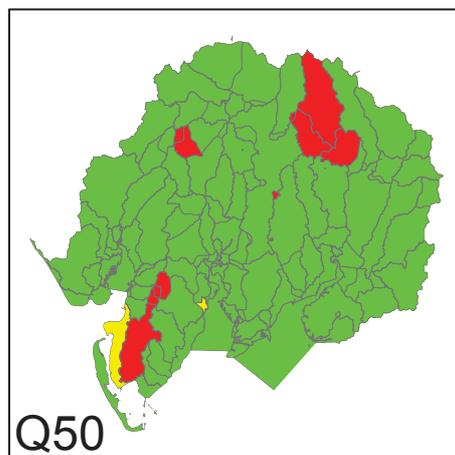
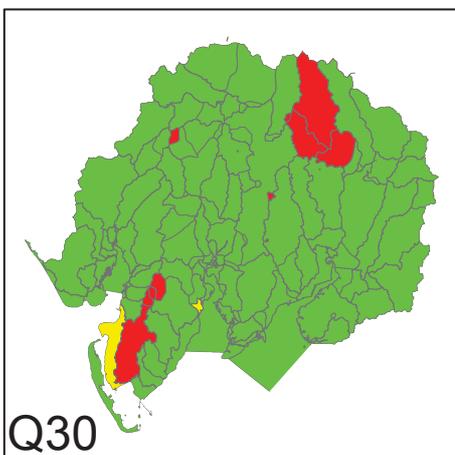
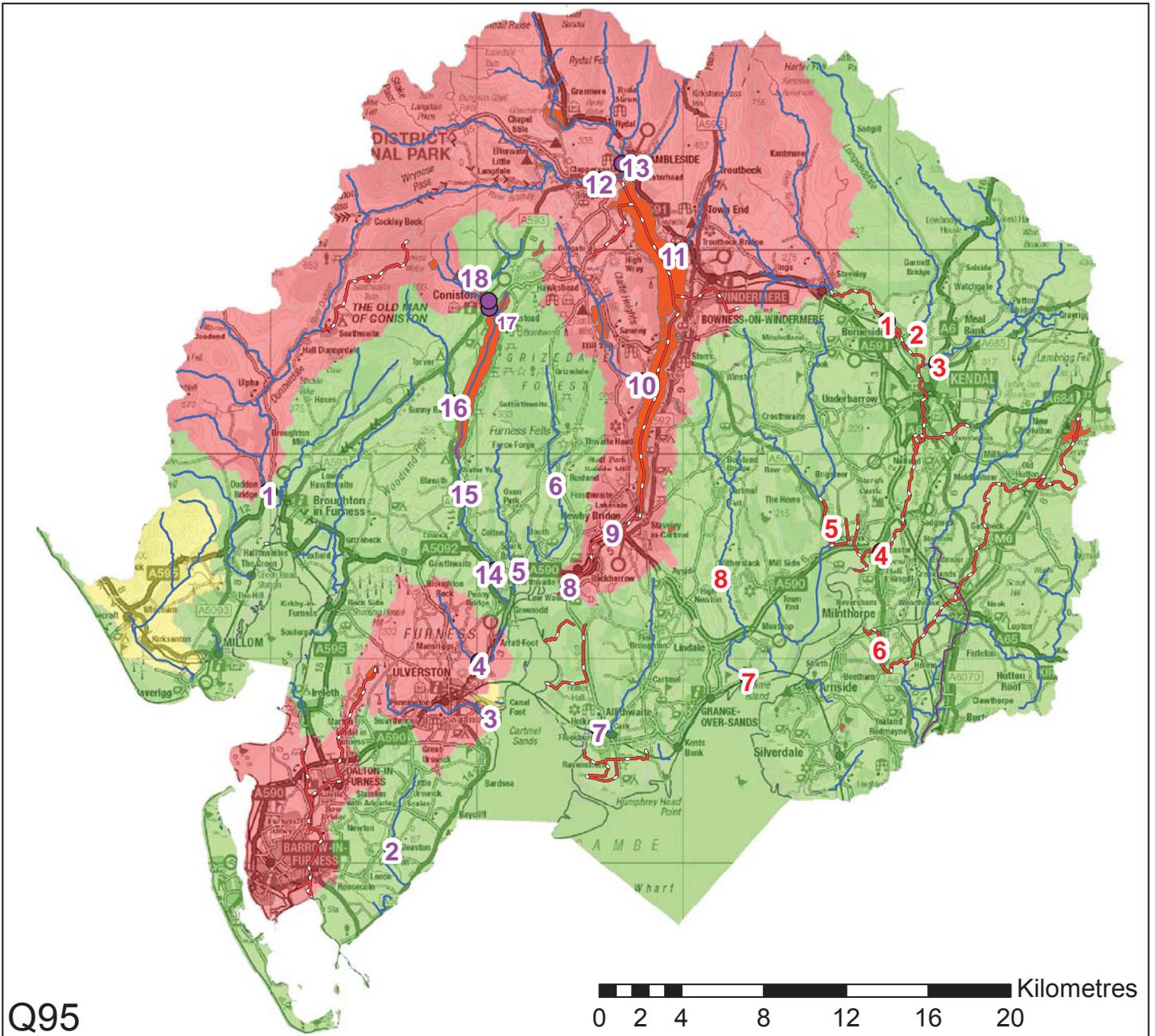
Table 1 Implications of water resource availability colours

In cases where there is a flow deficit (RA is below the EFI) or risk of a flow deficit (FL below the EFI), there may be water available for abstraction at higher flows. This means that water may be scarce at low flows, but may be available to abstract at medium or high flows. A licence may still be granted but with conditions which protect the low flows. This usually takes the form of a Hands off Flow (HOF) condition on a licence which requires abstraction to stop when the river flow falls below a certain amount.

At some water bodies it may appear that water is available at low flows (Q95) but unavailable at high flows (Q30). This may be due to existing abstractions that take large volumes of water, within their licensed limits, during times of high flow but at low flows may be subject to Hands off Flow conditions. These conditions require that abstraction stop when a specified flow occurs in the river in order to protect existing users and the environment. Also, some reservoirs are required to release a specific amount of water at all times, known as a compensation flow. During times of low flows, this compensation flow supports the river and can maintain flow in the river at times when it may have naturally run dry.

Map 2 shows the water resource availability colours in South Cumbria area.

Map 2 South Cumbria CAMS Water Resource Availability Colours



Legend

-  Leaven, Crake & Duddon CAMs APs
-  Kent CAMs APs
-  Heavily Modified and Artificial Rivers
-  South Cumbria Rivers
-  South Cumbria Canals
-  Heavily Modified and Artificial Lakes
-  South Cumbria Water Bodies
-  Water Available
-  Limited Water Available
-  No Water Available

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3.2.2 Groundwater

Groundwater availability is guided by the water resource availability colours unless we have better information on principal aquifers or are aware of local issues we need to protect.

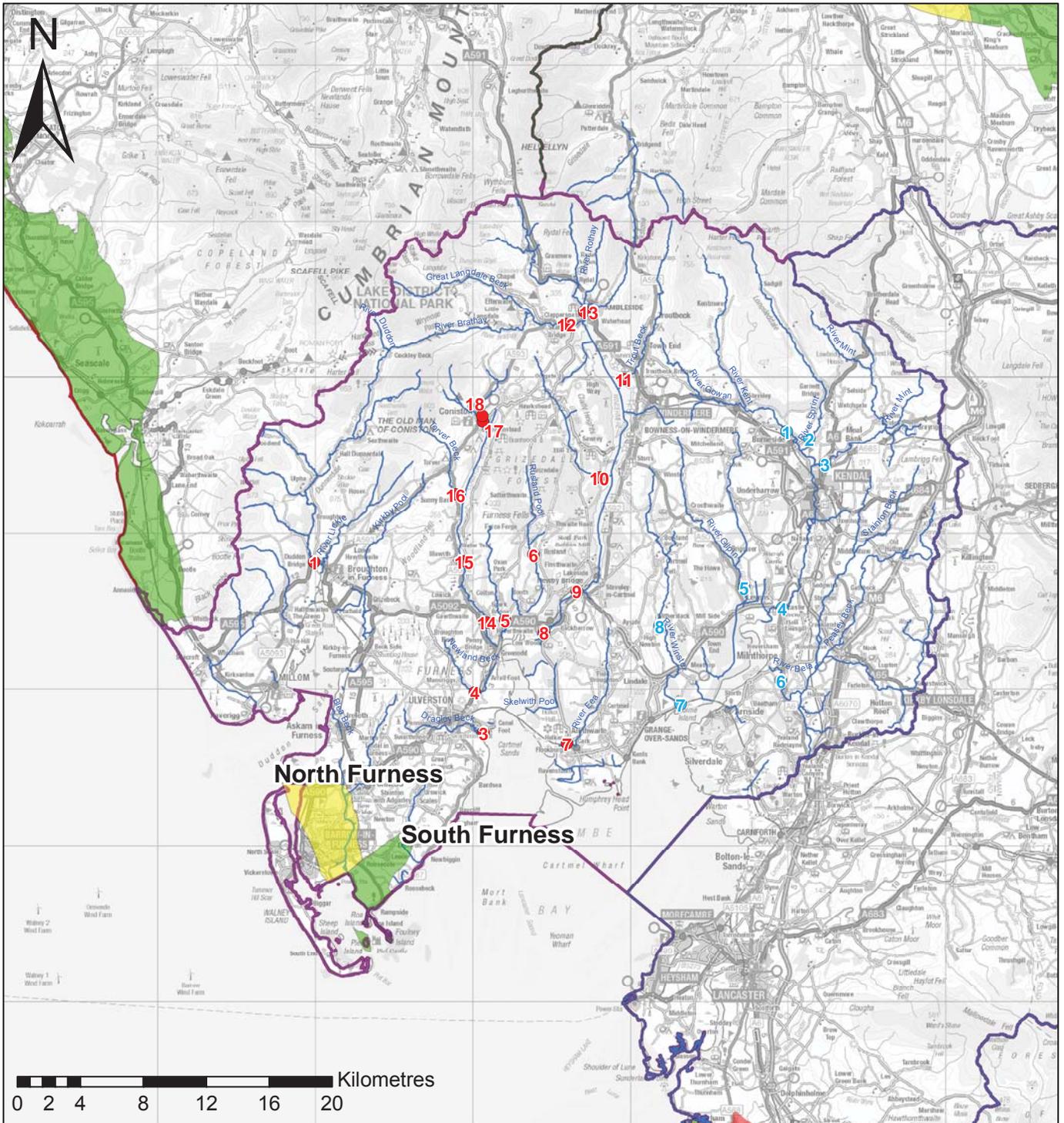
Please refer to section 4.3.2 for further information

Map 3 shows the water resources availability colours in South Cumbria area, specifically for groundwater.

GWMU resource availability colour	Implication for licensing
Water available	Groundwater unit balance shows groundwater available for licensing. New licences can be considered depending on impacts on other abstractors and on surface water.
Restricted water available	<p>Groundwater unit balance shows more water is licensed than the amount available, but that recent actual abstractions are lower than the amount available OR that there are known local impacts likely to occur on dependent wetlands, groundwater levels or cause intrusions but with management options in place.</p> <p>Water may be available if you can 'buy' (known as licence trading) the entitlement to abstract water from an existing licence holder.</p> <p>In other units there may be restrictions in some areas e.g. in relation to saline intrusion</p>
Water not available	<p>Groundwater unit balance shows more water has been abstracted based on recent amounts than the amount available.</p> <p>No further consumptive licences will be granted.</p>

Table 2 Implications of water resource availability colours.

Map 3: South Cumbria CAMS Groundwater Management Unit Resource Availability



Legend

- Kent CAMS APs
- Leaven, Crake & Duddon CAMS APs
- South Cumbria Rivers
- Lower Mersey & Alt CAMS WBs

CAMS Area

- Eden and Esk
- Derwent and West Cumbria
- South Cumbria
- Lune and Wyre

GWMU

- Water Available
- Restricted Water Available
- Water Not Available

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3.3 Resource reliability

If you want to apply for a licence, it is worth considering that in some areas a new, consumptive abstraction may not be 100% reliable. Reliability information is based on CAMS resource availability colours and is a way of presenting the reliability of new abstractions at all flows.

The availability of water for abstraction within a river varies greatly from high to low flows. By assessing the quantity of water available at different flows it is possible to see when there is a surplus or deficit of water and the associated reliability of an abstraction. This is an indication only, actual reliability of a licence will be discussed on application.

Table 3 shows the resource availability colour associated with the percentage reliability of consumptive abstraction. Map 4 gives an indication of the resource reliability in South Cumbria area expressed as percentage of time.

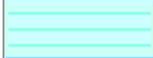
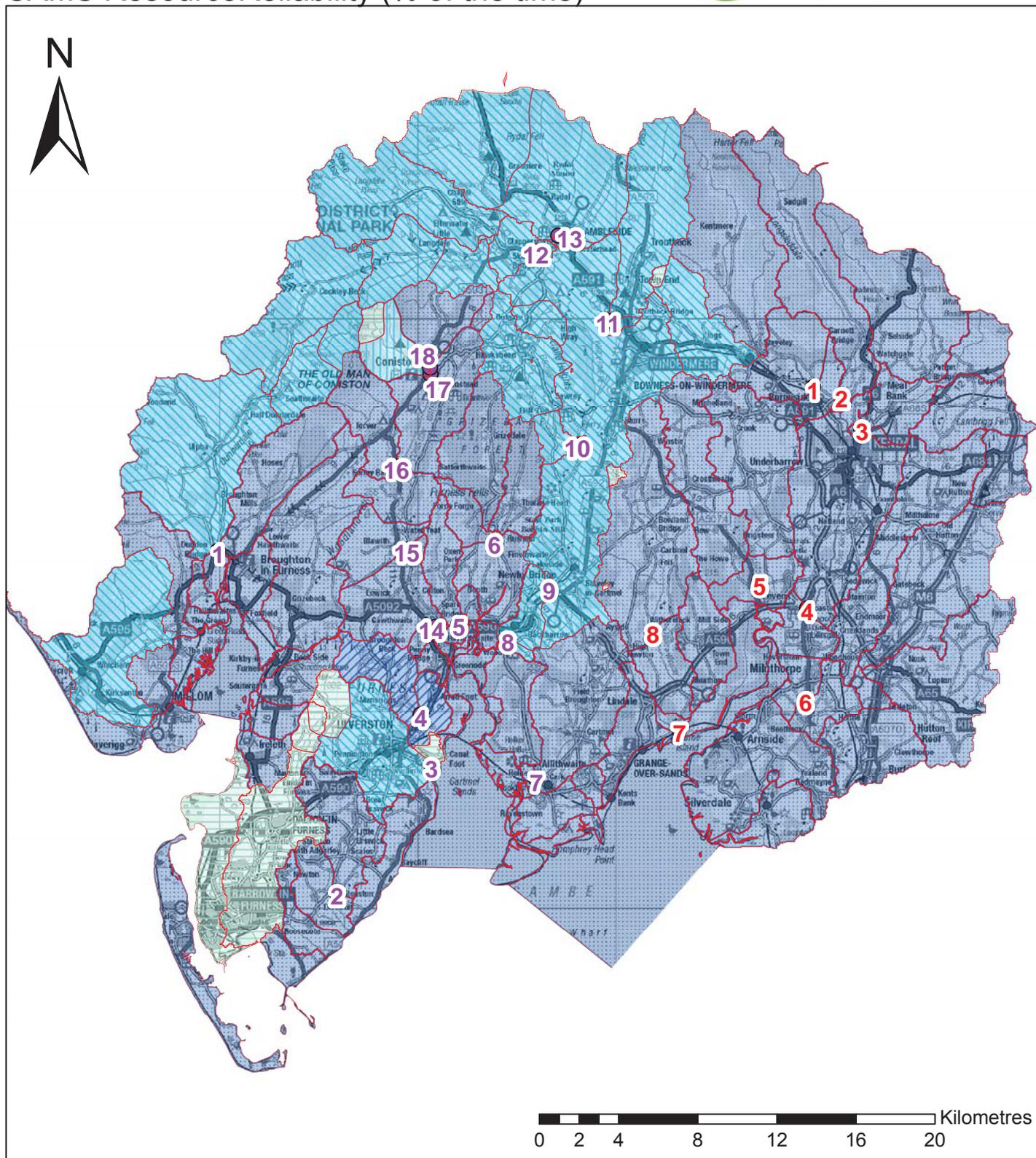
Resource	Percentage of the time additional consumptive resource may be available
	Consumptive abstraction available less than 30% of the time.
	Consumptive abstraction available at least 30% of the time.
	Consumptive abstraction available at least 50% of the time.
	Consumptive abstraction available at least 70% of the time.
	Consumptive abstraction available at least 95% of the time.
	Not assessed

Table 3 Percentage reliability of consumptive abstraction

Map 4 South Cumbria CAMS Resource Reliability (% of the time)



Legend

- Kent CAMS APs
- Leaven, Crake & Duddon CAMS APs
- South Cumbria CAMS WBs
- Water Resources available less than 30%
- Water Resources available at least 30%
- Water Resources available at least 50%
- Water Resources available at least 70%
- Water Resources available at least 95%

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4. How we manage abstractions in the South Cumbria catchment

4.1 Water abstraction the South Cumbria Area

Water is abstracted from surface water and a few groundwater sources in the South Cumbria area for a variety of uses including industrial, agricultural and public water supply.

Although agriculture is one of the major land uses in the catchment, there is a relatively small volume of water abstracted for agricultural purposes. This is because the main agricultural practice is pastoral; dairy, cattle and sheep farming.

Kent Catchment

Water from the Kent area is used to supply the Lancaster Canal, which although not open for navigation within the catchment, is open south of Tewitfield. The canal is linked at its southern end to the River Ribble in Preston, via the “Millennium Ribble Link”. From here navigation is possible through to the River Douglas and then onto the national canal network.

There are three main abstractions to the canal in the Kent catchment, all of which are from tributaries of the River Bela. Peasey Beck has an artificial flow regime controlled by releases from Killington Reservoir, which was built for the canal. Water is then taken from Peasey Beck for the canal at Crooklands. A smaller quantity of water is also taken from Stainton and Lupton Becks. These abstractions by British Waterways are exempt from licensing under the Water Resources Act 1991.

There are a number of discharges into the Kent rivers, some from industrial processes, but the majority from wastewater treatment works (WwTW). Kendal WwTW into the lower River Kent is the largest discharge in the area. This is equivalent to a significant inter-catchment water transfer as the public water supply is provided from other CAMS areas. Effluent quality standards are determined by the Agency after discussion with the operator prior to a consent being granted, and effluent quality is regularly monitored.

Leven, Crake and Duddon catchment

The public water supply abstraction from Lake Windermere is a significant part of United Utilities Water’s regional network, which serves around 95 per cent of the total North West population. Under the abstraction licence, pumping is not allowed unless there are adequate flows in the Leven downstream of the lake, so abstraction is not continuous. In addition to Windermere, there are a number of other, smaller public water supply abstractions in the catchment.

Hydroelectric power generation has the largest abstraction rates in the catchment. A number of schemes are in use in the area producing energy for private and public use. These licences are non-consumptive, i.e. all of the water abstracted is returned directly and almost immediately to the river.

There are several industrial abstractions in the catchment, mainly concentrated in the urban areas around Ulverston. Small private commercial abstractions are dispersed throughout the catchment supplying water for local businesses.

Wastewater treatment works (WWTWs) are present throughout the catchment; the largest are at Ulverston and Windermere. Flows to these works are predominately of domestic sewage and, in general, effluents from trade and the few industrial premises do not significantly affect the works’ performance or the size flows in their receiving waters.

4.2 Principles

The document [Managing Water Abstraction](#) outlines the over-arching principles that we follow in managing our water resources. How we apply these principles in the South Cumbria area is outlined in this section. If you want to abstract water it outlines where water is available for further abstraction and the principles we follow in assessing your application for a licence.

Abstraction licence application process

Anyone wanting to take more than 20m³/day (4400) from a 'source of supply' (river, stream, lake, well, groundwater etc) must have an abstraction licence. The application process for abstraction is similar to the planning process in that we may require the application to be advertised and may require supporting environmental information. When considering the application we check that the quantities applied for and the purpose of the abstraction 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. Depending on the outcome of our investigations we will issue a licence either as applied for, or with conditions that restrict the abstraction to protect the environment or other users. 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.

Each application is determined on its own merits

Whilst this document may say that 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.

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 have to protect the environment and rights of other abstractors. To do this we may add constraints to licences. Licence holder's needs to understand the implications of this as it affects the reliability of supply. For example, in drier years it's more likely that conditions will come into effect and abstraction is more likely to be stopped.

Abstractions are managed to protect the environment.

No ecological deterioration

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 our rivers further;
- Will maintain the near pristine condition of high hydrological regime water bodies.

For existing licences, where current abstraction is less than licensed i.e. more water could be legally abstracted, we may take action to limit such an increase if we think this will lead to deterioration of the ecology of water bodies.

These principles apply to the water body in which the abstraction is located and also to all downstream water bodies that may be affected by any reduction in flow caused by abstraction. Doing this means that we will maintain the water body status as reported in the River Basin Management Plans (2009) and ensure compliance with the European Union Water Framework Directive.

Water efficiency and demand management

We need to make the best use of our existing water resources. Adopting water efficiency and demand management measures can help us achieve this goal. Water efficiency is one of the tests that will need to be satisfied before we grant a new licence or renew 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. For further details on our general approach to licensing please see the document [Managing Water Abstraction](#).

Impoundments

You normally need an impoundment licence to construct, alter, repair or remove an impoundment structure. These structures include weirs, fish passes and sluices.

We will consider every case on its individual merits, and will normally only approve an application to install new structures in a watercourse if one or more of the following apply:

- it is demonstrated to our satisfaction that there are over-riding social or economic reasons for the structure(s) in line with our sustainable development remit and there is no reasonable alternative;
- we agree that the impacts on flood risk, ecology and morphology will not be significant or will be adequately mitigated against or compensated for;
- we accept that the watercourse or floodplain has been modified or degraded, and restoration or enhancement using in-channel structures is justified and acceptable to flood risk management and ecological interests;
- there are important strategic or operational reasons to monitor or regulate river levels and flows, and alternative methods are not technically or financially viable.

If we approve the application and it is appropriate to do so, we will seek mitigation or compensation to ensure environmental impacts and residual damage are minimised.

If we believe it is justified, practical and economic, we may seek the removal or modification of structures that have an adverse effect on flood risk or on the ecology, morphology and visual amenity of a river.

Hydropower

Hydropower schemes harness the energy from flowing water to generate electricity, using a turbine or other device. Sustainable, small scale hydropower has a small but important part to play in meeting UK renewable energy targets.

Water abstraction for hydropower schemes is non-consumptive, with all water used returned to the watercourse. Hands off Flows and maximum abstraction volumes are determined in line with the Environment Agency's Hydropower Good Practice Guidelines and based on the assessment of environmental risk for each scheme. For further information please refer to our [website](#).

4.3 Abstraction restrictions

When issuing a licence we have to protect the environment and rights of other abstractors. To do this we may add conditions to licences.

Time limited licences

In recognition of changing pressures on water resources all new licences and variations (other than downward variations or minor variations having no environmental impact) will have a time limit imposed. This allows for the periodic review and changes to abstraction licences where circumstances have changed since the licence was granted.

All new licences within a CAMS area have a **Common End Date (CED)** so they can be reviewed at the same time. When an application is made within six years of the CED, we will generally apply the subsequent CED to any 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 replacement the normal duration will then usually be 12 years.

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

11% of the licences in South Cumbria CAMS are time-limited. CEDs occur every twelve years. The next CED for South Cumbria CAMS is **31st March 2017** and the subsequent one is **31st March 2029**

Additional information about the replacement of time limited licences is available in [Managing Water Abstraction](#).

Hands off Flow conditions

To protect the environment we may issue a licence with a condition referred to as a 'Hand-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'.

Please refer to Tables 4 and 5 for Hands off Flows for each assessment point.

4.3.1 Surface water

We assess surface water flows at Assessment Points (APs) which are significant points on the river, often where two major rivers join or at a gauging station. Where flows fall below the EFI, new abstractions may be subject to HOFs.

Tables 4 and 5 give indications of how much water is available for further abstraction and the associated restrictions that we may apply to new and varied abstraction licences from the main river. Tributaries to the main river may be subject to different restrictions and quantities.

Each HOF is linked to an AP and is dependent on the resource availability at that AP. In some cases additional restrictions may apply to licences where there is a more critical resource availability downstream to protect the ecological requirements of the river.

All abstraction licence applications are subject to an assessment to take account of any local and downstream issues and may be subject to further restrictions.

Reading from top to bottom in Tables 4 and 5, are the APs in the South Cumbria CAMS area. Reading across the columns you can see the potential HOF that may be applied to a licence, the number of days water may be available under this restriction and the approximate volume of water in MI/d that may be available. In cases where there is water available at all flows we may apply a Minimum Residual Flow (MRF) to protect very low flows. We'll decide this on a case by case basis.

AP	Name	Water Resource Availability Colour	Flow at which HOF Restriction will be implemented (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP ?	¹ Discharge Rich Catchment
1	Bowston (River Kent)	Water unavailable	Habitats Directive Review of Consents				
2	Sprint Mill (River Sprint)	Water available	5.7	365	0.8	Yes	
3	Mint Bridge (River Mint)	Water available	7.5	365	0.7	Yes	
4	Levens Bridge (River Kent)	Restricted Water available	43.2	365	18.7	Yes	Yes
5	Glipin Bridge (River Gilpin)	Water available	13.3	365	2.3	No	
6	River Bela at Beetham	Restricted Water available	9.7	365	41.8	Yes	Yes
7	River Winster at Winster Sluices	Restricted Water available	11.7	365	2.7	No	Yes
8	River Winster at Helton Tarn	Restricted Water available	8.6	365	1.9	No	Yes

Table 4 HOFs for the assessment points of South Cumbria - Kent area CAMS.

AP	Name	Water Resource Availability Colour	Flow at which HOF Restriction will be implemented (MI/d)	Number of days per annum abstraction may be available	Approximate volume available at restriction (MI/d)	Is there a gauging station at this AP ?	¹ Discharge Rich Catchment
1	River Duddon	Restricted Water available	109.7	273	9.8	No	
2	Deep Meadow Beck / Gleaston Village	Water available	3.0	365	1.7	No	
3	Levy Beck / Salt Coates	Restricted Water available	3.7	365	6.3	No	Yes
4	Newland Beck / u/s A590	Water available	1.8	365	0.3	No	
5	Colton Beck / Colton Beck Bridge	Water available	1.2	365	0.4	No	
6	Rusland Pool / Rusland Pool Bridge	Water available	3.4	365	0.3	No	
7	River Eea / Cark Farm	Restricted Water available	5.6	365	1.9	No	Yes
8	River Leven / Low Wood Bridge	Restricted Water available	440.9	237	83.1	No	Yes
9	Windermere / Newby Bridge	Restricted Water available	450.2	233	96.0	Yes	Yes
10	Cunsey Beck / PtC Windermere	Restricted Water available	37.1	208	13.9	Yes	
11	Trout Beck / Calgarth	Restricted Water available	56.8	208	20.5	Yes	
12	River Brathay / Jeffy Knotts	Restricted Water available	154.1	208	58.7	Yes	
13	River Rothay / Miller Bridge House	Restricted Water available	136.8	208	46.8	Yes	
14	River Crake / Little Dicks	Water available	13.2	365	7.0	No	
15	Coniston Water / Low Nibthwaite	Water available	15.7	365	10.9	Yes	
16	Torver Beck / PtC Coniston Water	Water available	2.3	365	0.2	No	
17	Church Beck / PtC Coniston Water	Restricted Water available	30.2	182	3.7	No	Yes
18	Yewdale Beck / PtC Coniston Water	Water available	2.7	365	0.5	No	

Table 5 HOFs for the assessment points of South Cumbria - Leven, Crake and Duddon CAMS

¹ **Discharge Rich** - there may appear to be water available, however this water could be made up of discharges from existing users which the Environment Agency has no control over their continued operation. This means that the input of water is classed as unreliable and at this present time is not available for licensing. An update on the situation is due to be announced early 2013.

The information below for each assessment point gives an indication of whether licenses will be Renewed or granted.

Kent Catchment

Water available for licensing

The following assessment points have water available for licensing:

- AP2, Sprint Mill (River Sprint)
- AP3, Mint Bridge (River Mint)
- AP5, Gilpin Bridge (River Gilpin)

Using table 4 and assessment point 5 as an example, the following will apply where water is available for licensing:

For assessment point 5 there is water available for licensing. There is a further 2.3 MI/d available for unconstrained licensing. Following this further licences will be issued with hands off constraints.

This means that for **new** licences:

- There is water available for unconstrained abstraction;
- We will continue licensing the available resource and then implement the Hands off Flow (HOF) constraints
- There is a time limit of **31st March 2029**

For existing licences:

There is a presumption of renewal, subject to the other renewal criteria and local considerations. Renewals may be subject to minor changes including the addition of water efficiency conditions.

Restricted Water Available

The following assessment points have Restricted Water Available:

- AP4, Levens Bridge (River Kent)
- AP6, River Bela at Beetham
- AP7, River Winster at Winster Sluices
- AP8, River Winster at Helton Tarn

This means that for **new** licences:

- No new unconstrained licences will be granted
- Water may only be available during periods of medium to high flows with HOF constraints
- There is a time limit of **31st March 2029**
- No impact on existing licence holders

Water Unavailable for licensing

AP1, Bowston River Kent

For assessment point 1 there is water available for licensing. However, due to Habitats Directive Review of Consents we have overridden the strategy to no further licensing at this assessment point.

This means that for new licences:

These units are closed to new consumptive abstractions. The only way we would consider a new licence would be as a result of licence trading. Please see section 4.4 for further details.

Leven, Crake and Duddon Catchment

Water Available for Licensing

The following assessment points have water available for licensing:

- AP2, Deep Meadow Beck / Gleaston Village
- AP4, Newland Beck upstream of the A590
- AP5, Colton Beck / Colton Beck Bridge
- AP6, Rusland Pool / Rusland Pool Bridge
- AP14 River Crake / Little Dicks
- AP15 Coniston Water / Low Nibthwaite
- AP16 Torver Beck / PtC Coniston Water
- AP18 Yewdale beck / PtC Coniston Water

Using table 5 and assessment point 18 as an example, the following will apply where water is available for licensing:

For assessment point 18 there is water available for licensing. There is a further 0.5 MI/d available for unconstrained licensing. Following this further licences will be issued with hands off constraints.

This means that for **new** licences:

- There is water available for unconstrained abstraction;
- We will continue licensing the available resource and then implement the Hands off Flow (HOF) constraints
- There is a time limit of **31st March 2029**

For existing licences:

There is a presumption of renewal, subject to the other renewal criteria and local considerations. Renewals may be subject to minor changes including the addition of water efficiency conditions.

Restricted Water Available

The following assessment points have Restricted Water Available:

- AP1, River Duddon
- AP3, Levy Beck / Salt Coates
- AP7, River Eea / Cark Farm
- AP8, River Leven / Low Wood Bridge
- AP9, Windermere / Newby Bridge
- AP10, Cunsey Beck / PtC Windermere
- AP11, Trout Beck / Calgarth
- AP12, River Brathay / Jeffy Knotts
- AP13, River Rothay / Miller Bridge House
- AP17, Church Beck / PtC Coniston Water

This means that for **new** licences:

- No new unconstrained licences will be granted
- Water may only be available during periods of medium to high flows with HOF constraints
- There is a time limit of **31st March 2029**
- No impact on existing licence holders

Further Information...

For further information about the availability of water at specific locations, please enquire using the following contact details

by telephone on 03708 506 506
by email at enquiries@environment-agency.gov.uk
or visit our website at www.environment-agency.gov.uk.

4.3.2 Groundwater

Where groundwater (GW) abstractions directly impact on surface water flows, the impact is measured at the surface water AP. Restrictions may be applied to these licences. See Table 6.

On major aquifers we have divided the area into groundwater management units. We use the information and assessments on these units to determine water availability and licence restrictions.

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

Groundwater management unit	Licence restriction	Amount available (MI/d)	Reason for restriction
North Furness	Restricted Water Available	0	Over licensed on water balance
South Furness	Water Available	4.2	

Table 6: Licence restrictions on groundwater abstractions in the South Cumbria CAMS area

4.3.3. Estuaries/Coast

The South Cumbria Coastline is approximately, 105km. This includes Morecambe Bay and the Duddon and Kent estuaries. Abstractions from the Sea are not licensable unless they are clearly in a dock, channel, creek, bay, estuary or arm of the sea and so a licence application must be made for the majority of the South Cumbria Coastline.

For all estuarine abstractions, we require abstraction intakes to be fitted with screens (to 3mm) to prevent eels and elvers being abstracted from the estuary. This is because the estuaries are an obvious migratory route for eels and is required under the Eels (England and Wales) Regulations 2009.

Applications made in designated sites (SAC, SPA, SSSI) will be given further scrutiny to avoid impacts on habitats and the environment.

4.4 Opportunities for licence trading

We want to make it easier to trade water rights. A water rights trade is where a person sells all or part of their water right, as defined by their abstraction licence(s), to another person 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.

In licensing trades, as with new abstraction licences, we need to make sure that we do not cause any deterioration in WFD water body status both within the water body/ bodies where the trade will take place or to downstream water bodies. The table below provides a guide to the potential for trading in water bodies of a particular CAMS water resource availability colour, as shown on Map 2.

CAMS water resource availability colour	Our approach to trading
High hydrological regime	Opportunities for trading water rights will be limited
Water available for licensing	Allow trades of recent actual abstraction and licensed abstraction, but little demand for trading expected within water body as water available for new abstractions.
Restricted water available for licensing	Initially, we will allow trades of recent actual abstraction and licensed abstraction but post trade recent actual abstraction must remain sustainable. The current level of recent actual abstraction means there is a risk that in the future we may only be able to trade recent actual abstraction.
Water not available for licensing	We will only trade recent actual abstraction but no increase in recent actual abstraction is permitted in water body. Licensed abstraction will be recovered for the environment.
HMWBs	Opportunities for trading will depend on local operating agreements and local management.

Table 7: Environment Agency approach to water trading

To find out more about licence trading please go to our [website](#).

4.5 New Authorisations

The Water Act 2003 brought all significant water abstraction under licensing control. This will result in trickle irrigation, dewatering of mines, quarries, engineering works and construction sites, abstractions related to Internal Drainage Districts, navigation abstraction and abstraction for ports and harbour authorities coming into the licensing regime.

As a result we'll be able to manage water resources more effectively by ensuring that all significant activities influencing the availability of water and its impact on the environment are undertaken in a sustainable manner.

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 3 months before commencement so that we can issue guidance to those affected by the changes.

Where we have details of these abstractions we have included them in our assessments to consider how they impact on the catchment.

4.6 Restoring Sustainable Abstraction (RSA)

Where water abstractions cause or potentially cause actual flows to fall short of the EFIs and result in environmental damage, we may need to change or even revoke existing abstractions in order to achieve a sustainable abstraction regime. The abstraction licences within these water bodies that cause these issues are being investigated as part of the RSA programme. Investigations into the impact caused by these licences, individually or cumulatively, will result in options being developed with licence holders on how to improve sustainability. Investigations will include a cost/benefit analysis. Information on how licences in the RSA programme are dealt with can be found in our [Step by Step guide](#) on our website.

In the South Cumbria Area, the following work is being carried out as part of the RSA programme:

- Dubbs Beck: Physical works to ensure flow delivery
- River Gowan: Increased flow at low flow (linked with Dubbs Beck)
- River Kent: Low flows to be better protected for fish including bullhead and salmon

4.7 Heavily Modified Water bodies

The catchment contains a number of heavily modified water bodies that are heavily modified for flow. These are predominately associated with reservoirs or lakes managed for public water supply or currently exempt canal abstractions. Flows downstream may be governed by agreements e.g. River Leven and Windermere but most will suffer from reduced flows especially at low flows. As a result opportunities for abstraction on these reaches will be limited to high flows.

Under the River Basin Management Plan for the North West, private, public and voluntary/third sector organisations will work together to ensure that these water bodies can achieve their full environmental potential.

4.8 Habitats Directive

Under the Habitats Regulations we have assessed the effects of existing abstraction licences and will assess new applications to make sure they are not impacting on internationally important nature conservation sites. These sites are known as Special Areas of Conservation (SAC) and Special Protection Areas (SPA). If your current licence has been reviewed under this legislation to assess its impact you will already know about the review. If we haven't contacted you yet then your licence is either not near a SAC/SPA or isn't having an impact on these sites. If our assessment shows that a new application could have an impact on a SAC/SPA we have to follow strict rules in setting a time limit for that licence. These are:

- We may be able to grant the licence but only with a short time limit. This allows us to monitor the impact of the abstraction on a SAC/SPA and change the licence if necessary;
- If we can't determine that your application will not affect the site we have to either put conditions on the licence so that it cannot affect the site or refuse the application. If we grant the licence we may ask you to monitor its impact;
- If our assessment shows that there isn't an impact on the site we will manage the application according to the principles in this document.
- When assessing new licence applications, we will consider any impacts on the Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs) and Ramsar sites as displayed in Map 1.

Designated sites include:

Natura 2000 network. This is a series of sites designated under the European Habitats and Birds Directive. These sites are afforded a high level of protection under European law. Two types of sites are designated; Special Protection Areas (SPAs) which provide protection to birds, eggs and habitats, and candidate Special Areas of Conservation (cSACs) which contribute to biodiversity by maintaining and restoring habitats and species of European importance. The majority of the reaches of the River Kent and tributaries are designated as a cSAC for populations of bullheads, white-clawed crayfish, freshwater pearl mussels and *Ranunculus* (water crowfoot) communities. Witherslack Mosses cSAC is designated for active raised bogs.

The Kent area is within the Lake District Environmentally Sensitive Area (ESA). One of the primary aims of an ESA is to support the continuation of traditional farming methods, which have created or protected the distinctive landscape.

The Leven and Crake area contains a wide variety of habitats ranging from the upland fells of the central Lake District to wetlands and coastal mudflats. Substantial parts of the catchment fall within the Lake District National Park boundary. The Park is renowned for its outstanding beauty and attracts a large number of visitors each year. It is important that conservation measures are undertaken in the Park to preserve its diversity of landscape and wealth of wildlife and also to maintain its recreational activities.

Morecambe Bay is designated a Ramsar Site for its international importance as a habitat for wildfowl.

Within the Kent area there are 35 Interest (SSSIs) which are of conservation importance on a national level. Some of these areas have obvious direct dependency on surface or groundwater such as Skelsmergh Tarn SSSI and wet areas such as Foulshaw Moss and Winster Wetlands. The Leven and Crake has 41 SSSIs with some of these being related to rivers and lakes such as Troutbeck, Yewdale Beck, Blea Tarn and Claife Tarns and Mires.

5. Strategy actions

In the first round of CAMS we highlighted where there was room for improvement as far as sustainable abstraction was concerned. A list of actions to be carried out before the next CAMS update was published in the first licence strategy document. Updates on the progress of those actions have been posted annually on the [CAMS website](#).

Table 7 shows progress on the actions from first round of the South Cumbria CAMS

Table 8 shows new actions for the South Cumbria CAMS proposed as a result of the latest assessment of resources.

Action	AP unit	Partner	Start	Finish	Progress
We recognise that the abstraction for the Lancaster Canal is significant in the Kent catchment. The reopening of the northern reaches of the Lancaster Canal is currently in planning stages. This is likely to have an even greater abstraction impact on the Kent CAMS area.	AP6	British Waterways	2004	Superseded by the formation of Canal and River Trust	Navigation abstraction is exempt under Water Act 2003. Government are currently in discussion to remove these exemptions.
We will continue to undertake monitoring of all surface water units to increase our knowledge of flows throughout the catchment; and further fisheries and ecology monitoring will ensure that we can carry out the environmental weighting assessment to complete. the review of the Leven and Crake and Kent CAMS in six years' time, and monitor the impact of the strategy until then.	All		2004	Ongoing	Presently we use a combination of static flow gauging stations or mobile flow measuring devices in order to provide the best data available.
In the Leven and Crake CAMS we recognise the need for further investigation for AP2 Levy Beck/Salt Coates to improve the understanding of how the surface water and groundwater interact in this area.	AP2 (1 st Cycle CAMS) AP3 (2 nd Cycle CAMS)		2004	2010	Reviewed under WFD and closed
Further investigation is required to carry out a water resource assessment for Windermere.			2013	2016	Starting 2013, trial a new approach to operating the Windermere waterbank in order to benefit ecology and fish in the river Leven whilst protecting the interests of lake users (boating for example) and abstractors.

Table 7 Progress on the actions from 1st round of the South Cumbria CAMS

Measures	AP unit	Start	Finish	Progress
In this catchment there are few gauging stations at which hands off flows can suitably be assessed. Review the number and quality of suitable gauging stations within the catchment in which HoF's can be assessed. Lack of quality data will result in licences that cannot be enforced and managed properly.	All waterbodies	2013	2016	On going
Investigate waterbodies that are over-licensed and have fallen below the EFI.	All waterbodies	2012	2016	The abstraction licences within these water bodies that cause these issues are being investigated as part of the RSA programme. Investigations into the impact caused by these licences, individually or cumulatively, will result in options being developed with licence holders on how to improve sustainability.
Monitoring groundwater levels	All waterbodies	2012	2016	Our Groundwater team continue to monitor groundwater levels and review licence applications.
Investigate the possibility of reducing the risks of GWMU's being fully licensed.	All waterbodies	2012	2016	Our Groundwater team continue to review existing licences in order to reduce the pressures on GWMU's.
Investigation into the feasibility of licensing discharge flows.	All waterbodies	2012	2013	We are currently in the process of exploring all options.

Table 8 New measures arising from the latest assessment of resources in the South Cumbria CAMs

Glossary of terms

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by the Environment Agency to allow the removal of water
Assessment Point (AP)	Point at which the flow from upstream catchment is assessed.
Catchment	The area from which precipitation and groundwater will collect and contribute to the flow of a specific river
Consumptive abstraction	Abstraction where a significant proportion of the water is not returned either directly or indirectly to the source of supply after use. For example for the use of spray irrigation.
Discharge	The release of substances (i.e. water, sewage, etc.) into surface waters.
Environmental flow indicator (EFI)	Flow indicator to prevent ecological deterioration of rivers, set in line with new UK standards set by UKTAG.
Full licence	A licence to abstract water from a source of supply over a period of 28 days or more
Gauging Station	A point along a river or lake where river flows and levels are measured.
Groundwater	Water that is contained in underground rocks.
Hands Off Flow (HOF)	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 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.
Minimum Residual Flow	The minimum flow condition that can be placed on a license to protect very low flows.
Protected right	Means a right to abstract, which someone has by virtue of the small abstractions exemptions defined in the Water Act 2003 or by virtue of having an abstraction licence. The right protected is the quantity that can be abstracted up to that allowed by the exemption or the terms of the licence. The small abstraction exemptions defined by the Water Act 2003 are for domestic and agricultural purposes (excluding spray irrigation) not exceeding 20 m ³ /d.
Surface water	This is a general term used to describe all water features such as rivers, streams, springs, ponds and lakes.
Transfer licence	A licence to abstract water from one source of supply over a period of 28 days or more for the purpose of; <ul style="list-style-type: none"> 1. transferring water to another source of supply; or, 2. transferring water to the same source of supply, but at another point, in the course of dewatering activities in connection with mining, quarrying, engineering, building or other operations (whether underground or on the surface);
Water body (WB)	Units of either surface water or groundwater at which assessments are completed for WFD.

List of abbreviations

AMP	Asset Management Plans
AP	Assessment Point
ASB	Abstraction Sensitivity Bands
AWB	Artificial Water Body
CAMS	Catchment Abstraction Management Strategies
CED	Common End Date
Defra	Department of Environment Fisheries and Rural Affairs
EA	Environment Agency
EFI	Ecological Flow Indicator
FL	Full Licensed (scenario)
GES	Good Ecological Status
GW	Groundwater
GS	Gauging Station
HES	High Ecological Status
HMWB	Heavily Modified Water body
HoF	Hands off Flow
HoL	Hands off Level
LDE	Level Dependent Environment
maOD	Metres above ordnance datum
MRF	Minimum Residual Flow
Ptc	Prior to confluence
Q95	The flow of a river which is exceeded on average for 95% of the time.
RA	Recent Actual (scenario)
RSA	Restoring Sustainable Abstraction
RBMP	River Basin Management Plans
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SSSI	Sites of Special Scientific Interest
SW	Surface water
WB	Water body
WFD	Water Framework Directive

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