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The Cleddau & Pembrokeshire Coastal Rivers Abstraction Licensing Strategy

May 2014

A licensing strategy to manage water resources sustainably



On 1 April 2013 Natural Resources Wales brought together the work of the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales, as well as some functions of Welsh Government.

Our purpose is to ensure that the natural resources of Wales are sustainably maintained, used and enhanced, now and in the future.

We work for the communities of Wales to protect people and their homes as much as possible from environmental incidents like flooding and pollution.

We provide opportunities for them to learn, use and benefit from Wales' natural resources.

We work for Wales' economy and enable the sustainable use of natural resources to support jobs & enterprise.

We help businesses and developers to understand and consider environmental limits when they make important decisions.

We work to maintain and improve the quality of the environment for everyone.

We work towards making the environment and natural resources more resilient to climate change and other pressures.

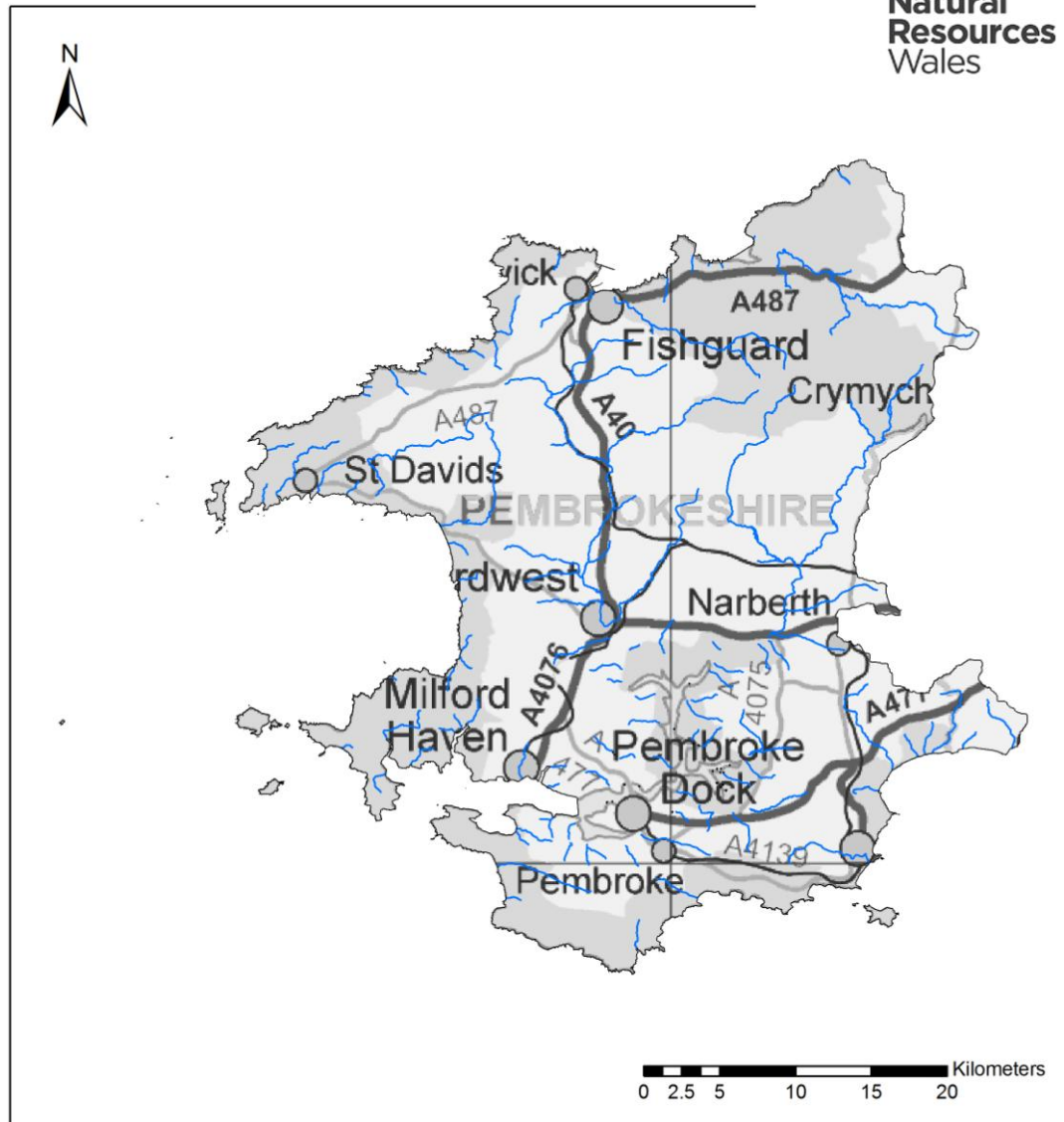
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The Cleddau & Pembrokeshire Coastal Rivers CAMS Area



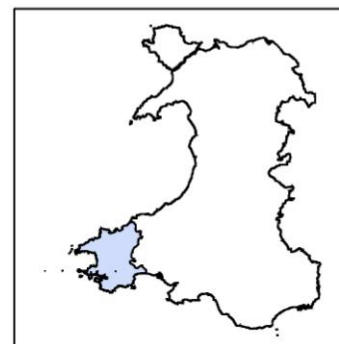
Legend

-  The Cleddau & Pembrokeshire Coastal Rivers CAMS Area
-  The Cleddau & Pembrokeshire Coastal Rivers CAMS rivers

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Creation date 27th February 2013



Map 1 - The Cleddau & Pembrokeshire Coastal Rivers CAMS (Catchment Abstraction Management Strategy) area

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 balancing the needs of society, the economy and the environment.

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

Martyn Evans Ecosystems Planning and
Partnerships Manager,
South

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1. About the Licensing Strategy

This **Licensing Strategy** sets out how water resources are managed in the Cleddau & Pembrokeshire Coastal Rivers Catchment Abstraction Management Strategy (CAMS) area. It provides information about where water is available for further abstraction and an indication of how reliable a new abstraction licence may be.

This strategy was produced in May 2014 and it supersedes the strategy issued in December 2006.

The revised CAMS process

We have developed a more streamlined CAMS process. The new process includes a number of changes to how we produce CAMS:

- We now use CAMS as a “live” assessment which is continuously updated rather than reviewed on a six year cycle;
- We will incorporate consultation on water resource issues into the Water Framework Directive (WFD) River Basin Planning process. However, we will still undertake any targeted consultation for CAMS as required;
- We will produce more concise, customer focused documents in-house and publish these on the internet. Anyone wishing to receive a paper copy of the document may still do so;
- We can now report the results of the resource assessment at a more local level, based on water bodies defined by the WFD. This approach will help us to meet WFD objectives and contribute to River Basin Management Plans (RBMPs);
- We have regrouped the river catchments into fewer CAMS areas. This means less duplication of general information and better use of our resources in producing CAMS.

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

The WFD’s main objectives are to protect and enhance the water environment and ensure the sustainable use of water resources for economic and social development.

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

CAMS contribute to the WFD by:

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

When is an abstraction licence required?

You need a licence from us if you want to abstract more than 20 cubic metres (m³) (4,400 gallons) of water per day from:

- a river or stream;

- a reservoir, lake or pond;
- a canal;
- a spring, or;
- an underground source.

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

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

- by telephone on 0300 065 3000
- by email at enquiries@naturalresourceswales.gov.uk
- or visit our website at www.naturalresourceswales.gov.uk.

Sustainable abstraction

This Licensing Strategy has been produced using evidence and information gathered during the 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 Cleddau & Pembrokeshire Coastal Rivers 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 overarching principles we use when managing abstraction licences and links with other initiatives are detailed in our document [Managing Water Abstraction](#). You should read [Managing Water Abstraction](#) when reading this catchment specific licensing strategy.

2. The Cleddau & Pembrokeshire Coastal Rivers CAMS area

The Cleddau and Pembrokeshire Coastal Rivers CAMS area and the assessed rivers remain unchanged from the first licensing strategy issued in December 2006.

The river catchments included in this CAMS are the Eastern and Western Cleddau and the coastal river catchments of the Nevern, Gwaun, Alun, Solva, Ritec, Cresswell, Castlemartin Corse, Westfield Pill and Gann Flats Stream. All are surface water-dominated catchments with rapid changes in flows soon after rainfall events. Both of the Cleddau catchments, the Nevern and the Gwaun are typical Welsh rivers; they are steep, fast-flowing and shallow in their upper reaches, becoming slower, deeper and more meandering towards the tidal limit. The smaller coastal streams in the area vary from steeper, shallower catchments, like the Solva and Westfield Pill, to low-lying, sluggish rivers, such as the Ritec, Gann Flats Stream and Castlemartin Corse.

The CAMS area covers most of Pembrokeshire and a very small strip of Carmarthenshire. The main towns are Fishguard, Haverfordwest, Milford Haven and Pembroke. The area is largely of a lowland nature, although the two large rivers, the Eastern and Western Cleddau, drain partially from the Preseli Hills.

The area is predominantly rural with urban development and industry concentrated around the Cleddau Rivers and the Milford Haven Waterway, where recent developments include the two LNG terminals and Pembroke Power Station.

Agriculture is the main land use, with areas of forestry predominantly on the Preseli Hills. Intensive agricultural practices have led to severe problems with bankside erosion and habitat destruction. The Pembrokeshire Rivers Trust, our Living Rivers initiative and Fishing in Wales are involved in schemes to restore riverside habitat on the Western Cleddau. Restoration work, including fencing the banks and creating wildlife corridors where vegetation will regenerate naturally, has been undertaken along numerous stretches.

The coastline and countryside are economically important. In addition to agriculture, tourism is a major industry in the area.

The area has a high conservation and landscape value, supporting numerous Sites of Special Scientific Interest (SSSIs). The Cleddau rivers themselves are designated as a SSSI and Special Area of Conservation (SAC). Most of the coastal river catchments and parts of the Eastern and Western Cleddau are within the Pembrokeshire Coast National Park. All of the rivers in the CAMS area support important fisheries and conservation interests.

There are 239 licensed abstractions within the Pembrokeshire CAMS area, all of which are from surface waters. Abstractions from groundwater sources over a large part of southwest Wales, including the Cleddau & Pembrokeshire Coastal Rivers CAMS area, are currently exempt from licensing by Statutory Instrument (South West Wales River Authority (Exceptions from Control) Order 1965). This groundwater exemption is likely to be removed under the Water Act 2003.

As agriculture is the main land use, the majority of licensed abstractions in the area are for agricultural purposes, such as spray irrigation. Although this accounts for around 90% of the licences, it accounts for only 0.12% of the licensed water. Abstraction for public water supply is the main consumptive use within this CAMS area, but accounts for only 3% of the water licensed.

Llys y Fran reservoir on the Syfynwy (a tributary of the Eastern Cleddau) is used to regulate flows in the Eastern Cleddau to enable abstraction for public water supply further downstream. Water can also be directly abstracted from the reservoir for public water supply.

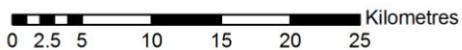
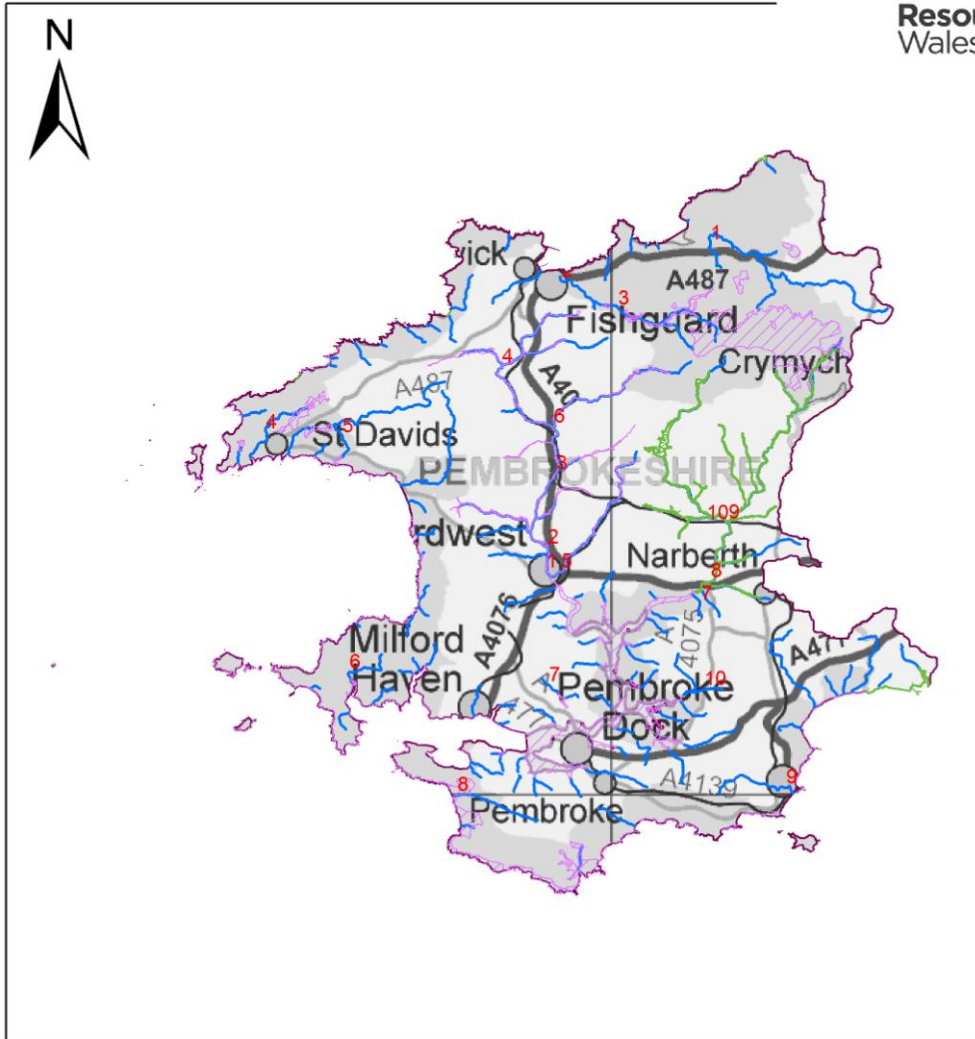
About two thirds of the licences in this CAMS area are outside the river catchments included in the CAMS resource assessment. These are located on small coastal streams and the Milford Haven Waterway. The majority of licences on the small streams are for spray irrigation and account for less than 1% of the total water licensed in the CAMS area. The majority of the spray irrigation licences are for supplying winter storage reservoirs and so do not have an impact on low river flows, which are typically seen in the summer months.

Pembroke Power Station abstracts from the Milford Haven Waterway and holds the licence for the largest non-consumptive abstraction in the CAMS area. This accounts for over 90% of the total licensed resource.

There are seven known large exempt abstractions within this CAMS area. These are from groundwaters for public water supply and private water supplies and have been included in the resource assessment. Groundwater is used extensively throughout the area to support large numbers of small domestic and agricultural abstractions. Although these may be numerous, the quantities are not significant.

Map 2 shows the Cleddau & Pembrokeshire Coastal Rivers CAMS area.

The Cleddau & Pembrokeshire Coastal Rivers CAMS Area



Legend

- The Cleddau & Pembrokeshire Coastal Rivers CAMS Assessment Points
- The Cleddau & Pembrokeshire Coastal Rivers
- Designated sites
 - SAC
 - SPA
 - SSSI

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Map 2 - The Cleddau & Pembrokeshire Coastal Rivers CAMS area

3. Water resource availability of the Cleddau & Pembrokeshire Coastal Rivers CAMS 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, which builds into a picture for the catchment. The main components that help us to understand the availability of water resources in this assessment 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. 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 flows), Q70, Q50 and Q30 (highest flows).

This information gives a realistic picture of the current resource availability 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 the water resource availability 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 resources 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 having '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.

Map 3 shows the water resource availability colours in the Cleddau & Pembrokeshire Coastal Rivers CAMS area. There are no water bodies of 'high hydrological status' in this CAMS area.

Another category of water bodies are Heavily Modified Water Bodies (HMWB). These can be classified for many reasons but for water resources they are classified if they contain a lake and/or reservoir that influences the downstream flow regime of the river. The downstream 'flow modified' water bodies are also classified as heavily modified.

We will add any conditions necessary to protect flows to a new licence during the licence determination procedure. We will base licence conditions on the water resource availability at different flows (high to low). Table 1 lists the implications for licensing for each water resource availability colour.

In cases where there is a flow deficit (RA is below the EFI) or risk of a flow deficit (FL is 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 which requires abstraction to stop when the river flow falls below a certain amount. A river may also be heavily supported by flows from a reservoir and may have unnaturally high 'low' flows which means that the river environment is most vulnerable at medium flows.

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 can be considered depending on local and downstream impacts.
Restricted water available for licensing	Full Licensed flows fall below the EFIs. If all licensed water is abstracted there will not be enough water left for the needs of the environment. 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 or Good Ecological Potential (GEP). No further consumptive licences will be granted. Water may be available if you can buy (known as licence trading) from an existing licence holder the amount of water equivalent to that recently abstracted.
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 4.2.1 Surface Water. There may be water available for abstraction in discharge rich catchments. You need to contact us to find out more.

Table 1 - Implications of water resource availability colours.

3.2.2 Groundwater

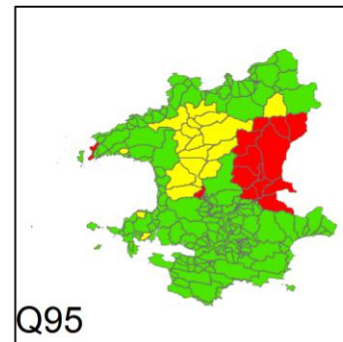
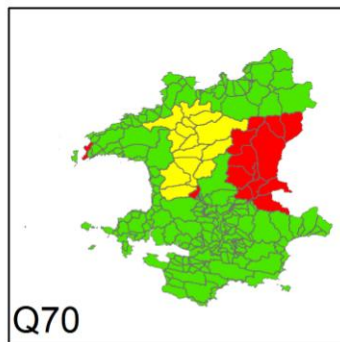
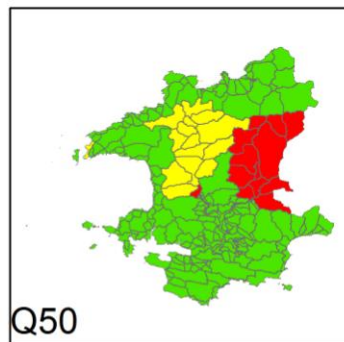
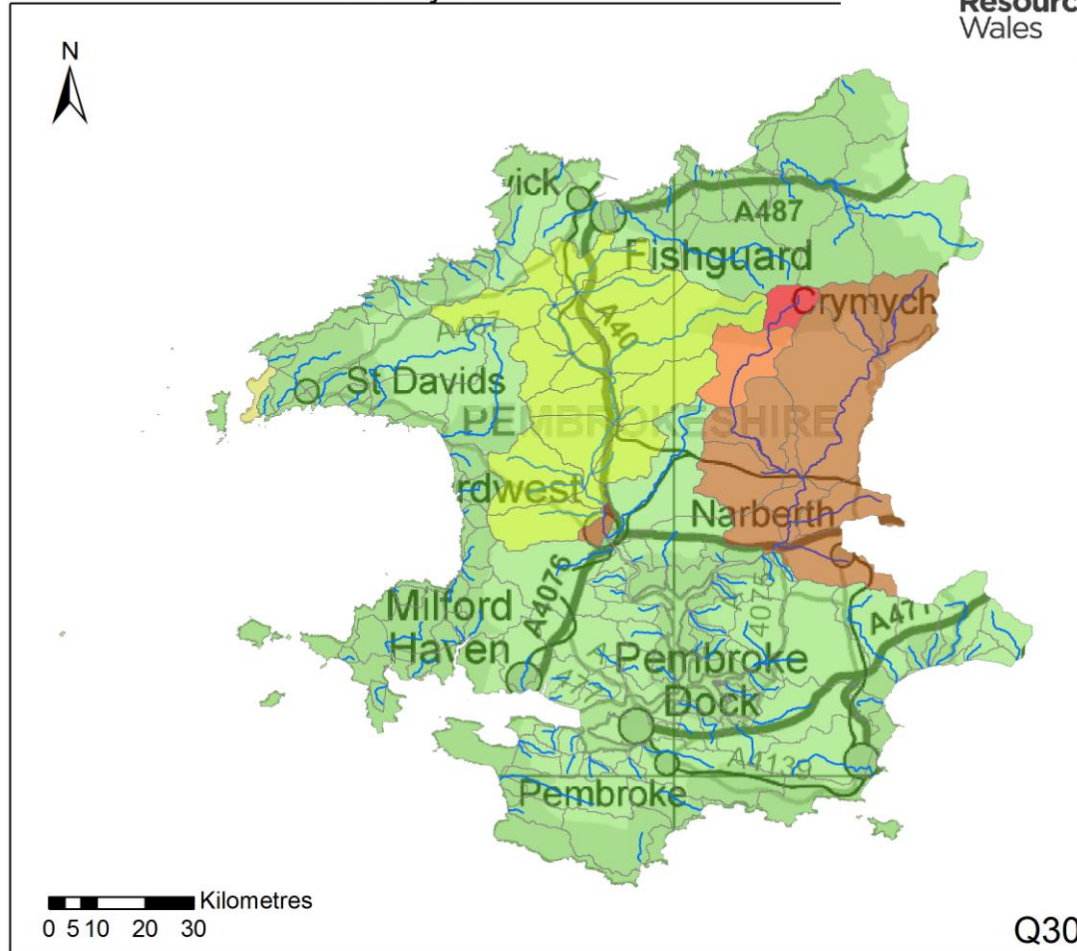
Groundwater availability is guided by the surface water resource availability colours unless we have better information on principle aquifers or are aware of local issues we need to protect.

Please refer to section 4.2.2 for further information.

Map 3 shows the water resource availability colours in the Cleddau & Pembrokeshire Coastal Rivers CAMS area. The same availability is applied to groundwater and surface water.

GWMU resource availability colour	Implication for licensing
Water available for licensing	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 for licensing	<p>Groundwater unit balance shows more water is licensed than the amount available OR that there are known local impacts likely to occur on dependent wetlands or groundwater levels, or cause intrusions but with management options in place.</p> <p>In restricted groundwater units no new consumptive licences will 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.</p> <p>In other units there may be restrictions in some areas e.g. in relation to saline intrusion.</p>
Water not available for licensing	<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>

The Cleddau & Pembrokeshire Coastal Rivers CAMS
 Water Resource Availability Colours



Legend

- The Cleddau & Pembrokeshire Coastal Rivers CAMS rivers
- Water Available
- Limited Water Available
- No Water Available
- The Cleddau & Pembrokeshire Coastal Rivers CAMS VBs

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Map 3 - Water resource availability colours for the Cleddau & Pembrokeshire Coastal Rivers CAMS.

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.

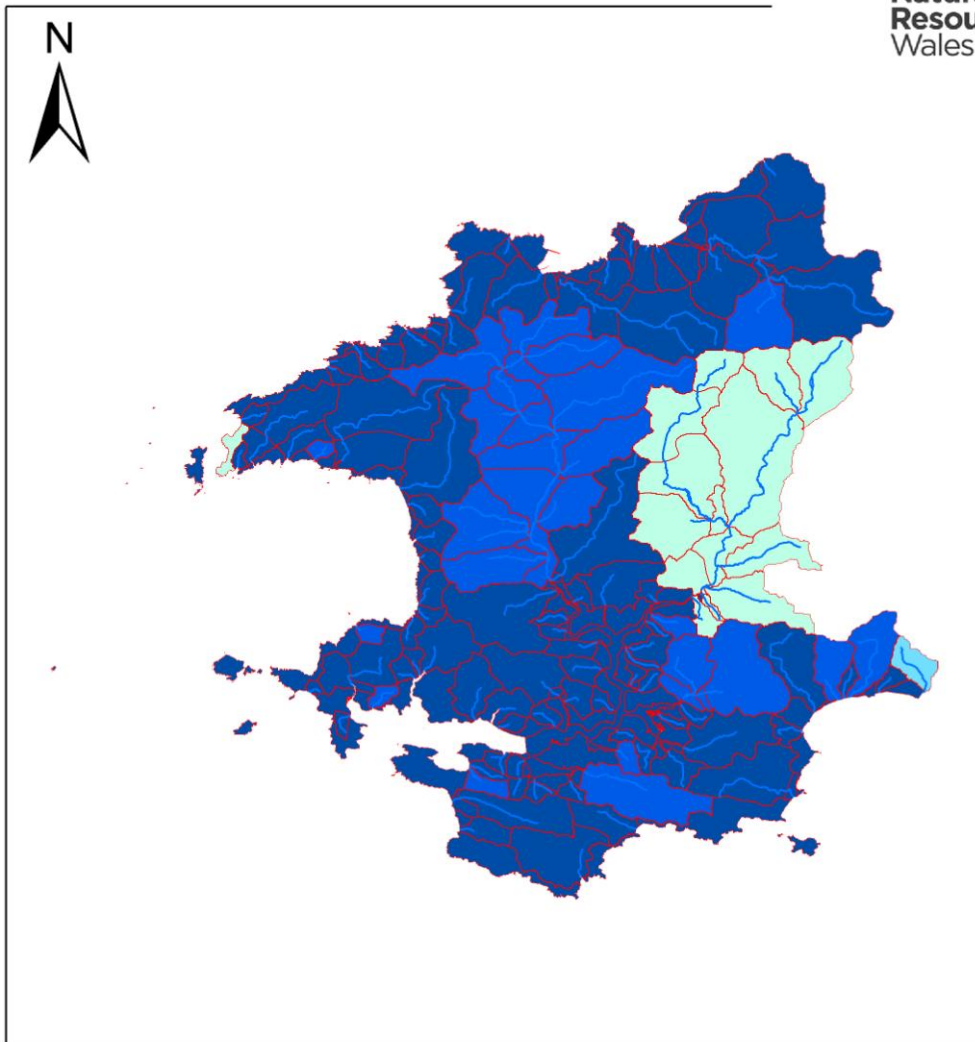
The availability of water for abstraction within a river varies greatly from high to low flows. By assessing the quantity of water available at different flows it is possible to see when there is a surplus or deficit of water and the associated reliability of an abstraction. This is an indication only;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

Table 2 shows the resource availability colour associated with the percentage reliability of consumptive abstraction. Map 4 gives an indication of the resource reliability in the Cleddau & Pembrokeshire Coastal Rivers CAMS area expressed as a 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 2 - Percentage reliability of consumptive abstraction.

The Cleddau & Pembrokeshire Coastal
Rivers CAMS
Resource Reliability (% of the time)



Legend

-  The Cleddau & Pembrokeshire Coastal Rivers CAMS water bodies
-  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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Map 4 - Water resource reliability expressed as a percentage of time available.

4. How we manage abstractions in the Cleddau & Pembrokeshire Coastal Rivers CAMS area

4.1 Principles

The document [Managing Water Abstraction](#) outlines the overarching principles that we follow in managing our water resources. How we apply these principles in the Cleddau & Pembrokeshire Coastal Rivers CAMS 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 (4,400 gallons) 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 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 will determine each application based on 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 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 these constraints 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 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.

We will also take action if necessary to limit the increase in current abstraction if we think this will lead to deterioration of the ecology or the near pristine condition of our high hydrological regime water bodies.

These principles apply to the water body in which the abstraction is located and also to all downstream water bodies that may be affected by any abstraction-related reduction in flow. 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 to 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 environment. For further details on our general approach to licensing please see the document [Managing Water Abstraction](#).

Impoundments

An impoundment is a dam, weir or other construction in an inland waterway that obstructs or impedes flow and/or raises water levels. Applications for impoundments will be dealt with on a case-by-case basis.

Hydropower

Water abstraction for hydropower schemes is non-consumptive, with all water used usually returned to the watercourse. HOF and maximum abstraction volumes are determined in line with our guidance and based on the assessment of environmental risk for each scheme. For further information please refer to the hydropower section on our website.

4.2 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 of 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 that they can be reviewed at the same time. CEDs are assigned on a 12 year cycle. 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 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.

Sixteen of the licences in the Cleddau & Pembrokeshire Coastal Rivers CAMS area are time-limited. The next CED for the Cleddau & Pembrokeshire Coastal Rivers CAMS is 2025, and the subsequent one is 2037.

4.2.1 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.

Tables 3a and 3b give an indication of how much water is available for further abstraction and the associated restrictions that we may apply to new and varied abstraction licences. River flows in the headwaters or on unassessed tributaries may be much lower than at CAMS APs. Abstractions from these river reaches may be subject to different restrictions and quantities than those stated below.

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. This is detailed in the last column of Table 3 if applicable.

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

Tables 3a and 3b detail the APs in the Cleddau & Pembrokeshire Coastal Rivers CAMS area with corresponding potential HOFs that may be applied to a licence, the average number of days water may be available under this restriction and the approximate volume of water in megalitres per day (Ml/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 will assess this on a case-by-case basis.

Considerations specific to each AP for water availability, restrictions, etc, are detailed in the section below the tables.

AP	Name	Water Resource Availability Colour at Q95	HOF Restriction (Ml/d) and percentile flow (Q)	Number of days per year abstraction may be available	Approximate volume available with restriction (Ml/d)	Is there a gauging station at this AP?	Additional restrictions
1	Western Cleddau at tidal limit	Water not available for licensing	HOF3 168.3 Ml/d (Q75)	274	15.7	No	A higher HOF has been imposed to protect the SAC. See licensing strategy below.
2	Western Cleddau at Prendergast Mill gauging station	Restricted water available for licensing	HOF3 154.2 Ml/d (Q75)	274	15.7	Yes	Results overridden to protect flows in AP1 which is the critical AP. See licensing strategy below.
3	Western Cleddau at Treffgarne	Restricted water available for licensing	HOF3 128 Ml/d (Q75)	274	15.7	No	
4	Western Cleddau at Castlemorris	Restricted water available for licensing	HOF3 33.3 Ml/d (Q75)	274	8.7	No	
5	Cartlett Brook	Water available for	MRF 3.6Ml/d	365	0.7	No	See licensing strategy

		licensing					below.
6	Anghof at Wolfscastle	Restricted water available for licensing	HOF3 42.8MI/d (Q75)	274	8.8	No	Results overridden to protect flows in AP1 which is the critical AP. See licensing strategy below.
7	Eastern Cleddau at tidal limit	Water not available for licensing	N/A	0	0	No	See licensing strategy below.
8	Eastern Cleddau at Canaston Bridge gauging station	Water not available for licensing	N/A	0	0	Yes	See licensing strategy below.
9	Eastern Cleddau upstream of Syfynwy	Water not available for licensing	N/A	0	0	No	See licensing strategy below.
10	Syfynwy upstream of Eastern Cleddau confluence	Water not available for licensing	N/A	0	0	No	Results overridden to protect flows in AP7 which is the critical AP. See licensing strategy below.

Table 3a - Water availability for the assessment points of the Cleddau catchments.

AP	Name	Water Resource Availability Colour at Q95	HOF Restriction (MI/d) and percentile flow (Q)	Number of days per year abstraction may be available	Approximate volume available with restriction (MI/d)	Is there a gauging station at this AP?	Additional restrictions
1	Nevern at tidal limit	Water available for licensing	MRF 12.8MI/d	365	1.2	No	See licensing strategy below.
2	Gwaun at tidal limit	Water available for licensing	MRF 7.8MI/d	365	1.8	No	See licensing strategy below.
3	Gwaun at Cilrhedyn Bridge gauging station	Water available for licensing	MRF 7.1MI/d	365	1.6	Yes	See licensing strategy below.
4	Alun at St.	Water	MRF	365	0.1	Yes	See

	Davids gauging station	available for licensing	1.1MI/d				licensing strategy below.
5	Solfach at Middle Mill gauging station	Water available for licensing	MRF 5.7MI/d	365	0.7	Yes	See licensing strategy below.
6	Gann Flats Stream	Water available for licensing	HOF1 1.7MI/d Q95	347	0.1	No	See licensing strategy below.
7	Westfield Pill	Water available for licensing	MRF 2.7MI/d	365	0.4	No	See licensing strategy below.
8	Castlemartin Corse	Water available for licensing	HOF1 2.4MI/d (Q95)	347	0.1	No	See licensing strategy below.
9	Ritec	Water available for licensing	MRF 3.5	365	0.6	No	See licensing strategy below.
10	Cresswell River	Water available for licensing	MRF 0.8MI/d	365	0.2	No	See licensing strategy below.

Table 3b - Water availability for the assessment points of the Pembrokeshire Coastal Rivers catchments.

Cleddau catchments

AP1, Western Cleddau at tidal limit

AP2, Western Cleddau at Prendergast Mill gauging station

AP3, Western Cleddau at Treffgarne

AP4, Western Cleddau at Castlemorris

AP6, Anghof at Wolfscastle

There is restricted water available for licensing within these assessment points. This means that:

- New licences will be issued with appropriate HOF conditions.
- New licences will be subject to the requirements of the Habitats Regulations, as well as the above, which may mean more stringent restrictions than set out in the CAMS.

For existing licences:

- There will be no impact on existing abstraction licences, other than those which have been identified as a result of the Habitats Directive Review of Consents. We will already have contacted you if this applies to your licence.
- 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.
- Renewals may be subject to change depending on WFD assessments, determined by the ecological status of the waterbody. This will be discussed at as early a stage as possible with the licence holder.

We have restricted water available for new licences in the middle and upper reaches of the river to protect flows at AP1, where resources are committed to support existing abstractions.

AP7, Eastern Cleddau at tidal limit
AP8, Eastern Cleddau at Canaston Bridge gauging station
AP9, Eastern Cleddau upstream of Syfynwy confluence
AP10, Syfynwy upstream of Eastern Cleddau confluence

There is no water available for licensing within these assessment points. This means that:

- Licences for non-consumptive abstractions would be considered.
- Any new licences will be issued with appropriate HOF conditions.
- Any new licences will be subject to the requirements of the Habitats Regulations, as well as the above, which may mean more stringent restrictions than set out in the CAMS.

For existing licences:

- There will be no impact on existing abstraction licences, other than those which have been identified as a result of the Habitats Directive Review of Consents. We will already have contacted you if this applies to your licence.
- 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.
- Renewals may be subject to change depending on WFD assessments, determined by the ecological status of the waterbody. This will be discussed at as early a stage as possible with the licence holder.

Pembrokeshire Coastal Rivers catchments

AP1, Nevern at tidal limit
AP2, Gwaun at tidal limit
AP3, Gwaun at Cilrhedyn Bridge gauging station
AP4, Alun at St. Davids gauging station
AP5, Solfach at Middle Mill gauging station
AP5, Cartlett Brook
AP6, Gann Flats Stream
AP7, Westfield Pill
AP8, Castlemartin Corse
AP9, Ritec
AP10, Cresswell River

There is water available for licensing within these assessment points. This means that:

- New licences will be issued, with HOF conditions where appropriate.
- There are SACs within the CAMS area which are water dependent. Therefore we will need to take into account requirements of the Habitats Regulations, where appropriate, which may mean more stringent restrictions than set out in the CAMS.

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.

- Renewals may be subject to change depending on WFD assessments, determined by the ecological status of the waterbody. This will be discussed at as early a stage as possible with the licence holder.

4.2.1.1 Heavily Modified Water Bodies

Flows in the Syfynwy and Eastern Cleddau are influenced by the operation of Llys y Fran reservoir in the middle reaches of the Syfynwy. The scheme is controlled under an Operating Agreement authorised by Natural Resources Wales. Water is abstracted directly from the reservoir and also released to augment flows in the Eastern Cleddau for abstraction for public water supply further downstream. In addition to releasing water for abstraction, it can also be released to help support fish migration.

4.2.1.2 Important local features that may affect water availability

European law provides a very high level of protection to two types of designated sites due to their high conservation value. These are:

- Special Areas of Conservation (SAC), which contribute to biodiversity by maintaining and restoring habitats and species;
- Special Protection Areas (SPA), which provide protection to birds and their nests, eggs and habitats.

Ramsar sites and Sites of Special Scientific Interest (SSSI) also carry a high level of environmental importance.

There are a number of designated sites within South West Wales with water-related features. All new licence applications near or within these sites will be subject to assessment under the Habitats Directive. This will involve assessing their potential impact on the designated species and habitats, alone and in combination with other licences.

If our assessment shows that a new application could potentially have an impact on a SAC/SPA we have to follow strict rules when determining that licence. These include:

- 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.

The Environment Agency completed its review of all existing abstraction licences in 2010 to establish their potential impact on the designated species and habitats. They identified a number of licences where changes are needed to comply with the Habitats Directive. We are working with licence holders to implement these changes by 2015.

Developers in catchments near or within a designated site should contact us to discuss water availability and conditions which may be applied to licences.

4.2.2 Groundwater

Where groundwater abstractions directly impact on surface water flows, the impact is measured at the surface water AP. Licences may be issued with conditions relating to surface water flows, such as the same HOF conditions which would apply to a surface water abstraction (see Tables 3a and 3b). This would require the groundwater abstraction to cease when surface water flows are low.

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.

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. We have four groundwater management units in this CAMS area; Bosherton, Park Springs, Milton and Pendine.

Abstractions from groundwater within the majority of this CAMS area are currently exempt from licensing by Statutory Instrument (South West Wales River Authority (Exceptions from Control) Order 1965) (see Map 5). This groundwater exemption is likely to be removed under the Water Act 2003.

Applications for groundwater abstractions within licensable areas would be subject to the normal determination criteria. This includes investigations such as pump tests to assess yield and localised impacts. Any licences would be issued with restrictive conditions where appropriate. Consent to drill and test pump groundwater abstractions must be obtained before any works commence. Please contact us for further information on groundwater availability and licensing requirements.

4.2.3 Estuaries & coast

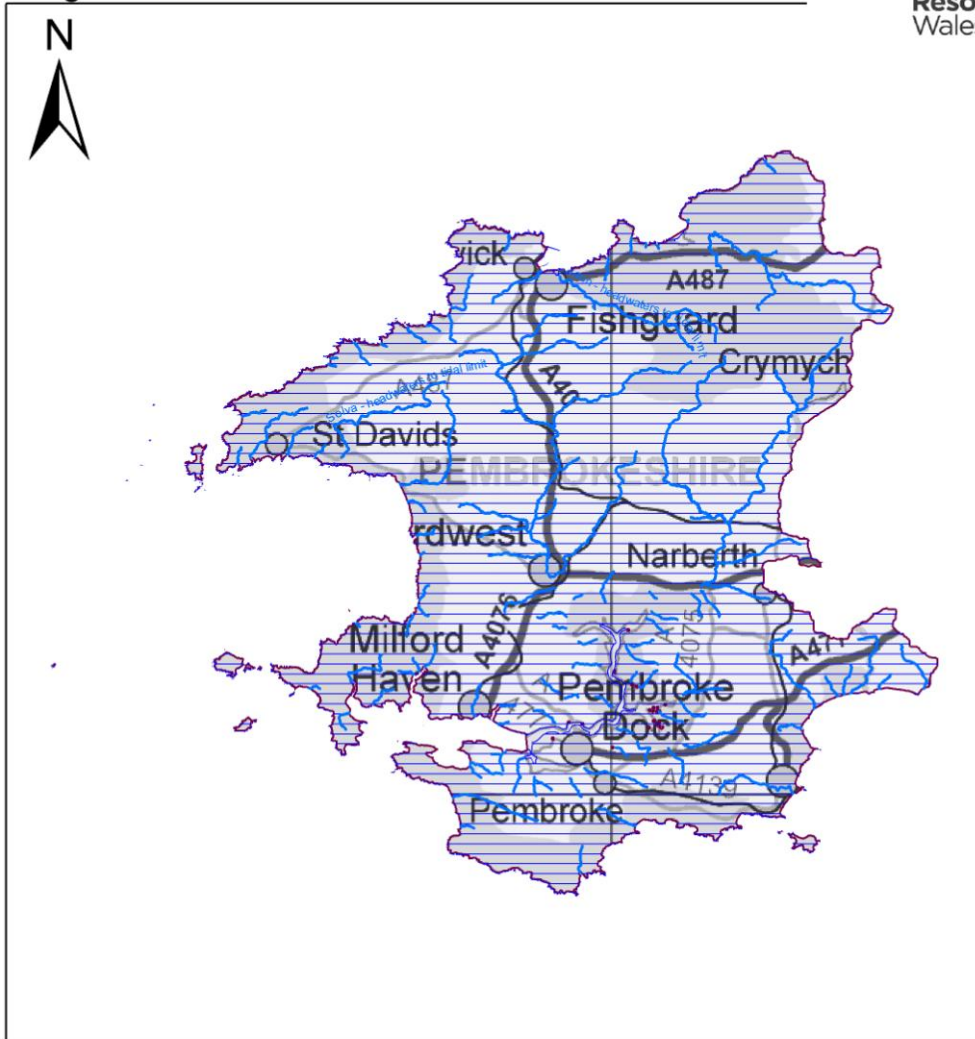
Estuaries are not included in the CAMS resource assessment as tidal influences cannot be assessed in the same way as inland waters.

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



However, the WFD has made an assessment of these smaller catchments and an indication of water availability from these resources is included in Map 3.

Applications for abstractions from resources in catchments outside those assessed by the CAMS will be assessed on a case-by-case basis through the licence determination process.

Area currently exempt from licensing
for groundwater abstractions



Legend

-  Area currently exempt for groundwater licensing
-  The Cleddau & Pembrokeshire Coastal Rivers

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Map 5 – Area exempt from licensing for groundwater abstractions

4.3 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 3.

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 is available for new abstractions.
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.
Water not available for licensing	We will only trade recent actual abstraction, but no increase in recent actual abstraction is permitted in the water body. Licensed abstraction may be recovered for the environment.
HMWBs	Opportunities for trading will depend on local operating agreements and local management.

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

4.4 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, and other local exemptions, coming into the licensing regime.

As a result we will 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 at least 3 months before commencement so that we can issue guidance to those affected by the changes.

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

A large proportion of this CAMS area is currently exempt for groundwater licensing, as shown in Map 5. This groundwater exemption is likely to be removed under the Water Act 2003.

4.5 Restoring Sustainable Abstraction

Where water abstractions cause or potentially cause environmental damage, we may need to change or even revoke existing abstraction licences. We investigate abstraction licences causing such issues through the Restoring Sustainable Abstraction (RSA) programme. We can then work with licence holders to develop options on how to improve sustainability. 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 gov.uk website.

The RSA programme has provided us with a framework for undertaking both the Habitats Directive review of consents and the WFD water resources investigations. We also identified a number of RSA schemes through the first round of CAMS.

Glossary of terms

Abstraction	Removal of water from a source of supply (surface or groundwater).
Abstraction licence	The authorisation granted by Natural Resources Wales (or the Environment Agency in England) to allow the removal of water.
Assessment Point Unit	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	Flow indicator to prevent environmental 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.
Groundwater	Water that is contained in underground rocks.
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.
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; <ol 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); <p>without intervening use.</p>
Water body	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
EFI	Ecological Flow Indicator
FL	Full Licensed (scenario)
GEP	Good Ecological Potential
GES	Good Ecological Status
GW	Groundwater
HES	High Ecological Status
HMWB	Heavily Modified Water Body
HOF	Hands off Flow
HOL	Hands off Level
LDE	Level Dependent Environment
MI/d	Megalitres per day
maOD	Metres above ordnance datum
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
UKTAG	United Kingdom's Technical Advisory Group
WB	Water body
WFD	Water Framework Directive
WRGIS	Water Resources Geographical Information System