

# Updating the determination of water stressed areas in England

## Consultation document

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## Foreword

We are consulting on our updated method and initial outcomes for determining areas of water stress in England. The final assessment will provide our advice to the Secretary of State on the areas that should be determined as areas of serious water stress. The purpose of the determination is solely to inform whether water companies should be able to consider the option of charging by metred volume for all customers (compulsory metering). This is alongside other options to manage water supplies in their plans.

A lot has changed since we last revised the classification in 2013. The [National Framework for Water Resources](#) and water companies' water resources management plans (WRMP19) were published in 2020. Using the latest data from these plans has improved our understanding of water resources needs. This includes the impact of climate change, pressure on the environment and how to meet the challenges they create.

Water stress applies both to the natural environment and to public water supplies. Both will be affected by climate change. Public water supplies are under pressure from reductions in abstraction to make them more environmentally sustainable. There is also a need to make public water supplies more resilient to droughts and meet additional demands associated with development and population growth.

The determination will show where we believe there are or, are likely to be, environmental impacts caused by public water supplies or the need for major water resources developments. It will indicate where these could be reduced by improving water efficiency through metering. It does not indicate that there will not be enough water for supplies.

Water stress is defined in the regulations as where 'the current household demand for water is a high proportion of the current effective rainfall which is available to meet that demand. Or, the future household demand for water is likely to be a high proportion of the effective rainfall which is likely to be available to meet that demand'.

The proposed water stress method takes a long-term view of the availability and the demand for public water supply, rather than a snapshot of shorter or peak periods. It accounts for future population growth, climate change, environmental needs and increased resilience. It reflects and supports the commitments that water companies have made to reduce leakage and water consumption.

We will use the results of the consultation to revise our approach if required. We will then make our recommendation to the Secretary of State. He will decide on which areas should be determined as an area of serious water stress. This will allow companies to target water efficiency measures in those areas of greatest need and greatest potential benefit.

## Introduction

As our water supplies come under increasing pressure, we need water companies to better manage the volume of water they distribute. To help with this, water companies in areas which are under serious water stress are able to charge all customers for the volume of water used. This is measured by a water meter on each property. Metering must be shown to be cost-effective and that there is customer support through the water resources management plan (WRMP) process.

The Secretary of State determines which water companies are in different levels of water stress taking advice from the Environment Agency. Minister Pow wrote to us on 24 November 2020 to ask us to update our advice. We have previously provided advice in 2007 and 2013.

Our understanding of the current and future pressures on water resources has improved significantly since 2013. This includes the impacts of population growth, climate change and environmental requirements. It also includes the expectation that our public water supplies will be resilient to 1:500 year droughts before there are restrictions such as stand pipes. We believe it is timely to update our advice to the Secretary of State. The results of the determination will be used when water companies and regional water resources groups develop their plans during 2021 and beyond.

Water companies in areas determined as an area of serious water stress must evaluate compulsory metering alongside other options through their WRMPs. The water stress determination applies to individual water companies' areas or parts of water companies' areas. It cannot be applied to regions greater than water companies' areas.

We are using the latest available evidence to review how we identify the areas of England that have different levels of water stress. We are using information in WRMP19 and produced for the National Framework for Water Resources published in 2020. We used interim water resources position statements produced by regional groups to look at the impacts of resilience to 1:500 year droughts.

Effective rainfall is taken into account both in the calculation of water available for supply in the water companies' WRMPs and how the Environment Agency calculates the water available for abstraction.

Using these datasets provides a more complete picture of stress on our water resources than the previous approaches. It reflects the requirements of the Water Industry (Prescribed Conditions) Regulations 1999, as amended in 2007, by identifying areas of serious water stress where one of the following applies:

- the current household demand for water is a high proportion of the current effective rainfall which is available to meet that demand
- the future household demand for water is likely to be a high proportion of the effective rainfall which is likely to be available to meet that demand.

We explain the method in the section on 'our [approach](#)' in this document. A technical report containing more detailed information is also available on the consultation web page on Citizen Space

## What this consultation covers

We are consulting on our proposed method and provisional results for the determination of areas of water stress for the purpose of metering. The consultation covers England only. In this context, water stress does not consider any water quality issues.

## Why we are consulting

The purpose of this consultation is to gather people's and organisations' views on the revised approach and other questions we raise in the document. [Appendix 1](#) includes a complete list of questions.

We will use the results of the consultation to revise our approach if required. Once finalised, the determination will provide water companies and other organisations with a better reflection of water stress related to metering. This will allow companies to focus their assessment of metering in areas where there could be the greatest potential benefit.

Through this consultation we want to:

- fully engage with stakeholders who have an interest or involvement in water resources, demand management and the environment
- summarise and present the updated evidence around the determination of areas of water stress
- seek views on our proposed approach and the provisional results
- understand from different peoples' perspectives, the likely impacts and benefits of the potential changes to the advice on areas of water stress.

## Who we are consulting

This consultation will be relevant to anyone who is interested in managing the demand for water and the impacts of public water supplies on the environment in England including:

- water companies and regional water resources groups
- the public
- other regulators (such as Ofwat, Natural England)
- other conservation organisations and non-governmental organisations such as Waterwise, Rivers Trusts and Wildlife Trusts
- other water users (such as Canal & River Trust, Energy UK),
- water resource research and consultancy community (such as CIWEM, Water UK, UKWIR, HR Wallingford, Royal Town Planning Institute)
- the general public or those representing them (such as Consumer Council for Water)

- government agencies and public authorities including, Natural Resources Wales and local authorities.

## How to respond to this consultation

Please click on the 'Respond online' link below to answer the consultation questions.

However, if you prefer, you can submit your response by email or post by downloading the response form (below) and sending it to:

### Water Stress Consultation

Environment Agency  
Kingfisher House  
Goldhay Way  
Peterborough  
PE2 5ZR

Or email: [water-company-plan@environment-agency.gov.uk](mailto:water-company-plan@environment-agency.gov.uk) using the heading "**Consultation response to water stress determination update**".

## How we will use your information

The Environment Agency will look to make all responses publicly available during and after the consultation, unless you have specifically requested that we keep your response confidential.

We will not publish names of individuals who respond.

Throughout the consultation we will look to make all comments (excluding personal information) publicly available on our website. This includes comments received online, by email, post and by fax, unless you have specifically requested that we keep your response confidential. We will not publish personal data. But we will publish the name of the organisation for those responses made on behalf of organisations.

We will also publish a summary of responses on our website in which we will publish the name of the organisation for those responses made on behalf of organisations.

We will not respond individually to responses. After the consultation has closed we will contact you to let you know when the summary of responses is available.

In accordance with the Freedom of Information Act 2000, we may be required to publish your response to this consultation, but will not include any personal information. If you have requested your response to be kept confidential, we may still be required to provide a summary of it.

## Privacy notice

If you respond to this consultation, we will ask you for your email address. This allows us to email you an acknowledgement when you submit your response. Also, by providing us

with your email address, you consent for us to let you know when we have published the consultation summary responses document.

We will only keep your details until we've notified you of this

We will not share your details with any other third party without your explicit consent unless required to by law.

## Code of practice on consulting

We are running this consultation in accordance with the guidance set out in the government's Consultation Principles.

If you have any queries or complaints about the way this consultation has been carried out, please contact:

### **Consultation Enquiries**

Environment Agency  
Horizon House  
Deanery Road  
Bristol, BS1 5AH

Email: [consultation.enquiries@environment-agency.gov.uk](mailto:consultation.enquiries@environment-agency.gov.uk)



## Approach to our assessment

This section shows the steps we have taken to classify areas of water stress. We have split the analysis into the areas covered by water companies. This is so we can look at situations where the water company has distinctly different geographical areas, for example Anglian Water and South West Water.

The assessment of water stress involves adjusting the future plan supply demand balances in the water company WRMP19. The adjustments include: making the WRMP19 data more consistent between water companies; changes to reflect the impact of a higher level resilience to drought and a reduced impact upon the environment from existing abstractions. Where these adjustments lead to a future supply demand deficit there is a case for serious water stress.

The assessment of water stress on public water supplies involves analysing the published data in the WRMP19 supply demand balance in each water company area. The analysis includes:

- making the calculation of the supply demand balance more consistent between water companies (such as removing supply side drought measures)
- allowing for the impact of moving to a 1:500 (0.2%) risk of needing standpipes during droughts
- ensuring the achievement of a 50% reduction in leakage by 2050
- removing the impact of new supply side sources after 2024 to 2025
- allowing for the impact of changes to increase sustainability including climate change

The sustainability changes are derived from the future environment flow requirements which were assessed for the National Framework. This investigated the effects of climate change and the potential impact that this could have on existing abstractions. We have used the enhanced scenario which sees greater environmental protection for:

- Protected Areas
- Sites of Special Scientific Interest (SSSI) rivers and wetlands
- principal salmon and chalk rivers.

In these cases it applies the most sensitive flow constraint appropriate, increasing the proportion of natural flow that is protected for the environment.

The National Framework analysis gives an indication of the potential changes in abstraction needed by region. We have allocated the potential abstraction reduction to water company area based on the location of the public water supply abstractions. The approach we have taken to assess the environmental needs is set out in a separate report as Appendix 2 to this consultation.

We have assumed that the environmental sustainability changes reduce the environmental stress to an acceptable level. Where the adjusted supply demand balance becomes negative there is a case for serious water stress.

Our assessment followed the following steps:

1. checked and collated WRMP19 data to ensure data is reported and used consistently
2. extended the water resource planning data projections to 2050 where required
3. applied a consistent reduction in leakage across all companies from to match the commitment by the water industry to achieve a 50% reduction by 2050
4. removed the impact of climate change from WRMP19 data after 2019-2020 to avoid double counting with sustainability changes which include the impact of climate change
5. used information from the initial water resources position statements from regional groups to allow for increased resilience of supplies to a 1:500 (0.2%) drought event
6. included the impacts of supply side investment until 2025 but not beyond. The exception to this is Portsmouth Water's Havant Thicket Reservoir because of its current stage of development
7. allowed for population and housing growth as set out in WRMP19
8. adjusted the supply-demand balance to account for future sustainability reductions using the enhanced scenario produced for the National Framework
9. allowed for different sizes of water company areas by normalising the data using target headroom as set out in WRMP19
10. recalculated the supply-demand balance in annual steps until 2050 to determine the level of water stress
11. used 2039 to 2040 as the year for the determination of water stress because it is when the planned resilience level of 1:500 will be achieved
12. allowed for water company areas that are completely separate to be treated individually such as Bournemouth and South West Water

We are continuing to use the terms 'serious' and 'not serious' as in the classification in 2013.

Target headroom represents the minimum buffer that companies should plan to maintain between supply and demand for water to cater for current and future uncertainties. We used the predicted supply-demand balance as a percentage of target headroom in 2039-2040 for of the assessment. This allows for the different sizes and characteristics of each water company area. Where the supply demand balance deficit is more than half the target headroom the area is considered to be in serious water stress. Technical details of the water stress assessment method are set out in a separate report as Appendix 3 to this consultation.

## **Isles of Scilly**

South West Water has taken on managing the water supplies and planning for the Isles of Scilly. It was not legally possible for the company to produce a WRMP until the formal transfer had taken place on 1<sup>st</sup> April 2020. We are treating the Isles of Scilly as a special case and have evaluated the level of water stress based on our knowledge and the information provided by South West Water. Our evaluation included:

- a review of the company's business plan which identifies the pressure on water resources and how demands are currently met including dependence on desalination
- evidence provided by South West Water on the risk of saline intrusion from groundwater abstraction at existing boreholes
- lack of available water for abstraction due to the natural geology and potential licence constraints to protect the environment
- the sensitive nature of the environment to abstraction
- the large number of environmental designations in place
- the vulnerability of groundwater quality and resources to dry weather

On this basis our recommendation is that there is sufficient evidence that the Secretary of State should determine the Isles of Scilly should be determined to be in an area of serious water stress.

## **Wales**

Our assessment of water stress only covers England. The Herefordshire zone in England is operated by Dŵr Cymru Welsh Water. Water resources zones operated by water companies wholly or mainly in Wales come under different regulations from those operated by companies wholly or mainly in England. Welsh ministers would decide on metering in the Herefordshire zone in consultation with the Secretary of State in England. We have included the Herefordshire zone in our assessment so we cover the whole of England but the results show it is not an area of serious water stress.

If you have any questions linked to Wales, please contact Natural Resources Wales at [WREPP@cyfoethnaturiolcymru.gov.uk](mailto:WREPP@cyfoethnaturiolcymru.gov.uk)

## **Results**

The determination will show where we believe there are or, are likely to be environmental impacts caused by public water supplies or the need for major water resource developments. It will indicate where these could be reduced by improving water efficiency through metering. It does not indicate that there will not be enough water for supplies but shows where we believe metering could help balance supply and demand.

Even those areas that we are suggesting are designated as not seriously water stressed, still experience pressure on water resources. The results assess where water resources are being or are likely to be exploited to a degree which may result in pressure on the environment or water supplies both now and in future. They do not indicate how individual water companies are performing in the management of their water resources, or a level of risk to public water supply.

The following company areas would be classed as seriously water stressed for metering purposes using the updated analysis method. The numbers in brackets refer to the numbers on the map in figure 1:

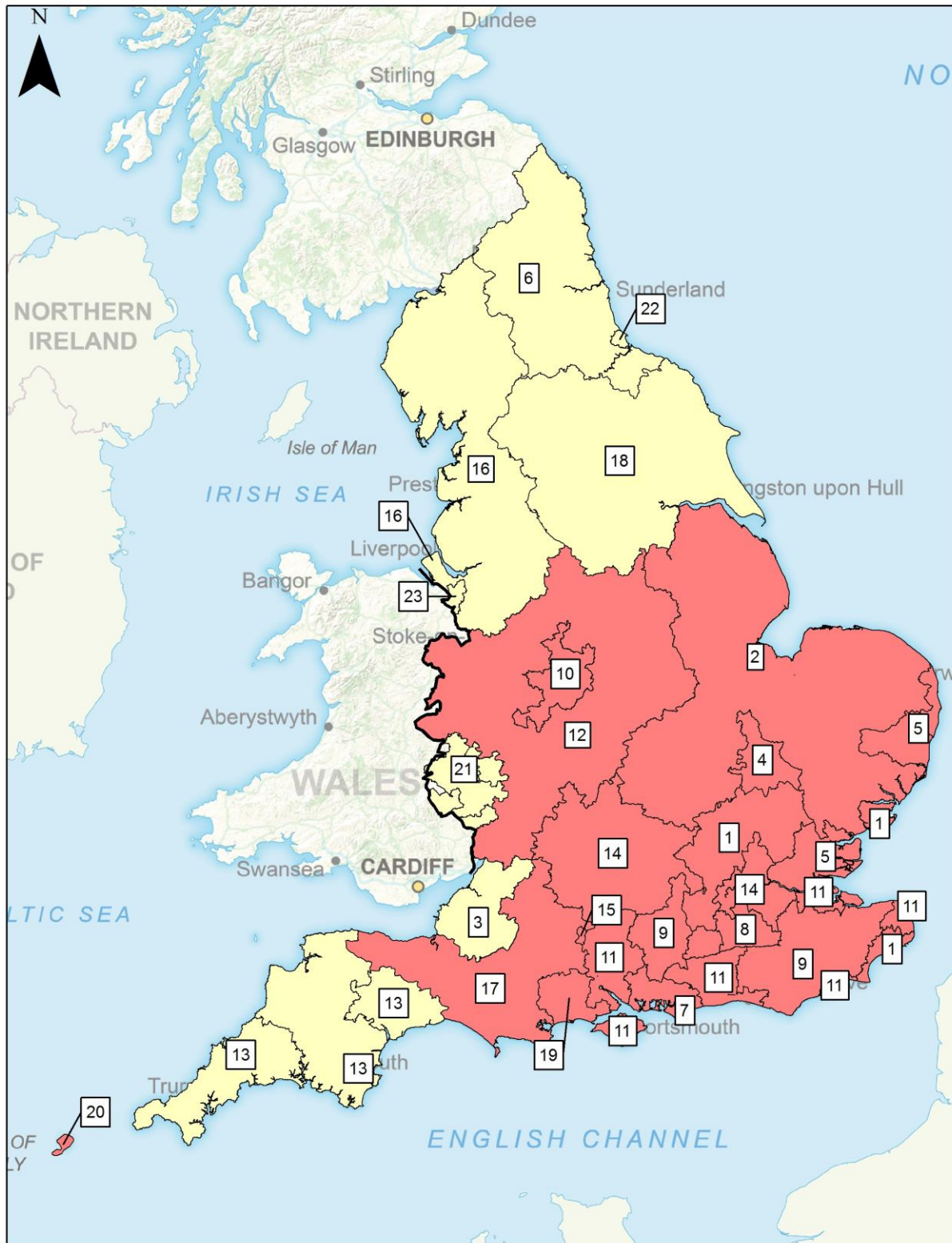
- Affinity Water (1)
- Anglian Water – East Anglia (2)

- Cambridge Water (4)
- Essex and Suffolk Water (5)
- Portsmouth Water (7)
- SES Water (8)
- South East Water (9)
- South Staffordshire Water (10)
- Southern Water (11)
- Severn Trent Water – excluding Chester zone (12)
- Thames Water (14)
- Veolia Water (15)
- Wessex Water (17)
- South West Water – Bournemouth (19)
- South West Water – Isles of Scilly (20)

The following company areas would be classified as not seriously water stressed for metering using the updated analysis method.

- Bristol Water (3)
- Northumbrian Water (6)
- South West Water – Devon and Cornwall (13)
- United Utilities (16)
- Yorkshire Water (18)
- Dŵr Cymru Welsh Water – Herefordshire (21)
- Anglian Water – Hartlepool (22)
- Severn Trent – Chester zone (23)

Figure 1 (next page) shows a map of the results. It shows areas coloured red are those that are seriously water stressed and those in yellow are not seriously water stressed.



Water Stress Map		Notes		
	England Wales Boundary	1. Affinity Water	7. Portsmouth Water	14. Thames Water
	Not Serious	2. Anglian Water	8. Sutton and East Surrey	15. Veolia Water
	Serious	3. Bristol Water	9. South East Water	16. United Utilities
		4. Cambridge Water	10. South Staffordshire	17. Wessex Water
		5. Essex and Suffolk	11. Southern Water	18. Yorkshire Water
		6. Nothumbrian Water	12. Severn Trent Water	19. Bournemouth WRZ (South West Water)
			13. South West Water	20. Isles of Scilly WRZ (South West Water)
				21. DCWW
				22. Hartlepool WRZ (Anglian Water)
				23. Chester WRZ (Severn Trent Water)



Figure 1: map showing results of water stress classification

# Appendix 1 Consultation questions

1. Do you think that the approach using water available for supply, environmental needs together with future demand for water effectively supports the determination of areas of water stress in England? If not how could it be improved?
2. Do you agree that the proposed classification results effectively reflect the levels of water stress in England for the purpose of metering? If not, why?
3. What is the right size of area for the classification of water stress?
4. Do you agree that classifying water stress according to 2 levels, serious and not serious is still the right approach? If not, please explain your answer and suggest an alternative.
5. Are there any water company areas you would like to be included or excluded? If not, please explain your answer and suggest which areas.
6. Do you agree with the approach we have taken for the Isles of Scilly because of the available data and that water resources planning for the Isles is at an early stage? If not, please explain your answer.
7. Please add any other points related to water stress you would like to raise as part of this consultation.

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