



## Managing Drought in the North West

We are the Environment Agency. We protect and improve the environment and make it **a better place** for people and wildlife.

We operate at the place where environmental change has its greatest impact on people's lives. We reduce the risks to people and properties from flooding; make sure there is enough water for people and wildlife; protect and improve air, land and water quality and apply the environmental standards within which industry can operate.

Acting to reduce climate change and helping people and wildlife adapt to its consequences are at the heart of all that we do.

We cannot do this alone. We work closely with a wide range of partners including government, business, local authorities, other agencies, civil society groups and the communities we serve.

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# **Managing Drought in the North West**

## **Working with Communities and Business to Manage the Impacts**



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# 1 Introduction

Water is essential for life, it is necessary for human health and well-being as well as for the preservation of the environment. We want to have an open dialogue about the decisions that society face in a drought situation. We want to ensure the Environment Agency and its partners reflect your expectations. We all need to work together; government, business, and communities to minimise the impacts when drought occurs.

Like floods, droughts are a natural occurrence which we cannot prevent. Droughts can have a significant impact on our water supplies to communities and businesses, as well as impacting our rivers, lakes and wetlands.

Due to the effects of climate change we can expect that the frequency and intensity of drought will increase. Scientific predictions ([UKCP09](#)) has found that there will be increased mean winter and summer temperatures and reduced summer rainfall. Current household water use increases during the summer months especially during periods of hot dry weather. We need to manage our water resources efficiently to adapt to the future predicted by UKCP09 and the recent [Climate Change Risk Assessment](#).

This drought plan tells you what indicators we currently use to classify the different stages of drought. Droughts are complex, can be measured in a range of ways and will affect different aspects of the environment and water users in different ways. This plan sets out:

- which organisations are involved in managing drought and what their responsibilities are
- the impacts of drought on businesses and communities
- the Environment Agency's commitments
- how to find out further information and how we can work together.

**Steve Moore, Regional Director**

## 1.1 Water in the North West

Around seven million people live and use water in the North West. The landscape is varied, from the mountains and lakes in Cumbria, coastal towns such as Blackpool and Whitehaven and the industrial heritage of Manchester and Merseyside.

Around half of the population rely on water that is collected in the Lake District which is a very unique and protected environment. The high rainfall, combined with the geology and deep glacial valleys in the Lake District, means that the area stores large volumes of water. In the late nineteenth century and early twentieth century a number of valleys were dammed to create reservoirs to supply the suburbs and factories of Manchester. The largest of these reservoirs are Haweswater and Thirlmere and today they remain as two of our most important water supply sources. Other major supplies of water for the region are the smaller reservoirs in the Pennines, and Lake Vyrnwy and the River Dee in North Wales. The integrated nature of United Utilities supply network allows water to be moved around the region to where it is most needed.

An average of eight per cent of our water comes from groundwater. Boreholes are drilled into aquifers that underlie about 15 per cent of the region. The water is used for public water supply, industry and agriculture and is particularly relied on by farmers and households in the rural north east of the region. In many rivers groundwater provides baseflow that is essential in maintaining a healthy flowing river habitat. It is vital that we do not over-exploit aquifers. To ensure future supplies and to protect our water environment, abstraction should not exceed annual recharge.

The rivers Ehen, Kent, Derwent, Eden and Dee are used for public water supply and are all protected under European legislation as Special Areas of Conservation (SAC), European important habitat and wildlife areas. The region also has a number of estuarine SAC and Ramsar sites together with around 400 Sites of Special Scientific Interest (SSSI). These areas are particularly sensitive to the environmental conditions that may be experienced during prolonged drought.

Surface water supplies, such as rivers, lakes and reservoirs, quickly respond to extended periods of low rainfall and can be vulnerable to drought. In the North West we implement management actions over a shorter timescale than those regions that predominantly rely on ground water. We use our hydrometric network of gauges across the region to closely monitor the levels of rainfall received and how the rivers and lakes have responded to this. We have 330 precipitation gauges, 224 surface water flow gauges and 161 groundwater borehole level gauges.

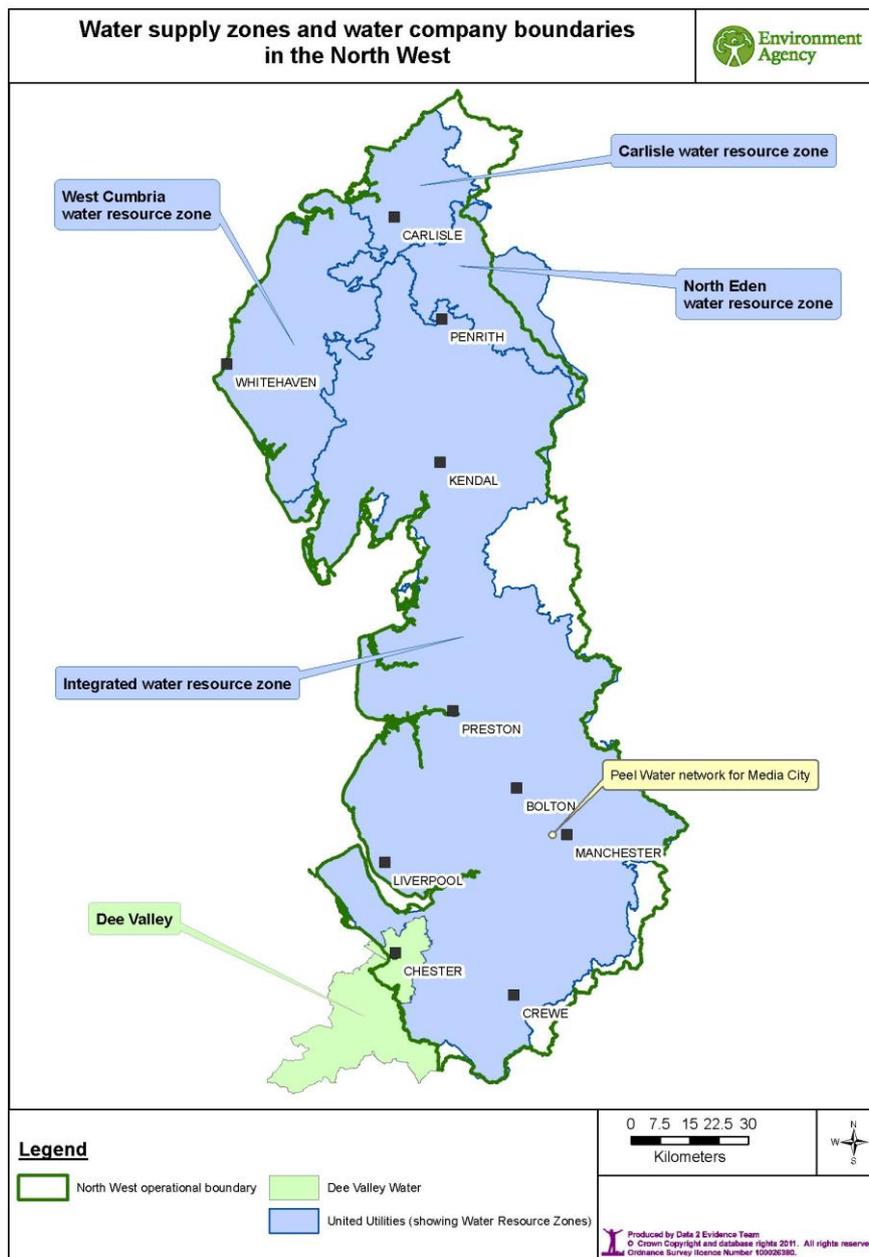
We work with Natural Resources Wales to monitor and manage water resources between Wales and the North West.

## 1.2 Water Companies Operating in the North West

Three water companies operate in the North West, United Utilities Water Plc (United Utilities), Dee Valley Water Plc and Peel Water Networks Ltd (Figure 1). Details of the populations supplied by each water company and the main sources of supply can be found in Table 1.

Water companies in England and Wales publish water resource management plans (WRMPs) to set out how they intend to provide a secure and sustainable water supply for the next 25 years. [United Utilities: Water Management Plans Water Resources | Dee Valley Water](#)

**Figure 1. Water Company Boundaries and Supply Zones**



### 1.2.1 United Utilities

Public water supply in the region comes mainly from United Utilities. They own and operate a supply system comprising of water supply reservoirs, river and stream intakes, lake abstractions, and groups of groundwater sources. United Utilities supplies around 7 million household customers and 0.2 million non household customers in the North West.

United Utilities work to four resource zones (Figure 1): they are

- Integrated Resource Zone
- West Cumbria Resource Zone
- Carlisle Resource Zone
- North Eden Resource Zone

**The Integrated Water Resource Zone** is the largest of United Utilities' water resource zones and is centred upon the major aqueducts that deliver water from the Lake District to Keswick, Penrith, South Cumbria, Lancashire and Greater Manchester and from Lake Vyrnwy reservoir and the River Dee to Cheshire and Merseyside. There are connections from the aqueducts to all towns and centres of population in these areas, so that local sources (impounding reservoirs and boreholes) can be operated in a fully integrated manner with the major regional sources. A West - East link pipeline connects the River Dee and Merseyside to Manchester and gives United Utilities greater flexibility in managing water resources in the Integrated Resource Zone.

**The West Cumbria Water Resource Zone** is mainly supplied from Ennerdale Water and Crummock Water, which serve the Whitehaven and Workington areas respectively. These are raised natural lakes with level control which provide storage of water for public supply. Other sources comprise Chapel House and Overwater Reservoirs and Scales Boreholes which supply the Wigton and Solway area, and a number of stream sources. There are connections between the Whitehaven, Workington and Wigton systems that provide a degree of integration between the water sources in West Cumbria. United Utilities have identified that the West Cumbria Resource Zone is the most vulnerable to drought and the management actions they identify in their drought plan are likely to have to be carried out over a shorter timescale than in the rest of the region. This is due to the low volume of storage available in the zone and the flashy nature of the catchments.

**The Carlisle Water Resource Zone** is based on two sources – the River Gelt via Castle Carrock Reservoir and the River Eden at Cumwhinton.

**The North Eden Water Resource Zone** is United Utilities' smallest resource zone in the rural, northern part of the Eden District of Cumbria. Most of the zone is supplied from groundwater, whilst the Alston area is supplied from a bulk water supply from Northumbrian Water. The North Eden zone currently has a surplus of supply over demand during drought conditions.

**Table 1. North West Water Resource Zones**

<b>Zone</b>	<b>Population served</b>	<b>Centres of populations</b>	<b>Main sources of supply</b>	<b>Water Available for use 2014/15 (MI/d)</b>
Integrated	6,601,000	Keswick, Penrith, South Cumbria, Lancashire, Greater Manchester, Cheshire and Merseyside	Haweswater, Thirlmere and Windermere in the Lake District. Reservoirs in the Pennines. Lake Vyrnwy and River Dee in Wales	1879.8
West Cumbria	145,000	Whitehaven, Workington, Wigton and Solway	Ennerdale Water, Crummock Water, Chapel House, Overwater Reservoirs and Scales Boreholes	48.4
Carlisle	107,000	Carlisle	River Gelt via Castle Carrock reservoir, River Eden at Cumwhinton	32.5
North Eden	13,000	Rural northern part of the Eden District of Cumbria	Boreholes in the Sherwood Sandstone aquifer. Alston area is supplied from a bulk supply from Northumbrian Water	10.3
Dee Valley Water Plc	106,000	Chester	River Dee	30.59
Peel Water Networks Ltd	Estimated workforce of 4,000 to 5,000	Media City	United Utilities Integrated Resource Zone	N/A

### **1.2.2 Dee Valley Water Plc and Peel Water Networks Ltd**

Dee Valley Water plc supplies an area to the east of Chester. Peel Water Networks Ltd provides MediaCity UK in Salford with regulated water services. MediaCity is a property development based on the media industries with television production facilities, 400 apartments and a hotel complex. The development covers an area of 15.1 hectares and is located adjacent to the North Bay of the Manchester Ship Canal at Salford Quays. All premises in Peel Water Networks Ltd are fitted with water meters.

It is a requirement for all water companies to have a statutory drought plan which describes the actions they will take in the event of a drought. The current or draft plans are available on the company websites.

[United Utilities: Water Management Plans Drought Plan \(draft\) | Dee Valley Water Drought Plan \(draft\) Peel Water Networks 2011](#)

## **2 Impacts of Drought on Communities and Business**

In a drought, available water is reduced, and there is a need to conserve supplies so they last as long as possible. Every month we publish a water situation report for the region. This is available for everyone to look at on our [website](#) and will help communities and business understand the current water resource situation.

All organisations involved in dealing with the effects of drought plan their activities to prepare in case a drought occurs and to ensure that the responsibilities of each different party are clearly defined and understood (Table 2 [Who does what?](#)). Effective water resources and drought management starts with planning, both in the long-term and short-term.

We have experienced drought in the past, most recently in 1995/1996, 2003 and 2010. Our drought management is influenced by our past experience and lessons learned during those events.

In the past during extreme rainfall shortages we have managed water resources by applying for environmental drought orders. For example in the 1995/96 drought the Environment Agency (then the National Rivers Authority) was granted an Environmental Drought Order, which authorised reduction in compensation water release from reservoirs in the Macclesfield area. We have also determined applications made by water companies for drought permits to temporarily alter abstraction licences.

The most common environmental impacts of dry weather conditions that we are responsible for managing are fish in distress and water quality issues. During the summer of 2010 fisheries teams received reports of fish in distress, particularly in still waters related to low dissolved oxygen levels. A small number of fish and crayfish rescues were carried out.

### **2.1 Impacts on Agriculture and Horticultural Business**

Dry weather affects different crops in different ways and at different points in their growth. Dry soil early in the season can make planting easier or helps crops develop faster. Crops do have the capacity to recover from periods of reduced water depending on the duration. A prolonged period of low rainfall can severely impact agriculture through crop failure, reduced crop yield (quantity and/or quality), disrupt access to drinking water for livestock and increase fire risk (particularly in upland/heath areas).

### **2.2 Impacts on Communities and Recreation**

Decreased volumes of water and increased water temperatures in rivers, lakes and streams can lead to problems with water quality. Problems include increased pH, biological oxygen demand (BOD) and blue-green Algae blooms which can be a hazard to human health. In 2010, the Great North Swim held in Windermere was cancelled due to a blue-green algae outbreak.

Along with the hills and mountains, the lakes and reservoirs are one of the main tourist attractions in the Lake District, due to their visual appeal and the associated activities that take place on and around the lakes. Windermere is the largest natural lake in England. Windermere is vital to the local community and is central to the visitor economy of Cumbria. A large proportion of the 15.8 million visitors who are attracted annually to the Lake District National Park spend time on and around Windermere. It is essential, while acknowledging that the lake is a major source of water supply, that its level is managed within limits to avoid flooding and to maintain navigation throughout its length. Since 2010, the Windermere Lake Level Group have met with other interested parties across the region. As a result of the meetings, the concerns of the different organisations are more clearly understood and stronger working relationships have been established, making the management of future droughts easier.

It may become necessary for a water company to introduce customer demand restrictions during a drought. There are three different types of restrictions that water companies can apply:

- voluntary water use restrictions
- statutory water use restrictions (powers under section 36 of the Flood and Water Management Act 2010 that replaced section 76 of the water Industry Act 1991). These restrictions generally apply to domestic activity
- non essential use bans (powers under Drought Direction 2011). These restrictions generally apply to non domestic activity.

Statutory water use restrictions are temporary and include restrictions on:

- watering a garden using a hosepipe
- cleaning a private motor-vehicle using a hosepipe
- watering plants on domestic or other non-commercial premises using a hosepipe
- cleaning a private leisure boat using a hosepipe
- filling or maintaining a domestic swimming or paddling pool
- drawing water, using a hosepipe, for domestic recreational use
- filling or maintaining a domestic pond using a hosepipe
- filling or maintaining an ornamental fountain
- cleaning walls, or windows, of domestic premises using a hosepipe
- cleaning paths or patios using a hosepipe
- cleaning other artificial outdoor surfaces using a hosepipe

The restrictions on hosepipe use during a drought only applies to those people who are attached to mains supply.

In order to ensure that water is conserved we all need to play a part in saving water. Water efficiency measures can be found on United Utilities and Dee Valley Water plc websites: Taking effective action at an early stage in the development of a drought situation can help to avoid or reduce the need for drought permit and drought orders.

[United Utilities: Using water wisely](#)  
[Water Efficiency | Dee Valley Water](#)

### **2.3 Canal and River Trust**

Today there are a larger number of boats on the canal waterways than ever before. There are over 35,000 leisure boats registered on the Canal and River Trust canal network and at least 13 million people visit the waterways every year. There are more visits in the warmer summer months. This increased summer use of the waterways coupled with less rain and increased evaporation means that managing the available water resources can be a challenge to navigation authorities.

In drought conditions we will work closely with Canal and River Trust to manage water resources in ways that support navigation whilst protecting the environment. The Environment Agency has a great deal of experience in drought planning, drought management, liaising with water users and working with communities. We will support Canal and River Trust in these areas and work together on joint media messages to communicate why restrictions may be placed on the canal network.

### **2.4 Impacts on the Natural Environment**

Reduction in flow has many consequences for the natural environment. Depending on the severity of the drought, impacts could be seen in connected habitats, such as wetlands, stream fed ponds, meres and moss-lands and on associated species such as the freshwater White-clawed Crayfish, Pearl Mussel and Water Vole. These are protected habitats and species and as such we have a statutory duty to protect them (see section 1 and 6 for more details). The reduced flow over a number of months could effect the composition of species and habitats along a section of river or stream, with knock on effects for the associated flora and fauna. Certain species, such as the Great Crested Newts, dragonflies and rare mud snail species, also have a reliance on water flow to complete their lifecycles.

Fish populations are also impacted and the effects include: loss of habitat and food, reduced water levels, increased water temperature, reduced dissolved oxygen levels, disruption to spawning and increased vulnerability to predation and disease. These consequences increase in severity as flow decreases.

In drought conditions, migratory fish are likely to pool up in estuaries and the lower reaches of river systems where they may become vulnerable to legal fishing and illegal activity. Over a period of time, if flows continue to reduce or remain at critically reduced levels fish will die. The Environment Agency will respond to reports of fish in distress and offer management advice to privately owned fisheries.

Prolonged drought conditions may impact upland blanket bog and upland and coastal heath habitats, both of which are unique protected habitats. The combination of low rainfall and prolonged periods of hot weather causes the water table to fall and the peat to dry out. The dry peat is then more susceptible to oxidation and wind erosion, and becomes a fire risk.

### 3 Who Does What?

When a drought happens we work together to understand and reduce the consequences on people and the environment. We all need to work closely together to ensure the effects of drought are minimised and that we manage the need for water whilst protecting plants and animals from damage.

The Environment Agency’s main priority is the protection of the environment, including special habitats and species. Water companies focus on the actions that they will implement during drought conditions to safeguard essential water supplies to customers and minimise environmental impact. During a drought we have to work together to reduce the impacts on people and the environment. We work with Natural Resources Wales to monitor and manage water resources between Wales and the North West.

The following table sets out the principal responsibilities of different organisations during a drought.

**Table 2. Government, Business and Communities responsibilities in drought**

Who	Responsibilities
<b>Communities and Businesses</b>	<ul style="list-style-type: none"> <li>• use water wisely and encourage others to use water wisely</li> <li>• report leaks to your local water company</li> <li>• report environmental impacts to the Environment Agency</li> <li>• comply with temporary water use restrictions</li> <li>• engage with the drought permit and order process</li> </ul>
<b>Abstraction Licence holders</b>	<ul style="list-style-type: none"> <li>• use water wisely</li> <li>• monitor your water consumption, ensure meters are in good working condition and their accuracy has been checked</li> <li>• ensure that you comply with the terms of your licence</li> <li>• monitor your water use as unexplained increases could indicate a leaking pipe that needs to be repaired</li> <li>• consider voluntary restrictions on your own water use</li> <li>• if using the water for irrigation make sure you apply the correct amount of water at the right time. This will help you reduce wastage, soil erosion and leaching</li> </ul>

<b>Who</b>	<b>Responsibilities</b>
<b>Government / DEFRA</b>	<ul style="list-style-type: none"> <li>• reports on drought to Parliament, the cabinet and to the Welsh Government</li> <li>• contribute to publicity campaigns about using water wisely</li> <li>• decide on drought order applications</li> <li>• prepare for a state of emergency and co-ordinate emergency arrangements with local resilience groups in severe droughts</li> </ul>
<b>Environment Agency</b>	<ul style="list-style-type: none"> <li>• monitor environmental indicators such as river flows, groundwater levels, reservoir levels and river ecology to recognise the onset and development of droughts</li> <li>• use models to predict water resource scenarios and associated environmental risks</li> <li>• report the state of water resources during a drought to the public, government and the media</li> <li>• lead a multi-agency drought response team</li> <li>• check that water companies are following their drought plans and are taking the necessary actions to protect public water supplies</li> <li>• deal with drought permit applications from water companies</li> <li>• promote the awareness of drought and water efficiency</li> <li>• protect the environment when water levels or river flows are low by enforcing abstraction licence conditions and restricting spray irrigation if required</li> <li>• protect the river Leven by using our fish sluices to release water from Windermere during dry weather</li> <li>• apply for drought orders to protect the environment</li> <li>• may undertake fish rescues if there are suitable locations for relocation and the fish are likely to survive</li> <li>• introduce emergency bye-laws to control fishing in vulnerable locations</li> </ul>
<b>Natural England</b>	<ul style="list-style-type: none"> <li>• protect and improves biodiversity and designated habitats and species</li> <li>• report to government and the European Union on the condition of designated sites and sets conservation objectives for designated sites, including those abstracted from for public water supply</li> <li>• advise the Environment Agency and water companies on appropriate monitoring and mitigation to protect designated sites in drought</li> <li>• work with the Environment Agency and United Utilities to agree environmental assessments for drought permit and drought order sites</li> <li>• statutory consultee for water company drought plans and water resources management plans</li> </ul>
<b>United Utilities, Dee Valley Water and Peel Water Networks</b>	<ul style="list-style-type: none"> <li>• reprioritise the operation of water supply sites to maintain supplies for as long as possible</li> <li>• run publicity campaigns to encourage customers to use water wisely</li> <li>• work with large businesses to reduce their water use</li> <li>• find and fix leaks and reduce water pressure</li> <li>• implement water conservation schemes</li> <li>• introduce temporary water use restrictions</li> <li>• apply for drought permits or drought orders to abstract water</li> <li>• apply for drought orders in relation to discharges of water and abstractions by others</li> </ul>

<b>Who</b>	<b>Responsibilities</b>
	<ul style="list-style-type: none"> <li>• as a last resort, apply for emergency drought orders to introduce standpipes, tanker supplies and rota-cuts for water supplies</li> </ul>
<b>Canal and River Trust</b>	<ul style="list-style-type: none"> <li>• actively manage the water supply in the system to maintain supplies for as long as possible</li> <li>• use water wisely</li> <li>• work with customers and run publicity campaigns on how to use locks in the most efficient way</li> <li>• if necessary, impose navigation restrictions</li> </ul>
<b>Local Authorities</b>	<ul style="list-style-type: none"> <li>• promote water efficiency to local communities with the local water company and ourselves</li> <li>• seek to conserve water in their own operations</li> <li>• may assist water companies to implement emergency drought measures in an exceptionally severe drought</li> <li>• leading role in local resilience forums</li> </ul>
<b>Environmental NGOs and water based recreation groups</b>	<ul style="list-style-type: none"> <li>• report evidence of environmental impact of drought to the Environment Agency</li> <li>• make data available to government organisations and local communities</li> <li>• use water wisely</li> <li>• promote water efficiency to local communities</li> <li>• engage with the drought permit and order process</li> <li>• if drought is threatening fish populations we would look for voluntary restraint from fishermen</li> </ul>

## 4 Drought Management Triggers

We define and monitor indicators that help us and the organisations involved in managing drought decide the severity of a drought and what actions are needed. As a trigger is approached or crossed, the decision is taken whether to implement a pre-determined action or move on to the next stage of drought management. The use of triggers means that we have phased approach to introducing water restrictions.

**Table 3. Drought Triggers and Environment Agency actions**

<b>Drought stage</b>	<b>Triggers</b>	<b>Environment Agency Actions</b>
<b>Normal Operations</b>	<ul style="list-style-type: none"> <li>• normal range of rainfall and soil moisture</li> <li>• river flows and groundwater levels within their normal ranges</li> </ul>	<ul style="list-style-type: none"> <li>• review drought teams and plans</li> <li>• receive training and test drought plans</li> <li>• routine water situation monitoring and reporting</li> <li>• review water company drought plans</li> <li>• liaison meetings with water company to discuss water resource issues and agree the actions needed to prepare for a drought e.g. bi-monthly technical meetings, agree dredging plans</li> </ul>

<b>Drought stage</b>	<b>Triggers</b>	<b>Environment Agency Actions</b>
<b>Potential Drought</b>	<ul style="list-style-type: none"> <li>• rainfall below seasonal averages</li> <li>• faster than normal reservoir drawdown</li> <li>• isolated ecological problems</li> <li>• pre-determined levels or 'hands-off flows' for water abstractions are reached</li> <li>• drought simulation indicates risk to public water supply</li> </ul>	<ul style="list-style-type: none"> <li>• talk to communities and businesses about the developing situation</li> <li>• work with Defra and Natural England to agree the appropriate actions</li> <li>• carry out scenario forecasting</li> <li>• convene drought management team</li> <li>• contact the multi-agency group, update on developing situation</li> <li>• develop a detailed communications plan</li> <li>• liaison meetings with water company to discuss water resource issues and agree the appropriate actions</li> </ul>
<b>Drought</b>	<ul style="list-style-type: none"> <li>• drought simulation indicates a significant risk to public water supply</li> <li>• low river flows</li> <li>• widespread evidence of environmental stress</li> <li>• likely need for drought orders/permits</li> <li>• the possible need for spray irrigation restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• advise communities and business of forecast and impacts</li> <li>• carry out scenario forecasting</li> <li>• follow up communications plan</li> <li>• begin drought reporting</li> <li>• respond to drought permit and order applications</li> <li>• respond to drought incidents and protect the environment</li> <li>• carry out compliance and enforcement</li> <li>• follow drought monitoring programme</li> <li>• fortnightly or weekly liaison meetings with water company to discuss water resource issues and agree the appropriate actions</li> </ul>
<b>Post-Drought</b>	<ul style="list-style-type: none"> <li>• reservoirs start to refill</li> <li>• river flows return to normal seasonal levels</li> <li>• groundwater recovers (may be time-delayed)</li> </ul>	<ul style="list-style-type: none"> <li>• stand down drought team</li> <li>• carry out post drought monitoring</li> <li>• carry out post drought review</li> <li>• review and update drought plan</li> <li>• routine water situation monitoring and reporting</li> </ul>

## 5 What you can expect from the Environment Agency

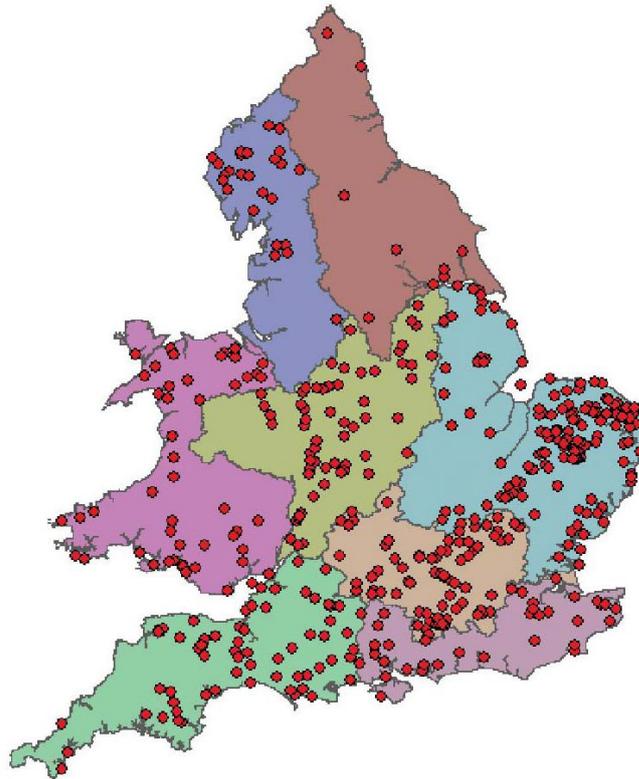
The Environment Agency monitor, report and act to reduce the impact of drought on the environment. We work with water abstractors to help them manage demand and availability of water and decide whether water company applications for drought permits and orders are reasonable. Table 3 details our responsibilities and the actions we will take in each of the different stages of drought.

To comply with the terms of the Wildlife and Countryside Act 1981 (as amended) and the Natural Environment and Rural Communities Act (2006), we have a statutory duty to regard biodiversity conservation when responding to a drought situation. To do this we work closely with organisations such as Natural England to ensure risks are minimised and that the special habitat and wildlife areas are not damaged.

We have a statutory duty under the Environment Act 1995 to further the conservation and enhancement of the natural beauty of the landscape. This includes geological or physiological features of special interest such as the National Parks. The Countryside Rights of Way (CRoW) Act (section 85) also imposed additional duties on us to “have regard to the purpose of conserving and enhancing the natural beauty of Areas of Outstanding Natural Beauty (AONB’s) when exercising any of our functions that may impact on land in an AONB”. This therefore means we have to regard landscape designations when carrying out our water resource functions, including the granting of drought permits. If we receive any applications for water resource permissions that are located within a designated landscape then we will consult with the relevant authority as part of our decision making process.

There are 15 river catchments in the North West included in the Restoring Sustainable Abstraction (RSA) programme. In these catchments we are working to identify where licensed water abstractions are or may be the cause of environmental problems. This will include some of the catchments used for public water supply purposes. Figure 2 shows the distribution of RSA sites across England and Wales. Detailed information about the RSA programme is available on our [website](#).

We also manage environmental droughts, where low river flows and lake levels have the potential to cause damage to the natural environment and ecology. In this case there may or may not be an impact on drinking water supplies. Water companies are responsible for maintaining supply to meet the needs of their customers while protecting the environment.



**Figure 2. Distribution of Restoring Sustainable Abstraction sites in Environment Agency regions**

We work with environmental NGOs and local conservation groups to protect animals and habitats at risk. We will collaborate with these organisations to collect evidence about the impacts of drought, how the environment is recovering post drought and inform future management plans.

Strategic Environment Assessments are not carried out on Environment Agency drought plans as our plans are voluntary and are not required under statutory legislation, nor under regulatory or administrative provision. A drought is likely to have significant effects on the environment and our drought plans set out how we monitor the impacts and manage the impacts where possible. In general, we would expect our drought plans to have positive effects on the environment. Our responsibilities as set out in this plan include (but are not limited to):

- making sure that abstractors do not take too much water from our rivers, whilst ensuring the environment is protected;
- checking water companies are following their drought plans and taking action to protect water supplies without placing unacceptable adverse impacts on the environment;
- promoting the need to preserve water, to reduce our impact on the environment and safeguard supplies for the future.

Where actions in our drought plan could have an impact on European designated sites, we will undertake a Habitats Regulations Assessment to determine if our actions are likely to affect the site. If we consider likely effects to be significant or if they cannot be determined we will complete an appropriate assessment.

**Governance:** Figure 3 shows the governance structure for drought management in North West. We divide drought activities into four work packages:

- provide information to communities and businesses
- manage incidents and monitoring
- responsible for regulatory duties
- planning and risk management

The drought management team provides the strategic overview of North West drought response, managing the flow of information, key messages and decision making.

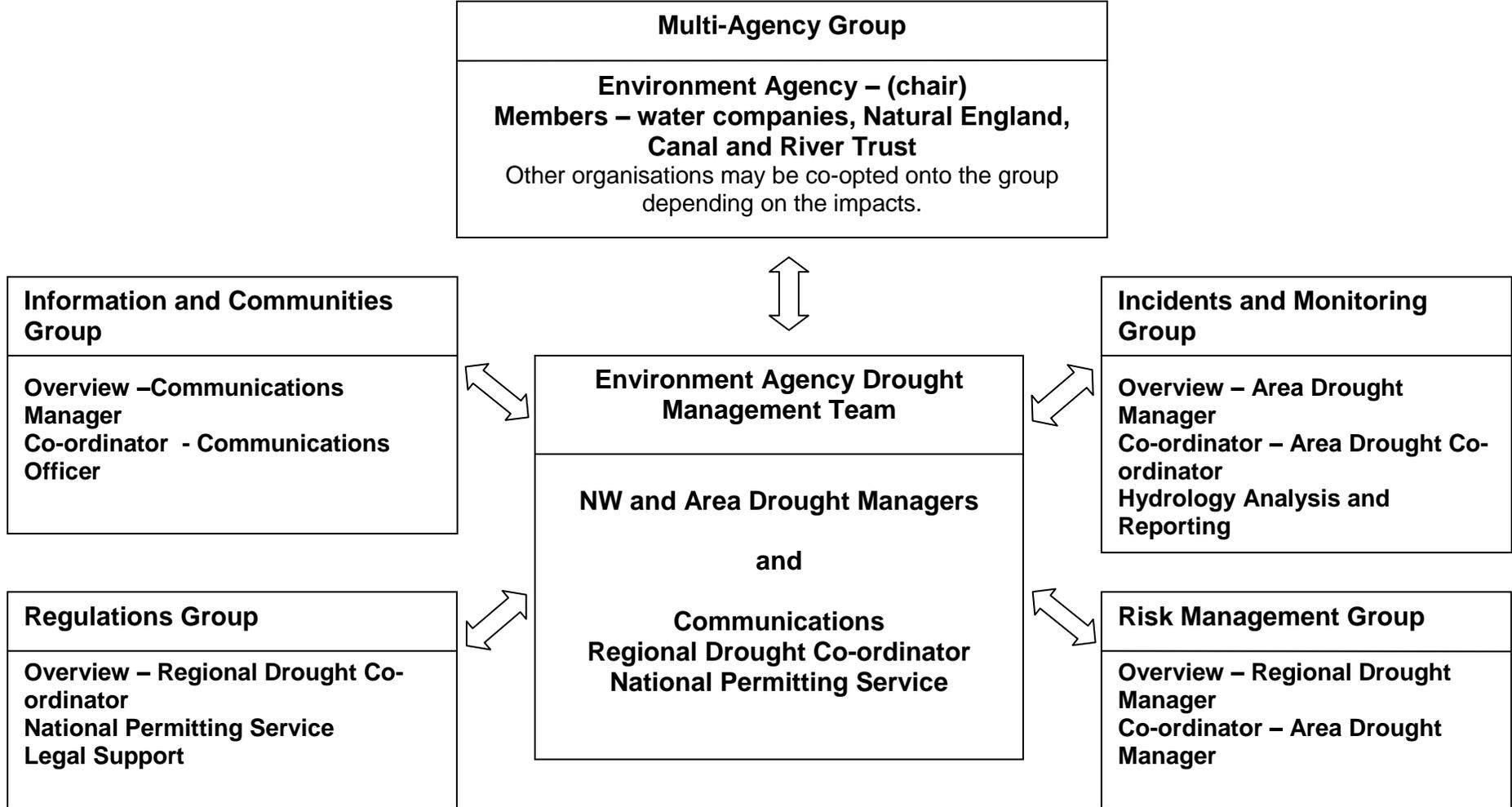
In the event of a drought there are numerous sources of information available to communities and businesses to inform them of the current water situation. Members of the public can contact us in a variety of ways, the details of which can be found in Table 4 below.

**Table 4: Environment Agency Drought Contacts**

Contact	Details	When and why
General enquiries	03708 506 506	Anytime  For any enquiries about the Environment Agency, including drought information
Environment Agency website	<a href="#">Environment Agency - Water Situation for England</a>	Anytime  To understand the current water situation, water saving hints and tips
Natural Resources Wales website	<a href="#">Natural Resources Wales - Water Situation for Wales</a>	Anytime  To understand the current water situation, water saving hints and tips
Incident hotline	0800 807060	Anytime  To report a low flow  To report environmental impacts associated with low flow (e.g. fish in distress)

<b>Contact</b>	<b>Details</b>	<b>When and why</b>
Regional Drought Manager	Richard Fairclough House, Knutsford Road, Warrington, WA4 1HT  <a href="mailto:Drought.northwest@environment-agency.gov.uk">Drought.northwest@environment-agency.gov.uk</a>	During potential drought, drought and post drought  For specific regional drought related queries.
North Area Drought Manager	Lutra House, Walton Summit, Bamber Bridge, Preston, PR5 8BX  <a href="mailto:Drought.northwest@environment-agency.gov.uk">Drought.northwest@environment-agency.gov.uk</a>	During potential drought, drought and post drought  For specific north area drought related queries.
South Area Drought Manager	Richard Fairclough House, Knutsford Road, Warrington, WA4 1HT  <a href="mailto:Drought.northwest@environment-agency.gov.uk">Drought.northwest@environment-agency.gov.uk</a>	During potential drought, drought and post drought  For specific south area drought related queries.
Water Company website	United Utilities <a href="http://www.unitedutilities.com/usewaterwisely.aspx">http://www.unitedutilities.com/usewaterwisely.aspx</a>  Dee Valley <a href="http://www.deevalleywater.co.uk/article.php?id=75">http://www.deevalleywater.co.uk/article.php?id=75</a>  Peel Water Networks <a href="http://www.peel.co.uk/utilities/water/default.aspx">http://www.peel.co.uk/utilities/water/default.aspx</a>	Anytime  To understand the current water situation, water saving hints and tips

**Figure 3. North West Drought Governance -**  
The teams are formed when potential drought is declared



**Table 4. North West Drought Governance**

<b>Role/Team</b>	<b>Outline of responsibilities</b>
<b>Multi-Agency Group</b>	<ul style="list-style-type: none"> <li>• provides strategic direction</li> <li>• ensures organisations are joined up</li> <li>• develops communications</li> <li>• allocates resources</li> <li>• monitors delivery against agreed plans</li> </ul>
<b>Regional Drought Manager</b>	<ul style="list-style-type: none"> <li>• co-ordination of the 5 teams named in the drought governance structure</li> <li>• lead the multi-Agency drought group (Environment Agency, water companies, Natural England, Canal and River Trust)</li> <li>• regional resources and inter-regional aid</li> <li>• manage liaison with external stakeholders</li> <li>• regional and national briefings</li> </ul>
<b>Area Drought Manager</b>	<ul style="list-style-type: none"> <li>• area stakeholders and local communications</li> <li>• area resources</li> <li>• brief area staff on impacts and needs to reprioritise workloads</li> </ul>
<b>Regional Drought Co-ordinator</b>	<ul style="list-style-type: none"> <li>• water company supply and demand liaison</li> <li>• Head Office drought team liaison</li> <li>• overview of drought order and/or permit applications</li> <li>• monitor the costs incurred to determine a drought permit application and recharge if necessary</li> <li>• produce weekly drought situation report</li> </ul>
<b>Area Drought Co-ordinator</b>	<ul style="list-style-type: none"> <li>• co-ordinate drought management activities across the area</li> <li>• co-ordinate response to drought order and/or permit applications</li> <li>• manage the area input into the weekly drought situation reports</li> </ul>
<b>Information and Communities Group</b>	<ul style="list-style-type: none"> <li>• updates media</li> <li>• United Utilities communications liaison</li> <li>• Head Office communications liaison</li> <li>• develop approach and maintain stakeholder list</li> </ul>
<b>Incidents and Monitoring Group</b>	<ul style="list-style-type: none"> <li>• incidents (how many, where, environmental impacts)</li> <li>• spray irrigation issues (particularly Alt/Crossens)</li> <li>• environmental monitoring</li> <li>• co-ordinate production and maintain evidence base</li> <li>• expert advice to partners and stakeholders</li> <li>• water resources monitoring and reporting</li> </ul>
<b>Regulations Group</b>	<ul style="list-style-type: none"> <li>• permit validation and determination</li> <li>• United Utilities drought order response to Secretary of State</li> <li>• Environment Agency drought order applications</li> <li>• hearing co-ordination</li> <li>• forward look for permits and orders</li> </ul>
<b>Risk Management Group</b>	<ul style="list-style-type: none"> <li>• forward look for potential business risks</li> <li>• overview of people and resources</li> <li>• risk log</li> <li>• lessons learnt</li> <li>• revision of drought plans and water resource plans</li> </ul>

## 6 Drought Permits and Drought Orders

Drought permits or drought orders are granted either by ourselves or Defra to maintain public water supplies or protect the environment where there has been an exceptional shortage of rain. If granted, drought permits or orders allow:

- water companies to abstract more water
- water companies to reduce other abstractions
- water companies to restrict certain types of water use
- the Environment Agency to modify, restrict or stop abstractions to protect the environment.

### 6.1 Water Company applications

Details of drought permits and orders will be made public at the time of application. The decision on a drought permit application needs to be made quickly so those who would like to make a comment or object have seven days in which to do so. Water companies include potential drought permit sites in their drought plans. These plans are subject to detailed environmental assessment and they consult on publicly. Local communities affected by proposed drought permits or orders are invited to discuss the implications of the decisions. Table 5 lists United Utilities proposed drought permit or drought order sites from their 2013 Drought Plan.

**Table 5. United Utilities Proposed Drought Permit or Drought Order Sites**

Water Source	Potential Drought Permits/Order
<b>Integrate Resource Zone</b>	
Longdendale	Reduce compensation from 45.5 to 22.5 or 15.0 MI/d
Rivington – White Coppice	Reduce compensation from 4.9 to 2.0 MI/d
Rivington – Brinscall Brook	Reduce compensation from 3.9 to 2.0 MI/d
Jumbles Reservoir	Reduce compensation from 19.9 to 12.0 or 6.0 MI/d
Delph Reservoir	Reduce compensation from 3.7 to 1.0 MI/d
Dovestone Reservoir	Reduce compensation from 15.9 to 10.0 or 5.0 MI/d
Vyrnwy Reservoir	Reduce compensation from 45.0 to 25.0 MI/d
River Lune LCUS abstraction	Reduce prescribed flow from 365.0 to 200 MI/d
Lake Windermere	Scenario 1: Reduce hands-off flow conditions to minimum of 95MI/d and relax 12-month rolling abstraction licence limit Scenario 2: Relax 12-month rolling abstraction licence limit and permit drawdown of lake level (up to maximum of 0.5m below weir crest). Releases to River Leven would be made by Environment Agency through fisheries sluice depending on prevailing requirements of the river.
Ullswater	Reduce hands-off flow conditions to minimum of 95MI/d Construct temporary outlet weir to raise lake level by up to 0.15 m Relax 12-month rolling abstraction licence limit

<b>West Cumbria Resource Zone</b>	
Scales boreholes	Increase annual licence limit to enable higher daily abstraction rate (up to licence limit of 6 Ml/d)
Crummock Water	Allow pumping of abstraction and compensation flows at lake levels below 1.1 below weir crest level to 1.5m below weir crest level
<b>North Eden Resource Zone</b>	
Bowscar borehole Gamblesby borehole Tarnwood borehole	Increase annual licence limit to enable continuation of the maximum daily abstraction rate as annual limit constrains abstraction

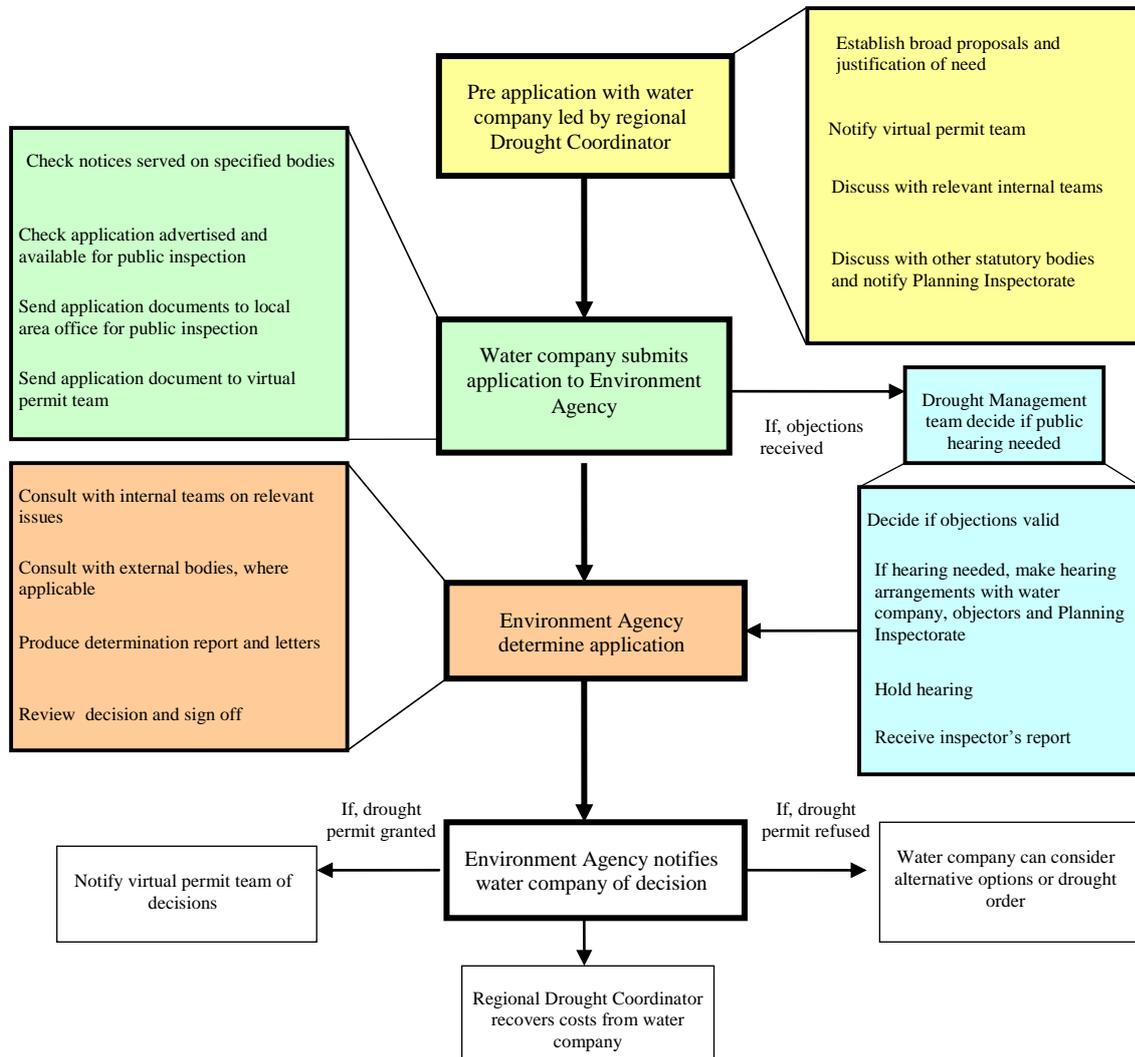
### **6.1.1 Water company drought permits**

In an escalating drought situation, water companies apply to us for a drought permit. For every site where a drought permit could be applied for we form a team dedicated to comment and input on the specific application. The proposals are subject to robust and detailed scrutiny to ensure they meet the requirements of statutory legislation. Our key actions in granting or refusing a drought permit are set out in Figure 4.

We will not normally grant a request for drought permits where a water company has not included the proposal as an option in its drought plan. We will not usually grant drought permits to abstract more water unless a water company demonstrates that it has implemented additional voluntary and statutory water use restrictions prior to making an application. This could include publicity campaigns, hosepipe bans, leakage control and mains pressure reduction. As per the Defra guidance, 2011 *“the more environmentally damaging the impact on the water environment is, the more stringent the measures need to be to reduce demands on water resources.”*

We are a competent authority under the Habitats Directive and we therefore have a statutory duty to protect special areas. If a drought permit affects a European site such as a special area of conservation (SAC), an adopted site of community importance (SCI) or special protection area (SPA), we must ensure that a drought permit complies with the Habitats Regulations and to undertake the appropriate assessment.

**Figure 4. Key actions for drought permit applications**



### **6.1.2 Water company drought orders**

Water companies apply to the Secretary of State (SoS) or Welsh Ministers (WM) for ordinary drought orders and emergency drought orders. Our role in this process is to provide information to the SoS for applications in England. The key actions are set out in Figure 5.

The SoS may authorise water companies, by an ordinary drought order, to take the following actions to:

- abstract from a source specified in the order
- prohibit or limit the use of water for any non-essential purposes in the Drought Direction 1991
- discharge water to a place specified in the order
- authorise the Environment Agency to prohibit or limit the taking of water from a source specified in the order
- prohibit or limit the taking by the Environment Agency of water from a source specified in the order
- suspend or modify restrictions or obligations to which the water undertaker or any sewerage undertaker or anyone else is subject with regard to taking, discharging, supplying or filtering/treating water
- authorise the Environment Agency to suspend, vary or attach conditions to any consent for the discharge of effluent by anyone.

The normal period for an ordinary drought order to be in force is six months. A water company may request to extend the period of the original drought order as long as the order is not in force for longer than one year beginning with the day it came into force. Requests for extensions will be made to SoS.

Potential drought orders are identified in water company drought plans and included in our relevant regional and area drought plans.

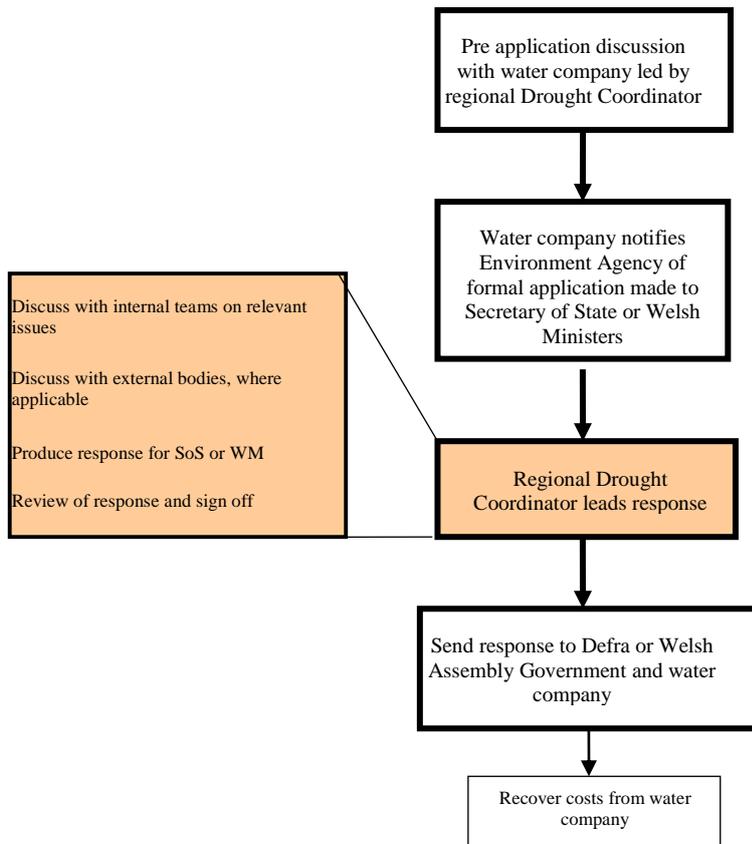
In advance of the application, the water company must prepare an environmental report for the proposed site, setting out the anticipated effects of the proposal. We discuss with the water company environmental monitoring and mitigation arrangements during consultation on drought plans.

Where there are potential impacts to Habitats Directive or Countryside and Rights of Way Act (CRoW) 2000 sites as a result of the proposals, the water company should also consult with Natural England.

We will not usually support requests for drought orders to abstract more water unless a water company demonstrates that it has implemented additional demand management measures prior to making an application. This could include publicity campaigns, hosepipe bans, leakage control and mains pressure reduction

Once the drought order notice is published by the water company, we must make a formal response to the SoS.

**Figure 5. Key actions for water company drought order applications**



## 6.2 Environment Agency drought order applications

We set abstraction licence conditions to protect the environment during a drought. We can apply for an Environment Agency drought order if the environment is suffering serious damage as the result of abstraction during a drought. We do not expect this to happen and as a result it is hard to predict the location of all environmental drought orders in advance.

During the North West drought of 2010 we agreed with United Utilities that we have three sites in our region whose sole purpose is to provide releases of water (known as a compensation flow) to the downstream watercourse. At these sites (Hollingworth Lake, Walverden Reservoir, Belmont Reservoir) in a severe drought we may need to apply to Defra for a drought order to allow us to reduce the compensation flow from. In discussions with United Utilities we agreed on the following principles:

- if there is a link to the public water supply network United Utilities will apply to vary the abstraction conditions
- if the source of supply is mentioned in United Utilities 2008 Drought Plan as a potential emergency source then United Utilities will apply to vary abstraction conditions.

A drought order would enable us to provide flow to the downstream watercourse for longer. If we fail to act then it is possible that the reservoir could empty and the downstream watercourse would dry up completely.

We are currently in the process of producing environmental assessments that would accompany any drought order applications. As part of this process we will review the list of potential sites and revise accordingly.

## **7 Drought Communications**

During an incident such as drought, communications play an essential role in developing and sharing our messages, including actions to be taken.

It is important that the flow of information is controlled in an emergency situation such as a drought. Operational information, the hydrological and environmental status, public water supply situation and other relevant information will be collated by the drought management team. They will be responsible for ensuring the consistency of our messages and data to our internal and external customers. We divide drought communications into three work packages:

### **Media**

- develops a media plan to suit the developing situation
- provides a proactive and reactive media relations response
- links in and coordinates with United Utilities press office

### **Stakeholder**

- ensures communication with interested parties
- links in with United Utilities public affairs teams
- records, responds and evaluates stakeholder comments and formal feedback

### **Internal communications**

- uses established communication channels to update staff on our role and actions they can take
- links-in with United Utilities internal communications team and their water saving messages.

### **Resilience Forums**

Local Resilience Forums (LRF) co-ordinate planning activities during a civil emergency. Droughts are not emergencies unless there is a serious threat of restrictions to public water supply such as standpipes or rota cuts. In these circumstances, our drought teams work with LRF to make sure that water companies assess the risk of drought properly and take all the right steps to avoid standpipes or rota cuts wherever possible. During a drought, we will communicate with the LRF and ensure they are aware of the water resource situation and potential issues.

## 8 Post drought

It is important we review the actions we took during a drought event and identify any improvements we can make to managing future droughts. We also monitor how the environment is recovering as a drought recedes.

## 9 Further information

Further information about the impacts of drought and the current water situation can be found at the following sites:

[Environment Agency - Water Situation for England](#)

[Natural Resources Wales - Water Situation for Wales](#)

[Environment Agency - How to save water](#)

[Natural England - Drought and the natural environment](#)

[Water Programme](#)

**By saving water in the home you can help reduce pressure on our water resources and the natural environment. Water conservation should be carried out at all times throughout the year, and not just during a drought situation.**

More information on water saving can be found at the following sites:

[Environment Agency - Water conservation publications](#)

[Water Efficient Product Labelling](#)

[Natural England - Where does our water go?](#)

[WRAP - Working together for a world without waste](#)

**Consultation on draft plan:** in total we received 16 responses to our North West region draft drought plan. Comments were made by national organisations, local councils, water company, local businesses and local water users.

The majority of respondents felt that the drought plan was succinct, comprehensive and provides a valuable opportunity to put across key environmental messages. The main issues that respondents commented on were;

- more detail needed on the impacts of drought on specific wildlife, habitats and associated protected species.
- information needed on the impacts of drought on conservation sites and on landscape issues.
- the importance of communications, both prior to and during a drought. This should include plans for early engagement to raise awareness of potential future water restrictions and the role of LRF's as they can play a key role in a worsening drought situation.
- the importance of working closely with the local community and United Utilities to address issues at Windermere.
- clarity on the Drought Permit and Drought Order proposals. The same level of detail should be provided for both and we need to clarify our expectations of what water conservation activity should have taken place prior to these.

We have considered all the responses we received and have revised the drought plan accordingly. We will inform all the organisations or individuals that responded to let them know how we have considered their comments in the development of the final plan.

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