



South East Region Drought Plan

January 2012

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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Summary

This plan tells you how we plan for, and manage drought, in South East. It sets out:

- our drought management structure;
- the drought management decisions and actions we take and the triggers for these actions;
- how we monitor and measure the impacts of drought;
- how we deal with drought permit and drought order applications;
- how we report on drought;
- how we communicate with others.

All Environment Agency drought plans can be found on our drought pages on the Environment Agency [website](#).

Documents relating to drought in the south east can be found on the [N drive](#)

For more information on drought, we have a summary guide 'Managing drought in England and Wales' which explains our role and responsibilities as well as others such as water companies and local authorities. It provides additional information on drought management, for example, an explanation on temporary water use restrictions, drought permits and ordinary drought orders. You can find it on our [website](#).

1 Introduction

1.1 Purpose

Droughts occur naturally as a result of a lack of rainfall and can impact on the environment and in severe or prolonged droughts, public water supplies. A drought is a natural event that we can't prevent. However, as the Environment Agency it is our job to manage water resources in England and Wales and to plan how to use them in a sustainable way. We have a duty to secure public water supplies but to also ensure the environment is protected. During a drought we work with water companies and others to manage the impacts on people, business and the environment.

Every drought is different and each can have a different impact on people, businesses and the environment. Some droughts affect a large area, while others are concentrated in a few river catchments. As such it is possible for the whole region to experience a drought, but in other circumstances a much smaller area could be impacted. This drought plan therefore provides a flexible way to manage different drought events, at different scales. It is an operational manual for Environment Agency drought teams operating in Environment Agency South East. It covers all the decisions and actions our teams take to detect the onset and end of a drought and manage impacts during a drought.

Definition of drought

This drought plan states the 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 differing ways.

We received feedback from consultees seeking greater clarity on drought status. We plan to make sure that our external communications during drought provide a clearer and more detailed description of how and where drought is developing; its effects and future risks.

SEA and HRA

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

We update our drought plans annually and review our plans fully every three years. We also undertake drought exercises to make sure we are ready for drought. These exercises are based on information from historic droughts and test the actions in our plans.

This drought plan is an operational document for Environment Agency staff, as well as a public document. As such some of the links in this plan connect to internal documents (such as 'operational instructions') that cannot be accessed externally.

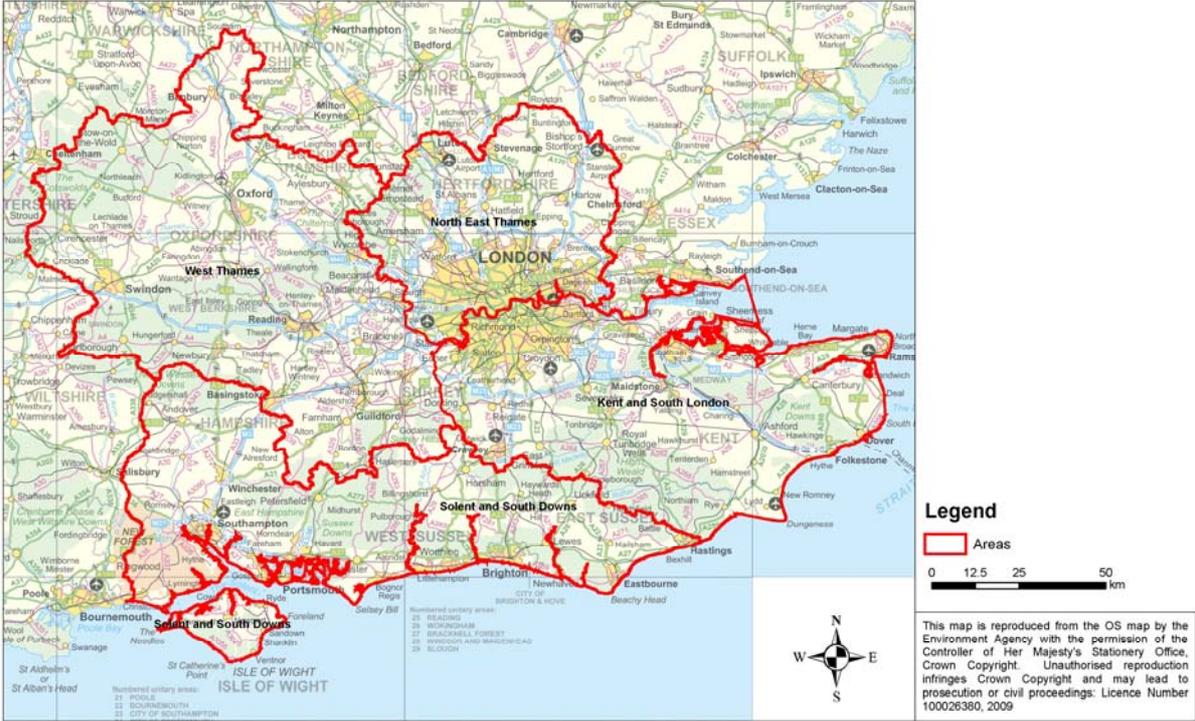
1.2 Background information on Environment Agency South East

This drought plan details how the whole of our South East region will manage drought. As shown in Figure 1 South East has four operational areas;

- West Thames,
- North East Thames,
- Kent and South London and;
- Solent and South Downs

Our regional and area offices can all be contacted through our National Customer Contact Centre (NCCC) on 03708 506506 or via email enquires@environment-agency.gov.uk

Figure 1: Operational Areas within South East



Landscape and geology

Environment Agency South East covers an area of 24,000km². It extends from the more urbanised areas of Luton and Harlow to the north, and includes all of London. It spreads through rural Kent to Dover in the east, and down to the Isle of Wight in the south. To the west it encompasses Oxford and Swindon.

The landscape of South East covers a diverse range of environments, from the capital of London and high density developments along the coast to picturesque villages in the Home Counties and the Cotswolds, and includes prime agricultural land as well as woodlands, estuary marshlands and rolling chalk downs.

The geology of South East is complex, including a range of rock types, some forming aquifers, as well as complex structure controlled by the London Basin, Hampshire Basin and Weald Anticline. Chalk outcrops across a large part of the region, with limestone outcropping in the north west. Fringing the chalk outcrop are greensand rocks around the margins of the Weald. These units form Principal aquifers. Parts of the region have significant faulting, forming the aquifers into 'blocks', such as in the London Chalk, the Cotswolds Limestones, and the chalk along the south coast around Brighton. In Hampshire and West Sussex and in the London Basin Chalk is overlain by London Clay. The Cotswold Limestones are overlain by Oxford Clay in the Thames Valley. Lower Greensand outcrops become overlain by Gault Clay on the slopes of the London Basin. Corallian Limestone rocks form a ridge across

Oxfordshire which to the south are overlain by Kimmeridge Clay, and represent a Secondary aquifer. Extensive gravel deposits are found across the major river valleys forming secondary aquifers, particularly in the Upper Thames area and in the Maidenhead to Sunbury area.

Rivers and groundwater

We have a number of sensitive and ecologically important chalk rivers, such as the Test and Itchen in Hampshire, the Great Stour in Kent and the River Kennet which flows through Wiltshire, Berkshire and Oxfordshire and also the chalk streams in the Chilterns such as the Misbourne and the Chess. Many headwaters or sources, of chalk rivers are called 'winterbourne' rivers and these respond to seasonal changes in groundwater levels and it is normal for their source to migrate up and downstream during the year. In drought periods the sources may migrate even further downstream than generally expected due to the lack of rainfall and groundwater baseflow.

In general, many of our groundwater fed rivers are robust to short lived droughts because the water is stored in the ground. To some extent this can keep rivers flowing even when rainfall is low. However in a prolonged drought, particularly where there have been one or two dry winters, with little groundwater recharge (water percolating through the ground into the aquifers) groundwater fed rivers will become impacted and can take longer to recover.

Where the Chalk, Oolites (limestones) or Greensands are exposed at ground surface, the rivers are often heavily groundwater dependent rather than surface water driven, and are buffered by the groundwater. Where the London Clay or other impermeable geology is the dominant cover at ground surface, the rivers respond more to rainfall and runoff. In other parts of South East the geology is less permeable, being formed of clay layers. Here the rain does not permeate into the ground but flows directly into the rivers. The flow in these rivers can respond very quickly to rainfall and can be called 'flashy'. In summer months these rivers can respond quickly to low rainfall when there is less groundwater to support their flows.

The predominantly surface water systems such as the Ouse, Brent and Wandle, Adur, Mole and Eastern Rother, can be sensitive quite quickly to short periods of very low rainfall. There can be a large variation in how our rivers respond to drought depending on their size, as smaller catchments tend to be more vulnerable than those supported by large catchments such as the River Thames. The response of rivers to drought also depends on the drift deposits atop the bedrock geology shown in Figure 2. Gravels and other permeable materials such as Alluvium can sustain river systems. These shallow aquifers are heavily influenced by rainfall and surface run-off, and so are the rivers that they support.

Droughts may have an environmental impact but not necessarily result in public water supply issues. Water companies have water resources management plans and drought plans to manage water supplies in times of low rainfall. Droughts can impact companies differently depending on where companies' supplies come from. A company that is reliant on groundwater will be less affected by a dry summer, than a dry winter, compared to a company reliant on surface water for its supplies. Companies' drought plans should contain a range of measures to deal with different types of drought.

there is a more balanced water mixture of surface water supplies and groundwater supplies. The River Thames catchment dominates this area, with a large catchment and many tributaries feeding it. However, at a smaller local scale some areas are supplied by predominantly groundwater sources.

The southern part of the region is dominated by smaller catchments that flow directly into the sea. Like Hampshire, the Isle of Wight is entirely dependent on groundwater and groundwater-fed rivers for its water supply and has no large man-made storage. Although fully metered for over 20 years it receives a quarter of its water from the mainland via a cross-Solent pipeline

In times of drought, freshwater outflows from coastal aquifers reduce, which increases the risk of saline intrusion. This can impact the supplies to water companies who operate in these situations; Southern Water, Veolia South East and South East Water. Water company drought plans can provide further information.

We have a population of around 18 million people in South East, and it is likely that this figure will continue to grow in the future. The demand for water in South East is high compared to other areas of the country. Water use per person in 2010/11 was 162 litres per head per day in South East¹. This is higher than the average for England and Wales which was 146 litres per head per day in the same year. During times of drought we work with other stakeholders to try and encourage people to use less water. It may be necessary for water companies to restrict certain uses of water to try and reduce the demand on limited supplies. More information on water companies' powers to restrict non essential use can be found in section 1.2.4 and in water company drought plans.

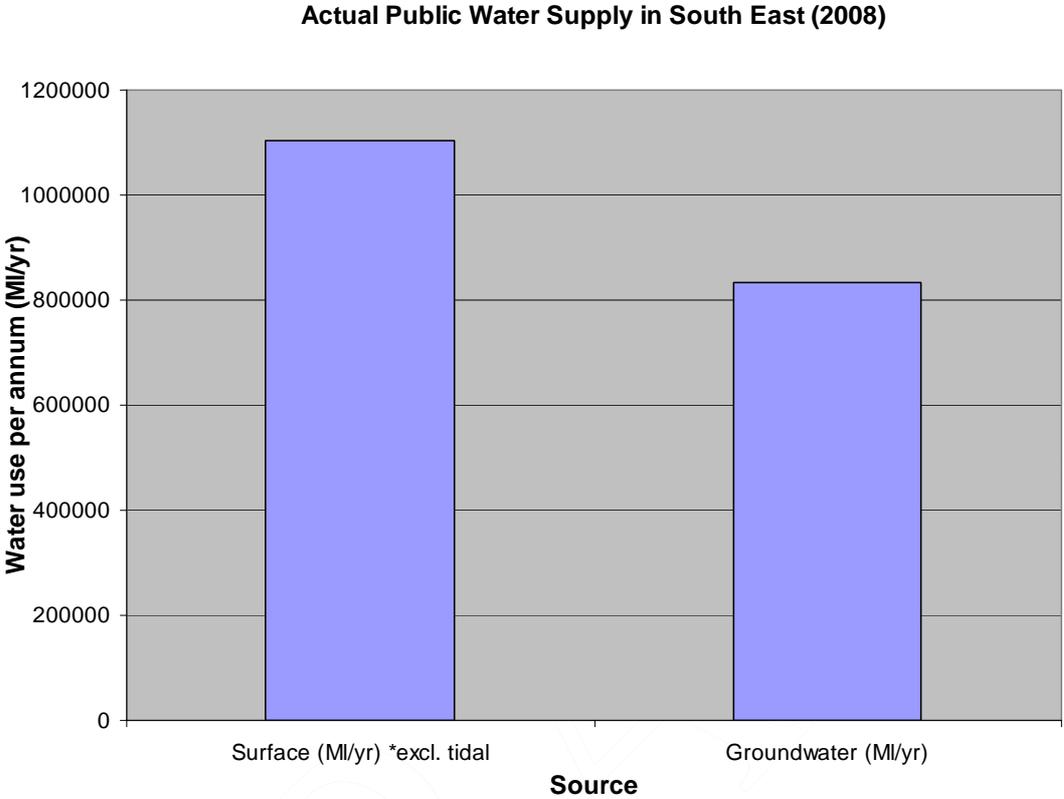
1.2.2 Regulation of water resources

In South East water is taken (abstracted) from our rivers and groundwater for a range of purposes. The Environment Agency licences water abstraction. Abstraction licences have conditions such as a maximum daily or annual quantity, or conditions to stop abstracting when river flows drop below a specified point which are set to protect the environment.

In total we abstract over 2,500 billion litres of water per year from our groundwater and rivers, for uses including public water supply, agriculture, industry and energy supply. The majority of the water is from surface water. Figure 3 shows the amount of water abstracted in a year for public water supply.

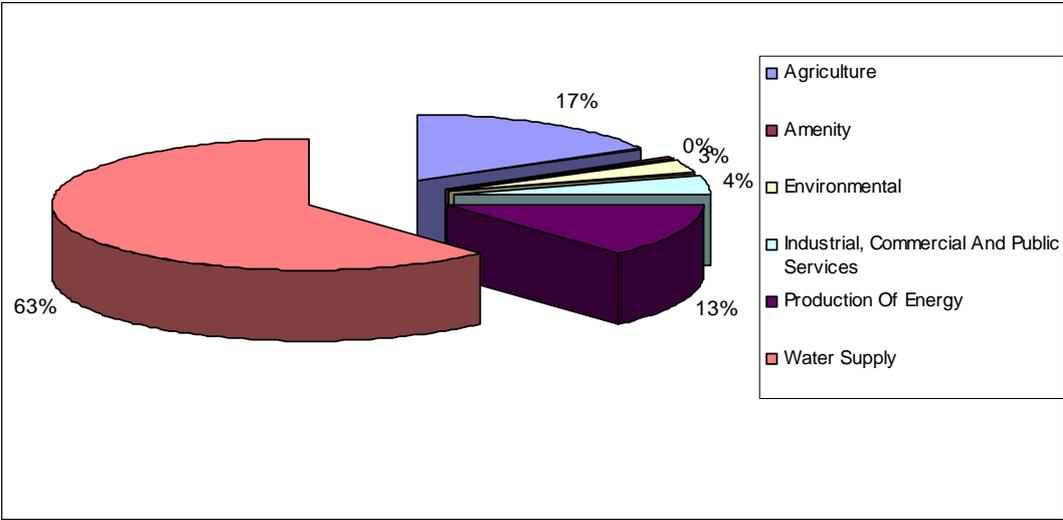
¹ Based on an average per capita consumption for the 7 water companies within EA South East boundaries

Figure 3: Total abstraction (MI/yr) from groundwater and surface waters within South East region



Of all the water we abstract, the biggest use is for public water supply which accounts for 63 per cent of all abstraction in South East as shown in Figure 4. Of this 60 per cent comes from surface water; however there will be significant variation in this from company to company depending on where they are located within South East, amount of rainfall and network resource.

Figure 4: Total water by use (excluding tidal) for South East



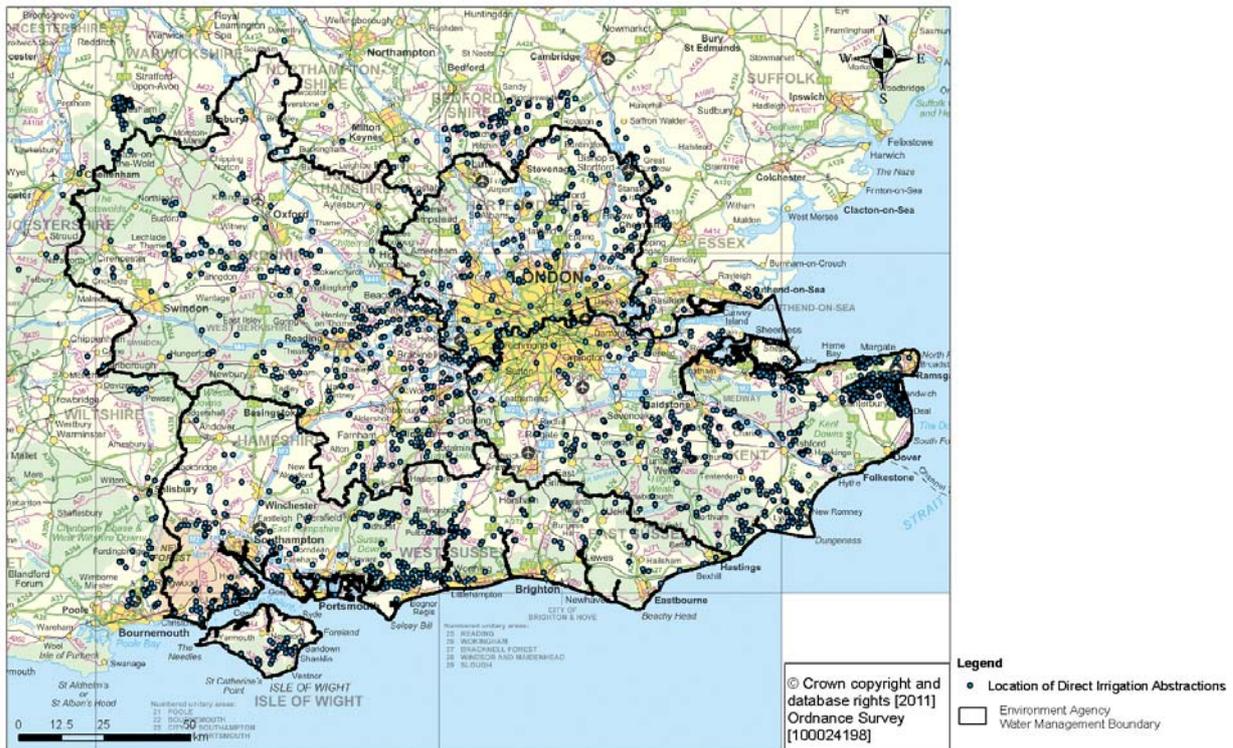
After public water supply the next biggest use of water is agriculture which accounts for 17 per cent of the total, as shown in Figure 4 above. Agricultural abstraction can cover a wide range of purposes from irrigating crops to watering livestock. Depending on the type of drought and time of year, drought can have a large impact on farmers and we work closely with organisations like Country Land and Business Association and the National Farmers Union to communicate the latest water resources situation and provide advice on water efficiency to help farmers use the water that is available in the most efficient way possible.

Spray irrigation is the irrigation of land and plants through an apparatus designed to eject water (or other liquid) into the air in the form of jets or spray. Figure 5 below shows the spray irrigators in South East. We have around 1580 spray irrigation licences in South East. Licences for spray irrigation may include environmental conditions like flow or level constraints. These will act to protect the environment under drought conditions. We regularly visit licence holders to ensure compliance against any conditions on their licences. During a drought where water supplies are more limited we will be considering increasing the frequency of our compliance visits. Licences with no environmental conditions and that are from sources that could influence river levels can be restricted by using spray irrigation bans. Any abstraction for spray irrigation that has an immediate and direct impact on surface waters, including those that abstract from unconfined groundwater, could be subject to Section 57 restrictions. These restrictions are set out in the section 57 of the Water Resources Act 1991. [Appendix I](#) provides more details on the section 57 process.

Table 1 Spray irrigation licences in South East

Area	Total Spray irrigation licences
West Thames	401
North East Thames	207
Kent and South London	581
Solent and South Downs	394

Figure 5 Spray irrigation licences in South East



Augmentation Schemes

A number of augmentation schemes are present in South East. Augmentation schemes take water from one source of supply to improve river flows elsewhere. Schemes are either operated by the Environment Agency or a water company. They can be divided into

schemes which are aimed at protecting the environment when low water levels threaten plants and wildlife particularly during drought, and schemes which allow public water supply abstractions to continue throughout the year including low flow periods. The latter may also have an environmental benefit to specific river stretches (i.e. between the discharge and abstraction points).

The augmentation schemes in South East are;

- Candover augmentation scheme
- Alre Augmentation Scheme
- Ems Augmentation Scheme
- Isle of Wight
- Wallers Haven
- Darent Augmentation Scheme
- Tonge Mill Pond Augmentation Scheme
- West Berkshire Groundwater Scheme
- Letcombe Brook (WBGWS)
- Carshalton Ponds
- Crowhurst Bridge
- Bewl- Medway scheme
- River Dour- Buckland Mill



In South East there are also the following operating agreements in place. An operating agreement is an agreement between water company and the Environment Agency as to how a scheme of water will be operated under certain conditions.

- Lower Thames Operating Agreement (LTOA)
- Thames Tideway Operating Agreement
- North London Artificial Recharge Scheme (NLARS)
- West Berkshire Groundwater Scheme (WBGWS)
- Thames Gateway Water Treatment Plant (Desalination)
- River Cherwell in Banbury Operating Agreement
- River Kennet and Holy Brook Operating Agreement
- River Ver Operating Agreement- Veolia Water Central
- River Misbourne operating agreement – Veolia Water Central

There is also a Memorandum of Understanding with British Waterways on the River Stort

To find out more information on how we and others operate these agreements and schemes listed above please see [Appendix A](#)

Internal drainage boards

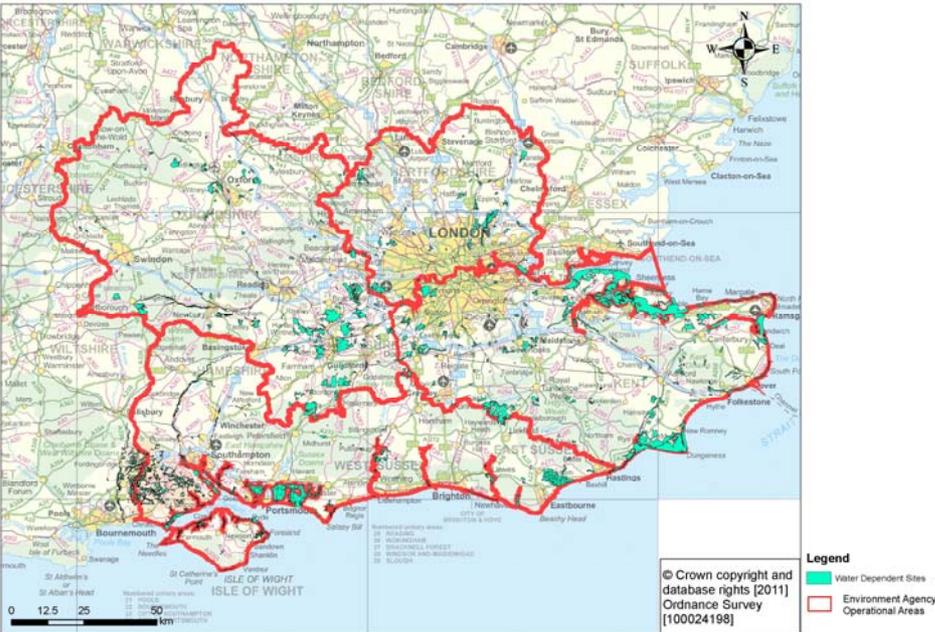
There are currently 154 internal drainage boards (IDB) in England. 19 of these fall within South East Region boundaries (see figure 11 in [Appendix D](#) for IDBs in South East). An internal drainage board is a type of operating authority which is established in areas of

special drainage need in England and Wales. IDBs are not responsible for watercourses designated as main rivers (these remain the Environment Agency’s responsibility). Much of their work involves the maintenance of drainage channels, associated pumping stations and the ecological conservation and enhancement of some watercourses. IDBs are responsible to Defra from whom all legislation/regulations affecting them are issued. In a drought, our Operation Delivery and Asset Systems Management teams will continue to work closely with IDBs who will undertake action to ensure that summer levels are managed in accordance to Water Level Management Plans taking into account local conditions. Please contact your relevant IDB or see <http://www.ada.org.uk/> for more information.

1.2.3 Environmental issues

All habitats and species are vulnerable to drought to some degree but wetland habitats have a greater sensitivity due to their dependency on water level and flow. These habitats are resilient to short term fluctuations, but longer periods of drought can lead to significant damage. In these periods it can be those habitats dependent on groundwater such as chalk streams that are most at risk where, although decline is slow, recovery is also equally slow. In South East we have 480 statutory designated sites (SSSI, SPA, SAC and RAMSAR) which have water dependency, as shown in Figure 6.

Figure 6 Statutory conservation sites with water dependency



Droughts not only have an impact on ecology because of reduced flows, but they can also impact ecology due to changes in water quality. In freshwater systems, low flows can reduce dilution of poor water quality leading to possible further deterioration in ecological status.

In rivers which flow into the sea, reduction in fresh water flow can lead to upstream movement of saline water and cause changes in types of fauna and flora.

Our area teams do routine monitoring, which is increased in times of drought. For more information see Section 4 and [Appendices K & L](#)

1.2.4 Water companies

Water companies have long term water resource management plans (see [section 1.2.6](#)) that show how they intend to supply their customers over the next 25 years. In addition they also have a statutory requirement to produce drought plans under Sections 39B and 39C of the Water Industry Act 1991, as amended by the Water Act 2003. Drought plans show what operational steps companies will take to manage before, during and after drought events. They contain the actions that a company can take to help reduce demands (temporary restrictions on water use) and increase supplies (such as drought permits see section 5.1).

The Environment Agency is a statutory consultee in the development and review of water company drought plans. We provide representations to government on draft plans. We also advise government when requested as part of our statutory role to provide advice to Ministers. We expect water companies to consider the relevant Environment Agency drought plan when they are developing their own plans. During a drought, we also have a role to ensure water companies are following their drought plans to protect water supplies for both people and the environment. In the South East region we have seven water companies (see figure 7), a third of all the water companies in England and Wales, namely;

- [Thames Water](#)
- [Sutton & East Surrey](#)
- [Veolia Central](#)
- [South East Water](#)
- [Portsmouth Water](#)
- [Southern Water](#)
- [Veolia South East](#)

There are other water companies that have small parts of their supply area within our region, such as Essex and Suffolk, Wessex Water, Severn Trent and Sembcorp Bournemouth Water. Other regions in the Environment Agency lead on liaison with such companies and will ensure that their drought plans are fit for purpose and are being followed during a drought.

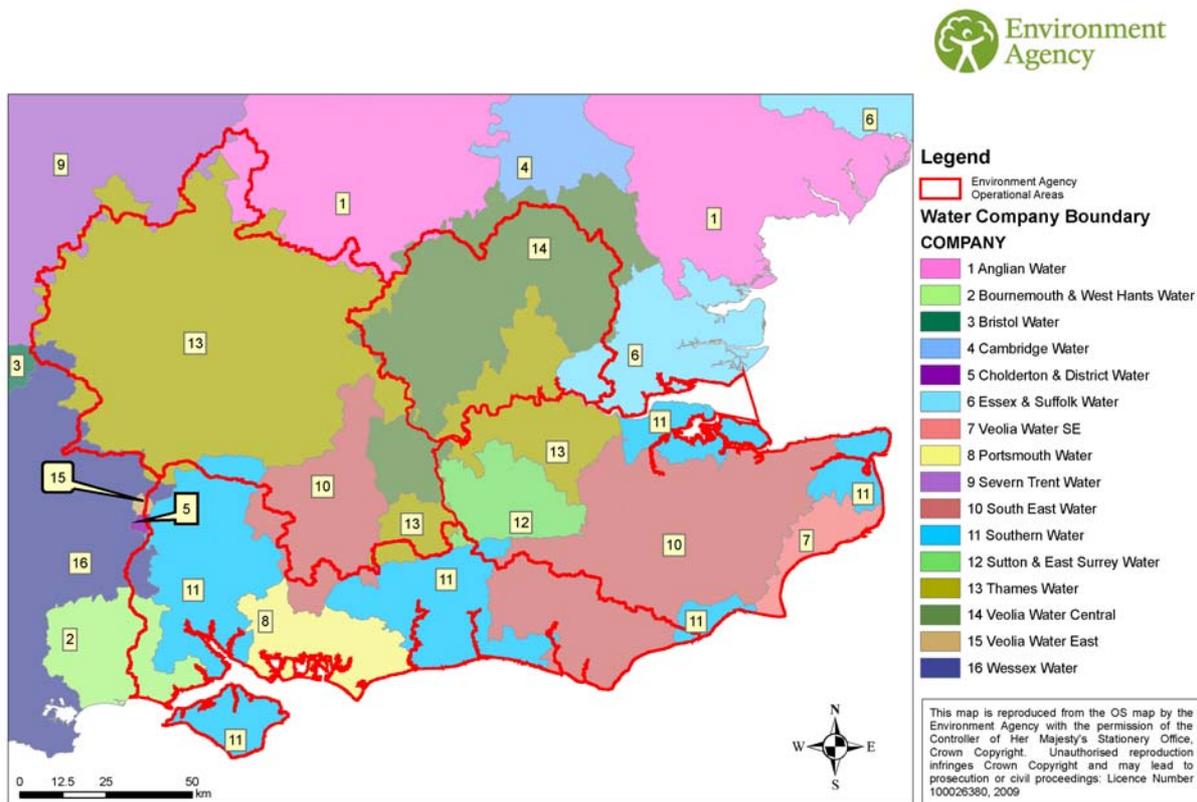
Water companies also have the power to put in place temporary restrictions on certain uses of water during a drought. Following the Floods and Water Management Act 2010, from October 2010 water companies have a wider range of temporary use restrictions that they

can implement during a drought. This supersedes the previous hosepipe ban powers. Water company drought plans set out in detail how they will use these new powers.

Such restrictions do not require the approval of the Government or the Environment Agency. However there is a requirement for water companies to advertise and allow time for people to make representations.

These new powers are in recognition that some businesses that need water as essential part of their business will have restrictions placed on them at a later stage through a drought order. The Water Use (temporary bans) order 2010 provides detailed definitions of uses, exemptions and conditions in relation to these new powers. The Drought Direction 2011 sets out those uses that still require an ordinary drought order to restrict drought.

Figure 7 Water companies within South East Region

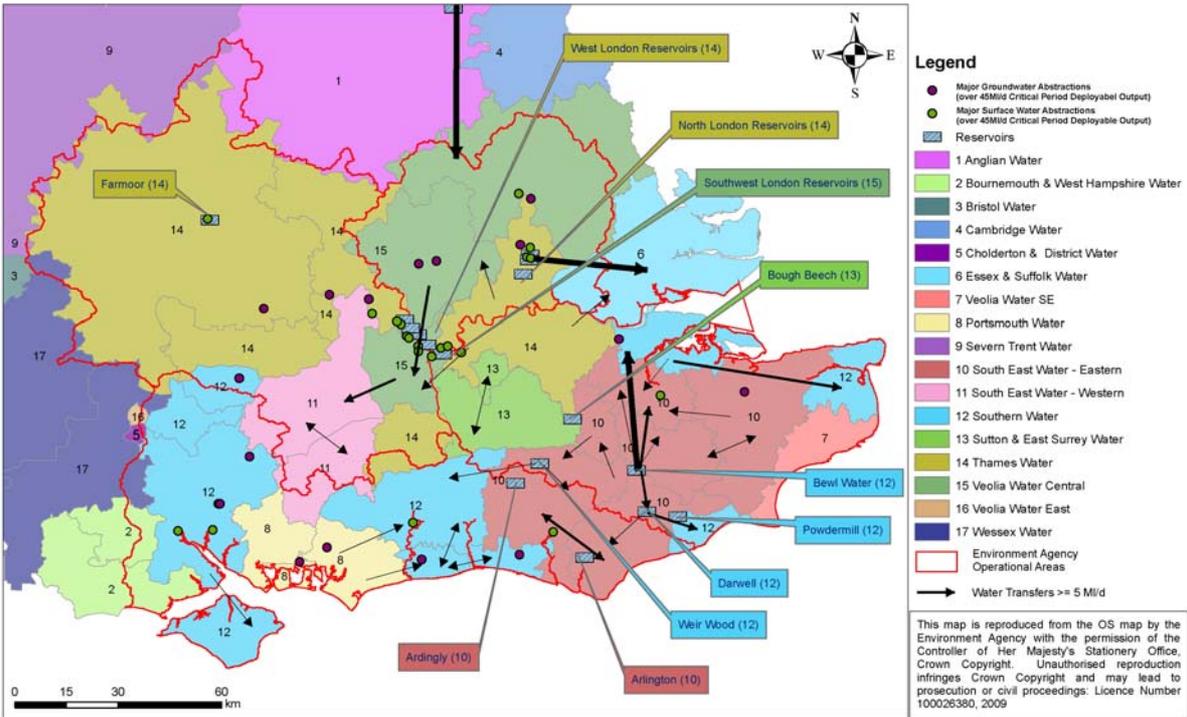


Some water companies cover large geographic areas as shown in Figure 7. Companies manage their water supplies within smaller units called water resource zones. These zones are the largest possible area in which water supplies, including transfer imports, can be shared and where customer are at an equal risk of loss of supply from a failure. In South East water companies draw their supplies from groundwater and surface water abstractions, as well as a number of surface storage reservoirs. The largest sources of water are shown in Figure 8, highlighting that some companies are more dependent on particular source types than others.

Water companies can also transfer water between resource zones and in some cases to and from other companies. This allows water to be moved from areas of surplus to where it is needed. Some of these transfers may be reduced or unavailable in times of drought depending on arrangements between individual companies and local conditions. For more information on bulk transfer and availability during drought please refer to water companies drought plans.

The largest intra- and inter-company transfers in South East (in volumetric terms) are shown in Figure 8.

Figure 8 Significant water company abstractions and transfers in South East



1.2.5 Navigation

The Environment Agency is the Navigation Authority of the non-tidal River Thames and River Medway. It has a statutory duty to maintain public navigation on the non-tidal Medway (between Maidstone to Tonbridge) and the River Thames (between Cricklade and Teddington) and maintain prescribed sections of the river channel to specific depths. There are businesses operating on or near these rivers, house boat communities and a number of

marinas that are sensitive to lower water levels. As such we manage and maintain water levels to prescribed targets through a system of locks and weirs to enable navigation, manage flood risk and support water levels for public water supply abstraction. Should this not be possible it would be necessary to restrict the navigation via a harbour masters notice that would state the revised navigational arrangements for the affected waterway. In addition to the navigation interests, the water level in the East Lock pen (on the Medway) directly impacts on adjacent groundwater levels. It is therefore particularly important to maintain the level in this pen for as long as possible.

The West Thames Area Waterways team holds and maintains the River Thames waterways drought plan, which outlines planned activities to maintain navigation and river levels during a drought. More details of this agreement are available from our West Thames Area office and also on the N drive. The River Medway Navigation drought plan is provided in [Appendix B](#).

Within the South East, British Waterways own and run a number of waterways (see [Appendix C](#)). British Waterways has its own drought plans which detail drought management options for their canals and navigable waters. We work in partnership with British Waterways when required during a drought such circumstances arise as part of our drought management role. The Wey navigation is canalised in many places and is operated by the National Trust.

1.2.6 Other relevant plans and programmes

Water resource management plans

In addition to water company drought plans, companies also have water resource management plans (WRMPs) that show how the companies intend to provide sufficient water over the next 25 years to meet their customer's needs, whilst protecting and enhancing the environment. These plans are produced every five years and reviewed for progress annually. The plans are publicly available and can be found on water company websites.

River Basin Management Plans

We have an obligation, as the 'Competent Authority', to implement the Water Framework Directive (WFD) (2000/60/EC), primarily through River Basin Management Plans (RBMP). Our partners also have a duty to contribute to this process and outcomes. There are two overarching objectives:

- to achieve a standard of 'good status' in all our water bodies, including coastal waters, estuaries and groundwater, by 2015. (Meeting this objective may be deferred to 2027 in some water bodies where solutions are disproportionately expensive or technically infeasible); and
- to ensure no deterioration from the current status within any water body.

The River Basin Districts (RBDs) in South East Region comprise 26 catchments and nearly 1000 water bodies. The status of all water bodies in the South East Region are captured in our River Basin Management Plans for the [Thames](#) and [South East](#) River Basin Districts. These plans set out a baseline classification status of every waterbody and the elements for

which each is failing. They also include a series of actions that must be implemented by us and others.

In a drought we will have regard to the status of relevant water bodies. We will consider the impact of drought management options (such as drought permits or orders) on the ability of a waterbody to recover and its progress towards good status. However, under Article 4.6 we can declare a temporary deterioration of good ecological status after a prolonged drought. We will ensure that all practicable steps are taken to avoid further deterioration and that measures taken during a prolonged drought do not compromise the recovery of the water body after the prolonged drought and are included in the programme of measures.

Restoring Sustainable Abstraction (RSA)

The RSA programme identifies, investigates and solves environmental risks or problems caused by unsustainable licensed water abstraction. It is a way of prioritising and progressively examining and resolving these concerns and is linked to the work we are doing on investigating Water Framework Directive water bodies.

RSA is an umbrella for work required under the European Habitats and Wild Birds Directives (HD), designated Sites of Special Scientific Interest (SSSI), Biodiversity Action Plans (BAP) and undesignated sites of local importance. These sites include rivers, streams, lakes, wetlands, fens and marshes - areas where plants and animals are dependent on good levels of water.

RSA work is delivered by the Environment Agency, water companies, local authorities, conservation bodies and site owners. We work with abstractors to find solutions that will increase water levels in certain rivers, streams, lakes and other natural wetland habitats. Our goal is to allow water abstraction to continue in a way that the environment can sustain.

Catchment Abstraction Management Strategies

Catchment Abstraction Management Strategies (CAMS) play an important role in protecting existing authorised abstractions and the local water environment during low flows. Further to Section 1.2.2. Regulation of water resources, CAMS identify where Hands Off Flow (HOF) constraints are required within a catchment. All new freshwater consumptive licences can have conditions to prevent or reduce abstraction either via means of a Hands Off Flow or Hands Off Level constraint. Flow constraints require abstractors to cease or reduce abstraction when the minimum flow or level requirements at a monitoring point on the related watercourse is reached.

For example the Thames (Q50) Hands Off Flow (HOF) constraint is a condition that is imposed on all new freshwater consumptive licences in many local CAMS areas in order to protect the public water supply, navigation and environmental needs of the River Thames. If flows in the Thames fall below the Thames (Q50) HOF (even if local flows are not lower than the local HOF) abstractors will be required to cease abstraction until flows in the Thames are higher than the Thames HOF

1.2.7 Past droughts

In recent times drought conditions have occurred in 1975-76, 1995-96 and 2004-06. 1976 saw the most severe conditions for many places: standpipes and rota cuts were narrowly avoided in our region when rain arrived in September that year, but were found necessary in Devon and Yorkshire. Thames Water resorted to pumping water back up the River Thames, across weirs on the Thames in 1976 to allow further abstraction upstream.

Conditions experienced in earlier droughts, in 1921-22, 1933-34 and 1943-44 would be more critical for London, if they were to recur today. More persistent dry weather occurred in the 1880s, 1890s and early 1900s, with up to five consecutive years in which, if repeated today, restrictions would need to be imposed in some areas. Although conditions in individual years then were less severe, many groundwater-reliant catchments would find the cumulative effect more stressful than anything seen in recent years. Unfortunately data so far in the past are sparse and of low quality.

The most recent drought in 2004-06 affected groundwater sources the most. Ordinary Drought Orders were granted in 2006 to Sutton and East Surrey Water, Mid Kent Water and Southern Water to limit or prohibit non-essential uses of water. Drought permit options were implemented by Sutton and East Surrey Water, Southern Water and South East Water to increase supplies; and at the same time Thames Water and Three Valleys Water introduced hosepipe bans. London's reservoirs were only partly drained down. Had there been a third consecutive dry winter there would have likely been a risk to water supply.

We reviewed our response taken to the 2004-6 drought, and the lessons learnt have been included in this drought plan. We carried out an internal drought exercise in 2010 to ensure we are prepared for drought conditions in the region.



2 Drought management in South East Region

Members of our South East regional office and Area Teams have nominated drought roles. This section provides information on who will be in these roles and what are our main responsibilities. It also covers our arrangements for securing resources during drought and administration responsibilities.

2.1 Drought team responsibilities and roles

During a drought, our main responsibilities are to:

- make sure that abstractors do not take too much water from our rivers, whilst ensuring the environment is protected;
- check water companies are following their drought plans and taking action to protect water supplies;
- deal with drought permit applications from water companies and respond to water company drought order applications;
- report on the state of water resources during a drought to the public and our partners;
- monitor hydrological and ecological parameters to assess the water situation and mitigate the impact of drought on the environment;
- ensure the appropriate incident management structure is in place for dealing with potential or actual drought incidents.

KEY to colour coding

- West Thames
- North East Thames
- Kent and South London
- Solent and South Downs

For an explanation of acronyms please see the glossary on page 67

Our drought teams consist of the following nominated staff shown in table 2.

Table 2 South East Drought Roles

DROUGHT TEAM ROLE	Who [for regional teams]	Who [for area teams]
Drought Manager (RDM- Regional Drought Manager) (ADM- Area Drought Manager) <i>(and RBC²)</i>	Water Planning Manager <i>(RBC in regional drought)</i>	PACS Manager EM Manager PACS Manager PACS Manager <i>(ABC in area-only drought)</i>
Drought Coordinator <i>(RDC- Regional Drought Coordinator)</i> <i>(ADC-Area Drought Coordinator)</i>	Principal Water Resources Technical Advisor	SEPO (water resources) SEPO (RSA) SEPO (water resources) SEPO (water resources)
STAC (Science and Technical Advice Cell) representative	Principal Water Resources Technical Advisor	NA
Single Point of Contact (SPOC)	Principal Water Resources Technical Advisor	SEPO (water resources) SEPO (RSA) SEPO (water resources) SEPO (water resources)
Hydrology	Technical Specialist Hydrology	Technical Specialist Hydrology Hydrologist SEPO Hydrologist
Hydrogeology	Senior Technical Specialist (GWCL)	Technical Specialist (GWHCL)

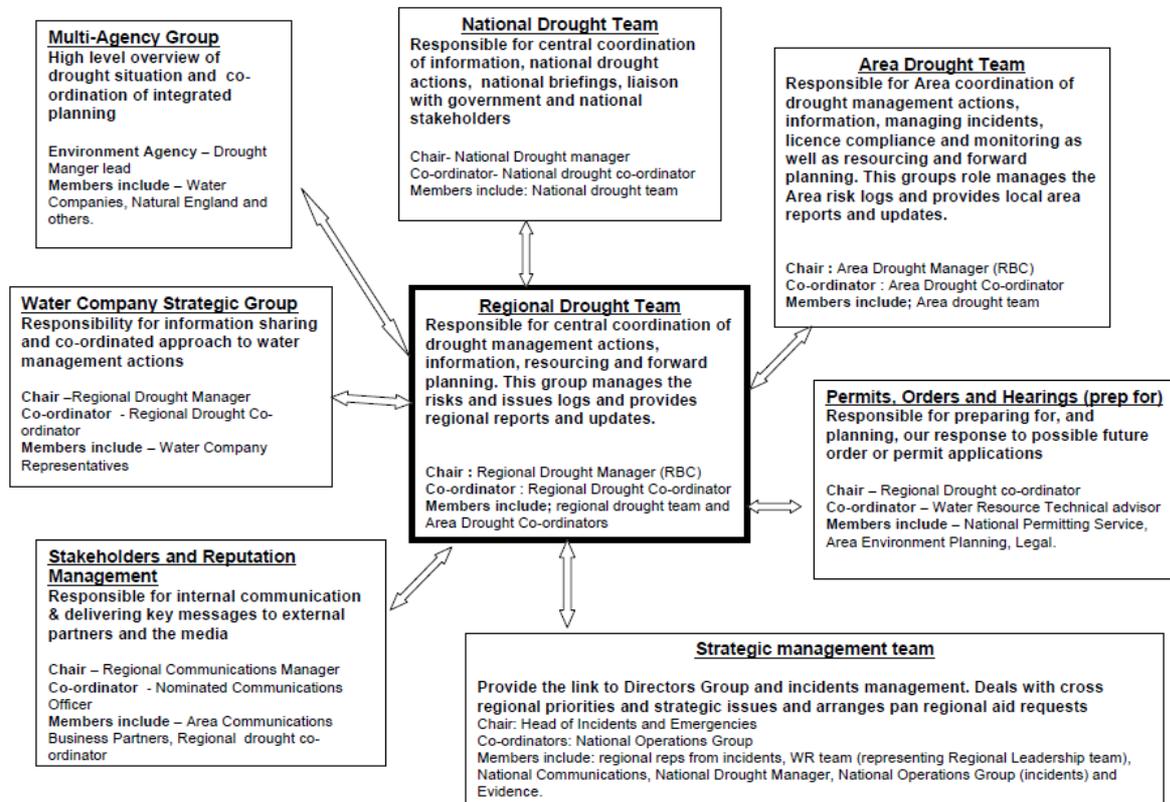
² The regional and area drought teams should also conform with our incidents and emergencies procedure (see [The essential guide to incidents](#) this includes nominating a Regional Base Controller RBC, Single Point of Contact (SPoC), and Science and Technical Advice Cell (STAC)

		<p>Technical Officer (GWHCL)</p> <p>Technical Specialist (GWHCL)</p> <p>Technical Officer (GWHCL)</p>
Water Resources (WR)	Principal Regional Environment Planning Officer (Water Resources)	<p>SEPO (WR)</p> <p>SEPO (abstraction licensing)</p> <p>SEPO (WR)</p> <p>SEPO (WR)</p>
Fisheries	Regional Technical Specialist	<p>Fisheries Team Leader</p> <p>Fisheries and biodiversity team leader</p> <p>Fisheries Technical Specialist</p> <p>Technical specialist (Fisheries) Senior technical specialist (Fisheries)</p>
Biodiversity and recreation	Regional Technical Specialist	<p>Biodiversity technical specialist</p> <p>Biodiversity technical specialist</p> <p>Biodiversity technical specialist</p> <p>Biodiversity technical specialist</p>
Water Quality	Principle Environment Planning Officer (Water Quality)	<p>SEPO (WQ)</p> <p>SEPO(RBMP/WQ)</p> <p>SEPO (WQ)</p> <p>SEPO (WQ)</p>
Communications	Principal Communications Officer	<p>External relations TL</p> <p>External relations TL</p> <p>External Relations TL</p> <p>External Relation Officer</p>
Environment Management	N/A	<p>Environment Management TL</p> <p>Environment Management</p>

		<p>TL</p> <p>Environment Management TL</p> <p>Senior Environment Officer/ Environment Officer</p>
Sampling and Collection	N/A	<p>West Thames represented by Analysis and Reporting Sampling and Collection TL</p> <p>Environment Monitoring TL/Officer</p> <p>Not represented in SSD drought team but consulted if necessary</p>
Analysis and Reporting	N/A	<p>Environment Monitoring (A&R) TL</p> <p>Senior Environment Monitoring Officer</p> <p>Ecological Appraisal Officer (A&R)</p> <p>Environment Monitoring Officer</p>
Hydrometry and Telemetry	N/A	<p>Monitoring and Data TL</p> <p>Hydrometry and telemetry (Technical Specialist)</p> <p>Hydrometry Team Leader</p> <p>Hydrometry and telemetry (Technical Specialist)</p>
Ops Delivery	N/A	<p>Operations delivery team leader</p> <p>Operations delivery technical support, East (TL)</p> <p>Operations Delivery</p> <p>Operations Delivery Technical Support Team Leader</p>
Asset Systems Management	N/A	<p>Asset Systems Management TL</p> <p>Asset Systems Management (Technical Specialist)</p> <p>Technical Support Team Member</p>

		Not represented in SSD drought team but consulted if necessary
Incidents and Emergencies	Incident and Emergency Planning Manager	<p>Area Senior Environment Officer</p> <p>Area Senior Emergency Planning Officer and Senior Environment Officer</p> <p>Area Senior Emergency Planning Officer</p> <p>Area Senior emergency planning officer</p>
Business Planner	Business Planning Manager	<p>Role not applicable in Thames West</p> <p>Business Planner</p> <p>Business Planner</p> <p>Not represented in SSD drought team but consulted if necessary</p>
Waterways	Operations Manager (Waterways)	<p>Waterways TL</p> <p>Role not applicable in Thames NE</p> <p>Team Leader, Waterways</p> <p>Role not applicable in SSD</p>
National Permitting	Permitting Officer (x4)	Not applicable to Areas
Legal	Principal Solicitor	N/A

Figure 9 Drought governance in South East



Roles for area only droughts

It is possible that an area or areas may be in a drought, while South East as a whole is not. If this occurs it is important to keep the regional drought coordinator informed. The regional drought coordinator should attend Area Drought meetings in the events of an area only potential drought or drought stage. The Regional Incidents and Emergencies representative should attend area drought team meetings in the event of an Area only potential drought and drought stage. If a drought in any area impacts upon the activities of a water company, the Regional Drought Team will become the overarching lead.

Both the RDMT and ADMT may call on other expertise as needed during a drought.

A list of names and contact details for our drought teams is stored in the South East region drought folder ([see section 2.4](#)).

2.2 Responsibility and involvement in decision taking

There are some drought decisions that can only be approved by certain staff. These are set out below.

Table 3 Key decisions

Activity	Staff member authorised to approve
Approval of water company drought permits	National Permitting Service Manager or Area Manager(s)
Approval of our comments to the Secretary of State/ on water company drought orders	Regional Director
Approval of Environment Agency drought order applications	Regional Director
Approval of memorandums of understanding (MoU) that relate wholly to an area	Area Manager(s)
Approval of memorandums of understanding (MoU) that are of regional concern	Regional Director
Approval of invoice to water company for recovering costs relating to drought permit or order application	Regional Director
Emergency closure of locks	<ul style="list-style-type: none"> • Harbour Master (Waterway Operations Manager) for River Thames • Waterways team leader for River Medway

There are also several relevant operating agreements and augmentation schemes in place across South East (see [section 1.2.2](#)). These agreements and schemes have an associated lead senior manager; namely:

Table 4 Lead managers for operating agreements

Operating agreements	Lead Manager
• Thames Water	
Lower Thames Operating Agreement (LTOA)	West Thames Area Environment Manager
West Berkshire Groundwater Scheme	West Thames Area Planning and Corporate Services Manger
North London Artificial Recharge Scheme (NLARS)	North East Thames Area Environment Manager
Beckton/Gateway Water Treatment (Desalination) Plant	West Thames Area Environment Manager
Thames Tideway Suspension of Abstraction Agreement	West Thames Area Environment Manager
River Cherwell in Banbury	West Thames Area Environment Manager
River Kennet & Holy Brook	West Thames Area Environment Manager
• Veolia Water Central	
The River Ver Operating Agreement	North East Thames Environment Manager
The Misbourne Operating Agreement	North East Thames Environment Manager
Augmentation Schemes	
• Environment Agency	
Darent Augmentation Scheme	Kent and South London Environment Manager
Alre Augmentation Scheme	Solent and South Downs Planning and Corporate Services Manager
Candover Augmentation Scheme	Solent and South Downs Planning and Corporate Services Manager
Letcombe Brook	West Thames Environment Manager
Tonge Mill Augmentation Scheme	Kent and South London Environment Manager
• Portsmouth Water	
Ems Augmentation Scheme	Solent and South Downs Planning and Corporate Services Manager
• South East Water	
Waller's Haven	Solent and South Downs Planning and Corporate Services Manager
Crowhurst Bridge	Kent and South London Environment Manager
• Southern Water	
Isle of Wight Scheme	Solent and South Downs Planning and Corporate Services Manager
Bowl-Medway Scheme	Kent and South London Environment Manager
• Veolia South East	
River Dour-Buckland Mill MoU	Kent and South London Environment Manager

2.3 Securing resources

Our activities that relate to drought management can require considerable additional resources, dependent on the severity and duration of the drought. During a drought, the South East drought manager(s) are responsible for reviewing and identifying resource needs so that we continue to fulfil all necessary commitments. The approach for securing interregional resources to deal with drought is led by the national drought team through the Strategic Management Team (SMT). All resourcing issues will be considered by the SMT and a resilient resources plan will also be put in place during a drought to identify and protect the level of response required across England and Wales.

Additional resources are sourced internally via the redirection of internal staff or externally by using consultants.

A range of options exist for securing additional resources, including:

- Reprioritisation of work within the existing teams undertaking drought activities.
- Reprioritisation of work of other teams within the region and areas.
- Agreed resource transfer from other regions not affected by drought.
- Procurement of consultant services.
- Procurement of additional temporary staff (for extended droughts).

In practice, the options used will be a combination of these, depending on the severity and duration of the drought and the particular resources and skills required.

In the case of a very serious drought, it may be necessary for key drought roles to be undertaken on a full-time basis and for resources to be secured to back-fill the normal roles of these staff.

2.3.1 Redirecting internal resources

Once the need for additional resources has been identified, the South East drought managers and SMT will consider the redirection of internal staff.

The deployment of additional resources to drought activities will affect performance in other areas of work. The management of conflicting priorities will be undertaken by management teams within our normal business planning and monitoring process, including the South East Management Team (SEMT) and Area Management Teams (AMTs) where modifications to key business targets (such as KPIs) are required.

2.3.2 Financial resources

If extra staff or consultants are appointed to assist with increased workloads, South East drought managers should make budget holders aware of the financial implications at the earliest opportunity. Approval for this spend is sought according to the [Financial Scheme of Delegation](#).

South East drought managers monitor the costs incurred by drought, including staff costs, consultant costs and operational costs. During drought, our drought teams and supporting teams record their time spent on drought activities. The national drought team provides a set of time recording codes for our teams to use during a drought.

Our South East drought teams will actively seek to recover costs for work which we carry out in dealing with water company drought permit and drought order applications.

2.3.3 Obtaining external resources

Where workloads can no longer be accommodated by Environment Agency staff external resources may be required. The use of external resources is arranged using one of the consultancy frameworks, depending on requirements and the current rules issued by our Procurement Team. We have a range of current 'Framework Agreements' and these can be used to secure the services required. The main Framework Agreement in relation to drought activities is the National Engineering and Environmental Consultancy Agreement (NEECA) and the Regional Groundwater Framework. These could provide additional support on hydrology, hydrometry, monitoring and hydrological and groundwater modelling support including forecasting.

2.4 Administration arrangements

At the onset of drought and during drought, our drought teams open and maintain several administration documents and databases (for further information on logs to set up and templates to use refer to [105_10 How to plan for and manage our response to drought](#)).

All documents relating to drought are stored on the N Drive at the following location N:\South East\Environment Management\EM Incidents and Emergencies\Drought

Our drought teams follow the Records management guidelines to ensure data isn't lost or deleted. As such we retain all log sheets, notes and any other records of information for at least three years. The Area drought coordinators and Regional coordinator are responsible for filing drought documents. Each drought team member is responsible for documenting their own work and passing it to this person.

All communications may be subject to Freedom of Information (Fol) requests. Therefore telephone conversations, letters and emails must be recorded and filed accordingly. General communications must be made available on request according to our [FOI procedure](#)

3 Drought triggers and actions

Drought impact varies from minor to very severe. Our drought plan covers the whole range of drought management activities and decisions we take to manage the impacts at a regional and area level.

The table on page 32 is the core part of this drought plan and sets out the actions our drought teams take for drought planning and management, who decides on the action and what indicators trigger these.

3.1 Stages of drought management

The decisions and actions we take for drought planning and management are split into four stages:

Table 5: Drought stages

Drought stage	
Normal	Drought planning actions in a normal water resource situation.
Potential drought	Drought actions required to prepare for drought once prolonged drier conditions are evident.
Drought	Actions required to manage drought once localised drought conditions impact on people, business and the environment.
Post drought	Actions required to monitor and manage the return to normal water resources conditions.

These stages do not indicate the severity of the situation, we use these stages to help us make timely decisions and actions.

3.2 Drought triggers and actions

We use a range of indicators that are used as triggers for the drought team to identify what drought stage we are in, which will then in turn initiate actions to be taken. Our drought teams make a decision on whether action is needed based on a range of factors, including the present and forecast conditions and how effective the action would be. Not all the triggers are needed to make the decision to move to a drought stage. The triggers are designed to allow flexibility to ensure that the correct actions are taken at the appropriate time. Local judgement is an important part of drought management as each drought is different.

Table 6: Environment Agency South East Drought Triggers

Drought stage	Trigger
Normal conditions	<ul style="list-style-type: none"> ○ Normal range of rainfall and soil moisture ○ River flows and groundwater levels within their normal ranges.
Potential drought	<ul style="list-style-type: none"> ○ Several key hydrological drought indicator sites have below normal levels or flows ○ Drought status of all areas within EASE region along with other neighbouring areas and regions ○ Environmental indicators, for example lower than normal flows, isolated algal blooms, fish in distress (including number & scale of incidents) ○ Prospects for rainfall, including Met office forecasts ○ Water company drought plan status and possible scenarios (see below) ○ Potential drought scenarios by forecasting for selected surface water and groundwater locations ○ The level of media coverage ○ Long term rainfall below seasonal average ○ Faster than normal reservoir drawdown ○ Isolated environmental incidents ○ Hands off flows for water abstractions reached earlier than a normal year.
Drought	<ul style="list-style-type: none"> ○ Triggers for Potential Drought have been reached and also: ○ The majority of key hydrological drought indicator sites have below normal levels or flows ○ Drought forecasts and simulation indicates a significant risk to public water supply ○ Widespread evidence of environmental stress ○ Possible need for drought permits/orders ○ Possible need for spray irrigation restrictions ○ Increasing media coverage
Post drought	<ul style="list-style-type: none"> ○ Recovery of drought indicators sites within (or approaching) normal range, with hydrological forecasts indicating no significant risk. ○ Refill of reservoirs so that levels start to

	<p>recover</p> <ul style="list-style-type: none"> ○ River flows return to normal seasonal levels ○ Groundwater recovers (may be time relayed) ○ Other available information, for example other environmental indicators, drought permits/orders no longer in force, the time of year, water company supply status, neighbouring regions status, drought scenarios forecasts and the prospects for rainfall
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One important method for detecting the onset of a drought is monitoring our hydrological drought indicator sites (see [Appendices E & K](#)). These hydrological sites are monitored routinely to see if river flows or groundwater levels are normal. When indicators start to show below normal conditions the drought teams will consider all other available information (see trigger table above) to consider what drought stage we are in as a region and as areas. The water quality of static water bodies such as ponds and reservoirs can be a good indicator of the onset of drought and can trigger a move from potential drought to drought. Algal blooms can be an indicator of dry/hot conditions and in turn put pressure on water resources.

Our drought teams take appropriate actions to manage and reduce the effects of drought. Our drought teams use the drought action table (split into the four stages of drought).

Localised Drought in SE Region

IMPORTANT - The table below lists all the actions our Region and Areas will do at different stages of drought. However, it is possible for the Region to experience a localised drought, where only one or two of the Areas are experiencing drought conditions or even that impacts from drought are experienced at a catchment scale. An Area may be at a different drought stage from other Areas within the Region. For example the Region may find itself in a normal conditions but one Area may need to move to a potential drought stage depending on the differing local conditions.

In the event that only one Area is impacted by drought the relevant Area Drought Management Team (ADMT) should replace the Regional Drought Management Team (RDMT) and associated regional roles (such as Regional Drought Manager - RDM, Regional Drought Coordinator -RDC) with area roles (such as ADM, ADMT and ADC).

In the event of an Area moving into a different drought stage from South East as a whole, ADM(s) will liaise with the RDM on the actions within this table, and the communications plan ([Appendix E](#)), to ensure ADMT(s) consider and act upon relevant actions and determine support needed from RDMT.

Key:

- Black text applies to whole South East (including all Areas)
- Pink text applies to West Thames Area only (West Thames)
- Blue text applies North East Thames Area only (NE Thames)
- Red text applies Kent and South London Area only (K&SL)
- Green text applies to Solent and South Downs Area only (S&SD)

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
Normal conditions (drought planning)					
N1.	Produce monthly South East water situation report	Ongoing	N/A	NE Thames GWH&CL Team Leader	NE Thames GWH&CL Technical Specialist Hydrology
N2.	Produce monthly area water situation reports for operational areas	Ongoing	N/A	GWH&CL (TL) And K&SL AEP (TL)	GWH&CL (officer) And K&SL AEP (officer)
N3.	Assess key hydrological indicator sites monthly	Ongoing	RDC & ADCs	RDM & ADMs	RDM & RDC ADMs & ADCs
N4.	RDMT and ADMTs will meet annually to review and update and republish South East drought plan	April Annual RDMT and ADMTs meetings	RDM & RDC ADMs & ADCs	RDM ADMs	RDMT & ADMTs
N5.	Undertake and review baseline hydrometric, ecological, fisheries and water quality monitoring (see section 4 and Appendices K to N)	Routine monitoring	Relevant area teams: HT(TL), EM(A&R) (TL), F(TL)	Relevant area teams: H&T, EM(S&C),	Relevant area teams: H&T (To collect data) EM(S&C) , GWHCL to review monitoring
N6.	Review who our trained media spokespeople are (This will include RDM, ADMs, RDC and ADCs) and arrange training if necessary	April Annual RDMT and ADMTs meetings	External Relations Officer	External Relations Officer	External Relations Officer
N7.	Review new drought plan/changes to existing water company drought plans annually	April Annual RDMT and ADMTs meetings	Principal Environment Planning Officer (Water Resource)	Principal Environment Planning Officer (Water Resources)	Principal Environment Planning Officer (Water Resources)
N8.	Undertake preparatory work with water companies and Natural England, as required, for	Ongoing	ADMs & ADCs	RDM & ADMs	RDM/RDC/ Principal Environmental Planning Officer

	possible drought permit/order applications (as outlined in water company drought plans)				(Water Resources)
N9.	Consider, and where necessary, undertake preparatory work to define monitoring arrangements requirements for drought permits with water companies.	Ongoing	ADC	ADM	ADC
N10.	Consider, and where necessary, undertake preparatory work for possible Environment Agency Drought orders.	Ongoing	RDM & RDC ADMs & ADCs	RDM ADMs	RDMT & ADMTs
N11.	Contribute to Resilience Forums drought risk assessments (where appropriate).	As requested by Forums	RDC & ADCs	RDM & ADMs	RDC & ADCs
N12.	Continue to monitor river flows and groundwater and alert licence holders with Hands-off-Flow conditions (HOFs) or groundwater level conditions if they should reduce or cease abstraction.	Ongoing	Area Environment planning Officer/ GWH&CL officers	Area Environment planning Team leader/ GWH&CL TL	Area Environment planning Officer/ GWH&CL Officers
N13.	Undertake source and spring surveys (to provide indication of groundwater status)	Ongoing (See area monitoring plans in App K to N)	Area Environment planning Officer And S&SD Hydrometry and telemetry Officer GWHCL TL GWH&CL TL GWHCL TL	Area Environment planning Team Leader (supported by EP Team) And S&SD Hydrometry and telemetry Team Leader GWHCL TL GWH&CL TL GWHCL TL	S&SD Hydrometry and telemetry Team Officer GWH&CL Officers GWH&CL Officers GWH&CL Officers
N14.	Complete regional recharge scenario predictions (based on groundwater model runs)	Annual RDMT and ADMTs meetings. Autumn and spring	RDC	NE Thames GWH&CL Technical Specialist Hydrology	NE Thames GWH&CL Technical Specialist Hydrology
N15.	Monitor winter groundwater recharge in real time using telemetry	Ongoing	ADC	ADC	ADC
N16.	Carry out maintenance on WBGWS augmentation pumps	Annually	West Thames ADC	West Thames ADC	Area Asset system Management team
N17.	Carry out maintenance on the Candover and Alre augmentation pumps	Annually	S&SD ADC	S&SD ADC	Area Asset system Management team

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
Potential drought					
Consider and confirm potential drought stage					
PD1.	Establish first, and arrange future, Regional (RDMT) and/or Area (ADMTs) drought team meetings to define drought stage (this excludes Annual April meeting). Important note: Where indicators show below normal conditions across the region all four areas all ADMTs and RDMT and will convene. If localised impact, only affected ADMTs need to convene (in liaison with RDM)	Several key hydrological drought indicator sites have below normal levels or flows. AND Areas to also consider additional/supplementary area hydrological information to consider area drought stage ADMTs and RDMT should also have consideration for other available information set out in table 5.	RDM & RDC / ADMs & ADCs	RDMT & ADMTs	RDM & ADMs
PD2.	Confirm potential drought stage for Region and/or Areas	RDMT and/or ADMT analysis of drought indicators and all available information (see above) indicates a potential drought within an area, or the whole region.	RDM & RDC / ADMs & ADCs	RDMT & ADMTs	RDM & ADMs
PD3.	Inform RMT and AMTs on current position regarding potential drought	Confirm potential drought stage	RDM & ADM(s)	RDM & ADM(s)	RDM & ADM(s)
PD4.	Inform National Drought Manager (NDM)	Confirm potential drought stage for region OR area(s)	RDM And/or ADM(s)	RDM And/or ADM(s)	RDM And/or ADM(s)
<p>*** Once a potential drought is confirmed for the Region, follow actions below. In the event of an area only potential drought, replace regional roles (e.g. RDM, RDMT and RDC with area roles, such as ADM, ADMT and ADC). In event of Area only potential drought ADM will have close liaison with RDM to ensure all actions below are being considered and communications plan is being implemented ***</p>					
Management					
PD5.	Assess potential drought scenarios with hydrological forecasting for selected	First RDMT meeting (excluding annual review). Data to be	RDM & RDC	RDM	NE Thames GWH&CL Technical

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
	surface water and groundwater locations	provided in advance of first meeting, and submitted when needed.			Specialist Hydrology with support from Area GWH&CL
PD6.	Produce drought maps for rainfall and groundwater recharge	First RDMT meeting (excluding annual review). Data to be provided in advance of first meeting, and submitted monthly there after) or as required.	RDM & RDC	RDM	NE Thames GWH&CL Technical Specialist Hydrology with support Area GWH&CL
PD7.	Establish and maintain drought administration for region and areas (electronic filing, and logs for issues, risks, decisions, lessons and environmental impacts) ³	Confirm potential drought stage and maintained there after as necessary.	RDC and ADCs	RDM and ADMs	RDMT and ADMTs
PD8.	Set up generic drought time codes on IBIS	Confirm potential drought stage	RDC	RDM	RDC
PD9.	Region and Areas to assess workload capabilities and consider resource requirements	Confirm potential drought stage and there after at area and regional drought meetings	RDM and ADMs	RDM and ADMs	RDM and ADMs
PD10	Drought teams to establish rota to cover leave/absence including nominating deputy roles	During potential drought stage	RDC and ADCs	RDM and ADMs	RDM and ADMs
Communications and reporting (more detail is available in appendices F and G)					
PD11	Send HELP report confirming drought team have meet	Confirm potential drought stage	RDM & RDC	RDM	RDC
PD12	Regular (e.g. twice weekly/weekly depending on scale of potential drought) area drought impact reporting to RDC, compiled and reported to HO NDC.	Initiated on confirmation of potential drought stage and there after as requested by HO (likely to be fortnightly)	RDM & RDC ADMs & ADCs	RDM and ADMs	RDC and ADCs
PD13	Review and implement internal and external communication plan (see Appendix F) which include actions 1-5 below:	Once potential drought stage reached and thereafter	RDM & ADMs	RDMT & ADMTs	RDMT & ADMTs

³ See operational instruction [105_10 How to plan for and manage our response to drought](#). For explanation of what logs to set up and templates to use.

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
PD13 a.	1. Establish first, and arrange future, Regional <i>Technical Drought Group meetings</i> (water companies & Natural England) to review position, look at future scenarios and drought plan actions.	Confirm potential drought and ongoing during potential drought stage	RDM & RDC	RDM	RDM & RDC
PD13 .b	2. Establish and maintain <i>Communications Group</i> (Environment Agency and water companies). Promote partnership working on joined up awareness campaigns to promote water efficiency	First Regional Technical Drought Group meeting and continue thereafter as needed	External Relations Officer	RDM	External Relations Officer
PD13 .c	3. Establish and maintain <i>Managing Directors drought meetings</i> (water companies, Ofwat, CCWater & Natural England). Consider cross regional meetings if appropriate.	First Regional Technical Drought Group meeting and continue thereafter as needed	RDM	RDM (in liaison with Environment and Performance manager and Regional Director)	Regional Director/RSU Manager/RDM
PD13 .d	4. Where needed, establish and maintain <i>area operational meetings</i> with water companies (to consider local and technical issues such as monitoring and augmentation schemes)	Within a month of potential drought stage being confirmed	ADM & ADC	ADM	ADM & ADC
PD.1 3.e	5. Consider liaison with local resilience forum	Confirm potential drought and ongoing during potential drought stage	RDM/ADM (as Base controller)	RDC	Incidents and emergencies drought team member
PD14	Email all staff regarding current drought position and promote water wise behaviour within our business	Confirm potential drought and ongoing during potential drought stage	RDM	RDM	RDM
PD15	Review reporting (see Appendices for reports) and review frequency	Confirm potential drought stage and at drought team meetings	RDM & ADMs	RDMT &ADMTs	Relevant staff to produce reports
DP16	Respond to requests for information ⁴	When request for information comes in	RDC	RDM	RDC
PD17	Increase liaison between the Regional Flood Forecasting Team and Thames Water's Operations	Lower Thames reservoir storage levels.	Regional Flood Forecasting Team	Flood Forecasting Technical Specialist	Flood Forecasting Technical Specialist

⁴ For FoI requests refer to operational instruction [400_04 Responding to requests for information.](#)

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
	regarding LTOA abstraction regime.				
Licensing, compliance and enforcement					
PD18	Continue to monitor flows and notify abstraction licence holders with flow conditions (HOFs) if they should reduce or cease abstraction	Ongoing	AEP Officer	AEP Team leader	AEP Officer
PD19	Consider increasing the frequency of licence inspections	Confirm potential drought and ongoing during potential drought stage	AEP Officer EM Officer	AEP Team leader EM Officer	AEP Officer EM Officer
PD20	Consider establishing abstractor groups to update abstractors on drought status, gain understanding regarding abstraction requirements and find areas for voluntary water conservation	Once potential drought stage reached	AEP Officer	AEP Team leader	AEP Officer
PD21	Commence Isle of Wight drought watch monitoring flows in two chalk streams and groundwater at Carisbrooke Castle linked to Southern Water abstraction licence conditions & instigate meeting with Southern Water to discuss measures to maintain supplies	Confirm potential drought stage	S&SD EM Officer and S&SD H&T Officer	S&SD AEP team leader	S&SD AEP officer
Permits and orders					
PD22	Undertake preparatory work, as required, for pre-drought permit/order applications (note - staff should record time spent on IBIS to enable cost recovery, see section 5). This will include commencement of additional monitoring where necessary	After liaison with water companies over possible permit/order applications	ADM & ADC	ADM	RDM/RDC/ NE Thames Technical Specialist Hydrology
PD23	Ensure water companies understand that necessary restrictions are put in place before drought permits/orders are applied for.	After liaison with water companies over possible permit/order applications	RDC	RDM	RDC

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
PD24	Identify possible need for Environment Agency drought orders, should these become necessary	During potential drought stage if conditions are worsening To be considered <u>only where</u> serious environmental damage can be mitigated by an Environment Agency drought order and the negative effects of such an application are acceptable	RDM & ADMs	RDM & ADMs	ADM & RDM
PD	Liaise with Natural England over possible sites for Environment Agency drought orders.	During potential drought stage if conditions are worsening To be considered <u>only where</u> serious environmental damage can be mitigated by an Environment Agency drought order and the negative effects of such an application are acceptable	RDC and ADCs	RDM and ADMs	RDM and ADMs
Monitoring					
PD25	Continue to monitor river flows and groundwater against key hydrological drought indicator sites	Ongoing	RDM & RDC	RDM	RDC Technical support from NE Thames GWH&CL Technical Specialist Hydrology
PD26	Implement, where appropriate additional drought monitoring for example hydrometric, fisheries, ecology and water quality more information contained in Appendix K to N.	Confirm potential drought and ongoing during potential drought stage	ADM	Relevant area teams	Relevant area teams

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
PD27	Log drought related incidents ⁵	Drought related incident	ADC	Relevant Area teams	Relevant Area team
PD28	Check water companies are following their drought plans where necessary	Confirm potential drought and ongoing during potential drought stage	RDM & ADMs ADCs& RDC	ADMs & RDM	ADCs& RDC
PD29	Check water companies are implementing drought monitoring requirements for potential drought permits or orders (to support their Drought Permit/Drought Order application if the need arises) if appropriate	Confirm potential drought and ongoing during potential drought stage	ADC	ADM	ADC
Mitigation					
PD30	If necessary, alter target flows at Teddington Weir under Lower Thames Operating Agreement (LTOA)	London reservoir storage	West Thames ADM/ADC	West Thames ADM	West Thames ADM
PD31	Assessments of the local need to commence River Ver augmentation scheme	Flows in Ver reaching 12.96MI/d (3-day mean) at Hanstead gauging station	AEP Officer	AEP TL	AEP Officer
PD32	Carry out testing (and maintenance if needed) of pumps for Alre and Candover augmentation schemes	Potential drought stage reached and if test pump not carried out recently during maintenance	S&SD ADC	S&SD ADC	S&SD Asset System Management team
PD33	Consider appropriateness of any operation to alter the profile of a water course	Confirm potential drought stage and thereafter as appropriate	Fisheries & Biodiversity Officer Ops delivery	Ops delivery	Ops delivery
PD34	Consider appropriateness of weed cutting regimes	Confirm potential drought stage and there after as appropriate	Fish and Biodiversity Officer/Ops delivery	Fish and Biodiversity TL	Ops Delivery
PD35	Consider contacting river keepers to consider appropriateness of weed cutting regimes	Confirm potential drought stage and there after as appropriate	Fish and Biodiversity Officer	ADM	Fish and Biodiversity Officer

⁵ For more guidance on the framework and responsibilities for managing a major drought related incident see [123_02 Management of Major Incidents](#).

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
PD36	Consider writing to STWs on locally sensitive water courses (e.g. STWs in headwaters or on ecologically sensitive rivers such as the Test) to warn of possible future low flows to enable STWs to closely manage discharge quality and volumes'	Confirm potential drought stage	AEP Officer	AEP Team leader	AEP Officer
Navigation (these generic waterways actions apply to the River Thames and River Medway that the Environment Agency. For more information see Appendix B)					
PD37	Implement River Medway and River Thames waterways drought plans; which include the following actions;	Once potential drought stage is reached	Operations Manager (Waterways)	Operations Manager (Waterways)	Operations Manager (Waterways)
PD37a	1. Inform Regional Waterways Working Group of potential drought status	Once potential drought stage is reached	Waterway Operations Manager	Waterway Operations Manager	Waterway Operations Manager
PD37b	2. Liaise with relevant teams to prepare for staunching of weirs	Once potential drought stage is reached	Waterway Duty Officers	Waterway Operations Manager	Ops Delivery
PD37c	3. Put up notices and ask boaters to voluntarily share locks	Once potential drought stage is reached	Waterway Duty Officers	Waterway Operations Manager	Lockstaff
PD37d	4. Assess and maximise water conservation measures at lock site and in lock house.	Once potential drought stage is reached	Waterway Duty Officers	Waterway Team Leaders	Lockstaff
PD37e	5. Survey and progress repairs to any significant leaks at lock gates and weir sluices.	Once potential drought stage is reached	Waterway Duty Officers	Waterway Team Leaders	Ops Delivery
PD37f	6. Enhanced collection of levels and status at all locks to track river conditions	Once potential drought stage is reached	Waterways Duty Officers	Waterway Operations Manager	Operations Manager (Waterways)
PD37g	7. Lock keeper to check & report occurrence of blue-green algae	Once potential drought stage is reached	Waterways Duty Officers	Waterways Duty Officers	Lockstaff
PD37h	Ensure British Waterways have implemented monitoring under the River Stort Navigation Agreement	Once potential drought stage is reached	Waterways Duty Officers	Waterway Operations Manager	Waterways Duty Officers

No.	Action	Trigger(s) for considering if action required	Who monitors trigger?	Who makes the decision on whether to take the action?	Who is responsible for taking the action?
Fisheries and Biodiversity					
PD38	Work with Natural England to identify and monitor vulnerable water dependent designated sites	During potential drought	Fisheries and Biodiversity TL	Fisheries and Biodiversity TL	F&B Technical specialist
PD39	Raise awareness and advise fishing clubs, Rivers Trusts and other local interest groups etc of possibility of drought and fish protection measures. Circulate list of local fish rescue and aeration contractors. Press releases to national angling press / local media. Consider writing to fisheries managers about weed cutting, stocking, aeration equipment and bankside vegetation management.	Circulate standard literature early summer if dry summer predicted.	Area Fisheries and Biodiversity TL	Area Fisheries and Biodiversity TL	Fisheries Technical Specialist
PD40	Ensure all aeration equipment for deployment is serviced and working safely. Ensure relevant staff familiar with operation and deployment	Routine early summer procedure	Fisheries Officers And/or EM officers	Fisheries and Biodiversity TL	Fisheries Officers/EM Officers/Ops Delivery
PD41	Identify potential drought high risk sites e.g. historically depleted reaches, critical fish passage sites.	Potential impact on river habitats, passage and fish welfare	Fisheries Officers	Area Fisheries and Biodiversity TL	Area fisheries Tech Specs and fisheries officers
PD42	Consider targeting fishery enforcement patrols	Potential drought	Fisheries Officers	Area Fisheries and Biodiversity TL	Fisheries enforcement officers
PD43	Brief area fisheries and EM teams on drought situation and review procedures for fish kills and relocations. Ensure clarity on roles and responsibilities.	As required	Fisheries Officers	Area Fisheries and Biodiversity TL	Area F&B Tech Specs
PD44	Review fish monitoring programme	As required	Area Analysis and Reporting TL	Area Analysis and Reporting TL	Area fisheries Tech Specs and Monitoring officers

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
Drought (actions within potential drought stage will already be complete)					
Consider and confirm drought stage					
D1	Confirmation of drought stage for Region and Areas	The majority of key hydrological drought indicator sites have below normal levels or flows and other factors see PD1 and also triggers set out in table 5	RDM & RDC / ADMs & ADCs	RDMT & ADMTs	RDM & ADMs
D2	Inform RMT and AMTs on current position regarding drought	Confirm drought stage	RDM ADM(s)	RDM ADM(s)	RDM ADM(s)
D3	Inform National Drought Manager (NDM)	Confirm drought stage for region OR area(s)	RDM ADM(s)	RDM ADM(s)	RDM ADM(s)
<p>*** Once a drought is confirmed for the Region, follow triggers below. In the event of an Area only drought, replace regional roles (e.g. RDM, RDMT and RDC with area roles, such as ADM, ADMT and ADC). In event of Area only drought ADM will have close liaison with RDM to ensure all actions below are being considered and communications plan is being implemented ***</p>					
Management					
D4	Consider the elevated workload capabilities under drought stage and consider resource requirements	Confirm drought stage and there after as appropriate	RDM and ADMs	RDM and ADMs	RDM and ADMs
Communications and reporting (more detail is available in appendices F and G)					
D5	Review communication messages in relation to confirmation of drought stage	Confirm drought stage	RDM & ADMs	RDM & ADMs & External Relations Officer	RDC & ADCs & External Relations Officer
D6	Review frequency of communications actions and continue implement internal and external communications actions (see Appendix F.1);	During drought stage	RDM & ADMs	RDMT & ADMTs	RDMT & ADMTs

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
	including:				
D6a	1. Consider increasing frequency of RDMT and ADMTs drought meetings	Confirm drought stage	RDM ADM(s)	RDM ADM(s)	RDM ADM(s)
D6b	2. Areas to increase frequency of Area operational meetings with water companies	During drought stage	ADM & ADC	ADM	ADM & ADC
D6c	3. Continue, and if needed enhance frequency, of regional reporting and drought meetings with to HO and neighbouring regions	During drought stage	RDM& RDC	RDM	RDM& RDC
D6d	4. Continue to work with partners on joined up publicity campaigns on drought messages and promotion of water efficiency	During drought stage	RDM& RDC	RDM	RDM& RDC
D6e	5. Issue further internal guidance on responsible water use in relation to our business (such as washing windows, fleet cars, irrigation of lawns)	During drought stage	RDM	RDM (in liaison with RMT)	RDM
D6f	6. Contribute to Resilience Forums	As needed	RDM or ADMs	RDM or ADMs	RDM or ADMs
D6g	7. Include a brief on latest situation in Incident Management report	During drought stage	RDM or ADM	RDM	RDC
D6h	8. Contribute as member of London Water Shortage Working Group.	As required	RDM	RDM	RDM
D7	Further development of scenarios and actions with water companies (via Regional Technical Drought Group)	Once drought stage is reached	RDM &RDC	RDM	RDM &RDC
D8	Areas to continue weekly reporting on drought	Weekly during drought	RDC	RDM	ADCs

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
	impacts to RDC,				
D9	Consider increasing liaison with local voluntary interest groups such as Rivers Trusts	Confirmation of drought and ongoing during drought stage	ADC	ADM and ADC	ADC
D10	Monitor and plan resource needs for drought stage	Confirm drought and ongoing during drought stage	RDM ADM(s)	RDM ADM(s)	RDM ADM(s)
D11	HELP report for water company drought permits and/or orders	As drought permits/order applications are submitted	RDM	RDM	RDC
D12	HELP report if Section 57 is to be used	When Section 57 is applied	RDM	RDM	RDC
D13	HELP report Environment Agency Drought Order	If EA drought order applied for	RDM	RDM	RDC
D14	HELP Report for Emergency Drought Order	If and when emergency DO applied for	RDM	RDM	RDC
Licensing, compliance and enforcement					
D15	Consider sending letters to abstractors (for example all abstractors, highest users and/or in sensitive catchments) to ask for voluntary reductions in abstraction quantities	Confirm drought and ongoing during drought stage	RDM & ADMs	RDM & ADMs & Area AEP TLs	Area AEP TLs
D16	Consider writing to non-licensed abstractions (such as trickle irrigators) to notify them of drought and ask for conservation of water	Confirm drought and ongoing during drought stage	RDM & ADMs	RDM & ADMs & Area AEP TLs	Area AEP TLs
D17	Consider voluntary reduction agreements with spray irrigators and implement as appropriate (see Appendix I for S57 process)	Specific catchments under stress due to drought and significantly exacerbated by spray irrigation abstraction	RDM & ADMs	RDM & ADMs & Area AEP TLs	ADMs
D18	Consider use of Section 57 ⁶ and implement as appropriate (this legislation	To be considered where reducing or stopping spray	RDM & ADMs	RDM & ADMs & Area AEP TLs	ADMs

⁶ Section 57 (s57) of the Water Resources Act 1991 gives the Environment Agency powers to restrict spray irrigators when necessary. In a drought we would first encourage voluntary reductions and provide as much notice as possible before the use of s57 restrictions.

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
	in the Water Act allows us to reduce/stop spray irrigation where appropriate) (see Appendix I for process)	irrigation in a specific catchment would have a significant positive impact on the environment.			
D19	Monitor compliance with drought permit/order conditions	Drought permits/Order in operation	ADC	ADM	ADM
D20	Increase frequency of compliance visits to abstraction licence holders, particularly those with Hands Off Flow (HOF) conditions.	HOFs in force	EM (TL)	EM (TL)	EM (TL)
D21	Increase compliance checks for discharge consents	Confirm drought and ongoing during drought stage	EM (TL)	EM (TL)	EO
D22	Monitor compliance of drought permits/orders with relevant conditions	Drought permits/orders in operation	ADC	ADM	ADM
Permits and orders					
D23	If drought permit/order applications are likely consider notifying planning inspectors of potential hearings.	Pre-drought permit application activity	ADM & ADC	ADM	ADC
D24	Undertake work relating to water company drought permit/order applications	Request by ADM/ADC regarding drought permit(s) or order(s)	ADM & ADC	ADM	RDM /RDC/ Regional Environmental Planning Officer (Water Resources)
D25	Undertake work relating to water company drought applications for non-essential use ban	Notification by water company or Defra of application to SoS	RDM	RDM	Regional Director/RDMT
D26	Consider Environment Agency Drought Orders (DO)and apply where appropriate (see section 5.5 on possible use of EA DOs)	Where serious environmental damage can be mitigated by an Environment Agency drought order and the negative effects of such an application are acceptable	RDM & ADMs	RDM & ADMs (in liaison with RMT)	ADM/RDM & Regional Director
Monitoring					
D27	Enhanced liaison with water companies to monitor implementation of their	Confirm drought and ongoing during drought stage	RDM	RDMT	RDM

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
	drought plans and agree appropriate actions				
D28	Areas to monitor,, and if necessary increase, the implementation of enhanced environmental monitoring (e.g. river source migration)	Confirm of drought stage	ADCs	ADMs & ADCs	ADMs & ADCs
D29	Ensure water companies are following conditions of their drought permits (including monitoring requirements)	Drought permits are granted and implemented	ADM	ADM	ADC
D30	Consider environmental implications of operating WBGW scheme	Thames Water request operation of WBGWS as detailed in their drought plan	West Thames ADM& ADC	West Thames ADM	West Thames Ops
D31	Start Alre Augmentation Scheme monitoring of augmentation discharge points and impact on local groundwater levels.	Alre Scheme activated	ADC	ADC	Area environment Monitoring (sampling and collection)
D32	Start Candover Augmentation scheme monitoring of augmentation discharge points and impact on local groundwater levels.	Candover Scheme activated	ADC	ADC	Area environment Monitoring (sampling and collection)
D33	Continue to log drought related incidents on NIRS	Drought incidents	ADM/ADC	ADM	Relevant technical team
D34	Consider liaising with local rivers trusts, wildlife groups and angling clubs for informal local monitoring	Confirm drought and ongoing during drought stage	ADC	ADM	ADC
Mitigation					
D35	Consider commencing West Berkshire Groundwater Scheme ⁷	Approaching LTOA threshold and Thames Water informs of possible need to use WBGW (see Thames Water's Drought Plan)	RDM & West Thames ADM	RDM & West Thames ADM	West Thames ADM
D36	West Berkshire Groundwater Scheme operated	Thames Water request operation of WBGWS as detailed in their	RDM & West Thames ADM	RDM & West Thames ADM	West Thames ADM

⁷ Within South East Region the West Berkshire Groundwater Scheme (in West Thames) is available to augment flow in the River Thames during drought periods for the benefit of the environment and downstream abstractions.

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
		drought plan			
D37	Alter target flows at Teddington weir under the Lower Thames Operating Agreement (LTOA)	London reservoir storage	West Thames ADM	West Thames ADM	West Thames ADM
D38	If required, commence River Ver augmentation scheme	Flows in Ver reaching 12.96ML/d (3-day mean) at Hanstead gauging station.	GWCL (TL) EP (TL)	EP (TL)	EP (TL)
D39	Implement Darent augmentation scheme *** Note: Ensure Darent Augmentation scheme is not operated during flood events	Darent target flows are breached and observed/sustained low flows/levels at Tonge Mill Pond	K&SL Field, data and monitoring team leader	K&SL Field, data and monitoring team leader	K&SL Field, data and monitoring team leader with support from GWH&CL
D40	Consider adjustments to local water level management areas ⁸ (for example Stour Marsh Feeding Area) and implement where appropriate	Confirmation of drought stage	ADC	ADM	Relevant area team
D41	Operation of Alre Augmentation Scheme	River Itchen flows fall to 240 MI/d at Allbrook & Highbridge (combined) Only operate for ecological and/or water quality support	ADC	ADM	ADC
D42	Operation of Candover Augmentation scheme	River Itchen flows below 240MI/d trigger level. Subject to determination by the drought team. Only operate if required for ecological and/or water quality support.	ADC	ADM	ADC
D43	Consider changing, alerting and/or ceasing weed cutting regimes according to local requirements	Confirm of drought stage	ADM in consultation with H&T TL and Ops TL	H&T team leader and Ops TL	H&T team leader and Ops TL
Navigation (these generic waterways actions apply to the river Thames and River Medway that the Environment Agency					

⁸ Water Level Management Plans do not consider contingency measures such as drought. However, during a drought event, where runoff is insufficient to achieve required water levels, it may be possible to make arrangements to conserve supplies to especially sensitive areas. This would require detailed consultation with the relevant Internal Drainage Board and the Area Flood Incident Management Team. Agreement with affected riparian owners and abstraction licence holders would also be required.

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
<i>operates. For more information see Appendices)</i>					
D44	Continue to review and implement River Medway and River Thames waterways drought plans; which include the following actions;	Confirm of drought stage (or earlier depending on river levels)	Waterway Duty Officer	Waterway Operations Managers	Waterway Operations Managers
D44a	1. Staunching of weirs	Confirm of drought stage (or earlier depending on river levels)	Waterway Duty Officers	Waterway Duty Officers)	Ops Delivery
D44b	2. Consider voluntary delays at locks	Confirm of drought stage (or earlier depending on river levels)	Waterways Duty Officers	Waterway Operations Managers	Lockstaff
D44c	3. Consider mandatory lock restrictions	Confirm of drought stage (or earlier depending on river levels)	Waterway Duty Officers	Waterway Operations Managers	Lockstaff
D44d	4. Consider publicising the potential impact of a drought on waterway users (boating and recreation)	Confirm of drought stage (or earlier depending on river levels)	Waterway Operations Managers	Waterway Strategic Manager	Waterway Strategic Team
Fisheries and biodiversity					
D45	Work closely with Natural England to consider what action is taken to safeguard water dependent designated sites	Once drought stage reached	Area F&B TL	F&B TL	F&B technical specialist
D46	Increase frequency of high risk site monitoring. If necessary, and possible, deploy remedial action (e.g. aeration / rescue).	Once drought stage reached	Area F&B Tech Specs and fisheries officers	Area F&B TL	Area fisheries Tech Specs and fisheries officers
D47	Prepare for response to high rate of drought related incidents (e.g. fish kills/rescues) using prioritisation when necessary and monitor (and report to RDC)	Drought stage reached Prioritisation: a) Rivers b) Publicly owned stillwaters c) Commercially managed stillwaters	Area fisheries Tech Specs and fisheries officers	Area F&BTL	Area F&B TL

No.	Action	Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
D48	Procedure for short notice fish movement consents and emergency health checks in place.	Confirm drought stage	Area fisheries Tech Specs and fisheries officers	Area F&BTL	Fisheries consenting officer
D49	Check critical structures for fish passage	Confirm drought stage	Area fisheries Tech Specs and fisheries officers	Area F&B Tech Spec	Area fisheries Tech Specs and fisheries officers
D50	Suspend fish monitoring where necessary.	Confirm drought stage	A&R TL	A&R TL	A&R Officer
D51	Consider high Impact Fisheries Enforcement patrols at vulnerable locations.	Confirm drought stage	Area fisheries Tech Specs and fisheries officers	Area F&B TL	Fisheries Enforcement Officers
D52	Where appropriate supply/loan / deploy emergency aeration equipment to fisheries on a case by case basis in line with operational instruction.	Confirm drought stage	Area fisheries Tech Specs and fisheries officers	Area F&B TL	Fisheries Officers
D53	Respond to fish in distress/fish kills as appropriate and guided by CICS.	Confirm drought stage	Area fisheries Tech Specs and fisheries officers	Area F&B TL	
D54	Consider the use of new powers under the Marine Act by enacting emergency fisheries byelaws as appropriate.	As drought escalates and where appropriate	Regional F&B Tech Spec	RDM	Regional Director
D55	Monitor and review response to drought related incidents (e.g. fish kills/rescues) and report to RDC.	Confirm drought stage	Area fisheries Tech Specs and fisheries officers	ADC	Area F&B Tech Specs and fisheries officers

Post Drought (and/or return to normal conditions)

Action		Trigger (s) for considering action if required	Who monitors the trigger(s)	Who makes the decision whether to take the action	Who is responsible for taking the action
AD1	Confirmation of a return to normal conditions and work practices.	Recovery of drought indicators sites within (or approaching) normal range, with hydrological forecasts indicating no significant risk. Other available information set out in table 5	RDM & ADMs	RDM (in liaison with RMT) ADMs (in liaison with AMT)	RDM and ADMs
AD2	HELP Close down report	Confirm return to normal conditions and work practices	RDM	RDM	RDC
AD3	Inform RMT and AMTs (and wider staff) on current position regarding drought	Confirm return to normal conditions and work practices	RDM ADM(s)	RDM ADM(s)	RDM ADM(s)
AD4	Inform National Drought Manager (NDM)	Confirm return to normal conditions and work practices	RDM	RDM	RDM
AD5	Recover costs associated with drought permit and order activity	Workload reduces and/or return to potential drought or normal conditions	ADC	ADC & ADM	ADC
AD6	Review Regional Drought Plan in relation to lessons learnt and implement any lessons learned	Return to normal conditions	RDM & RDC	RDM	RDMT
AD7	Review and assess the effectiveness of any drought management actions. For example the use of augmentation schemes, fish rescues, communications etc	Return to normal conditions	RDM & RDC	RDM	RDMT
AD8	Work with water companies to review effectiveness of company Drought Plans and implement any lessons learned.	Review of Regional Drought Plan	RDM & RDC	RDM	RDMT

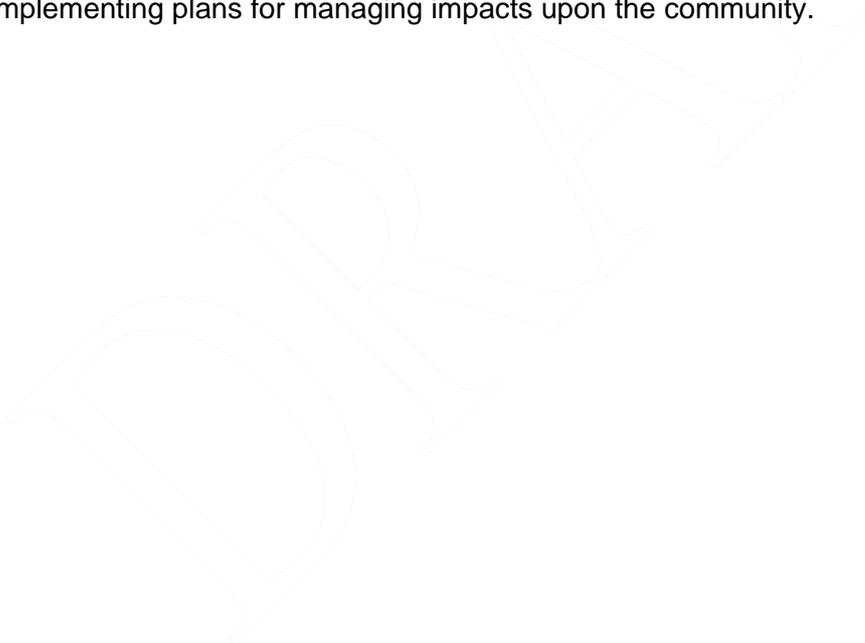
3.3 Incident management arrangements

At all stages, drought teams should follow the [05_01 Head Office Emergency Liaison Procedure \(HELP\)](#) to determine the appropriate level of incident management arrangements needed.

During potential drought, national coordination may be required and the National Incident Room may appoint a Single Point of Contact (SPoC) and request that Regions do the same. These arrangements are normally working hours only. The aim is to allow resilient communication links between Head Office and Regions to allow the quick and effective resolution of any issues identified.

In the event of a major incident during drought, major incident response arrangements should be put in place. Amongst other actions this includes activating the Regional or Area Strategic Management Team, appointing an Area or Regional Base Controller and opening an incident room to co-ordinate and control the operational response to incidents arising as a result of the drought.

In an emergency situation water companies would follow their emergency plans and liaise with our partners in Local Resilience Forums (see section 6.4). If multi-agency co-ordination of the response is required we will send a Liaison Officer or Lead Officer to Silver or Gold Control as appropriate to provide detailed information to our professional partners and assist in implementing plans for managing impacts upon the community.



4 Drought monitoring

We do routine drought monitoring as part of our national monitoring programme to provide data for detecting the onset and end of drought and impacts during a drought. This normally includes data from:

- rainfall totals;
- indicator flow gauging station network;
- groundwater level monitoring network;
- national ecological drought surveillance network;
- surface or ground water quality monitoring networks;
- reservoir storage data.

We also produce water situation reports. South East region and areas produce monthly water situation reports by the 10th of each month. You can view the reports to find out the month's:

- rainfall
- soil moisture deficit
- river flows
- groundwater levels
- reservoir levels

The reports contain

- Map of the region showing rainfall as percent of long term average (LTA) values for the most recent month and the last 6 and 12 month periods
- Rainfall charts showing monthly rainfall compared with the historic monthly average rainfall over the past 12 month period for the same geographic areas as above;
- Plots showing soil moisture deficit (SMD) compared with long term mean, maximum and minimum values over the past 12 month period. SMD values are derived from Meteorological Office Rainfall and Evaporation Calculation System (MORECS) data;
- Map of the south east showing current monthly average river flows as percent of LTA values at gauging stations
- Map of Region showing groundwater status

The report is available from our [website](#)

In addition, we may collect additional hydrometric, ecological or other data during a drought where it is appropriate for us to do so.

This section sets out what data we collect and how it is used.

4.1 Hydrometric

We routinely monitor weather forecasts, rainfall, river flows, groundwater levels, reservoir levels and soil moisture deficits to help us decide when to move through the stages of drought and to take action. To identify when a drought is approaching, our environmental monitoring teams carry out routine monitoring, analysis and reporting of the water situation in each of our areas and region. For example, in some areas a survey is undertaken on a monthly basis to track the source and springs of chalk rivers. This shows changes to the length of a river flowing across catchments. During drought conditions this survey is extended to all appropriate head waters. As a drought develops, our teams increase the level of hydrometric monitoring to track the development of the drought and its impacts.

See [Appendix K & L](#) for hydrological monitoring undertaken in areas. Detailed monitoring information is available through your Area Drought Coordinator.

4.2 Ecological

Areas undertake routine ecological monitoring for macro-invertebrates, macrophytes, diatoms, fish and nuisance algae. This monitoring is driven by national water quality and water resource strategies (e.g.WFD, RSA & CAMS) and locally identified priorities.

We also carry out ecological monitoring to understand the impact of drought on the health of the environment. The ecological monitoring network ensures that we have robust baseline data so we can assess the impact of the drought and assess recovery.

A national drought surveillance network is in place. This network brings together selected flow responsive ecology monitoring sites with flow gauging stations. The network is designed to cover different types of geology so that surface and groundwater catchments of different character are captured as well as a variety of habitats from near pristine to known flow impacted sites. This network is monitored twice a year in spring and autumn.

We may carry out additional monitoring during a drought to understand the full range of shorter-term impacts; this will be decided on a case by case basis. We consider however, that in the event of a drought, the type and location of monitoring is unlikely to significantly change.

For drought management actions which require water companies to abstract more water, water companies must carry out an environmental assessment to determine the environmental sensitivity of the site and likely impacts from the implementation of the proposed action. This is particularly important for potential drought permit or drought order sites, alternative source sites and temporary transfer locations.

It is a water companies' responsibility to decide whether the existing information available is sufficient for the assessment of the environmental effects of its drought measures or whether it should collect further data. If it does need further baseline data then it is the water

companies' responsibility to collect this. Evidence/data to support the environment assessment can include historical records within the site/reach or in some cases can be part/entirely based on expert judgement due to the specific habitat type.

Water companies should identify any information that it needs to collect in its environmental monitoring plan. We will make data from our monitoring programme available to the water companies as and when requested to inform baseline assessments.

See [Appendix K](#) for a map of the ecological monitoring sites in each Area. Detailed monitoring information is available through your Area Drought Coordinator.

4.3 Water quality

We carry out routine water quality monitoring to meet international and UK monitoring commitments which include the Water Framework Directive, Harmonised Monitoring Scheme and Urban Waste Water Directive (91/271/EEC). Data collected is used for assessing compliance with the European legislation and reporting environmental trends.

The Environment Agency South East water quality sampling programme is planned jointly by the National Environmental Monitoring Service and Area Environmental Monitoring Teams, with support from Regional and Area Environment Planning Teams.

Area Environmental Monitoring (Sampling & Collection) Teams are responsible for delivering our water quality sampling programmes. They make site visits to collect samples, helping us meet our compliance and assessment requirements. These samples are sent to the National Laboratory Service (NLS), which analyses for a wide range of chemicals.

Routine spot monitoring data is useful but has limited use for monitoring the environmental impact in receiving waters during periods of low flow. However, continuous water quality monitoring using instrumentation has the potential to be very useful, especially when investigating the impact of drought conditions on water quality. Continuous monitoring data can also help us better understand and control the impacts on water quality. It allows for more pro-active management as live information on water quality can be used to enable a rapid response when water quality problems arise.

4.3.1 Algal monitoring

Blue green algal monitoring is generally carried out on a reactive basis when reports of incidents are received. Routine monitoring is undertaken at Keynes Country Park and at three points on the River Thames upstream and downstream of Farmoor Reservoir abstraction intake.

Once a bloom has been identified, the appropriate Environment Management teams take further action. This involves issuing warning letters to the appropriate authorities. Detailed procedures on managing algal blooms can be found in the national procedure [Managing freshwater and marine algal incidents](#).

In a typical non-drought year algal blooms may occur. These are managed by the Analysis and Reporting Teams. These sites are recorded on a local database and are used to highlight areas where algal blooms may reoccur.

The table below identifies the range of different types of instrumentation available which could be used for investigative monitoring during a drought:

Table 7

Type	Description
Data Loggers	Data loggers that analyse and record water quality at 15-minute intervals are much better at capturing such events
Suitcase systems	Mobile phone based monitoring system during pollution events useful when undertaking investigations and real time response is required
Trailer Systems	Fast deployment with enhanced data quality, (flow through cell technology reduce bio film build up) and real time response
Fixed Sites	Additional instrumentation can be added e.g. nutrient analyser including Phosphate Nitrate/Nitrites.
Auto Samplers	Wet sample analysis, can be remotely triggered by mobile phones. Enhanced water quality determinants.

Possible action might include prioritisation of sewage treatment works (STW) for investigation across the region. These could be STW in headwaters and have the potential to have a significant impact on water quality during a drought and might justify closer investigative monitoring.

See [Appendix K](#) for a map of water quality monitoring sites in each Area. More detailed monitoring information including grid references is available through your Area Drought Coordinator.

4.4 Water company

We routinely receive information from water companies as part of our water situation reporting. During a drought, we receive additional information from the water company to help us track the development of drought and to monitor their actions.

Water companies are responsible for ensuring that arrangements are in place to monitor the impacts of its drought management actions on the environment. In certain cases it is more practical for us to carry out the monitoring work instead of, or in addition to, the water company. Where we carry out additional monitoring on behalf of a water company in relation to a drought permit or order application then we will recover the costs we incur.

Water companies must also keep the South East Region drought team informed of the actions they are going to take as a drought progresses. These will include measures to reduce demand, such as publicity campaigns and temporary water use restrictions and measures to increase supply, such as reintroducing abandoned sources and upgrading water treatment works.

Please see [Appendix J](#) for all the data we collect from water companies.

5 Drought permits and drought orders

Drought permits or drought orders are granted either by the Environment Agency or Government Ministers 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.

This section sets out how our drought teams and National Permitting Service (NPS) deal with water company drought permit applications and respond to Ministers on drought order applications in South East Region. It also sets out where and how we apply for drought orders to protect the environment.

When dealing with all drought permits and orders applications, we follow the guidance available in the joint [Defra/National Assembly for Wales/Environment Agency guideline](#) and in our internal guidance [31_10 How to respond to a drought order application](#) and [32_10 How to deal with a water company drought permit application](#)

5.1 Water company drought permits

In an escalating drought situation, water companies can apply to us for a drought permit. Drought permits authorise abstraction from specified sources or can modify/suspend restrictions, such as Hands Off Flow conditions or minimum residual flows, relating to the existing abstraction of water.

A water company can apply for a drought permit or order when there has been an exceptional shortage of rain resulting in a serious deficiency in water supplies. It is the responsibility of the water company to demonstrate this as part of its permit or order application. We would expect companies to be able to demonstrate that appropriate demand measures such as, use of new powers to temporarily restrict non essential use, have been put in place before applications for drought permits or orders are made.

Water company drought plans list sites where, during a prolonged or acute drought event, it may be necessary for companies to apply for drought permits or drought orders. The water company plans should also set out when the company would likely apply for a permit and what the triggers would be. It is intended that we, in liaison with Natural England, will assess these sites, as to the likely potential impact a future drought permit or order would have upon the local environment. For every site where a drought permit could be applied for the relevant teams will nominate a lead person. These leads form a virtual team dedicated to comment and input on the specific application. We would also expect, where appropriate, water companies to have imposed temporary water restrictions before a drought permit is granted. A list of possible water company drought permit/order sites is provided in [Appendix H](#).

Under section 64 in the Water Resources Act 2003 the Environment Agency will normally expect to recover from the appropriate water company, all significant costs incurred in the

exercise of the Environment Agency's functions that are attributable to applications for any drought order or permit, and the order or permit itself, issued to the water company, including costs incurred in connection with any associated local inquiry or hearing. As such any staff involved with drought permits or orders should, at the earliest opportunity, record time spent on these activities.

We must aim to determine drought permit applications within 12 calendar days. For drought orders we have 28 days to determine the application. Therefore, to help keep to this time scale, 'pre-application' liaison and data exchange will take place between us and the water companies before an application is submitted. A thorough pre-application will highlight our expectations to water companies, and if addressed, makes the final application for a drought permit more effective.

Experience in the 2005/06 drought in South East England showed that drought permits may take up to six weeks from permit application to decision, highlighting the importance on working with the water companies and consultees in advance to meet the expected timescales.

Our key actions in granting or refusing a drought permit are set out in Figure 10.

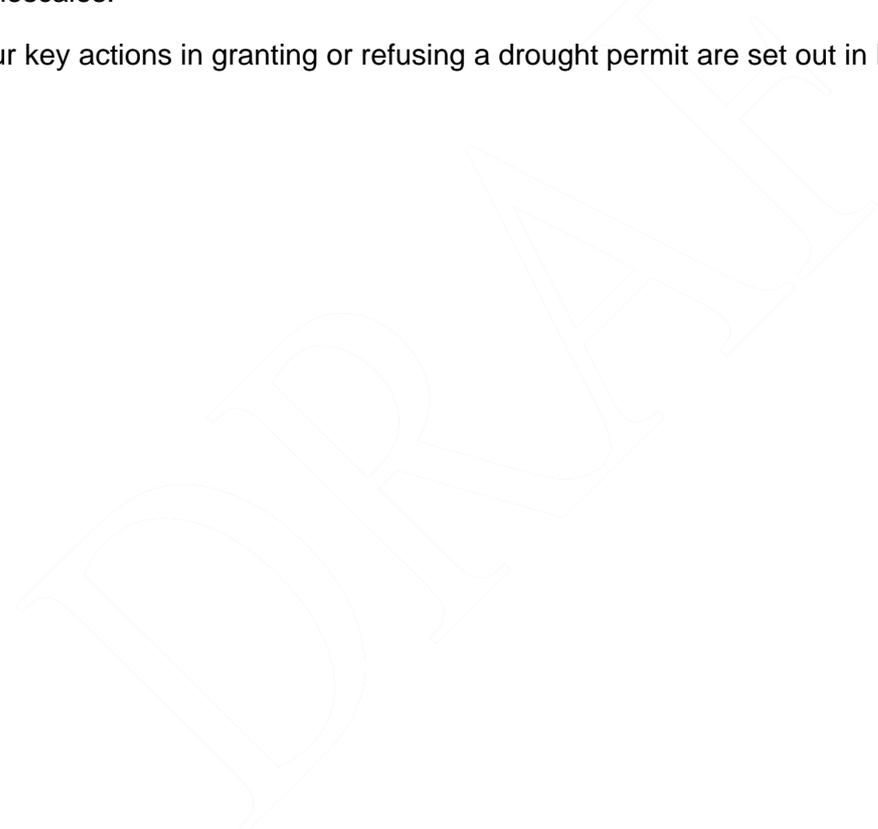


Figure 10: Key actions for drought permit applications

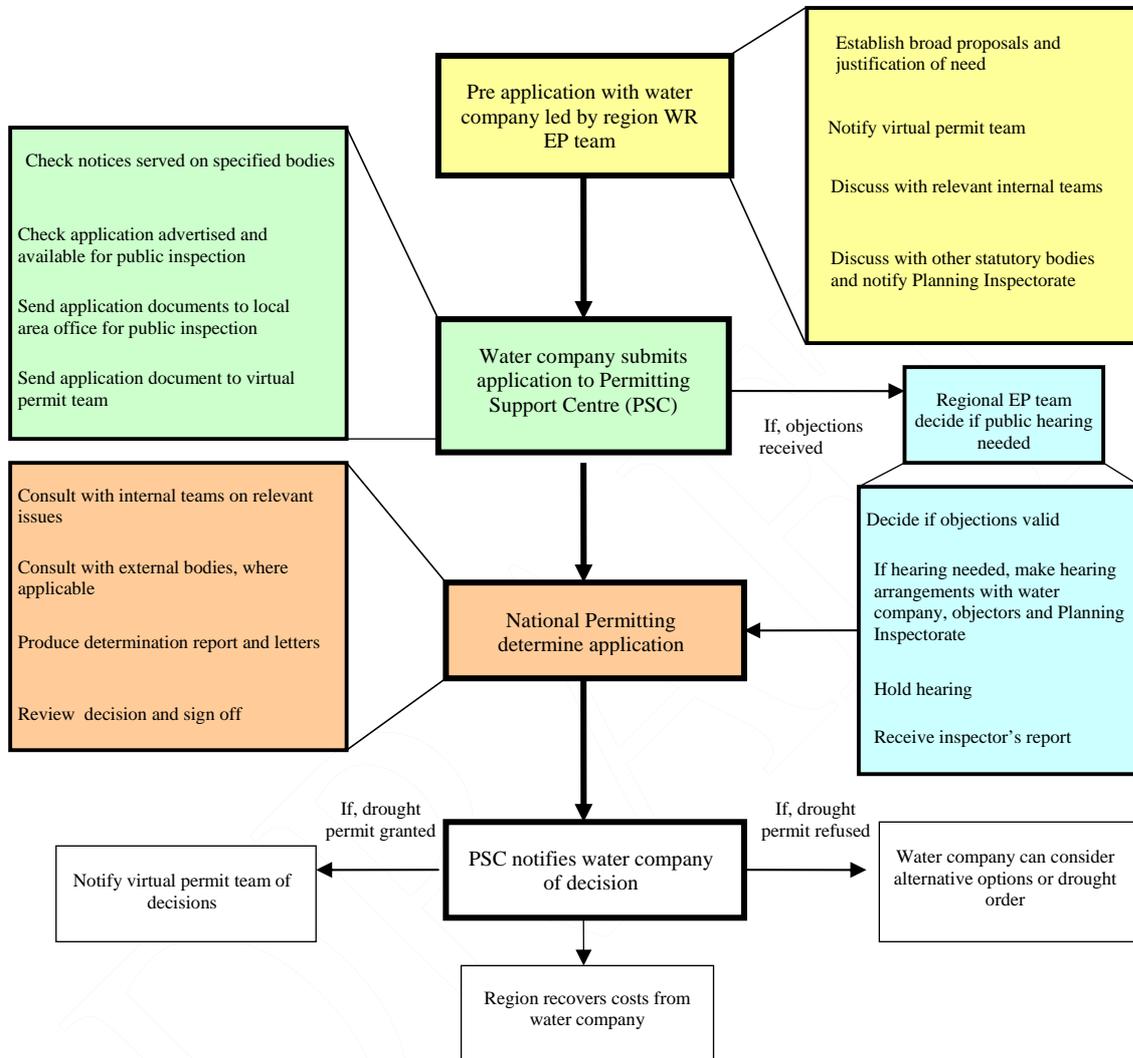


Figure 11 Key roles and lead contacts for drought permits

Drought permit	Key role		Lead
		Pre-application lead	
	Pre-application support		AEP, PSC, NPS
	Receive application		PSC
	Lead on determination		NPS
	Support for determination	Justification of need	VPT, Hydrology
		Provide local information	VPT, ADT
		Legal support	RDT legal lead
		Identify conditions	VPT, ADT

	Technical review	VPT
Sign-off		NPS manager/Area Managers
Arrange hearing/inquiry		VPT
Appoint Inspector		VPT
Receive objections		PSC
Monitor compliance		ADT

REP – Regional Environmental Planning

NPS – National Permitting Service

RDT – Regional Drought Team

VPT – Virtual Permitting Team

AEP – Area Environmental Planning

PSC – Permitting Support Centre

ADT – Area Drought Team

The National Permitting Centre will coordinate responses to determine the application. However, the water company lead from the South East Environment Planning Team (Water Resources) will coordinate the internal consultation and technical advice response for the application, with AEP providing the local information to help determine the response. The South East and Area Drought Coordinators will act as the point of contact for the South East and relevant Area drought team. Key roles and lead contacts are set out above in Figure 11.

A virtual permit team will be set up for each application, and will involve the following staff:

- South East and Area drought coordinators;
- South East Environment Planning (Water Resources) water company lead;
- National Permitting Centre lead;
- Permitting Support Centre lead;
- Head Office drought coordinator.

5.1.1 Water company drought orders

Water companies may apply for either drought orders or emergency drought orders. Drought orders can go further than drought permits and restrict or prohibit particular uses of water not covered under the new Water Use (Temporary Bans) Order 2010, such as non domestic use. The Drought Direction 2011 sets out the uses that still require an ordinary drought order. It is recognised that these will potentially have more of an economic impact on businesses and therefore should only be applied for once other drought measures to reduce demand and increase supply have been implemented

Drought Orders can deal with discharges of water, abstractions and discharges by other people, water supply and treatment. Emergency drought orders, used where the lack of water supplies is likely to impair the economic or social well being of people, can give the water company complete discretion on which uses of water may be prohibited (or limited) and can authorise the use of stand-pipes or water tanks.

Water companies apply to the Secretary of State or Welsh Ministers for ordinary drought orders and emergency drought orders. Our role in this process is to provide information to the Secretary of State (SoS) for applications in England. The key actions are set out in Figure 10.

It is expected that there will be significant discussion between us and the relevant water company ahead of any submission of application to the Secretary of State. Once the notice is published, we are expected to make a formal response to the Defra, which will make it clear if we support or object to the application. Defra will liaise with the Regional Drought Manager.

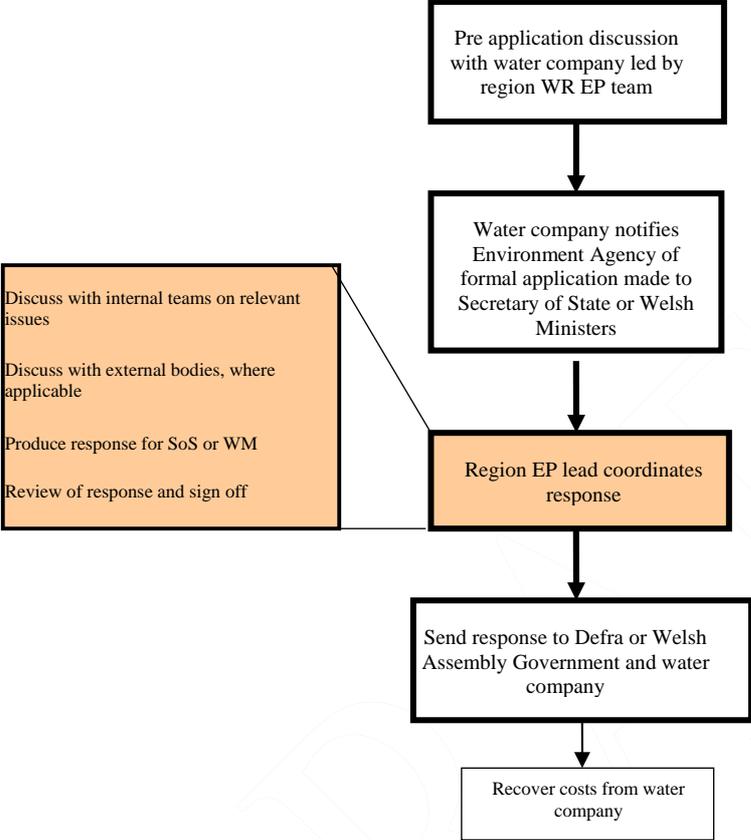
For drought orders impacting the Region, such as an application for a non-essential use ban by a water company, the Regional Environment Planning (Water Resources) (REP) team will take the lead. They will advise on the extent to which the company's claimed needs are justified in the context of the companies own water resource and drought plans. They will look at whether there are alternatives, and if the company has made sufficient efforts to limit demand. REP will also lead in collating a response and will liaise with:

- Regional and area drought teams – who will advise on environmental issues the order, may have. Area drought teams will need to make provision for any monitoring activities that may be necessary.
- Regional solicitor – who will give legal advice on the appropriateness of a drought order to a particular situation.
- Regional finance – who will provide advice on cost recovery
- Other teams, dependent on the specific nature of the application.
- National drought co-ordinator

Experience in the 2005/06 drought in South East England was that drought order applications may take up to 10-12 weeks from application to decision and therefore adequate time needs to be built into planning of drought actions.



Figure 12: Key actions for water company drought order applications



5.1.2 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. Our drought teams can not anticipate where these will be needed so we cannot predict the location of our drought orders in advance. We will apply for environmental drought orders if they prove necessary to protect the environment. We would work closely with other stakeholders such as Natural England to identify where and when an environmental drought order would be necessary.

If we were applying for an Environment Agency ordinary drought order, we would need to be able to satisfy the Secretary of State that there is:

Such a deficiency in the flow or level of water in any inland waterway to pose a serious threat to any flora or fauna which are dependent on those waters, exists or is threatened

And that

The reason for the deficiency is an exceptional shortage of water.

The process for applying for an Environment Agency drought order is the same as that for a water company ordinary drought order.

We have used drought orders in South East Region in the past, namely for Candover, Alre and Tonge pond augmentation schemes. Historically the Candover and Alre augmentation schemes (Solent and South Downs Area) were developed to counter low flows due abstraction and effluent discharge issues in the upper Itchen. These schemes are now all fully licensed and are unlikely to require drought orders for their future operation.

Drought orders had been used historically to support the environmentally sensitive area of Tonge Mill Pond (Kent and South London Area). However in 1997 a licence for an augmentation scheme was granted which formalised previous operations to alleviate water levels in order to sustain the dependent ecology.

5.2 Emergency Drought Orders

This drought plan provides a list of actions and activities we would undertake in all types of drought, including very serious droughts. As explained in Section 5 water companies' drought plans contain planned activities to reduce demand and increase supplies in times of drought. However, in the most extreme situations, companies may need to apply for emergency measures such as Emergency Drought Orders that permit companies to restrict water supplies using rota cuts or stand pipes. Emergency Drought Orders will only be used as a last resort to reduce demand, when all other demand management and supply enhancement possibilities have been exhausted. They would only be in the most extreme situations (not yet experienced in the hydrologic record from 1920 to 2006) and most companies stipulate in their drought plans that emergency restrictions should never be applied (please see company drought plans for further information).

6 Drought reporting and communications

A large part of each drought team's work is reporting and co-ordinating drought communications across South East Region and with our partners. This includes communicating with our drought teams, with neighbouring drought teams and our national drought team. Externally, the South East drought teams lead on communications with local communities and on working with organisations spanning more than one area. This section sets out how our drought teams communicate with others and what we want to say.

6.1 Reporting

We use drought reporting to collate and summarise key drought information at regular or specific times. We report from and to areas, region and our national Environment and Business teams. The content of our reports differs depending on what information we are collating and who will receive the report. Area reporting tends to be more operational for example hydrological data, licensing information, environmental incidents. Regional reports collate this information to give a regional picture, whilst also providing updates from water companies and scenario planning. [Appendix G](#) provides a table of all the reporting we do in South East Region, who does it, when and how frequently.

6.2 Communications action plan

The South East Region communications action plan includes separate sets of actions appropriate for communicating with our internal teams and external partners.

The actions take into account:

- our responsibilities;
- requirements of individual teams and sectors;
- severity of the drought;
- current public perception of the drought situation;
- need to conserve water;
- water company actions;
- other ongoing communications activities, such as flooding awareness.

You can find the South East Region's drought communications plan in [Appendix F](#). At the onset of drought, the communications action plan is tailored to the specific needs of the individual drought event. The RDMT and ADMTs update the plan when in potential drought and maintain the plan throughout the drought event.

6.3 External communications

The drought communications action plan identifies a number of external communications actions. We have set these out in [Appendix F.1](#). This plan also contains communications specific to our operational areas.

6.4 Resilience Forums

A Local Resilience Forum (LRF) is a multi-agency partnership made up of representatives from emergency services, local authorities, NHS, the Environment Agency and other responding organisations. These are known as Category 1 responders, who have a statutory duty to attend. The LRF is also supported by Category 2 responders such as the utility companies who have a duty to cooperate and share information with the LRF. Contact details for all LRFs can be found through the Cabinet Office's website

Each LRF has a duty to identify and assess the risk of emergencies occurring within the LRF boundary. The LRF must work together and produce emergency plans to either prevent or mitigate the impact of any emergency on the local communities.

During normal water resource conditions, our drought teams work closely with our LRF representatives to ensure the potential impact of drought on the local community is properly assessed to ensure arrangements are in place to deal with disruption to public water supply. Droughts are not classed as emergencies unless there is a serious threat of restrictions to public water supply such as standpipes or rota cuts.

During a drought we would liaise with Water Companies to ensure the LRF has the information needed to implement an appropriate multi-agency response. As a drought worsens our liaison with Local Resilience Forums will increase and multi-agency response arrangements may be triggered ([Section 3.3, Appendix F.1](#)).

6.5 Internal communications

We have identified in the drought communications plan the internal communications actions that will carry out in a drought. These are set out in [Appendix F.2](#).

6.6 Communications toolkit

When our national drought team moves into potential drought stage they set up a national communications toolkit. The toolkit is stored on our shared drive at [O: Drought Comms Toolkit](#). The folder contains drought messages, questions and answers, drought briefings, standard templates and examples of best practice communications. Our drought teams use information from the toolkit, and adapt it where necessary, for local communication needs.

7 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.

7.1 Monitoring

The monitoring we undertake to assess the recovery of the environment after drought is set out in [Appendix K & L](#). More detailed information on the region's monitoring programme is available through the Area Environment Management teams. Each drought is different; as such we may need additional information. The Environment Management (A&R and S&C) teams will propose specific studies dependant on the severity and impacts of drought. They will consider and decide on any additional monitoring requirements.

7.2 Review

Once our drought teams have returned to a non-drought status, we will conduct a drought review. Our drought teams will meet to review how we managed the drought and its impacts, what went well and where we can improve. Each of our drought teams will write a post drought report, which will feed into the Head Office drought report. We produce this report no later than six months after the drought.

7.3 Working with water companies

After a drought we will work with companies to share experiences and lessons learnt during the drought to improve our drought plan. We will suggest improvements to water company drought plans (if needed).

8 Glossary/abbreviations/ references

ABC	Area Base Controller
ADC(s)	Area Drought Co-ordinator(s)
ADM(s)	Area Drought Manger(s)
ADMT(s)	Area Drought Management Team(s)
AEP	Area Environment Planning
AMT	Area Management Team
A&R	Analysis and Reporting
CAMS	Catchment Abstraction Management Strategy
CICS	Common Incidents Classification Scheme
CC Water	Consumer Council for Water
Defra	Department for Environment, Food and Rural Affairs
DO	Deployable Output
DP	Drought Permit
EASE	Environment Agency South East
E&B	Environment and Business
EM	Environment Management
EDRM	Electronic documents record management
GLA	Greater London Authority
GWHCL	Groundwater, Hydrology and Contaminated Land
HELP	Head Office Liaison Procedure
HO	Head Office
HOF	Hands Off Flow
H&T	Hydrometry and Telemetry
IDB	Internal Drainage Board
KSL	Kent and South London
LIFE	Lotic Index for Flow Evaluation
LRF	Local Resilience Forum
LTA	Long Term Average
LTOA	Lower Thames Operating Agreement
MoU	Memorandum of Understanding
MORECS	Met Office Rainfall and Evaporation Calculation System
MRF	Minimum Residual Flow
NDC	National Drought Co-ordinator
NDM	National Drought Manager
NFU	National Farmer's Union
NGO	Non-governmental Organisation
NEECA	National Engineering and Environmental Consultancy Agreement
NLARS	North London Artificial Recharge Scheme
NPS	National Permitting Service
Ofwat	Office of Water Services
PACS	Planning and Corporate Services
PSC	Permit Service Centre
PWRA	Principal Water Resources Advisor
RAMSAR	Wetland sites protected under the 'Ramsar Convention' (Iran 1971)
RBC	Regional Base Controller
RBD	River Basin District
RDC	Regional Drought Co-ordinator

RDM	Regional Drought Manager
RDMT	Regional Drought Management Team
REP	Regional Environment Planning team (Water Resources)
RFDC	Regional Flood Defence Committee
RMT	Regional Management Team
RSA	Restoring Sustainable Abstraction
SAC	Special Area of Conservation
S&C	Sampling and Collection
SEP	Strategic Environment Planning
SEPO	Senior Environment Planning Officer
SMD	Soil Moisture Deficit
SoS	Secretary of State
SPA	Special Protection Area
SPoC	Single Point of Contact
S&C	Sampling and Collection
SSD	Solent and South Downs
SSSI	Site of Special Scientific Interest
STAC	Science and Technical Advice Cell
STW	Sewage Treatment Works
TEDT	Technical Expert Drought Team
TL	Team Leader
WBGWS	West Berkshire Groundwater Scheme
WCo	Water companies
WFD	Water Framework Directive
WRMP	Water Resources Management Plans
WRSE	Water Resources in South East (a senior management group)

Operational instructions

- [32_10 How to deal with a water company drought permit application](#)
- [31_10 How to respond to drought order applications](#)
- [226_04 Drought order/permit cost recovery](#)
- [105_10 How to plan for and manage our response to drought](#)
- [109_05 Roles and responsibility](#)
- [226-10 Screening and assessing new water resources permissions for impacts on conservation, heritage and landscape](#)
- [124_02 The CROW \(Countryside and Rights of Way\) ACT 2000: guidance to Agency staff on the implications of the SSSI provisions of the Act, and where and how to apply it](#)
- [359_10 Environmental considerations for drought permits and drought orders that affect designated conservation sites](#)
- [400_04 Responding to requests for information 400_04](#)
- [05_01 Head Office Emergency Liaison Procedure \(HELP\)](#)
- [04_01 Incidents and their classification: the Common Incidents Classification Scheme \(CICS\)](#)
- [191_09 Fish rescue and deploying aeration equipment](#)

Other related documents

- [Drought direction 2011](#)
- [Water company drought plan guideline 2011](#)
- [Drought permits and drought orders. Information from Defra, Welsh Assembly Government and the Environment Agency](#)

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