

SOUTH EAST

R WATER **Resources** **Update**

Winter 2012



**Resources
healthy**

Water efficiency key



Summer deluge ends drought but some underground resources still slow to recover

This special issue of Water Resources Update has been produced to provide stakeholders and others with an update on the status of water resources in the South East as we enter the crucial winter recharge period.

Interest in water resources has been heightened following the drought declared in large parts of the country in spring this year following a prolonged two-year dry spell.

It led to seven water companies introducing Temporary Use Bans in April in South East England, East Anglia and parts of the Midlands restricting the use of hosepipes, mostly for domestic purposes.

The companies, Anglian Water, Thames Water, Southern Water, South East Water, Sutton and East Surrey Water, Veolia Water Central and Veolia Water Southeast (both now part of Affinity Water), said they were activating their Drought Plans – agreed with regulators. The Temporary Use Bans were the first phase in these plans.

Why there was a drought

The government announced in February that a drought was affecting the South East following significantly low rainfall for a second consecutive winter. A drought in the Anglian region was declared in the previous autumn. The South East, along with other parts of the country, had experienced two years of record below-average rainfall, particularly over the crucial winter months when the water seeps deep into the ground to replenish aquifers. The cumulative loss of rainfall

was enormous. It led to streams, rivers and wetlands drying up, and some reservoirs shrank to dangerously low levels. Crops and wildlife were increasingly threatened.

From October 2011 to January, the South East received on average 73 per cent of the rainfall it would normally expect. Together with dry weather in the preceding 12 months, the region received only 80 per cent of average rainfall in this period – a huge cumulative shortfall.

From drought to flooding

Torrential rain, almost from the moment the seven water companies introduced restrictions on April 5, reduced the impact on customers and hugely helped the environment – although flooding became a problem. April to June was the wettest three months ever recorded for that time of year in parts of the South East. Rainfall totalled 318mm or 12.5in.

Three companies, Thames Water, Southern Water and Anglian Water, were able to lift their restrictions on June 14. This was because they were able to use river water to replenish their surface water reservoirs. The remaining four companies lifted restrictions on July 9.

Why it took some companies longer to lift the Temporary Use Bans

The four companies which retained restrictions – South East Water, Sutton and East Surrey Water, Veolia Water Central and Veolia Water Southeast (now part of



Affinity Water) – are heavily dependent on groundwater supplies (up to 100 per cent). In many cases underground aquifers in their supply areas were at record low levels and took a long time to recover.

Conventional wisdom said the aquifers were unlikely to recover because they are normally only replenished by autumn and winter rainfall. Rainfall outside this time usually does not penetrate deep underground either because the ground is hard; the water is sucked up by growing plants, or it evaporates.

But eventually, the record rainfall in April, June and July softened the ground and the water began to seep down into the aquifers, enabling the four remaining companies to lift restrictions on July 9.

Some aquifers rose to unprecedented levels for the time of year. For example, in Sutton and East Surrey Water's supply area, the most reliable reference borehole was at a record 10 metres (nearly 33ft) below the average for that time of year. It ended up rising nearly 10 metres and has remained well above the usual depth for this time of year.

Companies thank their customers

All seven companies thanked their customers for complying with the restrictions and supporting their plea to use water wisely. This helped keep

demand for water well below levels normally experienced at that time of year.

"We are delighted to be able to lift restrictions much earlier than expected and return to a normal service for customers. We thank them for their support while they have been in place," said Paul Seeley, Asset Director at South East Water.

"The recharge in the aquifers brought about by the abnormally heavy rainfall is most welcome. Normally winter rainfall recharges the aquifers. The recharge is unprecedented and is the highest increase in water levels ever recorded in our area at this time of year. We expected to have to maintain these restrictions throughout the summer," said Mike Hegarty, Operations Director for Sutton and East Surrey Water.

Mike Pocock, Water Resources Manager at Veolia Water Central (now part of Affinity Water), echoed these comments but said: "While this recovery in the aquifers is most welcome, we would ask customers to please continue to use water wisely."

Leakage

All seven companies which had to introduce restrictions are replacing water mains and driving down leakage. All are meeting or beating leakage targets set by the industry regulator, Ofwat. Please contact your local water company if you believe you have discovered a leak.



What a difference a year makes. Ardingly reservoir (left), in November 2011 when it was nearly empty, and (above), how it looks today

Briefing re Modelling Project

The Water Resources in the South East Group (WRSE) is planning to hold another Briefing for stakeholders in February to update them on the Regional Modelling Project.

The Project aims to identify strategic options which the Group can consider for inclusion in long-term Water Resources Management plans – particularly for the next 25 years. It is exploring opportunities for sharing existing and new resources while meeting environmental objectives. At the same time it is evaluating alternatives for managing demand for water – all of which are intended to minimise the costs to customers.

The group's focus is on identifying the means to maintaining the security of supplies to customers in the most sustainable way possible. Through communication with stakeholders and wider groups it hopes to ensure all relevant issues are taken into account. The WRSE Group consists of the following organisations who are contributing to the project:

- Central Government through the Department for the Environment, Food and Rural Affairs (Defra)
- Regulators in the form of Ofwat and the Environment Agency (EA)

- Key stakeholders such as the Consumer Council for Water (CCW) and Natural England (NE)

- The principal water supply companies in the South East: Portsmouth Water, South East Water, Southern Water, Sutton and East Surrey Water, Thames Water and Affinity Water. Other water supply licensees and key stakeholders are also invited to participate. Northumbrian Water (Essex and Suffolk), Anglian Water and Severn Trent Water have already contributed.

The aim of the Briefing in February will be to coincide with publication of Phase 2 of the detailed modelling. Phase 1, earlier this year, validated the regional mathematical model using PR09 data with some subsequent updates. Phase 2 defines solutions using the most up to date data and the same data that the companies will use in their individual draft Water Resources Management Plans. Invitations to the briefing will be sent to MPs, councillors, environmental groups and others who express, or have expressed, an interest in this work.

*A new WRSE website containing much more information and details about its work is now 'live' at <http://wrse.org.uk/>



Aerial view of Ardingly reservoir when the drought was declared. Many reservoirs, rivers and wetlands were severely depleted

For further information you can contact your water supply company on:		
Thames Water	0845 9200 888	www.thameswater.co.uk
Portsmouth Water	023 9249 9888	www.portsmouthwater.co.uk
Southern Water	0845 278 0845	www.southernwater.co.uk
South East Water	0333 000 0002	www.southeastwater.co.uk
Sutton and East Surrey Water	01737 772 000	www.waterplc.com
Affinity Water	0845 782 3333	www.affinitywater.co.uk

Resources healthy as we enter crucial recharge period

The resources position of South East water companies as we enter the crucial winter recharge period is dramatically different to what it was this time last year. Reservoir and groundwater resources were already low following a dry winter in 2009-2010. Now they are healthy – above average in many cases. But we still need at least average rainfall this winter to ensure resources remain plentiful as we enter summer 2013. Here's how each company reports its position.

Portsmouth Water

The company has groundwater records from the Idsworth Estate Well, north of Rowlands Castle, which date back to 1931. Water levels in the well, which is entirely unaffected by abstraction, give an accurate indication of the groundwater reserves of the South Downs. In the winter, levels usually rise in response to rainfall, whilst during the summer, levels recede as any summer rainfall either evaporates or is taken up by trees and plants before reaching the aquifer below.

The wet summer, along with the slightly higher than average rainfall of September, saw ground water levels rise. By the end of October 2012 groundwater was 7.7m above the long term average (last 30 years) for the time of year.

Water resources are therefore much better than usual for this time of year. But, as always, will be dependent upon a winter recharge between September and February.

Southern Water

Our reservoirs are in a healthy position with

levels above average. Underground sources across most of the region are also at average or above average levels.

Providing there is an average amount of rain this autumn and winter, water resources should remain healthy going into the spring and summer of 2013.

Water Quality and Strategy Manager for Southern Water, Meyrick Gough, said: "The early signs are encouraging. Our reservoirs are in a much better position than this time last year and most of our underground sources are at normal levels.

"However, some are still recovering from the drought and we would hope to see plenty more rain to fully replenish all our stocks."

Seventy per cent of our water comes from underground, predominantly from the chalk aquifer which is widespread across the region. A further 23% comes from rivers and the remaining seven per cent from reservoirs. Southern Water asks its customers to continue their excellent water efficiency work, even though the summer is over, and to keep calling the 24-hour freephone leakline if they spot what could be a leak: 0800 820999.

South East Water

Our resource situation is much healthier than this time last year. The company's two strategic reservoirs at Ardingly and Arlington are close to full after the unusually wet summer and continued showers.

The majority of underground aquifers are approaching normal levels. However, those slower to recharge aquifers, that reached record low groundwater levels earlier this year, are still recovering from the drought.

We are hoping to see plentiful rainfall this winter to replenish the groundwater sources which provide 75% of our supply.

While we are pleased to see our water resources recovering, we are still prudently planning ahead for next summer and identifying engineering solutions to provide additional water if it is needed.

Our engineers are looking at ten schemes which can deliver almost 10 million litres of extra water should it be needed, and it could be delivered in time for next summer.

These solutions are part of our Drought Plan, which guides our actions during short-term water shortages and enables us to carefully manage what's available. Not least, it ensures customers have water for all their essential needs.

The need for longer term water resources is managed via our 25-year Water Resources Management Plan (WRMP).

Affinity Water

All of our water is drawn from underground sources and these are all at or above average levels for the time of year. Soil moisture deficit levels are also low, allowing rainwater to pass easily through the soil into the underground catchments and giving good early recharge.

Thames Water

The soggy period since April has saturated the ground and recharged the natural underground basins that drive flows in rivers across our region. We had 188% of the average rainfall between April to July. Even if we have below-average rainfall this winter, with groundwater levels now fully recovered,

we would still be in a good position next year.

But, in theory we are never more than 18 months away from a drought. We are subject to the whims of the topsy-turvy British weather. In 2010 we had the coldest winter on record. We then had the driest two-year period on record. Then we had the wettest summer on record.

Sutton and East Surrey Water

Rainfall in the supply area has continued to be at or above average since the summer deluge. This has led to underground resources currently being above average for this time of year. Our surface reservoir at Bough Beech is 72% full, 10% above average.

We are very dependent upon underground supplies – 85% of our water comes from aquifers, with the remaining 15% coming from Bough Beech.

Provided there is near or average rainfall over the crucial winter recharge period, resources should be sufficient for summer 2013.

Lessons learnt – but planning worked well

By David Howarth, Regional Drought Manager, Environment Agency South East

After a wet and windy summer and the current unsettled weather, people could be forgiven for forgetting that at the start of April this year we were on the cusp of a drought that was threatening to be as bad as the drought of 1976.

Prior to April 2012, The South East of England experienced the driest two consecutive winters on record when we only had two thirds of the rain we would normally expect.

The dry winters had great significance for the South East where we are very dependent on groundwater (underground water that is held in soil and rocks). By the end of March 2012 groundwater levels, which would normally replenish during the winter months, showed through Environment Agency monitoring to be at record lows. In addition, reservoir levels and river flows were significantly below average for the time of year.

At this point a number of pre-determined drought management measures were put in place. Water companies appealed to their

customers to use less and stepped up their efforts to cut leakage. Drought Permits were granted to allow South-East companies to fill their reservoirs and the Thames Operating Agreement enabled Thames Water to keep its London reservoirs topped up.

The Environment Agency's role in a drought is to balance the needs of people, businesses and the environment. We worked constructively with the region's water companies to maintain this balance. Drought Permits and potential drought permits being balanced against appeals for restraint and a Temporary Use Ban introduced by most of the region's water companies on 5 April. Portsmouth Water was the exception because its groundwater supplies were much healthier.

We took a flexible approach with spray irrigators, allowing them to abstract outside the terms of their licences for short periods when river flows were high to help them refill storage reservoirs.

At the beginning of April the water companies believed that with the Temporary

Use Bans in place, and opportunities taken to top-up reservoirs, they had sufficient resources to last through the summer, but with the potential of widespread environmental impact. And lurking in the background was the threat of a third dry winter with no or minimal groundwater recharge.

Options of potential drought permits and further water use restrictions (on commercial non-essential use), in line with water company and Environment Agency drought plans, were on the table.

And then the rains came and the 2011/12 drought broke with record rainfall falling in April 2012 (255% of April long term average or LTA), June (210% LTA) and July (200% LTA) and our concern switched to flooding. The significant rainfall received in this period replenished reservoir stocks to 100% and river flows returned to normal levels for the time of year, helping to ease the pressure on farmers and the environment.

Unseasonal summer groundwater recharge was seen in aquifers across the

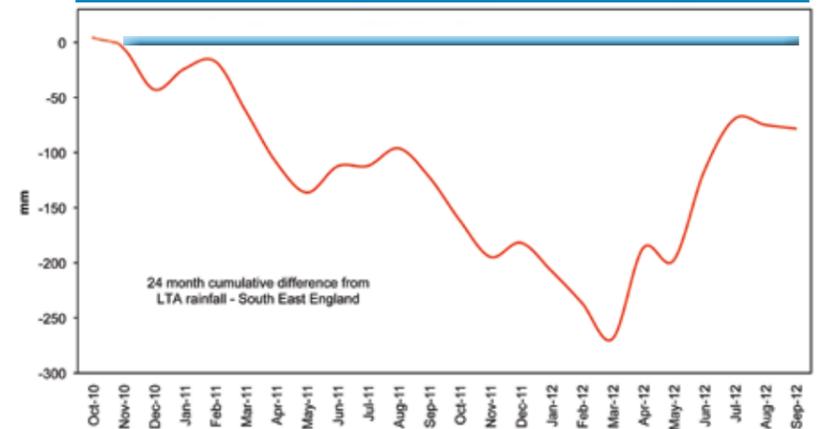
region for the first time since 1963. Groundwater levels in the majority of indicator sites recovered to normal levels for the time of year, with some in the more responsive aquifers reaching exceptionally high levels. By August the drought was over.

There is always a lot to learn from an incident like a drought. The main learning point is that a third dry winter was a possibility and had it occurred, how would we have managed its impact? Water companies are already implementing schemes to make their networks more resilient, and the Water Resources in the South East (WRSE) modelling work (see page 3), will be crucial in assessing the potential and cost effectiveness of water transfers across company boundaries.

The next round of Water Resources Plans will play a major role in balancing supply and demand against a backdrop of housing growth, climate change and loss of some water resources for environmental reasons (sustainability reductions). The Environment Agency will play its part in that process.

We worked collaboratively and constructively with the water companies and farmers in managing the drought – and in the next one, we

Cumulative rainfall deficit plot from October 2010 to September 2012 relative to the 1961-90 long term average for South East England



will seek to strengthen that approach.

There are comparisons to be made with 1976 and a third dry winter could have taken us into that sort of territory. We didn't have anywhere near the same number of drought permits and orders requested and granted in 2011/12.

Fortunately, the rain came before the

situation intensified. It may, however, demonstrate – without being complacent – that water resources planning in the South East is working well. Our monthly water situation reports can be found at:

<http://www.environment-agency.gov.uk/research/library/publications/33995.aspx>

Increasing water efficiency for all is a key objective

The drought and need for South East water companies to introduce restrictions on usage brought home to everyone the increasing importance of saving water.

All South East water companies have programmes promoting greater water efficiency and even more emphasis is being placed on this vital work.

Here are some examples of what companies are doing.

South East Water

A new play about the importance of saving water is currently touring 70 primary schools across Kent and Sussex. Designed to engage and inspire 10 and 11-year-olds it uses live action, multi-media props and audience participation to create a fast paced, high-energy show. Feedback has been overwhelmingly positive from teachers and pupils.

We have trained six additional speakers to join the highly successful school talks programme. Pupils learn where their water comes from and how it's treated; the importance of water for their health and how making small changes in the home and garden can save a significant amount of water.

Affinity Water

A series of initiatives include:



Saving Water. Actors from the South East Water players with school children

On-line

- Extensive on-line advice with dedicated web pages
- Home water audit
- 'How To' guides with videos showing practical steps to achieve water savings
- Water efficient house with interactive schematic showing water saving ideas
- Links to low cost water saving products
- Supporting Facebook presence

Environment and Education Centre

- Education and Environment Centre, located at Clay Lane, Bushey.

Sponsorship

- Both rolling sponsorship and ad hoc initiatives of events to encourage water efficiency
- A water saving garden was specially developed for the 2012 Chelsea Flower Show.
- We work with partners such as the National Trust to promote water saving

In Print

- Redesigned water efficiency leaflets following company rebranding.
- Water efficiency packs and advice given to all newly metered customers

Portsmouth Water

Trying to use the shower for less than four minutes was one of many challenges we asked customers to try this summer as part of a 'Saving Water Challenge' campaign.

Customers were encouraged to visit our website and order a free water saving pack. It included a save a flush bag, shower timer, a shower and tap restrictor as well as leaflets containing useful water saving advice. The website contains lots of advice.

It has an interactive water calculator which determines the approximate amount of water being used in your home and gives advice on how it can be reduced.

West Sussex County Council has installed water devices supplied by us into their retirement homes as part of an overall green homes initiative.

Another successful partnership was with Portsmouth University where we shared the cost of supplying 1,200 water saving showerheads in all the halls of residence.

As part of an educational partnership with Staunton Country Park, we jointly created a permanent 'World of Water' exhibit.

Southern Water

During the summer, our Water Café visits community events and our water efficiency play, The Drips, tours primary schools.

We tour secondary schools with the Water Design Challenge and Aqua Innovation, a programme where pupils compete to design a product, service or campaign to help people use water more efficiently.

Water efficiency is also promoted as part of our educational partnerships with professional sports clubs, including the community arms of Southampton and Brighton and Hove Albion football clubs. Thousands of our customers used our website to carry out their own water and energy-saving audits in conjunction with the Energy Saving Trust.

A new water efficiency section was launched on our website, including a tour of an interactive house and garden.

In 2011-2012 more than 15,000 customers took advantage of free and discounted water-saving products in our online water efficiency shop while advice on how to fit products was made available in a series of 'how to' films.

We sponsor the gardening competition In Bloom and Schools In Bloom which promotes water efficient gardening.

Sutton and East Surrey Water

We run an extensive water efficiency programme aimed at helping and informing current and future customers. For example:

General

- Our WaterSense programme helps businesses save water and money
- We produce an Every Drop Counts' e-newsletter
- We run a water butt promotion
- We provide dedicated water saving advice, including free devices on our website. There's a water usage calculator
- Free leaflets give water saving advice for the home and garden
- Our 'Get ready for winter' leaflet and video details how to make sure your home doesn't suffer from burst pipes

Schools

- Learn2Save – Aqualogic water audit/ payment scheme
- Tours of treatments works
- Aqua Innovation – water saving challenge for secondary school pupils
- Water Supply Challenge – teaches how to build a sustainable network
- Talk on saving water for primary school assemblies
- Saving water workshop
- We are developing a water usage game
- We are working on an aquifer demonstration programme/model

Find out more about how you can be more water efficient by visiting your water company's website.

Why metering will become universal

The shift to customers paying for their water by meter has gathered pace in the South East in recent years with all the region's suppliers initiating programmes aimed at increasing their usage.

Metering is generally accepted as a fairer and sustainable way to charge for water as customers pay for what they use.

Research indicates that metering programmes generally reduce water usage by around 10%.

Meters reduce demand because customers tend to be more careful about how much water they use, and they are more likely to purchase water efficient devices and goods. All new properties are fitted with water meters. Many customers are saving money by switching to a meter.

Successive governments have indicated that they believe metering is a fairer way to pay for water and should become universal over time. The Department for the Environment Food and Rural Affairs (Defra), the Environment Agency and Ofwat have all pushed for South East water companies to introduce ambitious metering programmes to help promote more efficient use of water.

Here we outline what companies are doing.

Southern Water

Nearly a quarter of a million leak-detecting water meters have now been installed under Southern Water's five-year metering programme, delivering an estimated total saving of 15 million litres of water a day.

By the time the project concludes in 2015, almost 500,000 meters will have been installed in the Southern Water region and there could be an estimated saving of 30 million litres of water a day. Further savings result from the meters' ability to detect leaks in customers' pipes.

We are now billing 76,000 customers with these new meters and nearly 45,000 households – almost 60%, are paying cheaper water bills. Average savings are £11 a month, with some families saving nearly £100 a month due to the new, fairer system of charging offered by meters. Total savings to date are nearly £4 million.

Some 31,000 customers, predominantly large families who are big water consumers and live in properties with low ratable values, have experienced an increase in bills, but we have introduced a range of tariff options to help.

These vary from a changeover tariff which allows customers to adapt to their new meter over a three-year period to, for those in financial hardship, capping metered bills at the same level as a customer's previously unmetered bill.

Customers who need financial assistance are offered a visit from a 'Green Doctor' who fits free water efficient devices such as tap aerators and low consumption shower heads. So far, 35% of targeted customers have taken advantage of the expert help of 'Green Doctors' who are also able to arrange for customers in hardship to receive advice from Income Max Direct – an independent body which advises customers what benefits they are entitled to. They have already helped customers to secure nearly £1 million in additional benefits.

However, the majority of customers are heeding the advice offered by our award-winning water efficiency programme to change their behaviour towards water consumption and reduce their bills.

Customers can conduct water audits of their homes by visiting www.yourwatermeter.co.uk. There is also information on how to obtain free water-saving products.

Affinity Water

We are pursuing a successful programme to encourage customers to switch to a metered supply and the numbers of those opting to be metered continues to remain steady.

In the Affinity Water east region 75% of domestic customers are metered and in the central region 43%. In its south east

region, which is a Defra designated Area of Water Scarcity, Affinity Water has a phased programme of compulsory metering in hand which is nearing completion.

A remote automatic metering trial is also underway in the south east region for 6,000 properties which will assess the potential for this technology to deliver further operational efficiencies.

South East Water

South East Water's Customer Metering Programme reached its first birthday in August 2012 and with just over 16,000 meters installed in Basingstoke, 11,000 in Kent and 12,000 in Sussex, the programme is on target to reach 200,000 installations by 2015.

Customer feedback remains positive. Comments include: "Not usually a big fan of water companies but this has been handled well with plenty of notice and minimum disruption."

Meters will soon be installed in East Grinstead in Sussex, West Kingsdown in Kent and Bramley, Eversley, Hook, Odiham and surrounding villages in Hampshire. An array of information about meter installation is available via customer literature and on our website. Customers can always talk to one of our dedicated metering advisors if they have any issues or concerns.

Sutton and East Surrey Water

The current level of meter penetration in our area is 43%. Forty per cent of households have meters; non-households are much higher at 86%.

Our current target is for 47% of household and 86% of non-households to have a meter by April 2015 – 49% overall – and we are well on track to meet this.

Approximately 6,800 meters will be installed this year. This is primarily as a result of our policy to install a meter when a property changes occupancy. Household customers can also apply for a free meter and an estimated 2,400 have been installed on request this year.

Meters are mandatory for households with qualifying swimming pools or wishing to use a sprinkler.

Portsmouth Water

With the lowest water bills in England and Wales there is less financial advantage for our customers to opt for a change to the measured (or metered) tariff. However, for the year to 31st March 2012 nearly 3,800 households opted for a free meter and for the seven months to October 2012 a further 3,200 have also had a meter fitted.

This brings meter penetration within domestic households in our area to 22%.

