

Water

The South East of England is one of the driest regions in the country. It is also a region with high forecast population growth. We work to ensure that the ways in which we provide for this increasing population are environmentally sustainable. The geology of our region allows us to derive some 70 per cent of our raw water from underground sources, known as aquifers. Water pumped from these sources is generally of a naturally high quality, requiring minimal physical treatment. Water supplied from rivers and reservoirs contains higher levels of impurities and requires more treatment to ensure water quality to our customers.

Background

- We maintain 95 water treatment works
- Our distribution mains extend to 13,424km
- We supply a resident population of 2,271,400
- Our operational expenditure for 2003-2004 water supply was £61million
- Our water efficiency initiatives have saved 15.24MI of water/day since 1997
- We put 599 megalitres of water into distribution daily throughout 2003-2004
- Southern Water 2003 Drinking Water Inspectorate Overall Quality Index 99.92
- Southern Water 2003 Drinking Water Inspectorate Operational Performance Index 99.87

Our leakage reduction programme helps us to conserve and reduce the water that we need to abstract. We also promote water efficiency savings, both at our own sites and from our customers. Additional strain on our assets in periods of high demand for water has led to water quality being threatened. This results in financial investments being required to fund necessary works at our treatment sites to ensure the high quality of water supplied to our customers is maintained.

Southern Water's Little Testwood Lake Reservoir at Totton



CASE STUDY

Safeguarding supplies

Our Testwood Lakes scheme has created a reservoir close to our existing water supply works in the valley of the River Test between the New Forest and Southampton. We developed Testwood Lakes to safeguard our water supply to 200,000 customers in Southampton and the surrounding area.

The scheme comprises three lakes: Little Testwood Lake, used for storing water; Testwood Lake and Meadow Lake. Water is abstracted from the River Test and piped to Little Testwood Lake 800 metres away. In the past water was pumped from the River Test straight to our works for treatment. Little Testwood Lake can store up to 270 million litres of water. This provides security of supply to meet peak demand for water and secure high quality water by providing protection against possible river pollution. Water from the lake is pumped to the supply works for treatment before being distributed to our customers.

Testwood Lakes also adds environmental improvement and amenity value to the area.

For more information

See the **Land, Conservation and Access** section of this report at www.southernwater.co.uk/sustainability

LINKS: www.dwi.gov.uk | www.water.org.uk |

Water Quality

The Drinking Water Inspectorate (DWI) regulates drinking water quality. In September 2003, the Inspectorate issued guidance on the implementation of the new water quality regulations, which came into force in December 2003.

The quality management system controlling our water supply operations is discussed in the *Managing our Future* section of the Performance Summary of this report. Customer and regulator consultation is considered in the *Sharing our Future* section, and our benchmarking to UK Industry Sustainability Indicators *Sustaining our Future* section of the Performance Summary of this report.

For more information
See the *Performance Summary* section at www.southernwater.co.uk/sustainability

Ninety of our water supply works use high quality underground water sources where, generally, the only treatment needed is disinfection, although at many sites the treatment is now supplemented to reduce the potential for absorption of lead. Water from our water supply works is lead free but lead can be absorbed when water comes into contact with lead pipework. Lead was used in the past in service pipes (between the mains and the property) and in customers' internal plumbing. At a small number of sites we also remove traces of chemicals such as pesticides.

Our work continues to ensure the highest quality of water is maintained for our customers. We have in place systems and procedures to assure consistency of approach, standardise best practice, adhere to water quality standards, safeguard public health and provide confidence to our customers. Our record of compliance with water quality standards, as noted in the Drinking Water Inspectorate (DWI) Chief Inspector's report, is among the highest in the water service companies. This has been achieved with sustained investment. We will continue to ensure that all assets are reliably able to produce water supplies of the required quality.



Drinking water quality is regularly monitored to our independently audited quality management system

In addition, we have agreed new programmes of work with the DWI to meet the new standard for turbidity – a measure of fine sediment and cloudiness within water – and to reduce concentrations of agricultural chemicals that cause deterioration of the natural water quality.

We have made improvements to water quality at three water supply works by installing treatment to remove traces of agricultural chemicals. The Drinking Water Inspectorate has assessed our proposals to carry out works to improve drinking water quality for the investment period 2005 to 2010.

We have started work to further reduce turbidity in water, to reduce the risks from micro-organisms and to remove the chemical impurities in water that have derived from agriculture. We are carrying out this work at several sites on the Isle of Wight, from natural water sources in Kent and arranging blending of supplies for a service reservoir and water main in Hampshire.

For more information
See the *Economy and Key Performance* section of this report at www.southernwater.co.uk/sustainability

2003 target	Progress against target	2004 target
WATER QUALITY		
Zero treatment works failing coliform standard with enforcement action.	Target met.	Maintain target.
Zero service reservoirs failing coliform standard with enforcement action.	Target met.	Maintain target.
99.7% of customer taps samples with no coliforms.	99.5%	Maintain target.
Physico-chemical compliance customer taps 99.8% compliant.	99.8%	Maintain target.

KEY: Target met In progress Target not met

LINKS: www.environment-agency.gov.uk |

Water Resources

Maintaining the security of water supplies to our customers is critical. This is especially challenging as we operate in one of the driest and most densely populated regions of Britain. Government-planned expansion of housing and population will also lead to increases in demand for water within our region. As the region's existing water resources are used to their full capacity, major new water resource developments are required to serve future demand. We take an active role in working with other water companies in the South East of England, Ofwat and the Environment Agency to produce an integrated water resources strategy for the development of these.

The maintenance of public water supplies depends on a delicate balance between supply and demand of water. Periods of unusually hot or dry weather can increase the demand for water substantially and reduce the volumes of water available for supply.

For more information

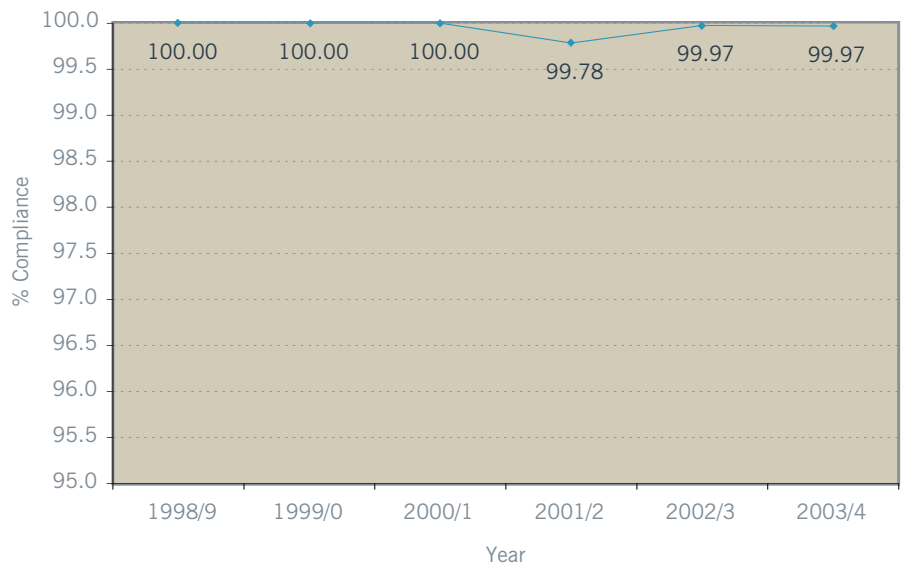
See the [Performance Summary and Energy and Atmosphere sections at \[www.southernwater.co.uk/sustainability\]\(http://www.southernwater.co.uk/sustainability\)](#)

Our water resource region covers an area of some 4,450 square kilometres, with water supplied to 740,000 non-metered properties and nearly 267,000 metered properties. That is a total resident population of over 2.28 million supplied with water.

Water abstractions

The Environment Agency regulates Southern Water's use of water from natural sources – such as rivers, storage reservoirs and underground sources – by a series of abstraction licences. Continuing requirements by the Environment Agency and English Nature for us to reduce the removal of water from environmentally sensitive sites means we have to find alternative, more sustainable ways to meet our customers' demand for water. Whilst we correctly operate within existing abstraction licences, the Environment Agency, through its Catchment Abstraction Management Strategies (CAMS) has identified that much of our region is licensed to abstract more water than is now

Abstraction licence compliance

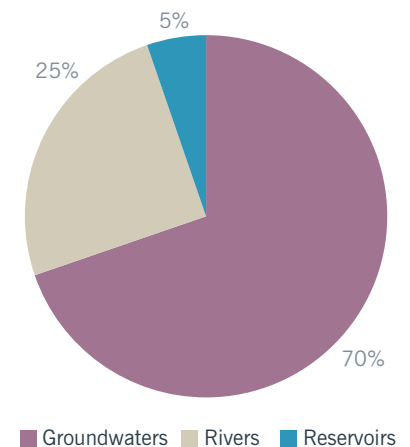


The marginal breach in compliance shown in the graph (above) was mainly due to abstraction alarm anomalies. These failures resulted in pumps over abstracting water at a small number of sites. New telemetry standards and procedures are now being applied to all water supply works to reduce the chances of breaches occurring in the future.

considered to be sustainable, potentially leading to environmental damage.

Overall an average of 800mm of rainfall per year falls in our region, although only 300mm per year of that finds its way to natural stores of water underground – known as aquifers. There is a marked reduction in rainfall from West to East across the region. At ninety of our water supply works we draw groundwater from the chalk, greensand and Hastings Beds aquifers. These aquifers are in the Downs and Weald in Sussex, Kent, Hampshire and the Isle of Wight. The Downs and the Weald feed the main abstraction rivers of the Itchen and Test of Hampshire, the Rother of West Sussex, the Medway and Stour in Kent and the Yar on the Isle of Wight. These rivers feed eight of our

Sources of water used to supply customers 2003-2004



2003-2004 target	Progress against target	2004-2005 target
WATER RESOURCES		
Trial Water Production Management Tool to optimise source operation in a sustainable manner.	Deferred. Informal source optimisation has taken place as a pre-cursor to the successful future delivery of the production tool.	Implement optimal refill operations at key reservoir refill sites within the Bewl-Darwell system.
–	–	Implement groundwater monitoring at priority sites across the region.

KEY: Target met In progress Target not met

LINKS: www.ofwat.gov.uk | www.southernwater.co.uk/waterwise | www.waterintheschool.co.uk |

water supply works. Southern Water also owns and operates four surface water-impounding reservoirs. These are at Bewl Water, Darwell, Powdermill and Weir Wood.

We are jointly promoting enhancements to the water transfer scheme between our Bewl Water and Darwell reservoirs with South East Water, which, from September 2004, will increase the raw water transfer capacity from 10 to 35 million litres per day. The transfer will provide more water for customers in the Hastings area, and a new supply to South East Water – maintaining supplies to customers in these areas.

Water Efficiency

As part of the water strategy for the South East developed by the water companies, the Environment Agency and the Office of Water Services (Ofwat), we adopt a twin track strategy of reducing customer demands and developing new water resources. We produce a company water resource strategy and a five-year water efficiency plan, reporting annually on its implementation. This plan is aimed at domestic customers, businesses and organisations such as schools and hospitals.

In the water resources strategy recently submitted to Ofwat and the Environment Agency we have identified that, without intervention, the increased population in Sussex will result in a supply/demand shortage in parts of Sussex. Metering has been shown in most cases to reduce consumption, because customers pay for the volume of water they use. As part of the demand management proposals to our twin track approach to secure supply, we have proposed the introduction of a new policy from 2005 metering properties on change of occupancy in targeted zones. We are awaiting approval of this proposal from the Office of Water Services (Ofwat) as part of our overall strategy.

We have written to all unmetered customers in our Sussex North and East supply areas offering them the opportunity to change to a metered water supply free of charge. Customers who did not wish to have a water meter were asked to complete a declaration stating that they do not use unattended garden sprinklers or have swimming pools. This initiative led to a wider awareness of our metering policy and resulted in 62% increase in meter take-up compared with 2002-2003. In the longer term we expect this initiative to result in reduction of peak summer demands.

For more information

See the Customers section of this report at www.southernwater.co.uk/sustainability

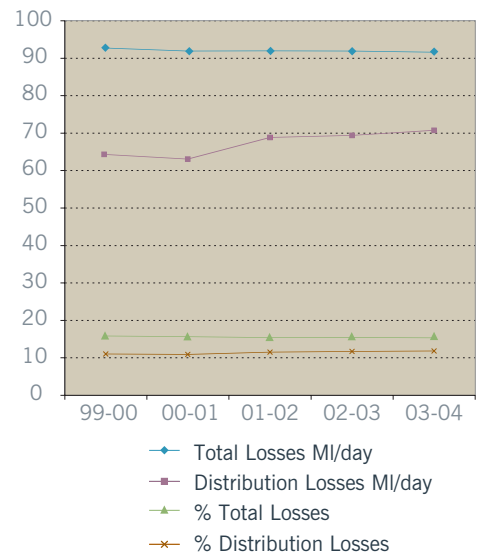
Research continues into the benefits of a variety of water efficiency devices and initiatives as follows:

- Effect of water butts on consumption and peak demands
- Components of domestic demand
- Customer water use survey
- Key performance indicators for water use in buildings
- Effectiveness of low flush toilets
- Effectiveness of dual-flush retrofit devices

For more information

See the Community, Education and Skillsharing section of this report at www.southernwater.co.uk/sustainability

Leakage figures



We recognise that, to promote water efficiency to our customers, we have to set an example. We have set up a working group to address our own water use in offices and on operational sites. Our working group initiatives include improvements in measurement and assessment of flow data, audits of water use on priority sites, implementation of low water use within the design of new and improved works and setting up detailed studies to robustly improve operational water use.

2003-2004 target	Progress against target	2004-2005 target
WATER EFFICIENCY		
Input internal water use data for wastewater sites serving a population equivalent above 25,000 into our Optima6 management system.	Target met.	Undertake quarterly reporting to compare water use between sites serving populations above 25,000.
		Carry out audits of site with high consumption compared to the populations they serve, and on sites with deteriorating trends in consumption.

KEY: Target met In progress Target not met