EA WATER RESOURCES

Water resources for the future

A SUMMARY OF THE STRATEGY FOR THE SOUTHERN REGION

March 2001

ENVIRONMENT AGENCY

Water resources for the future

Water is vital for life

All living things need water to survive. People rely on water not only for drinking and for personal hygiene but also for many other purposes:

- around our homes, for cooking, washing, toilet flushing and cleaning;
- in our gardens, to water plants;
- on farms, to water crops and clean equipment, and for animals to drink;
- in offices, schools, universities and hospitals;
- in commerce and industry, to help with manufacturing.

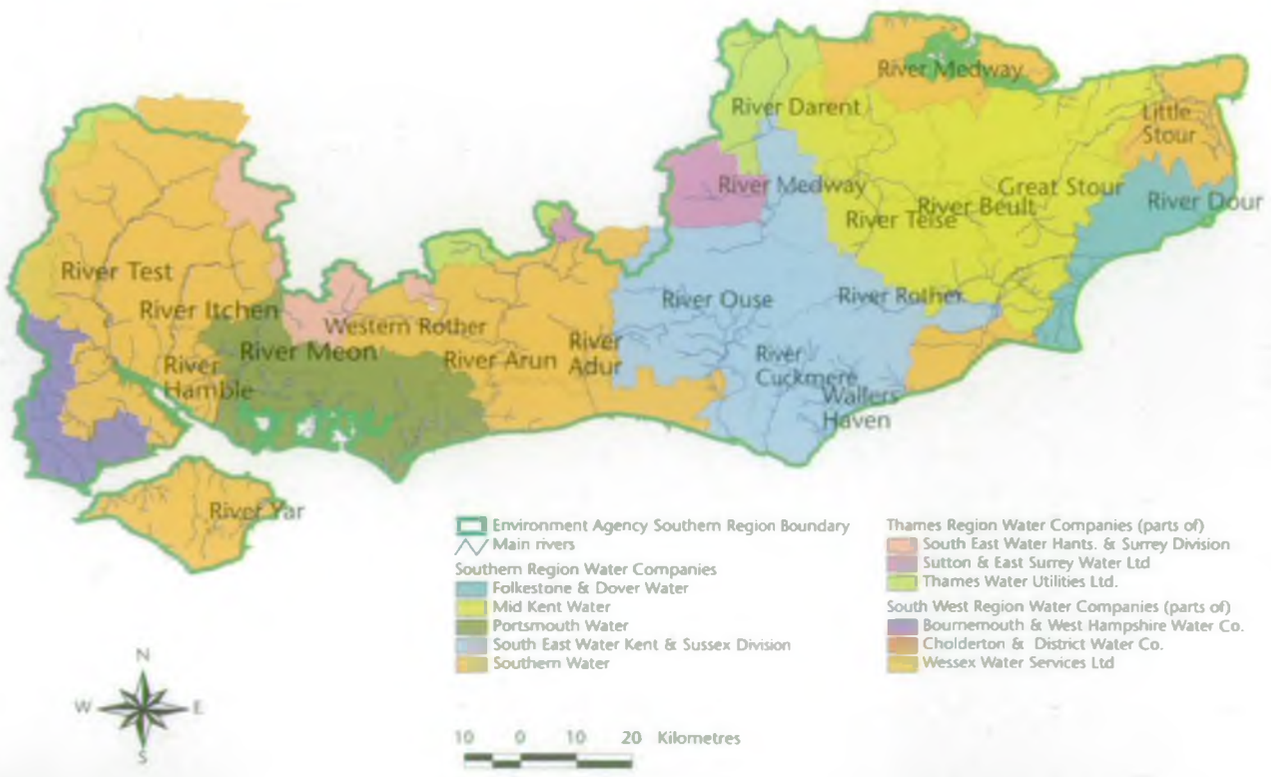
All the water we use is taken from streams, rivers or groundwater held in water-bearing rocks below the ground (aquifers). Water in the environment - in streams, rivers and wetlands - serves many other purposes that we must take into account. It allows plants to grow and keeps fish, insects and mammals healthy. It also gives us pleasure in many ways. We like the appearance of rivers and streams in the landscape, and many of us enjoy fishing, boating, canoeing or just walking by water. Rivers also play an important role in receiving and diluting effluent discharges.

A water resources strategy for Southern Region

Southern Region, shown on Figure 1, includes the Isle of Wight and most of the counties of Hampshire, West Sussex, East Sussex and Kent. Landscape features include chalk downland, the Weald and marshland around Romney and in north Kent. With a few exceptions, the larger towns lie along the coast. The total land area of the region is 10,980 km^2, and its population is over five million.

Groundwater is the most important source of water in the region, both for our use and for supporting our rivers and wetlands. The aquifers that underlie much of the region

Figure 1 **Southern Region**



In forming our strategy, we have also considered water company forecasts of demand and their proposals to maintain reliable supplies.

Southern Region has a complex but less integrated water supply infrastructure than much of the rest of the country. We have five water companies in the region: Folkestone and Dover Water, Mid Kent Water, Portsmouth Water, South East Water and Southern Water. Several others operate partially inside or around our boundary, including Thames Water and Sutton and East Surrey Water. Figure 1 shows water company boundaries.

Each water company is divided into water resource zones. Company plans submitted in 1999 show 85 water resource zones in England and 42 in Wales. Southern Region has 28 zones, and others falling partly inside the regional boundary. There are some water transfers between these zones within individual companies, and some supplies go from one company to another, with proposals for more included in our strategy. Some zones have surplus resources and others have existing or forecast deficits. At present, the infrastructure does not allow the use of the surpluses to satisfy the deficits. Figure 4 highlights the distribution of the forecast (2009/10) surpluses and deficits, assuming that the reliable supplies of 1997/98 were not enhanced and water company forecasts of demand growth did occur.

Climate change

Climate change is another factor that could influence how much water is available for the environment and for our use. It could also influence the demand for water. Over the next 25 years summers could become drier and winters wetter, with more rain in total. Temperatures are likely to increase. Because many questions remain about the effects of climate change on water resources and water use, it makes sense to use our existing water resources carefully, and to look for flexible solutions to future demands that can cope with different climatic conditions. This is an area that we will keep under review.

Our strategy for Southern Region

Our strategy is designed to improve the environment, while allowing enough water for our uses. In its development we have considered its contribution to sustainable development, including economic growth and employment, protection of the environment, making wise use of natural resources, and social progress that considers the needs of all. Our strategy is flexible and phased, so that we can avoid unnecessary investment while retaining security of water supply and improving the water environment.

Our strategy concludes that:

- water is a scarce and often over-committed resource in Southern Region, and in many places further improvements to the water environment are necessary. We believe this will require recovering around 10 per cent of current abstraction across the region. We also need to recover licensed but unused abstraction across the region to prevent more unsustainable abstraction developing.
- a long-term reliable public water supply is vital but, even in the short term, parts of the public supply network can't meet reliability standards. In Southern Region, reliable supply has to be achieved from a less-integrated water supply infrastructure than exists in much of the rest of the country. Some of the challenges we face in the region could be overcome by greater integration of the public water supply network.
- forecast economic growth, housing growth and climate change present a greater challenge to the south east than elsewhere in the country.
- doing nothing is not an option: licence alterations, demand management, metering, leakage control, efficient use of water, infrastructure strengthening, supplies between companies, enhancing existing resources and new resource development are all required.
- opportunities for sustainable resource development are very scarce in our region. Efficient use of water is crucial to successful water resource management over the next 25 years.
- working together will be the key to delivering the sustainable development of water resources: local authorities, industry, agriculture, commerce and the public all have a role to play, together with the Agency and water companies.

How to find out more

You can find more information in the full water resources strategy for Southern Region, available from our regional office at Guildbourne House. Details of our strategies for other regions of England and for Wales can be obtained from regional Environment Agency offices. You can obtain our water resources strategy for the whole of England and Wales from Water Resources, Environment Agency, Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, BS32 4UD. Further information on all our water resources activities can be found on our website at **www.environment-agency.gov.uk**.

based on licensed abstraction during a dry year

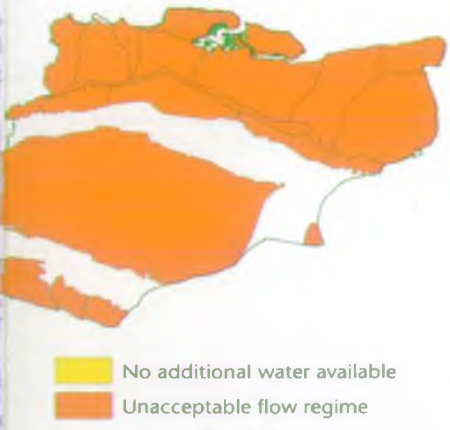
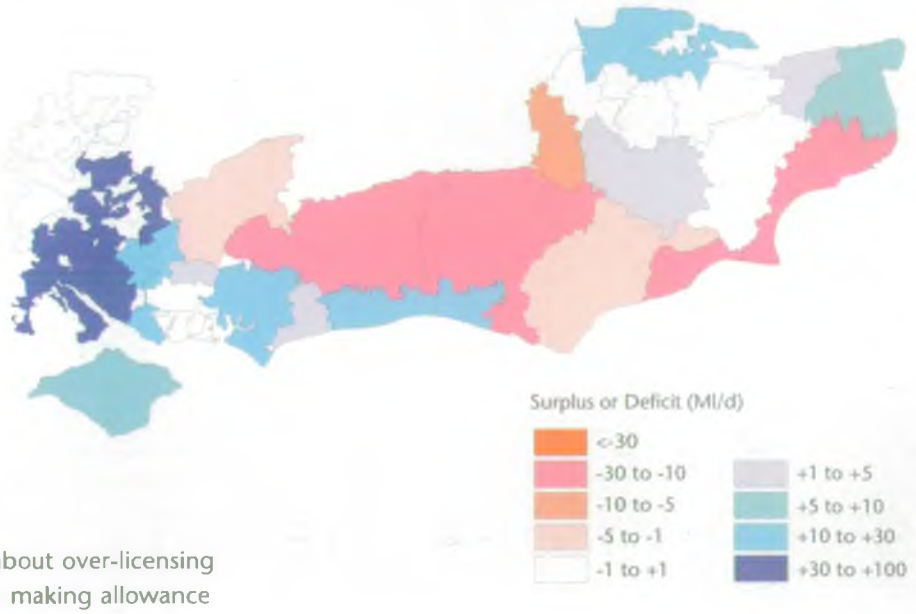


Figure 4 Forecast, dry year, annual average, supply – demand balance, 2009/10



Figures 2 and 3 represent the concerns about over-licensing in Southern Region. Figure 2 shows that, making allowance for environmental needs, the total quantity licensed for abstraction from rivers and streams exceeds what would be available in a drier-than-average summer. Corresponding considerations for a dry winter suggest that parts of Kent and East Sussex are potentially over-licensed. Hampshire, the Isle of Wight and most of West Sussex are either broadly in balance, or have limited additional water available for abstraction in a dry winter. Figure 3 shows that the region's groundwater resources are already over-licensed in relation to a dry year.

Our strategy anticipates resolving abstraction and licensing related concerns at sites across Southern Region. Designated sites are to be dealt with or investigated by 2005. Over the period of the strategy we intend to achieve a better balance between the water licensed for abstraction and the water left in the environment. In future we should not have red areas on our resource availability maps (Figures 2 and 3).

Future demand for water

Our use of water may change over the next 25 years. Different factors could influence our future demand for water.

Social and economic changes will influence the future demand for water. In the home, we each choose how much water we use. Today, on average we each use about 150 litres every day - enough to fill about 15 buckets. Future water use depends on the choices that we make as individuals and collectively as a society. For example, showering usually takes less water than a bath, but using a power shower for five minutes can use more. Depending on attitudes, individual water use could increase or decrease over the next 25 years. Similar arguments about the effect on demand for water of different water use practices apply to industry, commerce and agriculture.

To consider many of these different effects, we have made our own estimates of future water demands. We have done this using the Government's "Foresight" framework: four future social and economic scenarios that could develop over the next 25 years. Figure 5 illustrates our demand forecasts for the region to 2025.

Current and likely future demands in Southern Region are dominated by public water supply. Government planners suggest that provision be made for some 380,000 additional houses in the region by 2016. This is to progress at recent rates until a review in 2005/6. Economic growth is also forecast, and a number of areas are being considered for growth in the region. The Agency will expect housing and business developments to be water efficient but, they will add to the total demand for water. Our strategy has considered the possible water demands of new housing and economic growth.

Figure 5 Environment Agency, water demand scenarios, demand growth or fall to 2025

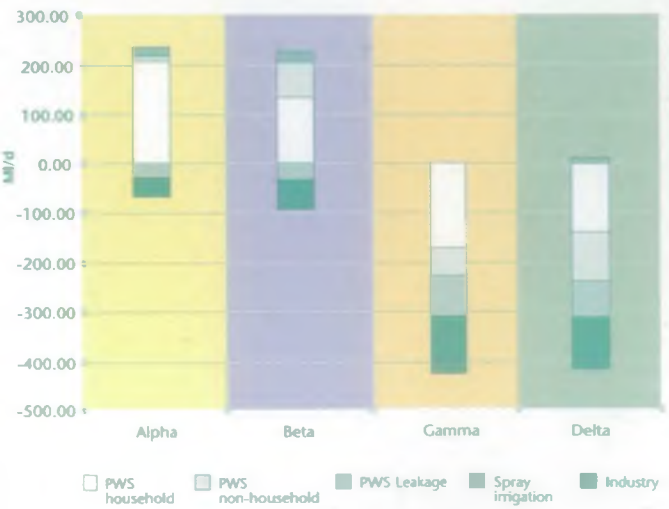


Figure 2 Surface water availability – based on licensed abstraction during a dry summer

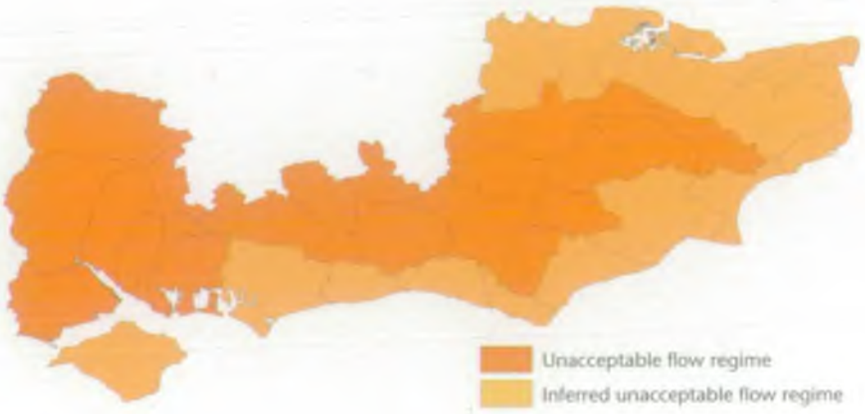


Figure 3 Groundwater availability –

play a vital role as natural reservoirs, storing a portion of rainfall and then slowly releasing it. Chalk is the main water-bearing rock, typically supplying around 70 per cent of the water used and helping many rivers and streams to continue flowing during dry periods.

Rivers, streams and wetlands are important habitats, supporting diverse ranges of wildlife. There are many sites of great environmental value within Southern Region. In managing our use of water resources we must ensure that river flow and groundwater can support our river and wetland wildlife.

Planning our use of water

Abstractions of water and our water environments depend on rainfall and its movement over and through the ground. Average annual rainfall varies across the region from 800 to 1,000 mm in the west, to 550 to 650 mm in parts of Kent. But much rainfall evaporates or is used by trees, crops and other plants, so that useful or 'effective' rainfall can be only 20 to 50 per cent of total rainfall, especially in summer. We can't use all this water, because we want to leave enough in our rivers and streams to protect nature and allow us to enjoy our environment. In a dry year, effective rainfall may be comparable to some Middle Eastern countries and our use of water can lead to problems. Year-to-year variability in rainfall and dry periods that span several years can also be significant. Dry winters can limit groundwater recharge and the refilling of reservoirs.

Since every drop of water that we use comes from the natural environment, we need to plan our use of water to make sure that we have enough for our reasonable needs while protecting our water environments and wildlife. This is an increasingly difficult challenge.

Our strategy reflects on these issues. It looks 25 years ahead, and considers the many changes that may occur over this time. Our vision is:

Enough water for all human uses with an improved water environment.

The availability of water

Almost anyone who wants to abstract water needs a licence from the Environment Agency. Before we give a licence, we must be sure that it will not damage the environment or restrict the rights of existing licence holders.

In 1999, abstraction of water for the public supply amounted to some 1,400 million litres a day (Ml/d). Household use accounted for about 60 per cent of this, commercial use just over 20 per cent, and leakage from pipes nearly 20 per cent. In addition, some 600 Ml/d was abstracted directly by industries. Farmers also took around 30 Ml/d for spray irrigation, a relatively small amount but concentrated in the summer months, when river flows are at their lowest.

In some places we think that too much water is abstracted already. In these places, the environment may already be damaged or is in danger of being damaged. If we want to restore the environment in these places, we must stop taking so much water. In many parts of the region we are also concerned that existing licensed abstraction volumes exceed the water available in dry years. Thankfully existing abstractions are typically well within these licensed limits: if abstractions ever increased to these licensed amounts, more damage would be done to the environment. Our strategy seeks urgent reduction of the licensed amounts to ensure they can never be misused. In other places, we think that there is less risk to the environment, but that no more water should be taken. There may still be some limited opportunities for further abstraction in the region, but detailed studies are often necessary.

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— Area Administrative Boundaries

— Regional Boundary

● Area Office

▲ Regional Headquarters

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