STATE OF THE ENVIRONMENT IN THE SOUTH WEST 2006

South West England

Environment Agency

South West Observatory

CONTENTS

INTRODUCTION

The South West has one of the high
environments in the United Kingdor
over 350km from the south-western
northern border of Gloucestershire
Dorset and Wiltshire.

We are the largest and most rural re
diverse and special landscapes. But
rurality has led to some geographic
environmental problems that can cc
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This report shows that, although mu
environment shows steady improver
pressures on the environment that a

Some of the main environmental pre

- The South West could potentially have the highest increase in sea level rise in Great Britain as a result of climate change.
- The South West has the highest household electricity consumption rate in Great Britain.
- Annual population growth is above the English average.
- The South West has the highest number of journeys made by car, the 2nd highest increase in traffic volume and some of the least accessible bus services in England.
- Total municipal waste continues to increase and now stands at its highest level yet.
- The increase in the number of passengers at South West airports is higher than the English average.
- More litter is found per km on the region's beaches than anywhere else in the UK.
- Salmon stocks are low in many rivers in the region and commercial sea fish landings continue to decline.
- Cornwall has the highest number of marine strandings in the UK.
- If everyone on the planet lived like the average South West resident we would need three planets to support current lifestyles.

e majority of the region's environment
Over the last decade, there have been
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of some of our key wildlife sites. In
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carbon dioxide emissions in England.
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cle waste in the region, with a continued
of waste being sent to landfill and the
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ods depend on reducing the pressures
well as maintaining the existing high

This report covers a wide range of issues about the South West's environment. Each issue is described in terms of:

1 Whether they are a regional issue (progress indicators identified in the South West's own Regional Environment Strategy)
2 A key fact
3 Background
4 A South West perspective
5 A more local perspective (county and local authority level)
6 A national perspective (England where possible)
7 The European and worldwide perspective

Wherever possible, trends are shown for indicators identified in the South West's Regional Environment Strategy. These indicators are shown alongside the regional issue at the head of each chapter.

the sky's the limit...

Southhaye Moor / P.N. Wiltshire Wildlife

ATMOSPHERE

INFORMATION AND TRENDS RELATING TO **AIR QUALITY, ACID RAIN, CARBON DIOXIDE** AND **CLIMATE CHANGE.**

related sections **Chapter 4:** Flooding, **Chapter 3:** Energy, **Chapter 8:** People & communities

regional issue

Strategy theme	2004	2005	Indicator
Climate change	✗	✗	Greenhouse gas emissions
	○	✗	Rising sea levels
	○	○	Loss of wildlife
	○	○	Changes to landscape and historic environment
	○	○	Lifestyle changes
Wiser use of natural resources	✓	✓	Air quality
Tourism	✗	✗	Car use
Spatial planning & development	○	○	Dark skies
	✓	✓	Local environment quality
Transport	✗	✗	Traffic growth
	✓	✓	Alternative fuels
	✗	✗	Local air quality

✗ Pressures that are negative and are expected to continue
○ Areas of uncertainty or potential problems
✓ Trends that are positive or expected to improve

air quality

Background
Good air quality is critical to people's health and the condition of the region's wildlife, habitats and built environment. Sources of emissions include energy generators, waste, industry, transport and agriculture.

There are many different types of air pollutant. These pollutants have different effects on the environment and on our health. Some directly because they are harmful chemicals and others because they can react together to produce harmful chemicals. Pollutants or pollutant combinations upset the natural balance of acidity and nitrogen in the environment which can affect the diversity of species in sensitive areas. Some pollutants can also contribute to changing global conditions and potentially give rise to dramatic changes in climate and sea level.

South West perspective
Government air quality statistics show that air quality in the South West is generally good with low levels of sulphur, nitrogen dioxides and particulates in comparison to the rest of England. However, pockets of poor air quality exist in the region, especially within large urban industrial areas such as Bristol.

Air quality - days when air pollution was moderate or higher - is one of the Government's UK Sustainable Development Strategy Framework Indicators (UK Government, 2005). It presents trends for annual levels of particulate and ozone pollution, the two pollutants thought to have the greatest health impacts. It details the number of days on which levels of any one of a basket of five pollutants were 'moderate or higher'.

Nationally there was an average of 22 days with moderate or higher air pollution in urban areas in 2004 and 42 days in rural areas. It is not possible to provide regional averages because there are too few sites in some regions. Instead, representative urban and rural sites are chosen. The South West had a below average number of poor air quality days in all of its representative urban sites but an above average record in Yarner Wood (Devon), one of its representative rural sites.

KEY FACT

Air quality has generally improved in the region since 1993 largely due to a reduction in particles and sulpur dioxide

Days of moderate or higher air pollution in the region ranged from 16 days in Bristol Centre to 53 days in Yarner Wood during 2004.

Air quality has generally improved in urban areas since 1993, largely due to a reduction in particles and sulphur dioxide. The weather also influences air pollution. Hot and dry summers, such as in 2003, encourage the production of air pollutants, ground level ozone and fine particles and can lead to a higher number of poor air quality days (National Air Quality Information Archive, 2005).

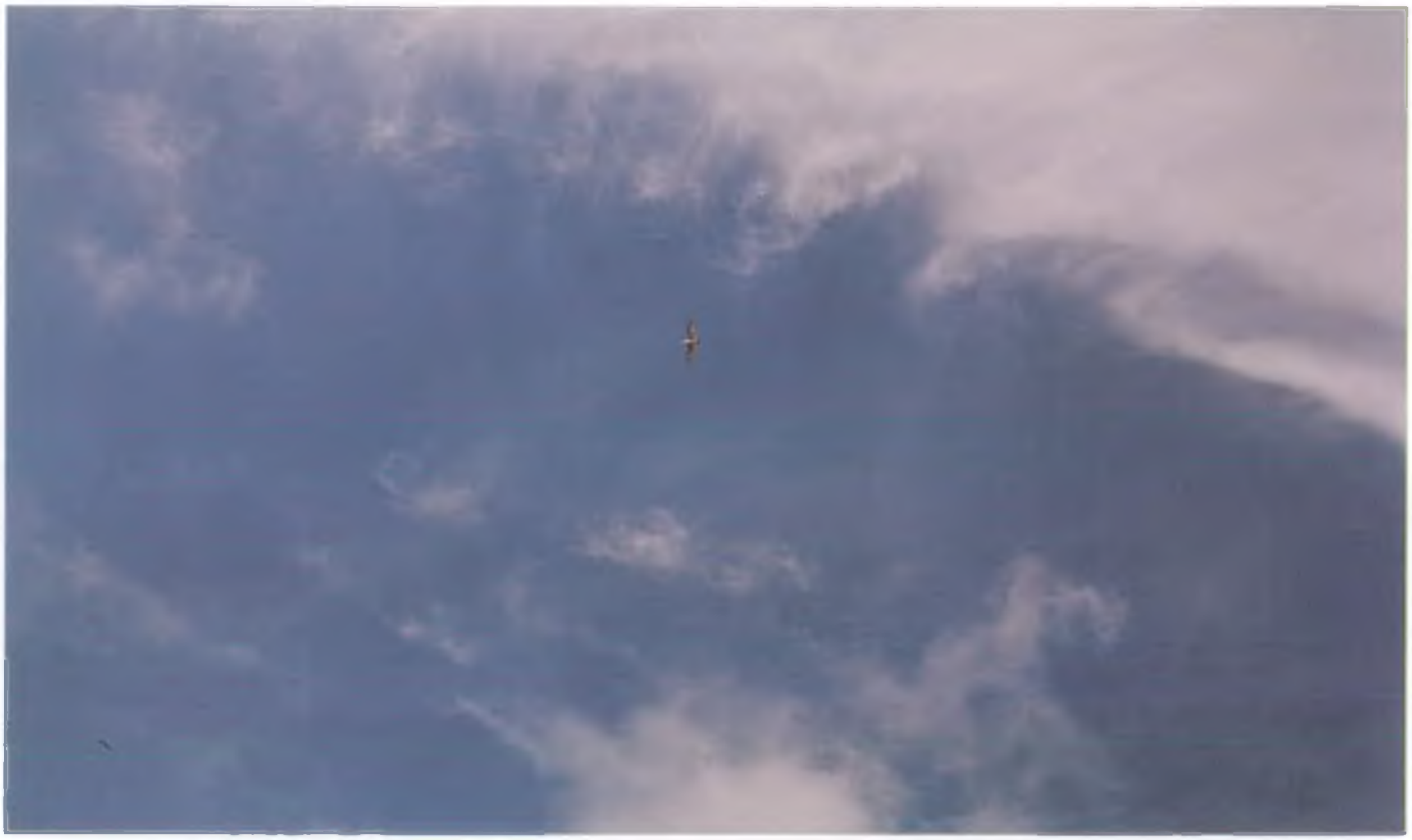
Rural air quality is influenced by ground level ozone. Levels of ground level ozone are naturally high in the South West as it is influenced by proximity to the coast and high altitudes. There has been no clear trend in the average annual concentration of ground level ozone over the last 20 years. However, all six sites which are monitored for ground level ozone in the region in 2004 showed declines on 2003 (National Air Quality Information Archive, 2005).

A more local perspective
24 Air Quality Management Areas have been declared in 12 local authority areas in the South West, an increase of 16 since 2003. Primarily in urban areas, all but one of these zones have been designated as a result of traffic emissions (National Environmental Technology Centre, 2006).

Detailed air quality data is available at a local authority as well as postcode level links which are available from the State of the Environment in the South West website.

National perspective
Air quality has improved significantly over the last 100 years and most air quality standards are now met due to improved technology and regulation that have led to cuts in industrial and traffic pollution.

Days when air quality was moderate or higher in the South West 1998-2004 (Defra 2005)



Provisional national data is available for 2005, and reveals that there was an average of 22 days with moderate or higher pollution in urban areas, and 41 days in rural areas (Defra, 2006).

The average number of days with moderate or higher air pollution has decreased significantly in urban areas since 1993, largely because of a reduction in particles and sulphur dioxide. In rural areas, where ozone is the main cause of pollution, there has been no overall trend.

138 Local Air Quality Management Areas have been established in England and Wales where national Air Quality Objectives are not likely to be achieved. 95% of these areas have been set up as a result of traffic emissions (National Environmental Technology Centre, 2006).

European and worldwide perspective (where available)

Air quality has a significant impact on global health. Worldwide, around 800,000 premature deaths are attributed to urban air pollution every year, about 65% of which occur in the developing countries of Asia (UNEP, 2006).

Research conducted in Europe found that children living in the most polluted areas are up to 50% more likely to have acute respiratory infections than those living in the least polluted regions (World Health Organisation, 2005).

Great progress has been made in reducing air pollution in Europe, such as the elimination of winter smog and a reduction in acid rain. However, fine particulates and ground level ozone remain in high concentrations and are still causing health problems in many cities and surrounding areas as well as harming ecosystems and crops across large areas of rural Europe (European Environment Agency, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/air_quality.asp

climate change

Background

Our climate is not static, it has changed in the past, over centuries, millennia and even longer periods of time. These natural changes are caused by a number of factors including volcanic eruptions and natural fluctuations in the climate system itself. For about a thousand years before the Industrial Revolution, the amount of greenhouse gases in the atmosphere remained relatively constant. Since then, the concentration of various greenhouse gases, including carbon dioxide, methane, nitrous oxide and fluorinated gases, has increased. The amount of carbon dioxide, for example, has increased by more than 30% since pre-industrial times and is still increasing at an unprecedented average rate of 0.4% per year. This is mainly due to the combustion of fossil fuels and deforestation.

Climate, weather and the state of the atmosphere are of great importance to the economic, social and environmental health of the South West. Whether a resident, visitor or business in the region, we are all facing major problems in living in an increasingly turbulent and variable climate.

South West perspective

Although the UK is on line for meeting targets set by the Kyoto agreement by 2008–2012 (12.5% below 1990 levels), it is currently unlikely that it will meet its own domestically set target of 20% below 1990 levels by 2010. Despite making carbon dioxide cuts we still need to adapt to the changes in the climate system that are unavoidable, due to past emissions.

During the 20th century average annual temperature increased by about 0.8°C - 0.9°C in the region. Met Office records for Exmouth exist back to 1855, which show that the last decade was the warmest on record.

The impacts of a warming climate are already having an impact on habitats and wildlife. Chiffchaffs, for example, are appearing significantly earlier in the year as average March temperatures are rising - these birds were first seen on the 28th February in 2005 when the average March temperature was 7.2°C a full 16 days earlier than in 1916 when the average temperature was 3.3°C. Similar changes have also been noted in the first spawning dates of frogs (UK Phenology Network, 2005).

Many species will not be able to adapt quickly enough and native species of flora and fauna could be under real threat. In some cases, even a 1°C rise in temperature can be too great for some species to adapt. Those species at the southern breeding limit of their range are probably most at risk of loss from the region. For example, the Golden Plover is no longer breeding in the South West due to milder winter temperatures. Many habitats in the South West are fragmented and are in effect islands surrounded by farmland, through which many native plant and animal species will be unable to migrate as conditions change.

Natural assets such as valued landscapes, archaeological remains, beaches, wetlands, mudflats, salt marshes and dunes may be lost, together with their flora and fauna.

Cases of malignant melanoma, the most aggressive of skin cancers, is a particular problem in the region with high mortality rates compared to England and Wales. Incidences of this cancer are high in all local authority areas in the region (with the exception of South Gloucestershire, Gloucester and the Forest of Dean), and have increased by 3-7% since the 1960s (NHS, 2003).

New data shows that sea-level rise in the South West region could be the highest in Great Britain, with a rise between 20-80cm by the 2080s, depending on emissions scenarios (UKCIP, 2005). Mean sea level at Newlyn (Cornwall) has risen by approximately 15cm since 1915 and by 8cm at Devonport (Proudman Oceanographic Laboratory,2003). Mean wave height from trough to crest has also increased, from 1.8m in 1962 to 2.3m today. Such changes may adversely affect sea defences, harbours, homes, businesses, infrastructure, maritime heritage as well as natural assets and biodiversity.

Sea level rise and climate change will increase the scale and pace of coastal erosion. Research has shown that 779km of National Trust owned land in the region is at risk from coastal erosion over the next 100 years and 852 hectares at risk of increased flooding. Trust owned land in the South West is the most at risk of coastal erosion in England and Wales and is second only to the East in terms of increased flooding (National Trust, 2005).

KEY FACT

Mean sea level at Newlyn (Cornwall) has risen by approximately 15cm since 1915, and by 8cm at Devonport.

Region	Kilometres of National Trust coast affected by erosion	Hectares of National Trust land at risk of flooding
South West	279	852
South East	44	467
East	45	1,837
London	-	1
North West	9	70
Yorkshire	12	1
North East	52	26
Wales	167	786
Total	**608**	**4,040**

National Trust-owned coast at risk from erosion and flooding over the next 100 years. (National Trust, 2005)

A more local perspective

Although land and property will be lost as a result of increased coastal erosion or flooding, such as at Studland Peninsula (Dorset), there may also be some good news. At Porlock (Somerset) the sea has been allowed to breach a shingle ridge and is creating a new saltmarsh. This new habitat is already attracting waders, ducks and plants that had previously been rare visitors or completely absent, as well as otters (National Trust, 2005).

Some local authorities have their own climate change strategies, more information is available via the updates weblink.

National perspective

In the UK, 1990 and 1999 are the two warmest years ever recorded; globally, 2005 is one of the warmest years on record and eight of the ten warmest years on record have occurred in the last decade (1996-2005) (WMO, CRU, Met Office, 2006).

UK climate change scenarios indicate that global sea level will rise between 90mm and 690mm by 2080, primarily as a result of thermal expansion of the oceans, with a secondary but significant input from glacial melt water (UKCIP, 2002).

The National Trust expect that 169 sites and properties along 608km of coastline could lose land by erosion over the next 100 years. There are also 126 sites with land covering 4040 hectares that are currently at risk from tidal flooding and a further 33 low-lying sites are at risk from both tidal and river flooding (National Trust, 2005).

European and international perspective (where available)

Average global temperatures are now about 0.7°C above pre-industrial levels, and are currently rising faster than at any time in modern human society. Nine of the 10 warmest years in a detailed thermometer record extending back 150 years have occurred in the past decade, with the four hottest years globally being 1998, 2002, 2003 and 2004. Projections for the next 100 years show continued warming, with global increase in temperature estimated to be between 1.4°C to 5.8°C (WMO, CRU, Met Office, 2006).

In Europe temperature has risen by 0.95°C during the 20th Century, which is greater than the global average. The eight warmest years on record have all been since 1990, with the hottest in 2000. The European average temperature is projected to further rise by 2.0°C to 6.3°C in the next 100 years (European Environment Agency, 2005).

Europe has also experienced an increase in the frequency of flooding in recent years. There were 238 flood events between 1975 and 2001 and 15 major floods in 2002 alone (European Environment Agency, 2005).

Sea level rise has been between 0.8cm and 3cm a decade around the shores of Europe during the 20th Century. The greatest increases have been seen on the Atlantic coast of Norway (European Environment Agency, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/climate_change.asp.

Full details of climate change in the South West is available from
www.oursouthwest.com/climate/index.htm

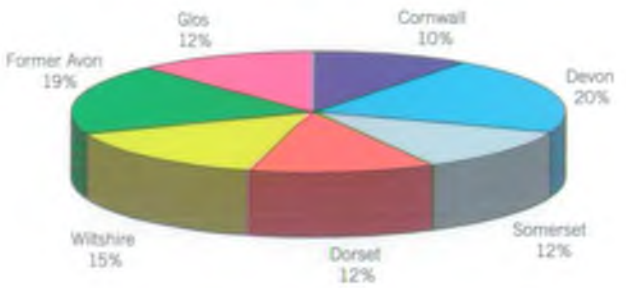

HOOKWAYS

carbon dioxide

Background

Carbon dioxide (CO_2) is the most important greenhouse gas accounting for around 86% of the UK's total emissions in 2003 (Defra, 2005), the vast majority of which came from the burning of fossil fuels. Other sources include transport, domestic and industry.

The government released estimated emissions of carbon dioxide in 2005, based on 2003 estimates.



Total CO_2 emissions in the South West counties 2003 (Defra, 2005)

South West perspective

Trial statistics for 2003 show that the South West contributed 7.4% (around 41 million tonnes) of the UK's total CO_2 emissions (over 552 million tonnes). This was the 2nd lowest total of the English regions (behind the North East with 34.5 million tonnes). Around 14.8 million (36%) tonnes of this regional total came from industry & commerce (the 4th lowest in the English regions), 13.4 million tonnes (33%) from domestic sources (3rd lowest in England) and 11.3 million tonnes (27%) from road transport (lowest in England) (Defra, 2005).

The South West had the 3rd lowest emissions per capita of the English regions in 2003 behind Greater London (6.9 tonnes) and the West Midlands (8.1 tonnes). The average person in the region was responsible for producing 8.2 tonnes of CO_2, 3 tonnes of which came from industry & commerce, 2.7 tonnes from domestic sources and 2.3 tonnes from road transport (Defra, 2005).

The UK aims to move beyond its Kyoto target by reducing CO_2 emissions by 20% below 1990 levels by 2010, and to put itself on a path to reduce carbon dioxide emissions by 60% by 2050. This will be a challenge for the region, requiring a reduction in energy waste through energy efficiency and increasingly moving away from carbon-based fossil fuels to renewable and less polluting sources of energy.

A more local perspective

The highest percentage of total CO_2 emissions in the region came from Devon with 20%, closely followed by the Former Avon area with 19%. Cornwall was responsible for the lowest emissions with 10%.

In terms of local authority areas, CO_2 emissions were highest in South Gloucestershire, with 2553 kt CO_2, closely followed by Bristol with 2448 kt CO_2. The lowest emissions were found in the Isles of Scilly, with just 11 kt CO_2 (Defra, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/carbon_dioxide.asp

National perspective

Emissions of carbon dioxide in 2005 were provisionally estimated at some 153 million tonnes (carbon equivalent) in 2005, about 5.5% lower than in 1990. However this was 0.25% higher than 2004, due to an overall increase in energy consumption combined with increased use of coal in electricity generation at the expense of gas (Defra, 2006).

Regional data, available for 2003, shows that a total of 452.4 million tonnes of CO_2 were released into the atmosphere in England, 198.2 million tonnes (44%) of which came from industry & commerce, 136.6 (30%) million tonnes from domestic sources and 107.5 million tonnes (24%) road transport.

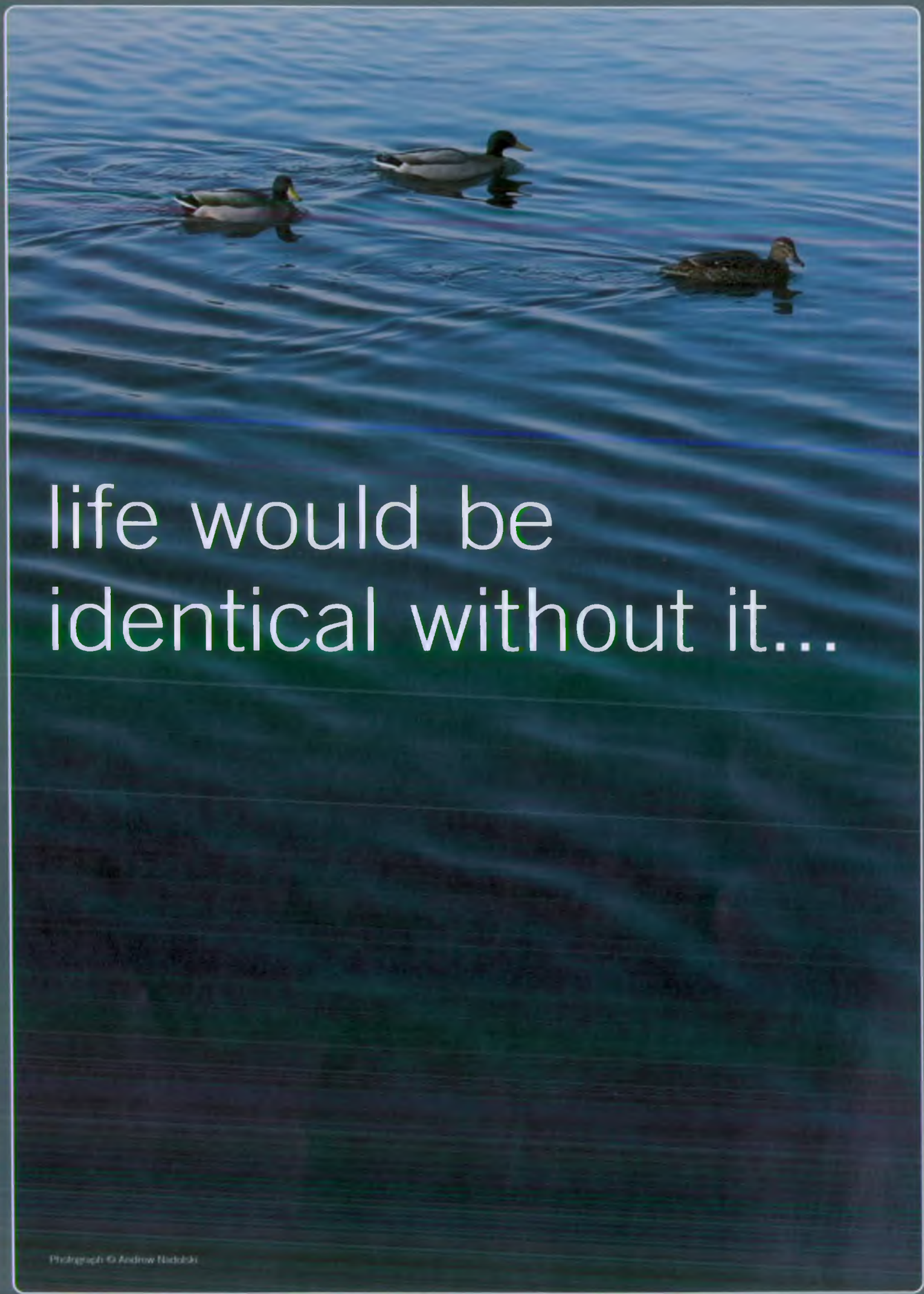
Industrial and commercial CO_2 emissions were highest in the South East (19.3 million tonnes) and lowest in the North East (4.7 million tonnes). Domestic emissions were also highest in the South East (22.5 million tonnes) and lowest in the North East (7 million tonnes). Road transport emissions were highest in Yorkshire & the Humber (31.5 million tonnes) and lowest in the South West (14.8 million tonnes) (Defra, 2005).

European and international perspective (where available)

Worldwide, carbon dioxide emissions continue to rise alongside increasing fossil fuel consumption. The latest comprehensive data is available for 2002, which indicated that global carbon dioxide emissions reached almost 25 billion tonnes, almost 4% higher than in 2001. Average emissions per capita have been fairly stable since 1990 and stood at 3.93 tonnes in 2002 (UNEP, 2006).

KEY FACT

The average person in the South West contributes around 8.2 tonnes of carbon dioxide into the atmosphere every year, more than the weight of an African elephant.



BIODIVERSITY

INFORMATION AND TRENDS RELATING TO THE **SOUTH WEST NATURE MAP, WILD BIRD POPULATIONS, FISH, SITES OF SPECIAL SCIENTIFIC INTEREST.**

related sections **Chapter 1:** Atmosphere, **Chapter 7:** Marine environment, **Chapter 8:** People & communities

regional issue

Strategy theme	2004	2005	Indicator
Climate change	○	○	Loss of wildlife
	○	○	Changes to landscape and historic environment
Wiser use of natural resources	✓	✓	Water quality
	✗	✗	Diffuse pollution
Food, farming and forestry	✗	✗	Farmland birds
	✗	○	Sites of Special Scientific Interest
	✓	✓	Field boundaries
	○	○	Woodland
Tourism	✓	✓	Bathing water quality
	✗	✗	Visitor pressure
	○	○	Local distinctiveness

✗ Pressures that are negative and are expected to continue
○ Areas of uncertainty or potential problems
✓ Trends that are positive or expected to improve

south west nature map

Background
There is significant effort underway throughout the region to conserve our biodiversity, but major challenges lie ahead if we are to stop further losses, re-establish lost wildlife and enable it to adapt to the pressures of climate change. The South West Nature Map shows the best areas to maintain and expand (through restoration and/or re-creation) terrestrial wildlife habitats at a landscape scale.

However, it is important to stress that land outside of the Nature Map areas also contains wildlife sites and species that are important in their own right. There are many different tools and mechanisms in place that contribute to their conservation, and Nature Map is a significant addition to the wider strategy for biodiversity conservation in the region.

Nature Map was produced by the South West Regional Biodiversity Partnership. It selects landscape scale blocks of land, known as Strategic Nature Areas (SNAs), to improve habitat networks and to sustain wildlife within them. This was achieved through regional consultation using the best available biodiversity data, local expert knowledge and the South West Wildlife Trust's Rebuilding Biodiversity methodology. SNAs will contain a mosaic of habitats, building on existing core areas and co-existing with other land uses, such as agriculture and recreation. The principal rivers are also included on the Nature Map as important linear features for biodiversity.

The map is expected to be used by the region's decision-makers, organisations and businesses to;

1. Identify where most of the major biodiversity concentrations are found and where targets to maintain, restore and re-create wildlife might best be met;
2. Formulate sustainable choices for development, e.g. through Local Development Frameworks and the Regional Spatial Strategy;
3. Assist in targeting the new Environmental Stewardship Scheme;
4. Develop partnerships and projects for biodiversity in the region;
5. Provide a focus for projects that will help biodiversity to adapt to climate change.

The South West Regional Biodiversity Partnership will use Nature Map to promote biodiversity conservation in the region, but success depends upon partners from all sectors creating the rich and fertile grounds in which biodiversity can flourish. Re-establishing biodiversity in the areas identified by Nature Map will require:

- Excellent support from nature conservation organisations to enable land owners and managers to take up the Nature Map challenge;
- A shift in emphasis from a site based approach towards the wider landscape scale;
- A strategic approach to forward planning and development control, in order to link, buffer and re-create wildlife habitats;
- A focus on biodiversity outcomes, rather than detailed prescriptions for how these are delivered;
- Blending the assets, skills, and imagination of different sectors to create effective local delivery partnerships;
- Sustained resources from Government, the private sector and voluntary bodies.

If these principles are followed, Nature Map will make a significant contribution to sustainable development in the South West.

More information about this initiative is available from the South West Biodiversity Partnership.

KEY FACT

South West Nature Map identifies the best areas in our region to conserve, create and connect wildlife habitats at a landscape scale.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/nature_map/nature_map.asp

Full information about biodiversity in the region is available from the South West Biodiversity Partnership: www.swbiodiversity.org.uk

birds

Background
Birds are considered to be a good indicator of the broad state of wildlife and countryside because they inhabit a wide range of habitats, tend to be near the top of the food chain, are popular, and have long time series of data.

The UK index of wild bird populations is one of the Government's headline indicators for sustainable development in the UK. Surveys of bird populations are carried out by Defra, RSPB and British Trust for Ornithology (BTO), the most recent of which was published in 2006 and covers the period of 1994 - 2004 (please note, significant change as described in this report, is taken to be over 10%).

South West wild bird indicator 1994-2004 (Defra, RSPB, BTO, 2006)

South West perspective
The population of all native birds, including farmland and woodland species, in the South West showed no significant change, with the index increasing by just 1% between 1994 and 2004. This was similar to the national trend, which showed an increase of almost 6%.

The population of farmland birds in the South West showed no significant change, with the index decreasing by 8% between 1994 and 2004. This was higher than the English average of 5% and the 4th highest decline recorded in the regions, behind the West Midlands, South East and East (Defra, 2006)

Detailed information on the long term population trends of farmland birds between 1970 and 1994 is only available for four regions, all of which showed declines (South West by 45%, South East 31%, East 44% and North West down 38%) (Defra, 2003). However, comparisons between this and the 1994 - 2004 survey needs to be approached with care, due to differences in methodology and species composition.

The population of woodland birds in the South West showed no significant change, with the index decreasing by 8% between 1994 and 2004. This was also higher than the English average of –3% and the 2nd highest decline recorded in the regions, behind the South East (Defra, 2006). Long-term trends show that woodland birds declined by 32% between 1970 and 1994, faster than the national average of 15% (Defra, 2003).

KEY FACT

Both woodland and farmland bird populations declined by 8% between 1994 and 2003 in the South West.

A more local perspective
The Great Bustard Group (GBG) is attempting to reintroduce great bustards to Salisbury Plain, Wiltshire. In 2004, 27 young great bustards arrived from Saratov in Russia and were released, followed by a further 32 in 2005. The aim of the trial reintroduction project is to create a sustainable population of great bustards on Salisbury Plain over the next 10 years.

In Cornwall, the only breeding chough population in England, naturally re-established in 2001, has continued to successfully breed, and in 2005 produced 5 fledged young - a very high productivity rate - which bodes well for future years (RPSB).

National perspective
Nationally, following an increase in breeding bird populations in the 1990s, the overall indicator of 111 breeding bird populations in the United Kingdom is nearly 10% higher than it was in 1970 (Defra, 2005).

The West Midlands experienced the greatest declines of farmland bird populations between 1994 and 2004 (-14%), whilst the most significant increases were found in the North West (15%). Overall, population declines were found in 6 regions, with just 3 regions showing increases (Defra, 2006).

On average farmland generalists (e.g. Kestrel) have maintained their populations, while farmland specialists (those that breed or feed mainly or solely on farmland, e.g. Skylark) have declined by over 60% since 1970. The decreases have levelled out since the late 1990s, with some species, such as Tree Sparrow, showing early signs of recovering from a very low base (Defra, 2005).

The South East experienced the greatest declines in woodland bird populations between 1994 and 2004 (-12%), whilst the most significant increases were found in the North West (26%). Overall, population declines were found in 4 regions, whilst 5 regions showed increases (Defra, 2006).

birds continued

Tree sparrow / P.N. Watts/English Nature

Although farmland and woodland birds have generally declined, birds of other habitat groups, such as wetlands, that are represented in the indicator have on average tended to increase since 1970. There have been large increases in some upland and wetland species (Buzzard and Little Ringed Plover) balanced by severe declines in other species such as Curlew and Common Sandpiper (Defra, 2005).

The state of the UK's birds 2004 (RSPB, 2005) aims to be a 'one-stop shop' for all the latest information on the fortunes of birds throughout the UK. Amongst a mine of information, the report notes that 2004 was the poorest breeding season on record nationally for many of our seabirds, such as kittiwakes and guillemots, raising concerns about environmental changes in the seas surrounding the UK.

European and worldwide perspective (where available)

The global status of bird species show a continuing deterioration across all biomes over the last two decades. Trends of some 3,000 wild bird populations show a consistent decline in average species abundance of about 40% between 1970 and 2000. Inland water bird species declined by 50%, while marine and terrestrial species both declined by around 30% (Convention on Biological Diversity, 2006).

Between 1980 and 2003, common farmland birds declined by 28% in Europe whilst woodland birds declined by 13%. Over the same period however, other common birds (mostly generalists) increased by 28%. Overall, these results confirm that, whilst some generalist species have responded positively to human-induced change in the environment, many specialist species have responded negatively (European Bird Census Council, 2005).

fish

Background
Fish are good indicators of the health of our freshwater environment. Salmon need a certain type of habitat and good water quality to support breeding and maintain stocks. The number of salmon and coarse fish caught by anglers reflects both the abundance and diversity of fish species and the performance of fisheries. Angling also provides a healthy and enjoyable pastime and along with commercial sea-fishing contributes to the economy of the South West.

South West perspective
Around 1,295 salmon were caught by net and fixed engine in the South West during 2004, 23% below than the 5-year mean (1999 - 2003). However, there was a 60% increase on the 5-year mean in salmon caught by rod in the region (2,799) (Environment Agency, 2005).

Total sea trout catches in the South West fluctuated between 1994 and 2004 but did not recover to the 1994 peak level of 13,681 fish. 2004 saw the lowest total catch by rod and net, over 40% below 1994 levels and almost 27% below the previous year. Net catches remained fairly stable between 1994 and 2003, with the majority of change recorded in rod catch levels (Environment Agency, 2005).

Commercial sea-fishing makes an important economic contribution to some coastal areas in the region. The fishing industry is a small sector but is more important to the regional economy than is typical nationally. The 2001 Census found that 0.1% of South West residents worked in the fishing industry which, although small, is almost four times the proportion for England as a whole (ONS, 2004).

In 2004, 35,534 tonnes of fish and shellfish were landed in South West ports by the UK fleet, 18,741 tonnes of this was fish (53%) and 16,794 tonnes were shellfish (47%). These landings were worth £50.6 million, with 65% of this coming from fish landings. Brixham was the most important port in the region, accounting for 35% of total landings and 31% of the total value, followed by Newlyn (31% of landings and 21% of value) and Plymouth (18% of landings and 21% of value). Other important ports in the region include Looe, Falmouth, Padstow, Poole and Weymouth (Defra, 2005).

KEY FACT

Just 3 out of the 20 salmon rivers in the South West are predicted to meet the management objectives for salmon in 2008.

Total fish landings have declined since 1999, a trend that has accelerated between 2001 and 2004 when total landings declined by 41% (from 43,381 tonnes to 25,534 tonnes). This was predominantly due to a decline in fish rather than shellfish landings. The total value of landings fluctuated between just under £54 million to £56 million between 1999 and 2004. However there has been a particular decline since 2002, reaching its lowest value in 2004 at £50.6 million (Defra, 2005).

Sea angling in the South West generates £165 million of expenditure, £110m from residents and £55m from visitors. A study into the economics of sea angling in the region revealed that the scale of sea angling is extensive and widespread. Almost 250,000 residents go sea angling and visitors spend 750,000 days sea angling. An estimated 3000 jobs are linked to sea angling in the region. Tackle shops have a turnover of £15.6 million, supporting 245 jobs. Expenditure on bait is difficult to quantify but is estimated at £10 million per annum (South West Regional Development Agency, 2003).

It is suggested that improving some fish stocks, such as bass, would dramatically increase the economic contribution from recreational sea-angling. Sea-angling is very dependent upon angler success, such as catching the target species. Improving the likelihood of catching the target species has, in other areas, greatly increased the economic return to the region. There is also great scope to increase tourism in the quieter times of the year if sea-angling were to be promoted by improving fish stocks. There is potential for growth if the sport improves and if the size of target species can be raised, for example, Defra is currently consulting on increasing the minimum landing size of bass (Defra, 2005).

A more local perspective
Salmon are a significant resource in the South West. Only 3 rivers (Fowey, Camel & Lyn) out of our 20 salmon rivers are predicted to meet the management objectives for salmon in 2008. There are 10 rivers predicted to fail (Torridge, Tamar, Tavy, Plym, Yealm, Dart, Axe, Frome, Piddle and Stour) and 7 are uncertain whether they will pass or fail their management objectives in 2008 (Taw, Lynher, Erme, Devon Avon, Teign, Exe and Hants Avon). This means that there are insufficient salmon spawning to be able to populate the rivers to their maximum capacity. Many factors affect salmon populations in the region, however the main reason for decline is thought to be poor survival at sea and smothering of salmon eggs in river gravels by fine sediments (see diffuse pollution) (Environment Agency, 2006).

fish continued

National perspective

There is a long-term national decline in salmon catches. Total salmon catch fell to its lowest point in 2003, 75% below the 1994 peak. However, 2004 saw an increase of just over 50% on 2003 levels. Both rod and net catches mirrored this reduction, although net catches showed no increase between 2003 and 2004 (recording a decrease of just over 10%). However, this could just be a reflection of reduced effort in net-fishing as many net fishermen have stopped netting in order to allow salmon stocks to recover) (Environment Agency, 2005).

Around 6,570 sea trout were caught by rod in the South West in 2004, the second highest in the country behind Wales with 16,840. However, this was a 12% decline on 2003. All regions, with the exception of the North East and Midlands, showed a decline in 2004 on the 5-year mean (1999 - 2003) (Environment Agency, 2005).

UK vessels landed 653,700 tonnes of fish and shellfish in 2004, a 17% decline on 1999, worth £513 million (Defra, 2005).

In 2005, just 35% of fish stocks around the UK were categorised as being at full reproductive capacity and harvested sustainably. This means that for 65% of stocks spawning levels were insufficient to guarantee stock replenishment. Since 1900 the average fish size in the English Channel has also declined by more than 15%. (Defra, 2005).

European and international perspective (where available)

Global harvests from marine fisheries have been above 80 million tonnes per year since the latter half of the 1980s, with peaks of 87 million tonnes in 1997 and 2000. Since then, the total world catch of marine fish, crustaceans and molluscs has declined, with a reported total quantity of about 81 million tonnes for 2003 (the latest year for which comprehensive data is available) (UNEP, 2006).

Many commercial fish stocks in European waters are not assessed. Of the assessed commercial stocks in the NE Atlantic, 22 to 53% are being over-fished and were outside safe biological limits (SBL) in 2003 / 2004, meaning that populations will not be viable in the long-term. Of the assessed stocks in the Baltic Sea 22% were outside their safe biological limits, increasing to 29% in the West Ireland Sea and to 53% in the Irish Sea. In the Mediterranean, around 10% to 20% of stocks were outside their SBL range (European Environment Agency, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/fish.asp

Photograph © Andrew Nadilski

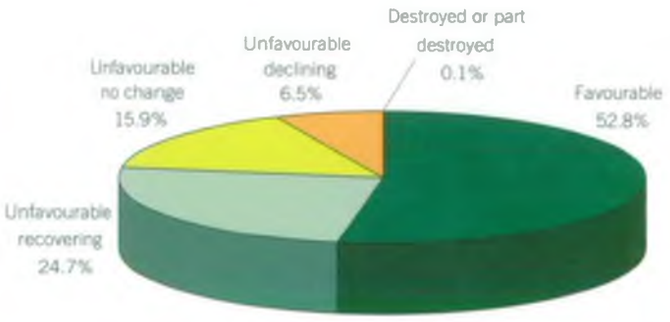
sites of special scientific interest

Background

Sites of Special Scientific Interest (SSSIs) are nationally important nature conservation sites. They support England's very best wildlife and geology and include many of our most spectacular natural assets.

Public Service Agreements (PSA) were first introduced to modernise and improve the Government's performance on the issues that matter most to the public - including education, health, crime and the environment. Ambitious and publicly accountable targets have been set, one of which is to bring into favourable condition 95% of all nationally important wildlife sites (Sites of Special Scientific Interest) by 2010.

In 2003, for the first time, English Nature reported on the condition of all SSSIs in England and identified the key reasons why some SSSI habitats are not as good as they should be. A review of the current situation was published in 2006, which also details the progress made towards the 2010 target since 2003. All of the following information is from English Nature (2006) unless otherwise stated.



Percentage of SSSIs meeting PSA target in the South West as of 31 December 2005 (English Nature, 2006)

South West perspective

Of the nine English regions, the South West contains the 3rd largest area of SSSI land behind the North West and Yorkshire & the Humber. 77.5% of the region's SSSIs met the PSA target in 2005, the 4th largest percentage in the country.

In the past two years excellent progress has been made towards the 2010 PSA target in the South West. SSSIs in target condition increased from 67.8% in 2003 to 77.5% in 2005, some way ahead of the national figure of 69.8% (an improvement covering nearly 16,000 hectares). This reflects the hard work of landowners, managers and organisations able to fund and deliver the necessary work, and often involves many years of careful land stewardship and management.

However, with almost 38,000 hectares of SSSI land not in target condition, there is clearly still a great deal of effort required over the next five years in order to achieve the PSA target by 2010.

? KEY FACT

Around 25% of England's Sites of Special Scientific Interest are in the South West, almost 53% of which are in favourable condition.

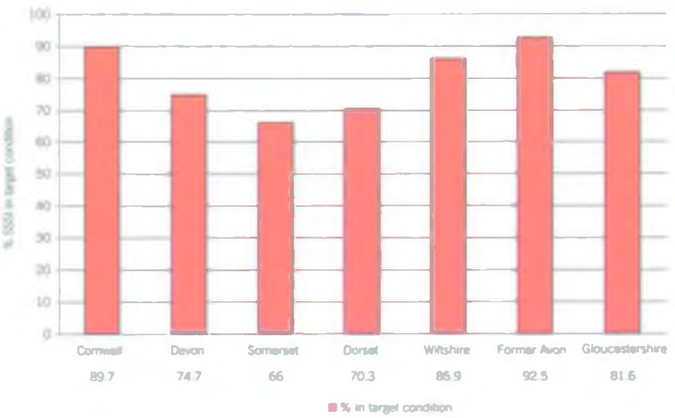
By percentage of area, the habitat in the worst condition is rivers and streams, with just over 30% in target condition, as is the case nationally. This reflects the complexity of bringing freshwater into target condition, although there have been vast improvements made in water quality during the last few years.

In many cases, a single SSSI will be affected by a range of factors that prevent it from being in target condition. Overgrazing is currently affecting 11,254 hectares, causing moorland to turn from heath into species-poor grassland, increasing soil erosion and affecting water quality. It is the single biggest problem affecting upland SSSIs.

Undergrazing is affecting 8,811 hectares and has led to a rapid deterioration of flower-rich grassland SSSIs as scrub and invasive weedy plants take over. Scrub control is a problem on 6,441 hectares in many lowland grassland SSSIs; moor burning on 5,718 hectares and drainage on 4,575 hectares.

A more local perspective

SSSIs in the Former Avon area had the highest proportion in target condition (92.5%), closely followed by Cornwall (89.70%). Somerset had the lowest percentage in target condition in the region (66%).



SSSIs in target condition according to county as of 31 December 2005 (English Nature, 2006)

Key problems faced by SSSIs according to county were:

Cornwall:
- Scrub encroachment and undergrazing on lowland moors and heaths
- Overgrazing on Bodmin Moor
- Agricultural run-off and the spread of exotic species in woodlands

Devon:
- Overgrazing and fires in the uplands
- Undergrazing in the lowlands
- Lack of scrub management on the coasts.

Somerset:
- Undergrazing
- Overgrazing
- Drainage (water level management)

Dorset:
- Lack of appropriate grazing and invasion of susceptible habitats by secondary woodland and scrub

Wiltshire:
- Woodland management
- Undergrazing of neutral and calcareous grassland.
- Diffuse pollution of rivers and streams

Former Avon area:
- Undergrazing and neglect

Gloucestershire:
- Undergrazing of limestone grassland
- Deer browsing in woodland.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/landscape.asp#SSSI

National perspective

There are 4,118 SSSIs in England, covering 7.5% of the country's land area.

In 2003, 58.3% of England's SSSIs were in target condition. At the beginning of 2006 that figure has risen to 69.8% (the equivalent of more than 130,000 hectares). Just over 24% was in unfavourable but recovering condition in 2005, 19% unfavourable with no change and almost 11% in unfavourable declining or destroyed / part destroyed condition.

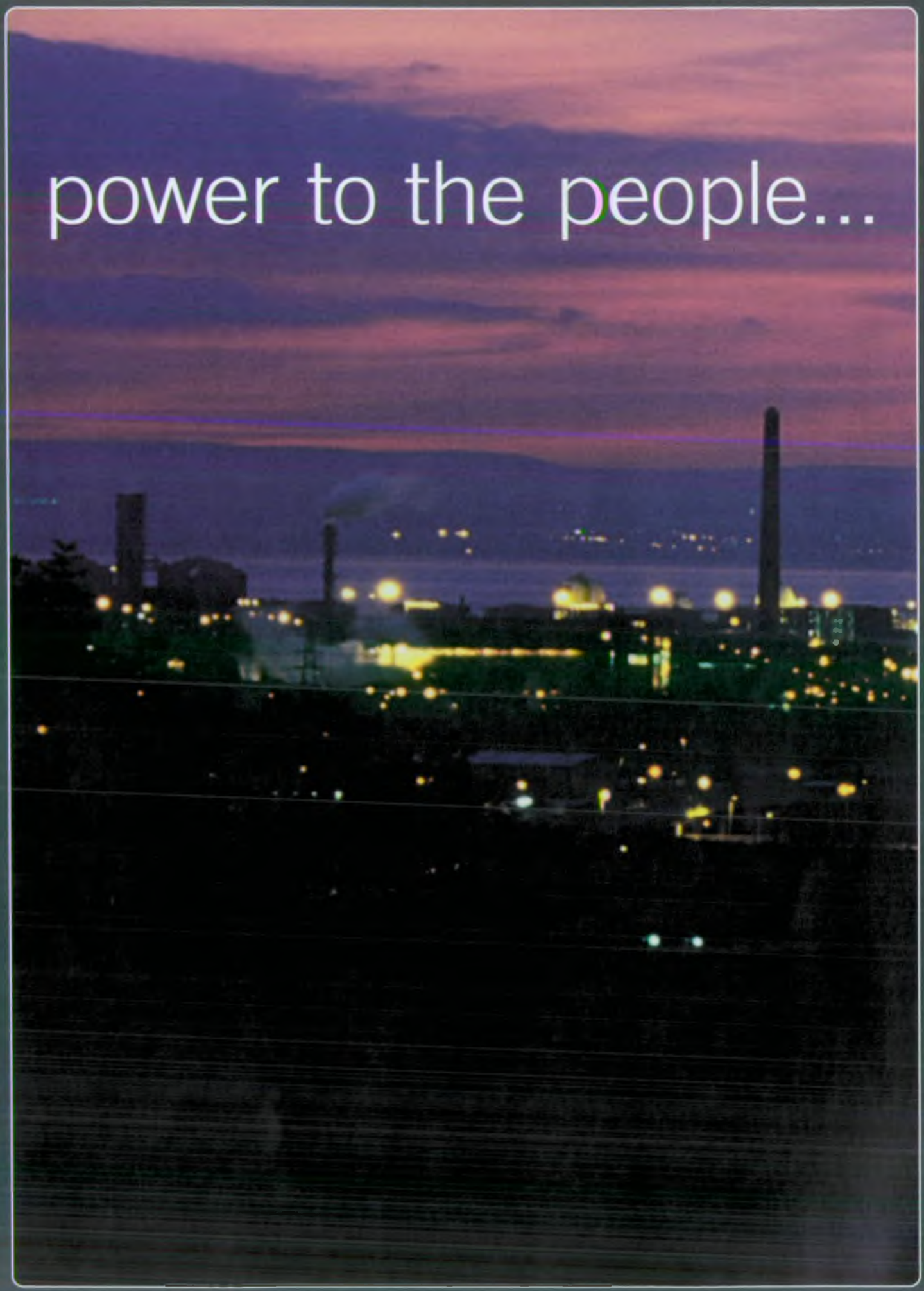
There was considerable variation between the regions in terms of the percentage of SSSIs in target condition. With 78.8%, the highest proportion was in the North West, whilst the lowest was in the North East with 50.7%. These variations are largely explained by the geographical distribution and extent of particular types of habitat, such as upland and coastal.

By percentage of area, the habitat in the worst condition is rivers and streams. Although not a major contributor to the overall area of SSSIs in England, the condition of this habitat is cause for serious concern.

European and international perspective

There are now over 117,000 protected areas worldwide. This amounts to 15% of the total territorial surface of the earth, when including all land area and territorial sea area up to the 12 nautical miles limit (UNEP, 2006).

Sainfoin on Milk Hill, Pewsey Downs / Peter Wakely/English Nature


power to the people...

ENERGY

INFORMATION AND TRENDS RELATING TO **ENERGY CONSUMPTION**, AND **RENEWABLE ENERGY**.

Energy use and efficiency is an important environmental issue in terms of climate change, wiser use of natural resources and transport (traffic growth, alternative fuels and local air quality). Climate change and reduced UK oil, gas and coal production are causing a shift towards a low carbon economy, through energy efficiency and the development of renewable and more sustainable energy sources.

The region has a well-established Energy and Environmental Management Group (EEMG) network with over 800 members including most public sector bodies. The region's Future Foundations sustainable construction charter advocates energy efficiency through the use of local materials and labour to construct environmentally sound buildings that save energy, water & waste at all phases of development and use.

New initiatives are also being progressed, including the SW Regional Development Agency's (SW RDA) new responsibility for co-ordinating the Business Resource Efficiency and Waste (BREW) programme in the South West.

related sections — **Chapter 1:** Atmosphere, **Chapter 8:** People & communities

regional issue

Strategy theme	2004	2005	Indicator
Climate change	✗	✗	Greenhouse gas emissions
	○	✗	Rising sea levels
Wiser use of natural resources	✓	✓	Air quality
Transport	✓	✓	Alternative fuels

✗ Pressures that are negative and are expected to continue
○ Areas of uncertainty or potential problems
✓ Trends that are positive or expected to improve

energy consumption

Background

Nationally, the Energy White Paper (2003) identifies the opportunity to reduce carbon dioxide emissions by developing a low carbon economy in the UK. In the South West, the Government Office South West (GOSW), South West Regional Assembly and SW RDA are working with partners to develop a Low Carbon Housing and Fuel Poverty Strategy and are working on an overarching sustainable energy strategy.

An additional £50 million extra funding for microgeneration (home or business energy generation such as mini wind turbines, solar panels and other small scale technologies) was announced in the 2006 budget. In 2004 there were approximately 82,000 microgeneration installations in the UK. Yet a study commissioned by the DTI from the Energy Saving Trust suggested that by 2050, microgeneration could provide 30–40% of the UK's electricity needs and help reduce household carbon emissions by 15% per annum (DTI, 2006).

Regional and local electricity and gas consumption data was made available for the first time in 2005, based on 2003 statistics, (DTI, 2005). Since then, further experimental data has been released for 2004 (DTI, 2005). Comparisons have been made between these years, although the 2004 results are of better quality due to improvements in collection.

The following information is for 2004 and from the DTI (2005) unless otherwise stated. Average electricity consumption is per meter point rather than per household and industrial & commercial consumption is a function of both the number of commercial & industrial sites in areas and the volume of electricity that they use.

South West perspective

There were almost 2.3 million domestic and just under 244,000 industrial and commercial consumers of electricity in the South West during 2004. Over 1.5 million domestic users received a gas supply in addition to almost 35,000 industrial and commercial users.

Households in the South West consumed an average of 5,019 kWh of electricity in 2004, the second highest in Great Britain and 8% higher than the national average of 4,628 kWh. Households also consumed an average of 18,546 kWh of gas in 2004, the lowest rate in Great Britain and some 10% lower than the national average of 20,398 kWh.

The growth in new energy-hungry appliances such as flat screen televisions are responsible for increasing electricity consumption and may be outstripping energy efficiencies in some areas.

Industry and commerce in the South West consumed an average of 62,285 kWh of electricity in 2004, the lowest consumption rate in Great Britain, almost 20% below the national average of 77,620 kWh. 470,255 kWh of gas was also consumed, the third lowest in the country and some 15% below the national average of 552,597 kWh.

There was a very small decrease in average domestic electricity consumption between 2003 and 2004 in the region, from 5038 kWh to 5,019 kWh (0.4%). However, industrial and commercial electricity consumption increased by 10% over the same period, from 56,755 kWh to 62,285 kWh.

Average domestic gas consumption increased by 4% in the region between 2003 and 2004, from 17,888 kWh to 18,546 kWh. Average industrial and commercial gas consumption, however, decreased by 26% over the same period, from 635,934 kWh to 470,255 kWh.

Research into forecasting the region's expected electricity demand in 2020 has looked at two possible scenarios. Assuming the continuation of the government's climate change programme and energy measures, the region's energy demand could increase by 15% by 2020. However, if all the savings forecast in the Energy White Paper are met, regional energy demand could decrease by over 11% (GOSW and South West Regional Assembly, 2005).

A more local perspective

Households in Cornwall had the highest average electricity consumption in the region (6,152 kWh), whilst the lowest was in the Former Avon authorities (4,654 kWh). At a district and unitary level, households in the Isles of Scilly had the highest average rate of domestic electricity consumption (7,770 kWh).

Household gas consumption was highest in Wiltshire (19,532 kWh) and lowest in Cornwall (16,866 kWh). At a district level households in Cotswold had the highest average rate of domestic gas consumption (21,793 kWh), whilst those in Plymouth consumed the least (15,718 kWh).

Commercial and industry premises in the Former Avon area had the highest average electricity consumption (83,018 kWh), whilst the lowest was in Cornwall (45,822 kWh). At a district level, businesses and industries in South Gloucestershire consumed the most electricity (150,783 kWh), whilst those in Penwith consumed the least (20,067 kWh).

Gas consumption was significantly higher in Somerset than in any other county (almost 1.1 million kWh), whilst the lowest was in Dorset, (including Poole Unitary Authority) (305,088 kWh). At a district level, gas consumption was significantly higher in West Somerset (2,552,270 kWh), whilst the lowest was found in Penwith (231,885 kWh).

In general, the eight principle urban areas in the South West (Bristol, Bournemouth & Poole, Plymouth, Swindon, Gloucester, Torbay, Cheltenham and Exeter) had the highest average rates of industrial and commercial electricity consumption and generally the lowest domestic consumption.

Population density appears to influence both domestic, commercial and industrial electricity consumption. Large urban areas with the highest population density tend to have the lowest average domestic consumption rates. Rural areas with low population densities generally have low rates of connection to the gas network, helping to explain why they have higher domestic electricity and lower gas consumption rates.

National perspective

There were almost 26 million domestic and nearly 2.5 million industrial and commercial consumers of electricity in Great Britain during 2004. Almost 21 million domestic users received a gas supply in addition to almost 493,000 industrial and commercial users.

Average domestic electricity consumption in Great Britain in 2004 was 4,628 kWh. The East Midlands was the closest to this average in regional terms, whilst averages were highest in the East and South West and lowest in the North East. At a district level households in the Isles of Scilly had the highest average consumption, whilst the lowest was in Blaenau Gwent (Wales).

Industrial and commercial electricity consumption was highest in Greater London in 2004 and lowest in the North East. At a local authority level, per meter point consumption was highest in the City of London and Neath Port Talbot (Wales) and lowest in the Isles of Scilly. Low average consumptions are generally found in rural areas such as South Shropshire (West Midlands), Wealden (South East), Penwith (South West) and the Orkney Islands (Scotland), as well as in some inner city areas such as Hackney and Lewisham (Greater London).

Compared with the 2003 experimental data, average electricity domestic consumption in Great Britain increased slightly, from 4,600 kWh to 4,628 kWh in 2004 (0.6%). However, average industrial and commercial electricity consumption fell from 77,909 kWh to 77,620 kWh (0.4%).

There was a small increase in domestic gas consumption in Great Britain between 2003 and 2004, from 20,111 kWh to 20,398 kWh (1%). However, there was a significant decrease in average industrial and commercial consumption, from 729,372 kWh to 552,597 kWh (24%).

Energy use has been rising over the past thirty years, mainly because of increased demand from households and transport. Increased demand for energy is forecast to lead to a 22% increase in household carbon emissions by 2010.

European and worldwide perspective (where available)

If existing energy policies continue, the world's energy needs will be almost 60% higher in 2030 than in 2004. Around 20% of this increase is expected to come from Europe (International Energy Agency, 2005)

Final energy consumption in Europe increased by about 8% over the period 1990 to 2002. Transport has been the fastest-growing sector since 1990 and is now the largest consumer of final energy.

Since 2000, improved efficiency in energy generation and declining energy demand from industry have been offset by rising energy consumption by consumers and the service sector. More electrical appliances are being used in increasing numbers of households. Studies indicate that electrical appliances left on stand-by mode, for example, now account for 3-13% of household electricity consumption (European Environment Agency, 2005).

KEY FACT

Households in the South West consumed an average of 5,038 kWh of electricity in 2003, the second highest in Great Britain behind the East of England with 5,403 kWh.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/energy.asp

Further details on Low Carbon South West can be found at
www.oursouthwest.com/lowcarbon.

renewable energy

Background
Energy use is a major contributor to climate change, a fact that is driving the development of renewable energy schemes. Defra estimates that energy use in the home is responsible for 25% of the UK's carbon dioxide emissions.

A national target has been set, which requires 10% of all electricity to come from renewable sources by 2010.

All information in this section is from Regen SW (2006), unless otherwise stated.

South West perspective
A study commissioned by Government Office South West in 2001 showed that, taking into account environmental, economic and technical constraints, the South West could achieve 11-15% of electricity generation from renewable sources by 2010. The region has adopted 15% (597MW) as a target within regional planning guidance.

There are currently 151 grid connected renewable energy projects in the South West, see map. Renewable energy is now produced in every county within the region, involving over 150 companies.

Approximately 3% of the region's electricity consumption is produced by renewables from a total installed renewable energy capacity of 122.6 megawatts, powering the equivalent of 107,397 homes.

Around 35% of the total renewable energy produced in the region comes from wind power, 7.5% from hydro power, 47% from landfill gas, 8% from sewage gas, 2% from the advanced treatment of waste and under 0.5% from photovoltaic solar electric (PV).

Almost 42% of the total renewable energy produced in the South West is generated in Cornwall and the Isles of Scilly, 78% of which comes from wind power. Devon currently has the highest number of renewable energy projects (55), closely followed by Cornwall and the Isles of Scilly (41).

Further guidance on renewable energy has been developed for the Regional Spatial Strategy (RSS). This includes sub-regional renewable electricity targets to 2010 and regional heat and electricity targets for 2020, as well as requirements for building integrated renewables in new developments. It has been developed as part of the REvision 2010 and REvision 2020 projects and is informed by landscape sensitivity assessments. There are also challenging policy requirements for low carbon developments in the draft RSS.

The region is making very slow progress towards its 2010 renewable electricity target of securing 11-15% of generating capacity from renewable sources (approximately 597MW). We will miss this target unless the rate of construction increases.

Installed renewable electricity projects in South West England in 2006 (Regen SW, 2006)

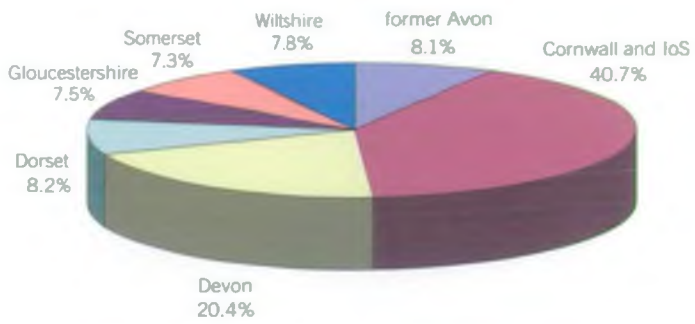
A more local perspective

The Eden Project and Regen South West's Wave Buoy off the North Cornwall Coast have both been singled out for special praise by the DTI in its top ten list of green energy projects in 2005.

These exciting schemes have helped to reduce greenhouse gas emissions and raise awareness of renewable energy, while contributing to the Government's 2010 target.

The Eden Project's solar PV panels on its education centre is a good visible example of renewable technology that helps promote renewable energy to visitors to the centre. The Eden Trust is well known for its environmentally-engineered biodomes, which provide ideal growing conditions for non-native plants. This well visited tourist attraction aims to promote understanding and responsible management of the relationship between plants, people and resources.

The Wave Buoy is a significant contribution to the future of wave energy in the UK. Sited off north Cornwall, the Wave Buoy is a £70,000 state-of-the-art energy buoy is designed to record wave activity and measure wave power. The project will speed up the installation of one of the world's first wave farms, which could be in place within the next three years. The buoy is also sited in an area that is being investigated as a possible location for the Wave Hub - an offshore electrical socket that would be connected to the national grid by an underwater cable.



Total renewable energy generated in the South West according to county in 2006 (Regen SW, 2006)

National perspective

Renewable energy is an integral part of the Government's long - term aim of reducing CO_2 emissions by 60% by 2050. A national target of 10% of electricity supply to be generated from renewable energy by 2010 has been set.

In 2004, 3.58% of the UK's electricity supply came from sources of renewable energy. The majority of this energy came from large-scale hydro power, followed by landfill gas (DTI, 2005).

European and worldwide perspective

Policies for renewable energy exist in at least 45 countries worldwide, 43 of which had a national target for renewable energy supply by mid-2005. Worldwide renewable power capacity currently stands at 160GW (excluding large hydropower), equivalent to around one-fifth of the world's nuclear power plants. This accounts for 4% of the total global power capacity, 44% (70GW) of which is produced in developing countries (REN21, 2005).

Renewable energy production has increased rapidly in Europe, but from a low starting point. Despite increased support renewable energy currently provides just 6% of total energy consumption. In 2007 the EU is to set a formal target of for the use of renewable fuels after 2010. Currently a 20% target has been proposed to be reached by 2020 (European Environment Agency, 2005).

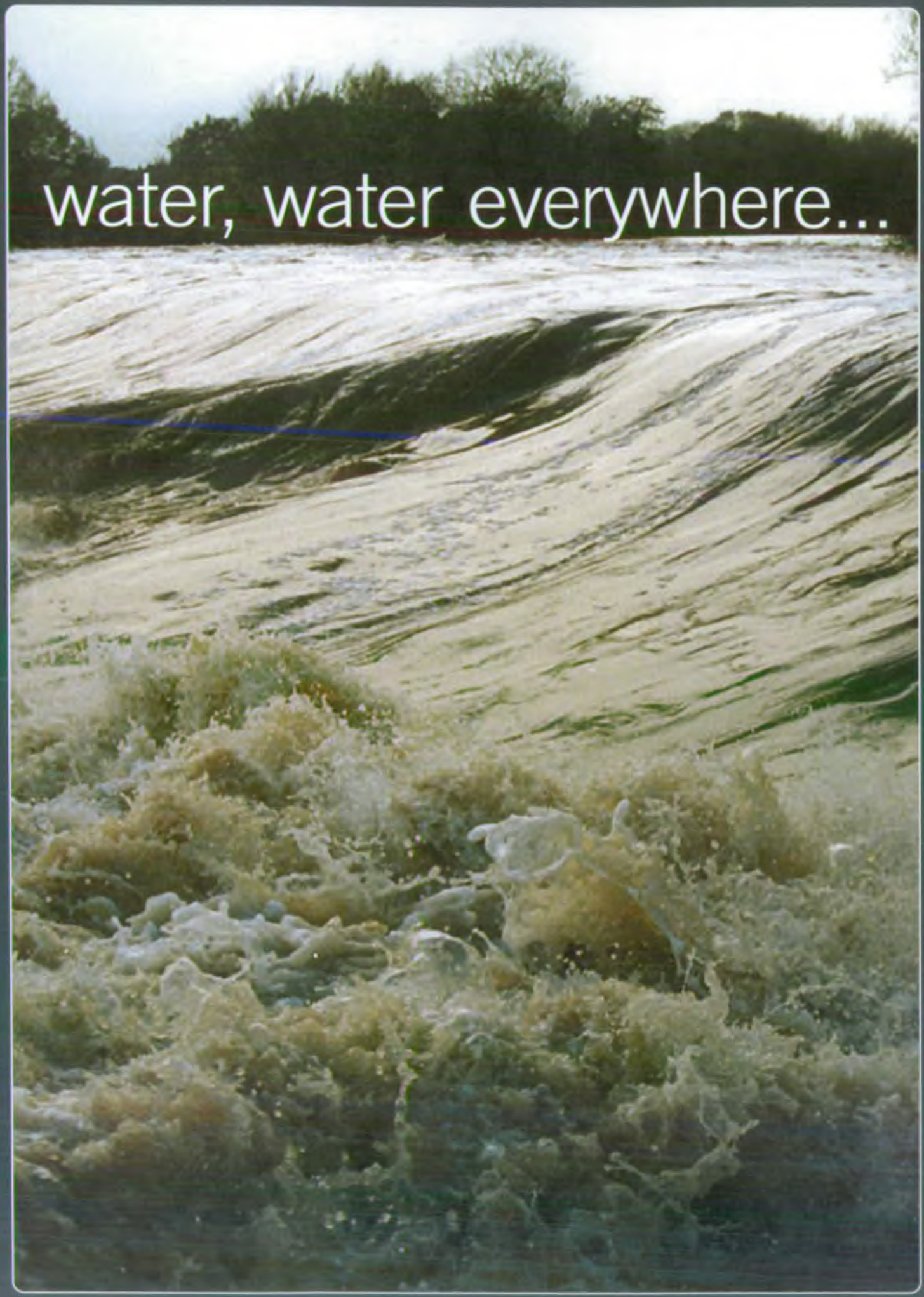
KEY FACT

Approximately 3% of the region's electricity consumption is produced by renewables from a total installed renewable energy capacity of 122.6 megawatts, powering the equivalent of 107,397 homes.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/renewable_energy.asp.

Regen SW is the renewable energy agency for the South West and holds the most up to date information about renewable energy in the region www.regensw.co.uk


water, water everywhere....

FLOODING

INFORMATION AND TRENDS ON **FLOODING**.

related sections **Chapter 1:** Atmosphere, **Chapter 2:** Biodiversity, **Chapter 7:** Marine environment

regional issue

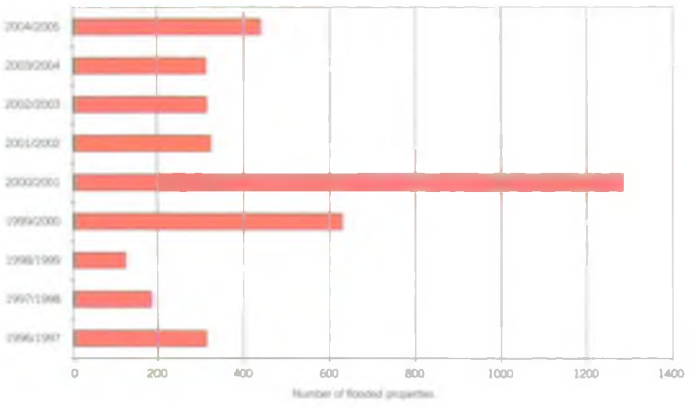
Strategy theme	2004	2005	Indicator
Climate change	○	✕	Rising sea levels
Spatial planning & development	○	○	Flooding

✕ Pressures that are negative and are expected to continue
○ Areas of uncertainty or potential problems
✓ Trends that are positive or expected to improve

flooding

Background
Flooding is a natural process. However, it can endanger lives, damage buildings and infrastructure, historic structures, archaeology and settlements. It can also adversely affect health, the characteristics of landscapes and habitats. It also disrupts the lives and livelihoods of those people affected.

Poorly designed development in a floodplain area can reduce the space available to store floodwater, affecting not just the development itself but also surrounding areas.



Number of flooded properties in the South West 1996/1997 to 2004/2005 (Environment Agency, 2005)

South West perspective
Rainfall was below the long-term average (1961-1990) for all except two months between the 1st April 2004 and 31st March 2005. However August was notably wet and the storms in North Cornwall on 16 August 2004 saw 3 times the monthly average for Cornwall fall in one afternoon. Severe tidal flooding also hit the region's coast during October 2005, an event which had between a 2% and 25% chance of occurring in any one year (Environment Agency, 2005).

Around 100,000 properties in the region are at risk from the most serious floods (100 year fluvial flood or 200 year tidal flood). However, the number of flood warnings issued during 2004/2005 was one of the lowest since 1993, with just 269 compared to a typical figure of around 600 (Environment Agency, 2005).

River and tidal flooding affected 441 properties in 2004/2005, approximately 270 of which occurred during the October 2005 coastal floods (Environment Agency, 2005).

The Environment Agency objected to 896 planning applications on flood risk grounds, a considerable decline on 2003/2004 (1,354), which is due mainly to the introduction of 'Standing Advice' on flood risk provided by the Environment Agency to local authorities. The majority of Environment Agency objections are resolved either by modifying proposals with the agreement of the local planning authority and the developer, or by securing conditions on the planning approval that deal with Environment Agency concerns. However, 85 planning applications were approved contrary to the advice of the Environment Agency during 2004/2005, around the same as in 2003/2004 (Environment Agency, 2005).

Urbanisation and changes in agricultural practices can change the capacity of the soil to absorb water, so increasing the frequency and severity of flooding events. Predicted increases in both the amount of winter rainfall and the intensity of storms could increase the future risk of flooding. Winters are expected to be 15% wetter by the 2050s and extreme high sea levels will be up to 20 times more frequent (UKCIP, 2005).

A more local perspective
Areas at particular risk of flooding in the South West include Weston-super-Mare, Bridgwater, the Somerset Levels & Moors, Bristol, Taunton, Exeter, Christchurch, Truro and Gloucester.

National perspective
Around 5 million people, in 2 million properties, live in flood risk areas in England and Wales. However, climate change could see the number of people at 'high' risk of flooding rising from 1.5 million to 3.5 million by 2080. Winters have become significantly wetter since records began in 1766, with the average increase equivalent to a month of extra rainfall. The intensity of rainfall is also increasing with more rain falling in heavy downpours (Environment Agency, 2005).

KEY FACT

Around 100,000 properties in the region are at risk from the most serious floods (100 year fluvial flood or 200 year tidal flood).

Flooding in Boscastle, August 2004

Flood damage costs around £1 billion a year. The Environment Agency's flood risk management prevents further yearly damages of £3.4 billion. However damage costs are predicted to increase to as much as £25 billion under the worst-case climate change scenario in the 2080s. The insurance industry also estimate that claims could treble by 2050, and that cover will be increasingly difficult or even impossible to get in some places (Environment Agency, 2005).

In some areas, the rate of development on flood plains has more than doubled in the past 50 years. The number of objections made by the Environment Agency on flood risk grounds reduced only slightly between 2003/2004 (5,077) and 2004/2005 (4,634).

However, 92% of planning applications objected to in 2004/2005 went on to incorporate Environment Agency advice (Environment Agency, 2005).

European and worldwide perspective (where available)

Since 1998 floods have caused around 700 deaths in Europe as well as the displacement of about half a million people and at least €25 billion (over £17 billion) in insured economic losses (European Environment Agency 2006)

The coming decades are likely to see a higher flood risk in Europe and greater economic damage, as the scale and frequency of floods are likely to increase due to climate change. In addition, failure to manage river systems properly can be compounded by development in flood plains. An increasing number of people are also living in flood risk areas and the number of businesses and industries located in flood risk zones continues to grow (European Environment Agency, 2006).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/flooding.asp


wet, wet, wet...

INLAND WATERS

INFORMATION AND TRENDS RELATING TO **RIVER WATER QUALITY, WATER RESOURCES** AND **DRINKING WATER.**

related sections

Chapter 1: Atmosphere, **Chapter 2:** Biodiversity, **Chapter 7:** Marine environment, **Chapter 9:** Waste & pollution

regional issue

Strategy theme	2004	2005	Indicator
Wiser use of natural resources	✓	✓	Water quality
	✗	✗	Diffuse pollution
Tourism	✓	✓	Bathing water quality

✗ Pressures that are negative and are expected to continue

○ Areas of uncertainty or potential problems

✓ Trends that are positive or expected to improve

river water quality

Background
The Environment Agency currently monitors river water in terms of biology, chemistry, nutrients and aesthetic quality. However, over the next few years, a new European law called the Water Framework Directive will be implemented. This Directive came into force on the 22nd December and will require all inland and coastal waters to reach 'good status' by 2015. It will concentrate even more on biological quality, including plants and fish and will look at all surface freshwater bodies (lakes, streams and rivers), groundwaters, transitional water bodies (estuaries) and coastal waters.

South West perspective
Around 40,000 km of rivers and canals are monitored to assess river water quality in England and Wales, almost 6490 km of which is in the South West (to the Government Office boundary). These rivers are well distributed throughout the region, although just over one-third can be found in Devon.

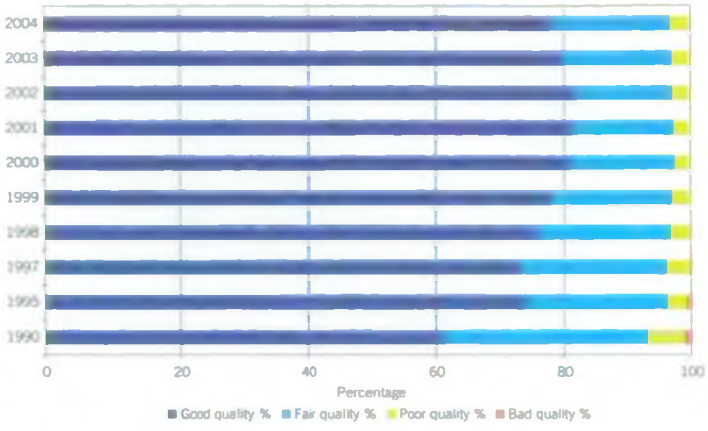
The chemical quality of river water in the South West has been consistently good and continues to improve. There was a 33% net improvement in quality in 2004 compared to 1990. Rivers of good quality increased by 16% between 1990 and 2004 (from 61.46% to 77.92%). Just 3% of all rivers in the region had poor or bad water quality in 2004, a decline of almost 7% since 1990.

The South West shows an overall net improvement of 25% for biological river water quality in 2004 compared to 1990. The number of rivers of good or fair biological quality has been consistently above 97% since 1990, although those of good quality fell by over 9% between 2003 and 2004. The region has very few rivers of poor or bad biological quality with just over 1% in 2004, showing a small improvement of 2% since 1990 but very little change since 1995 (Environment Agency, 2005).

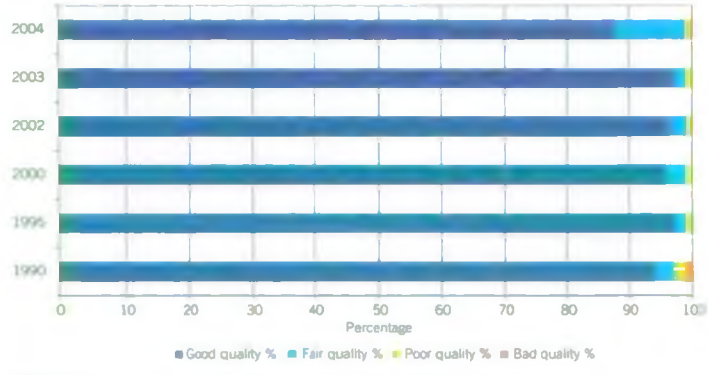
There were 472 planning applications objected to by the Environment Agency due to concerns about the impact on water quality in England between 1st April 2004 and 31st March 2005, 9% (43 objections) of which were in the South West (Environment Agency, 2005).

KEY FACT

In 2004, 96.7% of rivers in the South West were of good or fair chemical quality and 98.8% of good or fair biological quality.



Chemical river water quality in the South West 1990 to 2004 (Environment Agency, 2005)



Biological river water quality in the South West 1990 to 2004 (Environment Agency, 2005)

A more local perspective
In 2004, river water of good or fair chemical quality was above the English average (92.8%) in all of the South West's counties with the exception of Somerset (91.8%). Though still low, Somerset and Wiltshire had the highest number of rivers of poor and bad quality with 8.2% and 4.3% respectively. Cornwall and the Isles of Scilly had the highest proportion of rivers with good chemical quality (91.4%) (Environment Agency. 2005).

In 2004, biological river water of good or fair quality was above the English average (94.9%) in all of the South West's counties. In Devon, Dorset and Somerset 100% of rivers were of good or fair quality. Although still very small, only Cornwall & the Isles of Scilly recorded the region's only record of bad quality with 2.9%, whilst with 3.2% Gloucestershire had the highest percentage of rivers with poor water quality (Environment Agency, 2005).

National perspective

Between 1990 and 2004, around 31% of rivers improved in biological quality. The fastest rate of improvement occurred between 1990 and 1995 but has been more gradual since then. In 2004, 71% of rivers in England and Wales were of good biological quality, 4% poor quality and less than 1% were of bad quality (Environment Agency, 2005).

Over 65% of rivers were of good chemical quality in 2004, a 17% improvement on 1990. In 2004, just 6% of rivers were of poor quality and less than 1% were bad, very similar to 2003. Between 1990 and 2004, around 38% of rivers improved in chemical quality, although there was a small in decline of just under 4% between 2001 and 2004 (Environment Agency, 2005).

With 29% of the national total, Yorkshire & the Humber had the greatest number of planning applications objected to on water quality grounds by the Environment Agency, closely followed by the North East with 27% (Environment Agency, 2005).

Many factors will affect river water quality in the next five years. Water company investment (between 2005 to 2010) worth £3.5 billion, will help fisheries, control sewage pollution and enhance nature conservation. The implementation of the Water Framework Directive will also improve integrated catchment management to protect and improve the water environment and promote using water in a sustainable way. Defra's Catchment Sensitive Farming Initiative will provide a range of measures aimed at improving farm practices and reducing water pollution from agriculture.

European and worldwide perspective (where available)

There has been significant progress in treating the sewage and industrial wastes that are pumped into Europe's river systems, resulting in lower levels of most pollutants and a measurable improvement in water quality. The agricultural sector, in contrast, has not made as much progress and nitrate levels in Europe's rivers are still as high as they were at the beginning of the last decade (European Environment Agency, 2005).

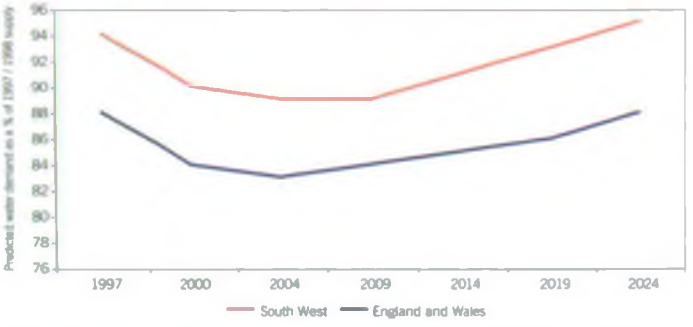
update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/river_water.asp

water resources

Background
Measurements of rainfall quantity, groundwater levels and river flows are all indicators of climate trends and water availability.

The Environment Agency's long term (25 year) regional water resources strategy aims to provide a secure framework for the management of water that protects the future of the water environment while encouraging sustainable development.



Water demand and availability projected to 2005 in the South West compared to England and Wales (South West Regional Assembly, 2005)

South West perspective
The South West is one of the wettest regions, with prevailing westerly winds bringing moisture-laden air from the Atlantic. The combined influences of the hydrological cycle and human activity on the geology, topography and ecology of the region have contributed to the diverse character of the water environment. However, some areas in the South West currently face a lack of water available for new abstractions. Unsustainable abstraction and low flows which could be exacerbated by future pressures of increased demand for water due to population growth.

River flows and groundwater levels are affected by natural conditions, such as rainfall, temperature, soil type, geology and topography as well as human activities such as abstraction and land use/management. Declines in river flows can be exacerbated by surface water and groundwater abstraction for public water supply, industry and agriculture. Total national abstractions increased by around 9% between 1995 and 2002 (Defra, 2005) and by 15% in the South West over the same time period.

Water demand is increasing with our growing population, which is putting greater pressure on water resources. The South West Regional Spatial Strategy analyses how alternative growth scenarios will affect the future demand for water. Demand in the region has remained fairly stable since 2000 but is predicted to rise by around 5% over the next 20 years (South West Regional Assembly, 2005).

KEY FACT

Water demand in the region has remained fairly stable since 2000 but is predicted to rise by around 5% over the next 20 years.

Just over 28% of households in the South West have a water meter fitted, which is above the average of just under 26% in England and Wales. 84% of non-household premises in the region use a water meter, just under the national average of almost 88%. On average, it is forecast that the percentage of households with a water meter in the region will increase by almost 39% by 2010 and up to 60% by 2030 (Ofwat, 2005).

Water use in non-metered homes in the region was 4 litres/head/day higher than the national average and 5 l/h/d higher in those with a water meter (Ofwat, 2005). Households with a water meter fitted use on average 10 l/h/d more water than those without (154 l/h/d compared to 144 l/h/d respectively). Average water use in the South West reduced by 3 l/h/d in households with a water meter in 2004/2005 (Ofwat, 2005) and 4 l/h/d in those without between 2003/2004 and 2004/2005.

Some abstracted water for public supply is lost through leakage every year. Around 232 Ml/day leaked from pipes in water company areas covering the South West during 2004/2005 (Ofwat, 2005).

A local perspective
Unsustainable abstraction of surface and groundwater can lead to low flows which in turn can lead to detrimental impacts upon the aquatic environment. Low flows are a key concern for the Environment Agency in the South West and recent studies have focused on low flows in the rivers Wylye (Hampshire Avon catchment), Piddle (Dorset) and Malmesbury Avon (Wiltshire) within the Wessex Water catchment. Wessex Water have agreed to minimise abstractions, increase stream augmentation and increase their import of water from neighbouring Bristol Water to help restore flows in these rivers.

Thames Water, although covering only a small part of the region, consistently has the highest rates of water leakage, however it also supplies the greatest amount of water (2,965 Ml/d) to the largest number of consumers (8 million). Following

three years of increases in leakage, the period 2003 to 2005 has seen an improvement in leakage detection and repair, resulting in a reduction in overall leakage (Ofwat, 2005).

In 2004/2005 South West Water had the highest number of properties fitted with water meters (almost 47%), followed by Bournemouth and West Hampshire Water (almost 40%). This was a marked increase on 2003/2004, South West Water by 11% and Bournemouth & West Hampshire by 13%. Cholderton and District Water had the lowest percentage of households with a water meter with 13.5% (Ofwat, 2005).

All water companies in the region reported at least 60% of non-household premises on water meters. The highest rates were found in Severn Trent (almost 93%), closely followed by Bournemouth & West Hampshire (almost 92%). The lowest rates were again found in Cholderton & District Water's area (under 62%) (Ofwat, 2005).

National perspective

Currently only 26% of homes in England and Wales have water meters, although all water companies are planning for increased household metering over the next 25 years (Ofwat, 2005).

In 2004/2005, most water companies in England and Wales reported a 1% reduction in measured water consumption and 3% in unmeasured (Ofwat, 2005).

The total amount of water lost through leakage in England and Wales declined by over 33% between 1994-1995 and 2000-2005 (from 5,112 Ml/d to 3,608 Ml/d) (Ofwat, 2005)

European and worldwide perspective (where available)

Worldwide, it is predicted that irrigation for agriculture now accounts for 70% of freshwater abstractions. Just 30% of this water is returned to the environment, in comparison to 90% of the water that is used by industry and households being returned (UNEP, 2006).

There are currently 8 countries in Europe that are considered water stressed, where water is being used unsustainably. These are Germany, England, Wales, Italy, Malta, Belgium, Spain, Bulgaria and Cyprus - home to 45% of Europe's population. However, water stress decreased in 17 countries between 1990 and 2002, representing a considerable decrease in total water abstraction (European Environment Agency, 2005).

In many areas of Europe, where groundwater is the dominant source of freshwater, water is being abstracted quicker than it is being replenished through rainfall. The result is sinking water tables, empty wells, higher pumping costs and, in coastal areas, the intrusion of saltwater from the sea, which degrades the groundwater. Groundwater in the coastal areas of Italy, Spain and Turkey, where water demand from tourist resorts are high, and northern countries such as Sweden are under particular pressure from the intrusion of salt water (European Environment Agency, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/water_resources.asp

drinking water quality

Background
The Government has set legal standards for drinking water in the Water Quality Regulations (based on World Health Organisation guidelines). The UK also has additional standards to safeguard the already high quality of water in England and Wales. These standards cover bacteria, chemicals such as nitrates and pesticides, metals such as lead as well as look and taste.

In the South West, drinking water is supplied by Bournemouth & West Hampshire Water, Bristol Water, Cholderton & District Water, South West Water, Wessex Water and some parts by Thames Water and Severn Trent Water. These water companies supply a population of 19,522,000 through 111,997 km of mains.

All information in this section is from the Drinking Water Inspectorate (2005), unless otherwise stated.

South West perspective
All water companies in the South West provide drinking water that is consistently above the basic compliance set by the UK Water Quality Regulations.

Compliance with drinking water standards was high in all water companies covering the South West. Drinking water in the region was at least equal to or above the English average of 99.94% in 2004, with the exception of Cholderton & District Water which scored just under at 99.79%.

There were 14 incidents in the region that did or were likely to affect drinking water quality or supply during 2004, accounting for around 18% of the English total. This was over a 64% reduction on 2003 and continues the general decline in the number of reported incidents since 2000.

A more local perspective
Drinking water quality in Bournemouth & West Hampshire, Severn Trent, Thames and Wessex showed a slight improvement between 2003 and 2004 (by 0.09%, 0.03%, 0.05% and 0.01% respectively).

Very small declines in quality were reported by Bristol (-0.01%), Cholderton & District (-0.14%) and South West Water (-0.01%).

National perspective
Over 2 million tests of drinking water quality were carried out by water companies in England and Wales during 2004.

Overall for England compliance with the drinking water standards was very high (99.94%) in 2004.

Across England and Wales a total of 89 incidents (78 of which occurred in England) potentially affected 3.2 million consumers in 2004. This compares to 99 incidents (88 occurring in England) affecting 2.3 million consumers in 2003.

European and worldwide perspective (where available)
Mismanagement, limited resources and environmental changes mean that almost one-fifth of the planet's population still lacks access to safe drinking water (UNESCO, 2006)

In Western Europe, 15% of the people have bad drinking water contaminated by bacteria. This problem increases to around 30% in Eastern Europe (European Environment Agency, 2005)

KEY FACT

Drinking water in the region was at least equal to or above the English average of 99.94% in 2004

update or more details

For an up-to-date picture visit:
www.swenvo.org.uk/environment/drinking_water.asp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LAND AND LAND USE

INFORMATION AND TRENDS RELATING TO **AGRICULTURE & SOILS**, **WOODLAND**, **LAND USE** AND **THE HISTORIC ENVIRONMENT**.

related sections

Chapter 1: Atmosphere, **Chapter 2:** Biodiversity, **Chapter 5:** Inland waters, **Chapter 8:** People & communities, **Chapter 9:** Waste & pollution

regional issue

Strategy theme	2004	2005	Indicator
Climate change	○	○	Changes to landscape & historic environment
Wiser use of natural resources	✓	✗	Diffuse pollution
	✗	✗	Mineral extraction
Food, farming & forestry	✓	✗	Farmland birds
	✗	○	Sites of Special Scientific Interest
	✓	✓	Field boundaries
	○	○	Woodland
	✓	✓	Farmer's markets
Tourism	✗	✗	Visitor pressure
	○	○	Local distinctiveness
	○	✓	Access to open space
Spatial planning & development	✗	○	Greenfield development
	○	○	Historic building resource
	○	○	Flooding
	○	○	Dark skies
	✓	✓	Local environment quality
Transport	○	○	Tranquil areas

✗ Pressures that are negative and are expected to continue

○ Areas of uncertainty or potential problems

✓ Trends that are positive or expected to improve

agriculture and soils

Background
UK farming contributes £6.6 billion a year to our economy, uses around three quarters of this country's land area, and employs over half a million people.

Defra publish an annual Agricultural Census, which collects information on land use, farm type and employment (Defra, 2005). All information is from this Census unless otherwise stated.

South West perspective
In 2004, 1.8 million hectares of land in the South West was used for agriculture, managed in 41,000 agricultural holdings. Compared to 1990, the area of land farmed has changed very little but the number of holdings has increased by 15%. This is similar to the change observed at the national scale.

The nature of agricultural activity varies across the region. In part, this is due to variation in topography, soil quality and climate. Permanent grassland occupies 47% of farmed land in the region and arable 27%. This compares to 33% and 47% respectively for England as a whole. Cropping is largely restricted to farms in the north and east of the region, whilst farms covering large swathes of Devon and Cornwall (particularly Exmoor and Dartmoor) are predominately concerned with the rearing of cattle and sheep. In contrast, dairy and 'other' farms are reasonably well dispersed across the region (Defra, 2005).

Around 24% of all holdings in the South West were lowland livestock farms in 2004, higher than the national average of 19%. However, those farm holdings classified as 'other' accounted for the highest proportion, around 40% of the regional total. This category of farm holding includes specialist activities (such as horses, goats or mushrooms) or activities which are of limited economic importance (such as set aside, non-classifiable holdings or specialist grass and forage).

In 2004, farming employed nearly 55,000 people in the South West, with 60% of these people working part-time. These 55,000 people equate to 3% of those employed in the region. Compared to 2000, the number of people employed full time has reduced by 8% but those working part time has increased by 7%. This is similar to changes observed nationally. Although farming occupies 80% of land in the South West, it only contributed 2% of the regional economic output in 2004 (Defra, 2005).

Organic farming has a lower potential impact on the environment because of restrictions on the use of pesticides and herbicides. Research has shown that organically managed land provides greater potential for biodiversity than their conventional counterparts, with up to 85% more types of plants, 17% more spiders, 5% more birds and 33% more bats (British Trust for Ornithology, the Centre for Ecology & Hydrology and the Wildlife Conservation Research Unit, 2005).

Almost 100,000 hectares, equivalent to 6% of farmed land is used for organic farming in the region. This area is three times larger than in 1999. There were 900 organic farms, 21% of the total number in the UK in 2004 (Defra, 2005).

The region's high rainfall, steep slopes and vulnerable soils result in increasing problems with water pollution and run off. The most vulnerable soils in the region include the Devon Redlands, sandy soils in the South Hams, sandy silt soils in West Cornwall, sandy soils in the Vale of Taunton, the Yeovil sands and the Vale of Pewsey.

Surveys have been carried out by the National Soil Resources Institute on behalf of the Environment Agency in a number of South West river catchments between 2002 and 2005. These surveys found that in all of the catchments surveyed, a proportion of the sites had poor soil structure sufficient enough to cause enhanced runoff (see table).

Poor soil structure leads to an inability of crops and soil to make best use of manure and fertilisers. Large areas of South West soils are easily sealed by heavy rain and by inappropriate land work, causing local flooding, mud on roads and damage to property. This also results in water pollution as sediment and pollutants enter rivers affecting river habitats and spawning grounds for salmon, trout and other aquatic wildlife.

There are a number of initiatives underway to reduce water pollution and runoff from agricultural land. Under the Single Farm Payment scheme, which is part of reforms of the Common Agricultural Policy, farmers have to maintain their land in Good Agricultural and Environmental Condition to qualify for payments. This includes requirements to promote good soil management such as avoiding mechanical working of waterlogged soil. Farmers can also apply for payments through the agri-environment Environmental Stewardship scheme by carrying out actions to protect soil structure and prevent pollution. This includes options such as management of maize

KEY FACT

The South West has just over 900 organic farms on almost 100,000 hectares, almost 6% of the all agricultural land in the region.

Catchment	% of surveyed sites with poor soil structure (severely or highly degraded)
Parrett	57%
Golden Mile near Penzance	56%
Upper Hampshire Avon	47%
Axe & Char	39%
Wylye	37%
Nadder	32%
Camel	32%
Tone	30%
Sem	26%
Dorset Frome	25%

Percentage of surveyed sites with poor soil structure in the South West (National Soil Resources Institute, 2005)

crops to reduce soil erosion. Also, the England Catchment Sensitive Farming Delivery Initiative started in April 2006. This is a Defra-funded two year voluntary initiative to reduce diffuse pollution from agricultural land in 40 priority catchments. Newly-appointed officers will work with farmers in these catchments to raise awareness of diffuse pollution through workshops, demonstration farms and advice. This initiative includes 12 catchments in the south west including the Hampshire Avon, Exe, Parrett and Camel.

A more local perspective

Devon had the largest area of agricultural land in the South West in 2004 with almost 28% of the regional total (507,762 hectares), followed by Cornwall & the Isles of Scilly with 16% (281,590 hectares). The more urban unitary authorities such as Bristol had the lowest amount of agricultural land, both with under 0.1% of the regional total.

Devon and Cornwall & the Isles of Scilly also had the highest number of agricultural holdings (31% and 19% of the regional total respectively), whilst Bournemouth & Poole, Bristol, Swindon, Plymouth and Torbay all had below 1% of the regional total.

National perspective

Around 77% of the land area of the United Kingdom was farmed in 2004, a 2% increase on 1990. Agriculture currently contributes 0.8% to the national Gross Value Added and 1.8% to national employment. However, the total labour force in agriculture has declined by 30% since 1990, continuing a long-term trend.

Nationally, 29% of farmers were aged 65 or older in 2003, up from 25% in 2000 while the number of farmers younger than 35 years old fell from 5.2% in 2000 to 3.4% in 2003. There were 4,300 registered organic farms in the UK in 2004, around 2.5% of the total farm population. However, despite the large amount of organic land in the UK, an estimated 56% of the organic products sold in the UK have been imported and in some categories such as fruit, vegetable and salad crops this rises to 76% (Defra 2005).

European and worldwide perspective (where available)

Almost half of all land in Europe is agricultural. The share of organic farming is increasing and now stands at about 4% of agricultural area. Organically managed land is significantly higher in northern and central European countries than in other parts of Europe, with the exception of Italy (European Environment Agency, 2005).

There are more than 300 major soil types found across Europe, many of which face increasing threats from erosion, sealing, contamination and salinisation (United Nations Economic Commission for Europe, 2004).

It is estimated that as much as a quarter of Europe's land is thought to be at some risk of erosion, particularly in the Mediterranean and Black Seas and the Balkan Peninsula. Iceland has one of the highest soil erosion rates in Europe. An additional 10 million hectares are also thought to be of high or very high risk from erosion, whilst 27 million hectares are under moderate risk. Countries with the largest areas at risk include Greece, Hungary, Italy, Moldova and Portugal (European Environment Agency, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/agriculture.asp

woodland

Background
Trees, woodlands and forests make a major contribution to the vitality, attractiveness and diversity of the region as well as to health, recreation, flood mitigation and the local economy. As well as benefits to society and wildlife, trees and woodland can make an important contribution to the global carbon budget and can contribute to climate change mitigation.

South West perspective
There are 212,000 hectares (ha) of woodland in the South West, covering 9% of the region's land area (an area equivalent to over three times the area of Exmoor National Park), just over the English average of 8%. This area of woodland has almost doubled over the last 100 years and is still increasing. In the last 10 years over 10,000 ha of new woodland has been planted in the region. There are a number of significant woodland creation projects in the region, including South West Forest, the Forest of Avon and Great Western community forests (Forestry Commission, 2005).

Over 20% of England's ancient woodland can be found in the region and 8% of these woods are also designated Sites of Special Scientific Interest. The region has a great diversity of woodland habitat types, important in both a national and European context. 15,000 woods are small (under 2 ha) but they help define the landscape quality of much of the region (Forestry Commission, 2005).

Practically all woodland in the South West is, or has been, managed. However, the region has a greater proportion of woodland not in active management than any other region in England. Although many woods may be managed without being part of a formal scheme, it is estimated that approximately 60% of non-Forestry Commission woodland in the region is not managed through formal agreement. Just under half of the South West's ancient woodland is made up of plantations on ancient woodland sites (PAWS) with potential for gradual restoration to native broadleaves (Forestry Commission, 2005).

Woods and forests contribute over £500 million per annum to the South West's economy, around 1% of the Gross Domestic Product. Production and processing in forestry is worth £201 million per year in the region, whilst tourism, recreation and other benefits are worth an additional £300 - £375 million. Woodlands contribute significantly to the quality of life of people living in the South West by providing quiet areas for walking and relaxing, improving people's levels of health and fitness and reducing stress (Forestry Commission, 2005).

A more local perspective
Woods and Trees Under Threat is a web-based resource showing details of woodlands under threat in the UK, run by the Woodland Trust and Ancient Tree Forum. This website identifies 20 woodlands and individual trees of importance in the South West that have or are being threatened by development including roads, housing and other works. Of these 20 sites, 4 have been saved, 4 have been lost and 12 are ongoing (Woodland Trust, 2005).

National perspective
There was over 1.1 million ha of woodland in England in 2005 (40% of the UK total), an increase of 438,000 ha since 1905. Around 341,000 ha of this total was ancient woodland and just under 416,000 ha semi-natural (Forestry Commission, 2005).

It is estimated that 292 ancient woodland sites in England are currently under threat from new developments, including road schemes, utility companies and airport development (Woodland Trust, 2005).

European and international perspective
Forests covered over 30% of the total global land area in 2005, down from 31% in 1990. Deforestation has resulted in the loss of around 13 million ha of woodlands and forests worldwide, mainly as a result of conversion to agricultural land. The net loss (deforestation minus reforestation) of forest cover between 2000 and 2005 was estimated at just over 7 million ha per year. This figure has been significantly reduced due to forest planting, landscape restoration and natural expansion of forests (mostly in the Northern hemisphere) (UNEP, 2006).

The area of woodland and forest habitats in Europe has increased by 0.5 % since 1990. Of this 1 million ha of new forested land, a quarter is the result of the withdrawal of farming. However, although more of Europe is tree-covered today than in the recent past, many forests are harvested more intensively than before (European Environment Agency, 2005).

KEY FACT

In the last 10 year over 10,000ha of new woodland has been planted in the South West region.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/trees_woodland_forestry.asp

land use

Background
Reliable geo-referenced information on land use is required to provide a basis for the sustainable development of land resources. It should also be used to inform policy at national, regional and local levels, including planning and regeneration, housing, employment, transport, agriculture, environment and recreation.

Experimental statistics for land use in the English regions has been produced for 2001 (ODPM, 2005), all information in this section is from this source unless otherwise stated. These statistics allocate all identifiable land features on Ordnance Survey maps into nine simplified land categories of domestic buildings, non-domestic buildings, road, rail, path, gardens, greenspace, water and other (largely hardstanding). Statistics are in m^2 but have been converted to hectares (ha) here for ease of use.

South West perspective
The South West is the largest region in England, with over 18% (around 2.4 million ha) of the national total land area (almost 13.2 million ha).

Over 91% (almost 2.2 million ha) of land in the region was classified as greenspace in 2001, the highest proportion of any region in England. Gardens comprised almost 70,500 ha, the 3rd highest for any region behind South East (21%) and East (14%), whilst 45,328 ha was classified as water (3rd highest in England behind the North West with 25% and East with 16%).

The transport network comprised a very small proportion of the region's land area. However, the South West had the 2nd largest road network with 14% of the national total (behind the South East with 17%) and the 3rd largest path network with 11% of the national total (behind the South East with 18% and North West with 15%). The region had only 10% of the national rail network, joint 3rd lowest with the East.

Domestic and non-domestic buildings comprised around 1% of the region's total land area, the 3rd highest total area in England behind the South East and North West.

With 54% of new dwellings built on previously developed land in 2004, the South West had the 2nd lowest rate of land recycling in England, just behind the East Midlands with 52%. Although this shows an improvement of 19 percentage points since 1994 it is still significantly lower than the national average of 68% and below the Government target of 60% by 2008.

Around 55% of all new residential developments were built on previously undeveloped land in the South West between 2001 and 2004. This was above the English average of 43% for the same period. The majority of this land in the region was agricultural before changing to residential, which was again higher than the national average with 46% and 31% respectively (ODPM, 2005).

A more local perspective
Bristol had the highest number of domestic and non-domestic buildings in the South West, accounting for 5% and 6% of the regional total respectively. The Isles of Scilly had the lowest area covered by buildings, with under 1% of the regional total.

North Cornwall had the highest proportion of the region's greenspace (5.2%), though West Devon and the Cotswold District both scored above 5%. Greenspace was particularly low in Bournemouth, Isles of Scilly and Gloucester, all comprising 0.1% of the regional total. The area covered by gardens was highest in South Gloucestershire (4.1% of the regional total) and lowest in the Isles of Scilly and Weymouth & Portland (both under 1% of the regional total). The Forest of Dean had the largest area covered by water, accounting for 11% of the regional total.

In terms of the transport network, the total area covered by road was highest in North Cornwall (4% of the regional total) but lowest in the Isles of Scilly followed by Weymouth & Portland, all accounting for under 0.6%. Bristol had the largest area covered by rail (almost 7% of the regional total) whilst East Dorset, Torridge and Christchurch all accounted for 0.02%. Swindon had the largest area covered by pathway (over 7% of the regional total), whilst the Isles of Scilly, North Dorset and Christchurch all had the lowest (under 1%).

	Domestic buildings	Non-domestic buildings	Road	Rail	Paths	Greenspace	Gardens	Water	Other
South West	18,666 ha	10,081 ha	43,824 ha	1,814 ha	1,301 ha	2,197,345 ha	70,486 ha	45,328 ha	22,858 ha
% of SW land area	0.8%	0.4%	2%	0.1%	0.1%	91%	3%	2%	0.9%
% of England total	13%	12%	14%	10%	11%	19%	14%	15%	13%

Land use in the South West and England by area 2001 (ODPM, 2005)

	Average 2001 - 2004
Former county of Avon	61%
Cornwall	40%
Devon	43%
Dorset	70%
Gloucestershire	62%
Somerset	44%
Wiltshire	45%

Average new dwellings built on previously developed land according to county 2001-2004 (ODPM, 2005)

Dorset had the highest average of new dwellings built on previously developed land between 2001 and 2004, with an average 70%. The lowest percentage was found in Cornwall with 40%.

Somerset had the highest proportion of previously undeveloped land changing to residential use with an average 62% between 2001 and 2004. Around 57% of this land was previously agricultural. The lowest percentage was found in Dorset with 39%, 32% of which was previously agricultural (ODPM, 2005).

National perspective

England comprises almost 13.2 million ha. Of this almost 82% was greenspace, 9.3% gardens, 2.6% road, 2.5% water, 1.3% domestic buildings, 0.7% non-domestic buildings, 0.2% rail and 0.1% path.

The government has set a national target of 60% of the projected housing requirement to be built on previously developed land by 2008. The national average in 2004 was 68%, with the highest rates found in London (95%) followed by the North West (79%), whilst the lowest was in the East Midlands (52%) (ODPM, 2005).

KEY FACT

The proportion of new dwellings built on previously developed land in the region has improved by 19 percentage points since 1994 but is significantly lower than the national average of 68% and below the Government target of 60% by 2008.

European and worldwide perspective (where available)

Over 80,000 ha were converted into artificial surfaces for homes, offices, shops, factories and roads in Europe between 1990 and 2000. Around 48% of this was originally arable land or permanent crops, rising to up to 80% in Denmark and 72% in Germany.

Around half of this overall increase was due to housing, services and recreation, 31% for new industrial and commercial sites, 14% for mines, quarries and waste dump sites and just over 3% for new transport infrastructures.

The size of Europe's urban area increased by almost 6% between 1990 and 2000, equivalent to three times the area of Luxembourg.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/landuse.asp

historic environment

Background
Attractive buildings, settlements, historic landscapes, parks and gardens make an enormous contribution to the quality of the region. English Heritage produces an annual state of the historic environment report for the South West, called Heritage Counts. The 2005 report is available from English Heritage.

All information in this report is from English Heritage (2005), unless otherwise stated.

South West perspective
Since 2004, the number of scheduled ancient monuments in the South West increased from 6,944 to 7,018, the majority of which are found in rural and upland areas. Accounting for 35% of the national total, the region has the highest number of scheduled sites in England.

Almost 24% of all listed buildings in England can be found in the South West, an increase of 48 on 2004. Around 90% of these listed buildings can be found in the region's rural areas, reflecting the many listed churches, agricultural and farm buildings.

The South West has a total of 296 registered historic parks & gardens, 18% of the English total. Of these designated landscapes, 29 are classified as Grade I and 92 Grade II*, which is greater than the national average.

English Heritage maintains a Register of Buildings at Risk of all Grade I and II* listed buildings and structural scheduled monuments in England which are at risk or are vulnerable to neglect and decay. Protected by national policy, the majority of listed buildings are in good condition. However, 34 Grade I and 111 Grade II* listed buildings were at risk in the region during 2005, a reduction of 7 since 2004. There are also 18 scheduled monuments at risk in the region, giving a total of 163 buildings and monuments at risk.

A building has a 'conservation deficit' when the cost of its repair and conversion exceeds its value after repair and conversion. Within the South West, the total deficit reduced from £35.5 million in 2004 to £31 million in 2005. Of the region's 163 buildings and monuments at risk, only 14 do not have a conservation deficit.

Parkland (areas of designed landscape, wood pasture and former estate lands) is not only of great cultural and historic importance but also provides much of the remaining wood-pasture, (a Biodiversity Action Plan priority target). Loss of parkland has been a particular problem in the South West. Between 1918 and 1995, the area of parkland in the region reduced from an estimated 58,000 hectares to 32,000 hectares, at 45% this was the greatest loss for any English region.

Agriculture is the main pressure on the historic environment in a predominantly rural area like the South West. However, the new agri-environment schemes are helping to support farmers in caring for the environment whilst farming. Since 1994, agri-environment schemes have invested over £36 million in protecting the South West's historic environment. Around £11 million of this has been spent on restoring more than 1,100 historically important non-domestic buildings on farms and £1 million for the management and protection of archaeological sites and other features of historic interest.

Maintaining the historic environment is dependent upon keeping alive traditional skills, such as thatching, lime plastering, dry stone walling and stone masonry. In 2005, analysis carried out by the National Heritage Training Group estimated that there were 2,344 traditional building craftspeople in the South West (3.7% of the English total). Just over a half of all contractors identified recruitment difficulties, the main reasons being a lack of applicants and a lack of skills.

Asset	South West 2005	% of English total
Scheduled ancient monuments (SAMs)	7,018	35%
World Heritage Sites	3*	11% of the UK total
Listed buildings	88,980	24%
Conservation Areas	1,530	16% (9,374)
Historic Parks and Gardens	289	18%
Registered historic battlefields	8	-
Designated protected wrecks	22	52% (42)

*Dorset and East Devon Jurassic Coast, Bath, and Stonehenge & Avebury stone circles)

Audit of the South West's historic heritage (English Heritage, 2005)

A more local perspective

Heritage is not evenly distributed throughout the South West. Devon has the highest proportion of listed buildings with 21% (19,150), of the regional total whilst the Isles of Scilly, Plymouth, Poole, Bournemouth and Swindon all have below 1%.

Devon has the highest number of scheduled ancient monuments in the region with 25% (1,723) of the regional total. Torbay, Bristol, Bath & North East Somerset, Bournemouth, Poole, South Gloucestershire and Swindon all have below 1% of the regional total.

With 17% (53) of the regional total, Gloucestershire has the highest number of historic parks, gardens and battlefields, whilst the Isles of Scilly has none.

Devon also has 19% (295) conservation areas, the largest proportion in the region, whilst Poole and Bournemouth both have around 1%.

Some areas in the South West have lost particularly high amounts of parkland, such as Dorset Heath (68% loss) and the Somerset Levels & Moors (55% loss). The Vale of Taunton and the Quantock Fringes have also seen more than 30% of parkland converted to arable land.

Agri-environment schemes have proved to be an increasingly important resource for the restoration of historic parkland. On the whole, the highest take up of agri-environment schemes has been in areas of the country where the proportion of parkland is relatively low, such as Exmoor, Dartmoor and the Mendip Hills.

National perspective

Rural England is particularly important in terms of historic heritage. The majority of historic sites lie within local authority areas which are significantly or predominantly rural. Villages, hamlets and the open countryside contain 47% of listed buildings, 67% (by area) of scheduled monuments, 75% (by area) of World Heritage Sites, 68% (by area) of registered parks & gardens and 58% (by area) of registered battlefields.

There were 1,302 Grade I and II* listed building and structural scheduled monuments on English Heritage's national register of

KEY FACT

There were 145 Grade I and Grade II* listed buildings at risk in the region in 2005, with a conservation deficit of £31 million.

buildings at risk in 2005, 126 fewer than in 1999. Although there are 90,000 people currently working in the built heritage sector, the National Heritage Training Group estimate that key skills could disappear within 15 to 20 years due to the lack of apprenticeships and recruits.

Changing agricultural practices and land use pose serious challenges for the continued upkeep of historic sites and landscapes. Of the more than 30,000 listed working farm buildings, almost a third have already been converted to other uses, the majority to residential use. In more remote rural areas, large numbers of agricultural buildings face dereliction and over 7% of listed farm buildings are in the severest state of disrepair.

Nearly half of the parkland recorded by the 1918 Ordnance Survey Edition was lost by the close of the 20th Century and, in some places, losses have been as high as 70%. The principal causes of loss have been conversion to arable land, development and, more recently, golf course construction.

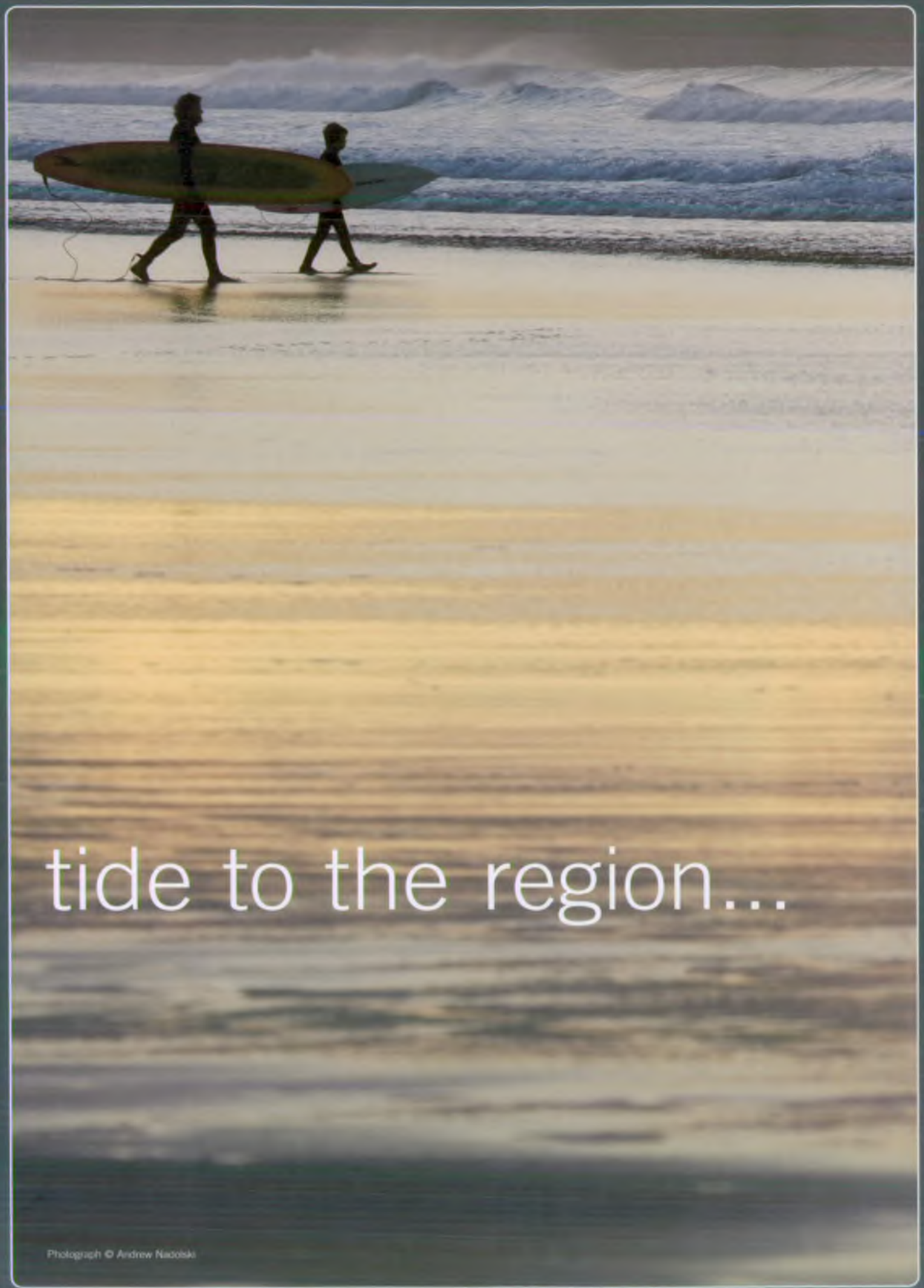
Between 2000 to 2004, the Environmentally Sensitive Area and Countryside Stewardship schemes have directed an estimated £90 million towards conservation of the rural historic environment and have been the principal source of funding for management of rural archaeological sites, the restoration of parkland and repair of traditional farm buildings.

European & worldwide perspective

Conflict, war, earthquakes and other natural disasters, pollution, poaching, uncontrolled urbanisation and unchecked tourist development pose major problems to World Heritage sites. There are currently 34 sites out of 812 World Heritage on the List of World Heritage in Danger (UNESCO, 2006).

update or more detail

For an up-to-date picture visit:
http://www.swenvo.org.uk/environment/heritage.asp



tide to the region...

Photograph © Andrew Nadolski

MARINE ENVIRONMENT

INFORMATION AND TRENDS RELATING TO **BATHING WATER, CLEANLINESS & LITTER** AND **MARINE SPECIES**.

related sections

Chapter 1: Atmosphere, **Chapter 2:** Biodiversity, **Chapter 5:** Inland waters, **Chapter 9:** Waste & pollution

regional issue

Strategy theme	2004	2005	Indicator
Climate change	○	✗	Rising sea levels
	○	○	Loss of wildlife
Wiser use of natural resources	✓	✓	Water quality
	✗	✗	Diffuse pollution
Tourism	✓	✓	Bathing water quality
	✓	✗	Visitor pressure

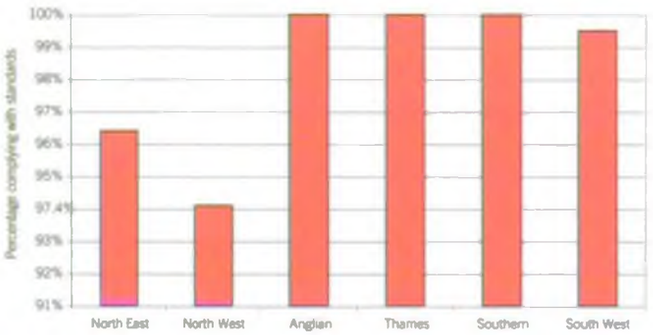
✗ Pressures that are negative and are expected to continue

○ Areas of uncertainty or potential problems

✓ Trends that are positive or expected to improve

bathing water

Background
The quality of bathing waters varies from year to year as a result of changes in weather. Heavy rain affects runoff from the surrounding agricultural areas. Livestock slurries and manure, if applied inappropriately to the land, can be washed into inland rivers and watercourses and end up in the sea. Sewage that has not been given adequate treatment or dilution can also result in water quality problems.



Compliance with bathing water standards in the English regions in 2005 (Environment Agency, 2005)

South West perspective
Bathing water quality in the South West is generally excellent and has significantly improved between 1990 and 2005. Those bathing waters meeting the mandatory Imperative Standards have increased by almost 11% since 1990 (compared to almost 30% in England) whilst those meeting the tighter Guideline Standards have increased by over 38% (almost 53% in England).

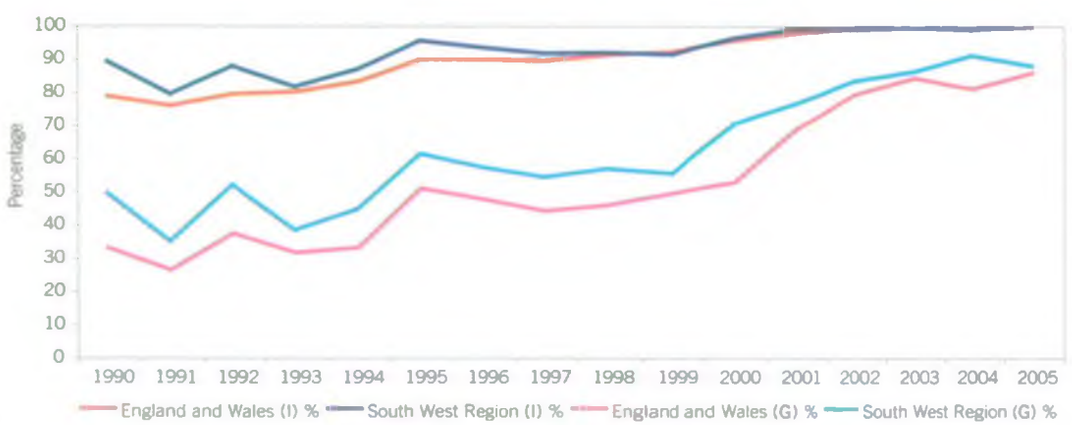
Bathing waters achieving the Imperative Standards have tended to reach a plateau at 98-99% compliance since 2001. There was just over a 1% increase in the number of bathing waters complying with standards in the South West between 2004 and 2005, from 98.4% to 99.5%. This slight increase is similar to the national trend, with all English regions experiencing small improvements with the exception of the North West which stayed the same.

However, there was a slight decline in those meeting Guideline standards between 2004 and 2005, with an additional 6 failures (24 in comparison to 18 in 2004) although there were 18 fewer exceedences (101 in comparison to 119 in 2004) (Environment Agency, 2005).

A more local perspective
In 2005, the bathing water at Dartmouth Castle and Sugary Cove (Devon) was the only 1 out of 190 monitored bathing waters in the South West Region to fail the mandatory standards. However, this bathing water has been closed since 2000 due to accessibility problems rather than water quality issues. The number of single exceedences of the mandatory standards decreased from 13 in 2004 to 8 in 2005 (Environment Agency, 2005).

National perspective
Of the 491 bathing waters in England and Wales, over 85% of them meet the highest EU standard (Guideline) and 99% meet the lesser mandatory (Imperative) grade in 2005. Both Thames and Southern region had 100% compliance with standards, although this was very closely followed by the South West with 99.50%.

A record number of bathing waters in England passed the toughest test of the quality of their bathing water - with 305 out of 414 of bathing areas (73.7%) achieving Guideline standards.



% compliance with bathing waters standards in the South West and England: 1990 to 2005 (Environment Agency, 2005)

There has been a significant improvement in the quality of bathing waters in England over recent years. Compliance with Guideline Standards increased from 25.8% in 1991 to 85.2% in 2005, with just 1% failing to meet required quality in 2005 (Environment Agency, 2005).

Sustained year-on-year improvements are being achieved as a result of investment in new sewage-treatment schemes, improvements to urban drainage and the treatment of contaminated land.

KEY FACT

Out of the 494 designated bathing waters in England and Wales, 191 (almost 40%) are found in the South West (Environment Agency). Bathing water quality in the South West is above average, with 99.5% meeting mandatory standards, compared to 98.8% in England.

European and worldwide perspective (where available)

The quality of EU bathing waters has improved, but at a slower rate than initially envisaged. The original target of the 1975 directive was for Member States to comply with mandatory standards by the end of 1985. In 2003, 97% of coastal bathing waters and 92% of inland bathing waters complied with standards.

Despite the significant improvement in bathing water quality since the adoption of the Bathing Water Directive 25 years ago, 11% of Europe's coastal bathing waters and 32% of Europe's inland bathing beaches still did not meet (non-mandatory) guide values in 2003. This is largely due to diffuse pollution and lack of expenditure on sewage treatment works (European Environment Agency, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/bathing_water.asp

cleanliness and litter

Background
Adopt-a-Beach is an initiative organised by the Marine Conservation Society (MCS), involving individuals, groups and communities in caring for their coastal environment. Beach cleans and surveys aim to monitor litter throughout the year and help reduce litter at source.

The Marine Conservation Society's (MCS) Good Beach Guide is one of four beach 'award' initiatives, but is the only scheme that focuses entirely on water quality standards and the risk of sewage pollution.

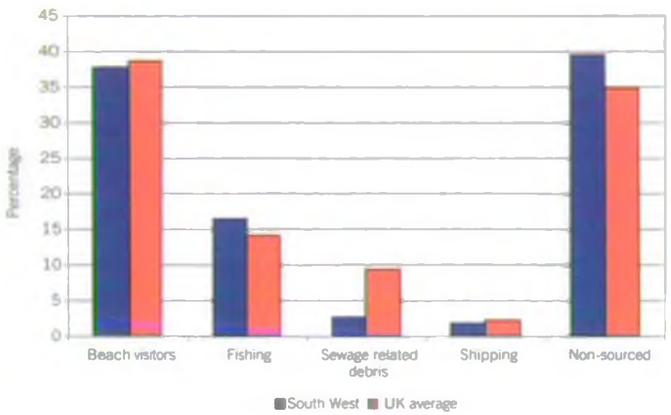
The Seaside Award campaign recognises well-managed, clean and safe beaches in both rural areas and resorts. To attain the award, beaches must meet a wide range of standards including safety, cleanliness, active management as well as provide information and promote education.

The Blue Flag Campaign recognises beaches throughout Europe which fulfil strict criteria relating to both the water quality and the surrounding beach area. Blue Flag status is awarded for one year to those beaches meeting high standards in terms of facilities, public awareness, bathing water quality and other environmental issues.

South West perspective
A total of 100,808 items of litter were collected by volunteers from the South West beaches in 2005, over 46% of the total items found in England and the highest of the English regions. With an average of 3,963 items/km, more litter was found per km on the South West's beaches than anywhere else in the UK.

The total amount of litter per km declined by 8% in the region between 2004 and 2005, although it remains 17% higher than 2003.

The South West had the highest amount of litter dropped by beach visitors than anywhere else in the UK in 2005, with 1,180 items/km. This accounted for almost 30% of litter found in the region during the survey. However, this was proportionately the lowest percentage found in the English regions and was below the English average of 35%. With 822 items/km, the South West had the highest amount fishing related litter, accounting for 21% of the regional total. This was higher than anywhere else in the UK, both in terms of items/km and percentage of regional total. Fishing litter increased by 14% in the region between 2004 and 2005.



Litter found on South West beaches by source in 2005 with England comparison (Marine Conservation Society, 2006)

Sewage related debris accounted for 119.2 items/km, 3% of the regional total. Although still low, this marked a 7% increase on 2004. Non-sourced waste also increased slightly (2%) between 2004 and 2005. However, there was a decline in shipping related litter from 75 items/km in 2004 to 72 items/km in 2005 (Marine Conservation Society, 2006).

A more local perspective
The South West, and especially Cornwall, is rich in tidal estuaries that can harbour marine litter. Whilst this litter may not have as much effect on tourism as beach litter, the visual intrusion and environmental impact can be just as significant.

There are 221 rural and resort beaches that have been granted Seaside Awards in England in 2006, 91 (41%) of which can be found in the South West. The highest number of Seaside Award beaches can be found in Devon (35), closely followed by Cornwall (34), Dorset (17) and Somerset (5).

The number of Blue Flag awarded beaches and marinas in the South West increased from 26 in 2005 to 32 in 2006, giving the region by far the highest number of awards in England. Of these 32 Blue Flag locations, 9 can be found in Cornwall (including 2 marinas), 13 in Devon and 10 in Dorset (including 1 marina).

KEY FACT

With an average of 3,963 items/km, more litter was found per km on the South West's beaches than in anywhere else in the UK

National perspective

3,891 volunteers surveyed 332 beaches (covering 170.7km) nation-wide during Beach Watch 2005. A total of 338,196 items of litter were collected, weighing 11,337 kg, 35% of which was dropped by beach visitors.

On average, 1,981 items of litter were found per km, an increase of 4.4% on 2004. This was a small increased but it continues the steady year-on-year that has been observed since 1994. Overall, there has been almost a 90% increase in the density of beach litter between 1994 and 2005.

In all, plastic items made up 59% of all litter recorded in 2005, an increase of 0.5% on 2004. The number of plastic items found per km increased by 121% between 1994 and 2005 (from 530 items per km to 1,169.3 items per km).

The greatest decline experienced by any English region between 2004 and 2005 was in the North West (-46%), whilst increases were found in the North East (+12%) and the South East (+3%).

There are 221 rural and resort beaches that have been granted Seaside Awards in England in 2006. The highest number of awarded beaches can be found in the South West (91), followed by the South East (48), East (30), Yorkshire & the Humber (19), North East (16), North West (14) and East Midlands (3).

There are 80 Blue Flag awarded locations in England in 2006, 77 of which have been awarded to beaches (20 more than in 2005) and 3 for marinas. The South West has the highest number of Blue Flag beaches and marinas awarded in England (30 beaches and 2 marinas), followed by the East (18 beaches), South East (17 beaches), Yorkshire & the Humber (6 beaches), North East (5 beaches and 1 marina) and the North West (1 beach).

European and worldwide perspective (where available)

In 2005, there were 2,472 beaches and 635 marinas awarded Blue Flag status in 33 countries, 26 of which were in Europe whilst others were in the Caribbean, Morocco, Canada, New Zealand and South Africa in 2005 (Blue Flag, 2005).

Over 300,000 people from 88 countries took part in the 19th International Coastal Cleanup in 2004, helping to clean over 11,000 miles of shoreline. Around 4,000 tonnes of litter, and debris was collected worldwide (International Coastal Clean Up, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/marine_pressures.asp

marine species

Background
The coasts of Cornwall, Devon, Dorset, areas of the Bristol Channel and the western approaches of the English Channel are extremely important in terms of their wealth of dolphins, whales and porpoises (collectively known as cetaceans). 20 different cetacean species (out of the 35 recorded in European waters) have been sighted in these areas (along with the Celtic Deep, St. George's Channel, the Southern Irish Sea) since the beginning of the century. They also form important whale migratory routes (Whale & Dolphin Conservation Society, 2003).

Every year, hundreds of whales, dolphins and porpoises are stranded on UK shores, the majority of which are dead. Records are kept of all reported strandings, including cause of death, which is vital to increasing understanding of these species and how they can be conserved in the future.

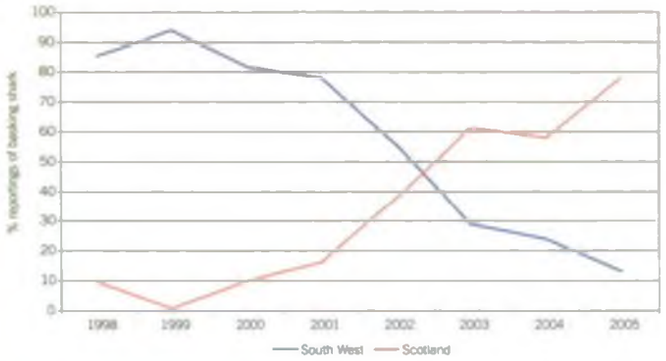
South West perspective
Cornwall has the highest number of reported dolphin and porpoise beach strandings in the UK. The Cornwall Wildlife Trust's Marine Strandings Database contains 240 records of marine strandings on Cornish beaches between February 2005 and January 2006, 133 (55%) of which were dolphin species. This was a slight decline on 2004, when 223 dead dolphins, whales, and porpoises were found, though a 132% increase on 2000. However, between the 1st and 31st January 2006 alone, there were 58 reported strandings, 49 (84%) of which were dolphins or porpoises. Most of these strandings have arisen due to entanglement in fishing nets (Cornwall Wildlife Trust, 2006).

As scientist's estimate that only 5 - 10% of those killed in fishing nets ever get washed ashore, the real total could be between 2230 and 4460 during 2004 in Cornwall alone (UK Government, 2004).

A 'channel' of basking shark sighting has been identified up the Irish Sea between the South West (principally Cornwall, Devon and Dorset), up to the Isle of Man and into Scottish waters. 'Hot spots' in the South West include the area around Lands End,

KEY FACT

49 dead dolphins and porpoises were found on Cornish beaches in January 2006, most of which showed signs of having been entangled in fishing nets.



% of basking shark sightings 1998 to 2005 in the South West and Scotland (Marine Conservation Society, 2005)

the Lizard peninsula and the waters off Plymouth. Sightings are generally high during May in the South West and move progressively north throughout the year.

17 years of public reports indicate that there has been a marked shift in basking shark sightings from South West waters to Scotland. Between 2001 and 2004, there was a 65% increase in reported sightings in Scottish waters and a concurrent 66% decrease in the South West. In 2005, 77% of all sightings were from Scotland, approximately 20% higher than in 2004 (58%) and a 69% rise from 1998. Comparable South West data reveals a 10% decrease on 2004 and a 72% decline since 1998 (Marine Conservation Society, 2005)

These changes may be due to several factors. However, climate change is thought to be changing the distribution of plankton and sea surface temperatures encouraging basking sharks to move northwards.

A more local perspective
Mounts Bay (Cornwall), Whitsand Bay and Looe (Cornwall), Gerran's Bay and Veryan Bay (Cornwall) and Thurlestone (Devon) have been identified as having the worst records for strandings in England (Natural History Museum, 2005) (Natural History Museum, 2005).

National perspective
Between 1990 and 2004, there have been 4,386 cetacean strandings in the UK, under 8% of which were alive. The most common cause of death was entanglement in fishing nets, accounting for 35% of all dead strandings. Common dolphins were the most likely victims of by-catch, which was the cause of over 61% of reported strandings of this species (Defra, 2005).

UK records show that the number of stranded harbour porpoises increased by 347% between 1991 and 2004 (from 86 to 384), common dolphins by 311% (from 38 to 156) and all other cetaceans by 67% (from 52 to 87) (Defra, 2005).

Cetacean strandings have increased by 113% in the last 5 years alone (1999 - 2004). This increase has been predominantly due to strandings of short-beaked common dolphins and harbour porpoises in the South West and appears to reflect a genuine rise in net entanglement-related deaths (bycatch) (Natural History Museum, 2005).

Basking shark sightings in the UK fluctuate year to year but were at their lowest in 1993/1994 (below 100). There was a large increase of sightings in 2004, reaching 900 by the end of the year. This was higher than the previously highest peak in sightings in 2001 (573), which is thought to have been a result of promotional campaigns. Data for 2005 was incomplete by the time this report went to publication, but 703 sightings were reported by October (Marine Conservation Society, 2005).

The number of dead basking sharks reported to the Marine Conservation Society has fluctuated since 1987, peaking at 15 in 2004. 6 dead basking sharks were reported in 2005, 3 of which were in Scotland, 2 in the South West and 1 in the Bay of Biscay. Of the two reports in the South West, both showed evidence of being caught in fishing gear (Marine Conservation Society, 2005).

European and worldwide perspective (where available)

Research presented at the Eighth Meeting of the United Nations Convention on Migratory Species in 2005 revealed that more than two-thirds of the world's dolphins, porpoises and related species are at risk from being culled or caught in nets. Just over 56% are threatened by pollution including contamination by heavy metals, pesticides and from ingesting marine litter. Almost 15% are also threatened by lack of food as a result of over fishing of the world's ocean and nearly 13% from culling by fishermen who fear they are a threat to fish stocks (UNEP, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/marine_environment.asp

living it, loving it...

PEOPLE AND COMMUNITIES

INFORMATION AND TRENDS RELATING TO **POPULATION, LOCAL ENVIRONMENTAL QUALITY** AND **TRANSPORT**.

related sections **Chapter 1:** Atmosphere, **Chapter 4:** Flooding, **Chapter 9:** Waste & pollution

regional issue

Strategy theme	2004	2005	Indicator
Climate change	✗	✗	Greenhouse gas emissions
	○	✗	Rising sea levels
	○	○	Loss of wildlife
	○	○	Changes to landscape and historic environment
	○	○	Lifestyle changes
Tourism	✗	✗	Visitor pressure
	✗	✗	Car use
	○	○	Local distinctiveness
	○	✓	Access to open space
Spatial planning & development	○	○	Dark skies
	✓	✓	Local environment quality
Transport	✗	✗	Traffic growth
	✓	✓	Alternative fuels
	✗	✗	Local air quality
	○	○	Tranquil areas

✗ Pressures that are negative and are expected to continue
○ Areas of uncertainty or potential problems
✓ Trends that are positive or expected to improve

population

South West perspective

There were just over 5 million (5,038,000) people living in the South West in 2004, almost 9% of the English total and over a 21% increase since 1971. The region had the 3nd lowest population in England, (behind the North East and the East Midlands) accounting for 10% of the national total (ONS, 2005).

Between 1971 and 2004, the South West's population increased by 926,000 people or 22%. This gives an average annual growth of 0.7%, which is above the English average of 0.2%.

By 2028, it is thought that the region's population will be 5,823,000. With a potential increase of almost 16%, the South West could have the 2nd highest projected increase of all the English regions, just behind the East. During this time, the South West will also have the highest percentage of people over 65 moving to the region with almost 26% compared to the national average of 22% (ONS, 2005).

There were over 2.2 million dwellings in the South West in 2004, an increase of almost 14% or 268,000 new homes on 1991. This was above the English average of 10% and the highest recorded in any of the English regions (ODPM, 2005). The number of households in the region are expected to increase from just over 2.2 million in 2006 to almost 2.75 million in 2026. The average household size is also expected to decline by almost 9%, from 2.25 in 2006 to 2.05 by 2026 (ODPM, 2005)

The South West is the least densely populated of the English regions with just 2.07 people per hectare (compared to an English average of 3.77). This low population density and the high percentage of people living in rural areas make the South West the most 'rural' of the England regions although densities vary considerably across the region (ONS, 2005).

Between 1994 and 2004 the density of dwellings in the region increased by 56%, from 25 to 39 per hectare, with the majority of this increase occurring between 2001 and 2004. This trend is very similar to the national picture.

KEY FACT

By 2028, the South West's population will have grown by 16%, the 2nd highest increase of the English regions.

More people live in rural areas in the South West than in any other English region (about 54%). The 31 rural districts have all seen a higher rate of population growth than the 14 urban districts in the region, with almost an 18% increase between 1983 and 2003. This was more than double the 8% increase in urban districts

Around 64% of the South West's population live in urban settlements, the lowest percentage of any English region and below the English average of 82%. More people live in villages, hamlets or isolated dwellings in the region than the English average, 17% compared to 8% respectively. With almost 4%, the region also has a higher percentage of people living in remote locations than the English average of just over 1%.

A more local perspective

The fastest population growth in the South West has been seen in predominantly rural areas. North Dorset, Torridge, Restormel, West Wiltshire and Exeter ranked amongst the fastest growing 10% of local authority areas in England between 1994 and 2004. Plymouth was the only area in the South West to decline in population over this period (ONS, 2005).

Projected population growth rates for 2004 to 2014 place Restormel, Taunton Deane, Torridge, West Wiltshire and North Cornwall in the fastest growing 10% of local authorities in England.

The highest population densities can be found in the major urban areas of the region, such as Bournemouth (35.4 people per hectare), Bristol City (34.7 people per hectare) and Plymouth (30.2 people per hectare). The lowest densities are in the predominantly rural districts of West Devon (0.4 people per hectare), West Somerset (0.5 people per hectare) and Torridge (0.6 people per hectare) (ONS, 2005)

National perspective

There were 59.8 million people living in the UK in mid-2004, 50.1% of which lived in England. The South East had the highest population, with over 8.1 million people and 16% of the national total, closely followed by London with 7.4 million people. The lowest population was in the North East with just over 2.5 million people, 5% of the English total (ONS, 2005).

The total population in England grew by almost 3.7 million people, or 8%, between 1971 and 2004 giving an average annual increase of just over 0.2% (ONS, 2005).

Projected population trends between 2004 and 2028 show that the East and South West will have the highest rates of growth, both by 16%, whilst the North East is expected to decline by 2% (ONS, 2005).

Over 1.9 million dwellings were built in England between 1991 and 2004, an increase of almost 10% between 1991 and 2004. The highest rates of new dwellings built was in the South West, followed by the East Midlands and East, both with 17% of the national total (an increase of 209,000 and 268,000 respectively). The lowest rates were in the North East, where 54,000 new dwellings were built, 5% of the national total (ODPM, 2005).

The number of households in England is predicted to increase from almost 21.5 million in 2006 to just under 26 million by 2026. Average household size is also expected to decline by 9%, from 2.31 to 2.10 in 2026 (ODPM, 2005).

European & worldwide perspective (where available)

Europe is one of the most urbanised continents, with around 75 % of the total population living on just 10% of the land area. The total population in Europe in 2005 was estimated to be around 724.7 million, a decrease of just over 3.2 million since 2000. It is projected that the population will continue to decline to 685 million by 2030 (United Nations, 2006).

Population density varies greatly across Europe. The lowest population density in 2003 was found in Iceland, with just 3 people per km^2, in complete contrast to Monaco with 17,356 people per km^2. United Nations Economic Commission for Europe (2004).

The world's population stood at almost 6.5 billion in 2005, an increase of 380 million since 2000 or 76 million every year, and is set to increase by 40% by 2050. Nearly 99% of all population increase takes place in poor countries, while population size is static or declining in the more developed nations. It is thought that world population will reach 9.3 billion by mid-century. Around 48% of the total population lived in urban areas in 2003 (United Nations, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/population.asp

local environmental quality

Background
The quality of our local environment (where we live, work or play) can have a dramatic effect on our quality of life.

Encams carry out an annual Local Environmental Quality Survey of England, which measures aspects that impact on the lives of those who live, work, visit or invest in a region. This includes street cleanliness, condition of the highway infrastructure, environmental crime such as graffiti or fly tipping and the condition of the street scene.

Other measures of quality of life include the national Green Flag Award, which recognises and rewards the best green spaces in the country.

The percentage of residents satisfied with local parks and open spaces is measured by the Best Value Performance Indicator (BV119e) user satisfaction survey. A sample survey is carried within every local authority area every 3 years, with the last one conducted in 2003/2004.

South West perspective
The South West had the 2nd highest local environmental quality out of the English regions in 2004/2005 according to the 2004/2005 Encams Local Environmental Quality Survey, making it the most improved region alongside the West Midlands (Encams, 2005).

Although a direct comparison with the 2003/2004 is not possible, due to a change in survey technique which moved the region from a final rank of 4th to 7th, the proportion of areas in good or satisfactory condition in the region increased from 44% to 48%. There was also a corresponding decrease in areas in unsatisfactory condition, from 52% to 48% and those in poor condition from 4% to 3%.

Of all survey sites in the South West, 29% were in good condition, 19% in satisfactory condition, 48% in unsatisfactory condition and 3% in poor condition. This revealed an improvement on 2003/2004, when 28% were in good condition, 16% were satisfactory, 52% unsatisfactory and 4% poor. Only paved area obstructions were deemed to be poor in the region, whilst those in unsatisfactory condition were predominantly in the highway and street furniture categories.

Over the last 3 years, the South West has consistently scored higher than the national average in terms of general litter, litter at bus stops and in landscaped areas. The 3 environmental crime indicators of graffiti, fly tipping and fly-posting all scored maximum points, double the national average. Improvements have also been found in the amount of detritus, weed growth and channel obstructions.

There were 27 Green Flag Awards in the South West in 2005/2006, 8% of the national total, marking a significant increase on 17 in 2004/2005 (Civic Trust, 2006).

The number of people satisfied with parks and open spaces in the South West increased from 63% in 2000/2001 to 72% in 2003/2004 (ONS, 2005).

A more local perspective
Satisfaction with parks and open spaces was over 55% in all of the South West's counties during 2003/2004. However, people were more likely to be satisfied in Cornwall (76%), closely followed by Somerset (72%) and Dorset (71%). Whilst still high, satisfaction was slightly lower in Devon (66%), Wiltshire (58%) and Gloucestershire (55%).

In terms of individual local authority areas (where data was available), satisfaction with parks and open spaces was lowest in the Forest of Dean (26%), followed by Bristol (51%). Satisfaction was highest in Poole (86%), closely followed by Cheltenham (85%) (ONS, 2005).

Over 600 local profiles in the South West can be found via the weblink in the updates section on page 61.

National perspective
12,000 sites were surveyed throughout England during the 2004/2005 Encams survey. Key results include the fact that 79% of sites were covered with cigarette butts, 69% by sweet wrappers, a 65% increase in bottles and cans and a 450% increase in fast food rubbish since 2001 (Encams, 2005).

23% of surveyed areas in England were of a good standard and 16% were of satisfactory standard in 2004/2005, both showing a slight decline from 28% and 19% 2003/2004. With just 3% the proportion of areas in poor condition remained the same as the previous year, however with 58% there was an 8% increase in areas in unsatisfactory condition (Encams, 2005).

The most improved regions in 2004/05 were the West Midlands and the South West. Only two regions, Yorkshire and The Humber and London, scored lower than the English average.

KEY FACT

The South West had the 2nd highest local environmental quality out of the English regions in 2004/2005.

New measures under the Clean Neighbourhoods and Environment Act, which came into force in June 2005, have given local authorities stronger powers to tackle environmental crime (Encams, 2005).

In 2000/2001, an average of 63% of people in England were satisfied with parks and open spaces, however by 2003/2004 this had increased to 72% (ONS, 2005).

There were 322 Green Flag Awards throughout England and Wales in 2005/2006. With 31% of the national total (100), the North West had the highest number of Awards, followed by Greater London with 18% (59). Wales had the lowest number of Awards with 4% (13) (Civic Trust, 2006).

European and worldwide perspective (where available)
Over 70% of Europeans see the environment as having a significant influence on their quality of life and want to see the environment taken into account in policy making.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/local_environment_quality.asp

Local profiles detailing key characteristics of the South West's environment, society and economy can be found at
www.swenvo.org.uk/local_profiles/local_profiles.asp

eco-footprint

Background

Securing the Regions Futures was published in April 2006. It identifies the government's approach to strengthening the delivery of sustainable development in the English regions. Work on sustainable development framework indicators in the South West will begin in the summer of 2006. Ecological footprints are becoming increasingly utilised as a powerful way of raising awareness of sustainable development issues in regions (Defra, 2006).

The Ecological Footprint is a comprehensive account of the resources consumed by a population, measuring the balance between human demand and nature's supply. It estimates how much productive land and sea, expressed in global hectares (gha), is needed to provide the energy, food and materials we use in our everyday lives, and how much land is required to absorb our waste. It also calculates the emissions generated from the oil, coal and gas we burn, and determines how much land is required to absorb them.

The biological capacity (available supply) of the earth is approximately 11.3 billion global hectares - a quarter of the earth's surface. The productive area of the biosphere translates into an average of 1.8 global hectares per person - known as our 'earth share'

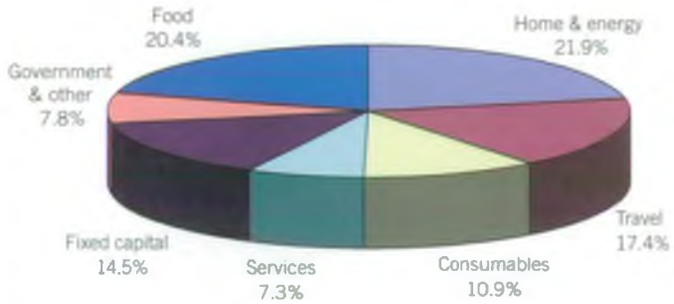
WWF-UK's 'Ecological Budget UK' project has produced a comprehensive baseline assessment examining the Ecological Footprint, Material Flow Analysis and CO_2 consumption emsisions for each English region, devolved country and local authority area, as well as by 123 economic sectors and 54 socio-economic groups. The project has also produced sophisticated software tool, the Resources and Energy Analysis Programme (REAP), which 'desktops' Ecological Footprint and CO_2 data for policy makers and non-technical users so they can undertake scenario modelling.

The following information is taken from WWF (2006) unless otherwise stated.

South West perspective

The Ecological Budget UK project provides three indicators for the South West region - Ecological Footprint, Material Flow and CO_2 consumption emissions.

A break down of the region's ecological footprint shows that 'home and energy' and 'food' are the largest contributors to the region's footprint, at 1.15 gha/cap (28%) and 1.07 gha/cap (20%) respectively, a trend that is consistent with the UK



South West ecological footprint (global hectare/capita) (WWF, 2006)

average. Travel is also a large contributor (0.91 gha/cap or 17%) and in the South West is above the UK average (0.84 gha/cap).

Ecological Footprint is based on data collected using Material Flow Analysis, which catalogues the tonnage of material resources needed to supply every form of consumption and production in the economy. The South West is the largest producer in the 'mining and quarrying sector' (58.4 million tonnes), and the 'agriculture, hunting and forestry sector' (13.9m tonnes), and is the second largest producer in the 'fishing sector' (128,000 tonnes). Total net material consumption (production + imports - exports) is estimated at 108.2 million tonnes, with households accounting for 36.1 million tonnes.

As Ecological Footprint is a measure of our consumption patterns, it follows that CO_2 emissions in the region can also be calculated based on this principle. Traditional CO_2 measurements are based on 'territorial' emissions, or those directly produced in the region, with the South West accounting for 9.46 tonnes of CO_2 per person (t/cap). However, if 'indirect' emissions from our consumption patterns are included, this rises by 17% to 11.47 t/cap. Within this, CO_2 emissions from energy consumption shows a marked difference, with 'territorial' accounting attributing 0.5 t/cap while 'consumer' accounting attributes 2.7 t/cap - a rise of 81% and reflective of the regions reliance on imported energy.

KEY FACT

If everyone on the planet lived like the average South West resident we would need three planet's to support our current lifestyles.

A more local perspective

The results shown here are only illustrative, based on averages taken from the Ecological Budget UK data.

Although there was very little difference between the South West counties, Dorset had the highest average ecological footprint with 5.32 gha/capita, followed by Gloucestershire and Somerset both with 5.3 gha/capita. The lowest score was in Devon (including Plymouth and Torbay unitary authorities) with 5.24 gha/capita and Cornwall with 5.27 gha/capita.

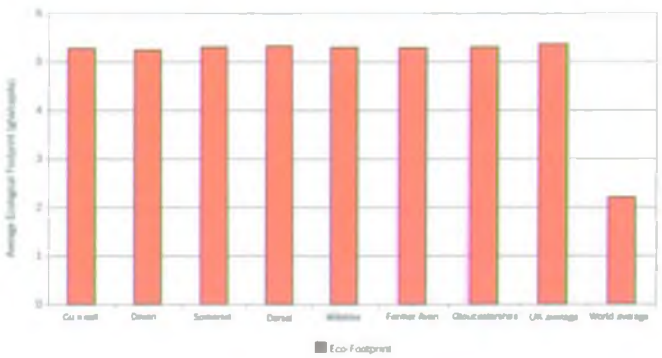
In terms of local authority area, Plymouth had the lowest eco-footprint in the region, scoring 5 gha/capita. East Dorset scored the highest with 5.47 gha/capita.

National perspective

The UK has an average ecological footprint of 5.36 gha, with the highest in the South East with 6.29 gha and lowest in Wales with 5.20 gha.

Home and energy was responsible for the largest proportion of the national eco-footprint with 1.16 gha or 22%, closely followed by food with 1.14 gha or 21%. Resources used by local government, universities and colleges were responsible for the least share, accounting for 0.4 gha or 7%.

Becoming a 'one planet economy' will require a 75% reduction in resource flows and the ecological footprint - known as a Factor Four reduction. This is a challenging target but it is essential for long-term sustainability. It will require a year-on-year reduction of -3% in resource flows and the ecological footprint. However, set against an economic growth rate averaging 2.25% per year this implies decoupling economic and material growth rate at -5.25 per cent a year - more than twice the rate seen in recent years.



South West ecological footprint according to county with UK and world comparison (WWF, 2006)

European & worldwide perspective (where available)

The average European required 4.9 gha to provide for their lifestyle in 2001, an increase of almost 70% since 1961. Around 7% of the world's population lives in Europe, however, the EU uses 17% of the earth's bio-capacity. The continent can only supply 2.2 gha per person, and as a result, Europeans are relying on the rest of the world to make up this increasing deficit (WWF, 2005).

In 2001, the global eco-footprint was 13.5 billion global hectares, roughly 2.2 global hectares per person. Humanity has exceeded the bio-capacity of the earth since the 1980s and this global overshoot increased by around 160% between 1961 and 2001, exceeding population growth (which doubled). This overshoot depletes the earth's natural capital and will only be possible for a limited time.

The ecological footprint is highest in the United Arab Emerates (almost 10 gha per person), closely followed by the USA and Kuwait. It is lowest in Afghanistan (under 0.5 gha per person), followed by Somalia and Haiti. The UK ranked 15th (around 5.5 gha per person) (WWF, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/eco_footprints.asp.

Ecological Footprint results are now freely available for local authority areas in England, Scotland and Wales. Results for the South West region can be downloaded from
www.sei.se/reap/local/l_download.php#sw

transport

Background

The South West peninsula extends over 350 km from the south-western tip of Cornwall to the northern border of Gloucestershire. It's size and rural nature can create accessibility problems. Even though the distance is slightly further, it takes almost an hour less to travel by car from the north of the region to Scotland than it does to travel from the north of the region to the tip of Cornwall. Accessibility tends to decline with the motorway network ending at Exeter and slow rail links past the city with track speeds below 75 mph (South West Regional Assembly, 2004).

All information in the following section is from the Department for Transport (2005), unless otherwise stated.

South West perspective

The volume of transport is increasing in the South West, due to a number of factors including population increase, growth in tourist numbers, increases in economic activity, and rising car ownership.

There were over 3.14 million vehicles licensed in the South West during 2004, 11% of the English total. The total number of vehicles in the region increased by almost 10% between 2001 and 2004.

During 2003/2004, South West residents made more journeys per person than in any other region, accounting for 12% of the national total or 1,056 trips. More people travelled by private car than in any other region, with the South West accounting for 13% (709 trips) of the national total. However, the South West had the second highest number of trips made by foot with 12% (268 trips).

People in the South West have some of the least accessible bus services in England, with only 82% living within a 13 minute walk of an hourly service compared to the English average of 90%. This may partly explain why just 6% of trips were made by public transport, the lowest recorded in any region.

KEY FACT

The average person in the South West travelled 7,919 miles in 2003/2004, more miles than any other region and significantly higher than the English average.

The average person in the South West travelled 7,919 miles in 2003/2004, more miles than any other region and significantly higher than the English average of 6,787. Almost 86% (6,785) of this was made by car, whilst just 2% was made on foot and under 9% by public transport.

Over 30% of road transport journeys took place on the region's urban A roads in 2004, 8% on the motorway, 17% on rural roads and 17% on all minor roads.

Between 1994 and 2004, the volume of traffic on major roads in the South West increased by almost 23%, the joint 2nd highest increase of the English regions with the South East and above the English average of 20%.

Between 1995/1996 and 2004/2005 rail patronage grew by 42% in the South West, higher than the national average of 38%. During 2004/2005, 59% of national rail journeys started within the South West ended within the region, 19% were destined for London and 11% to the South East.

There is a growing demand for air travel within the region. Although the 112,600 takeoffs and landings in the region accounted for just 7% of the English total, the number of passengers at airports in the region increased by 25% between 2003 and 2004. This was significantly higher than the English average of 8%. Between 1994 and 2004, air travel increased by 81% in the region, which is again significantly higher than the national average of 52%. Bristol airport is the busiest in the region, with 4.6 million passengers in 2004, 71% of the regional total, followed by Exeter and Bournemouth airports.

A more local perspective

Transport plays a key role in supporting regional and local prosperity, economic growth and enhancing quality of life.

The Transport Act 2000 requires local transport authorities (county councils and unitary authorities) to produce and maintain a Local Transport Plan (LTP). This is a 5-year strategy for the development of local, integrated transport, supported by a programme of transport improvements. The LTP also forms a bid to Government for funding of the improvements. Each LTP contains a series of targets monitoring the impact of the strategy, progress towards which is monitored in annual reports.

National perspective

The volume of traffic in England increased by 81% between 1980 and 2004, from 277 to 502 billion vehicle kilometres. However, the majority of this growth occurred between 1980 and 1990, with 21% of this growth occurring since 1990.

The average person in England travelled 6,787 miles in 2003/2004, 81% of which was made by car. Just 3% of these miles were made on foot and 13% by public transport. Car traffic has increased by 85% since 1980, from 215 to 398 billion vehicle kilometres.

A total of 992 trips per person were made during 2003/2004. Around 65% of these journeys were made by car, 25% on foot, 6% by local bus, 3% by other public transport and 3% by other private modes. People in the North East made the least trips by private car and the highest number of journeys by foot. People in London were the most likely to travel by public transport.

The volume of traffic on major roads in England increased by 20% between 1994 and 2004. The East Midlands had the highest rate of increase with 25%, closely followed by the South West and South East, both with 23%. With just 0.3%, London had the lowest increase in England.

Between 1994/1995 and 2004/2005, rail patronage grew by 38% in England. This growth was highest in Yorkshire & the Humber with 63% and the East Midlands with 60% and at 29% it was lowest in the North East.

Over 1.7 million landings and takeoffs took place in English airports during 2004, an increase of 52% since 1994. With an increase of 223%, the East had by far the largest increase in air transport movements between 1994 and 2004. All regions experienced an increase of at least 22%, the lowest being in London.

European & worldwide perspective (where available)

Road transport currently accounts for 79% of all passenger transport and 44% of freight in Europe. Car numbers have trebled in the last 30 years and are rising by 3 million a year. Every day 10 hectares of land are covered over by new road infrastructure in order to accommodate increasing demand and reduce congestion, equating to 1,200 km of new road every year.

Between 1970 and 1998, the proportion of passenger travel by rail fell from 10% to 6% and freight from 21% to 8%. As a result, 600 km of rail track is closed every year.

Air traffic has increased by over 7% since 1980 and is set to double every 10 to 14 years (European Commission, 2001).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/transport.asp


waste...not want not!

WASTE AND POLLUTION

INFORMATION AND TRENDS RELATING TO **WASTE**, **FLY TIPPING**, **POLLUTION INCIDENTS** AND **DIFFUSE POLLUTION**.

related sections

Chapter 1: Atmosphere, **Chapter 5:** Inland waters, **Chapter 7:** Marine environment, **Chapter 8:** People & communities

regional issue

Strategy theme	2004	2005	Indicator
Wiser use of natural resources	✓	✓	Water quality
	✓	✓	Air quality
	✗	✗	Diffuse pollution
	✗	✗	Waste
Tourism	✓	✓	Bathing water quality
	✗	✗	Visitor pressure
Spatial planning & development	✓	✓	Local environment quality

✗ Pressures that are negative and are expected to continue

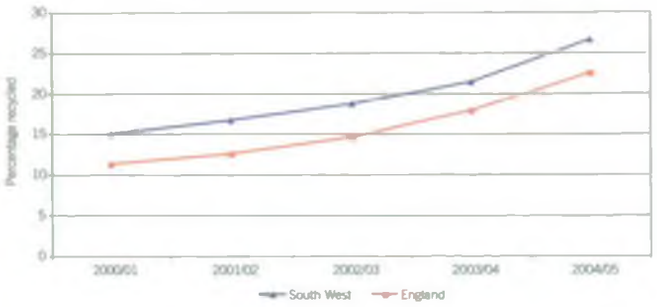
○ Areas of uncertainty or potential problems

✓ Trends that are positive or expected to improve

waste

Background
There is a Regional Waste Strategy for the South West 2004 - 2020: From Rubbish to Resource (South West Regional Assembly, 2004). This Strategy is helping to address waste issues across the region and sets out how to make the South West a minimum waste region by 2030.

All information in this section is from provisional results of the Municipal Waste Survey 2004/2005 (Defra, 2006), unless otherwise stated.



Household recycling rates in the South West compared to England 2000/2001 to 2004/2005 (Defra, 2006)

South West perspective
Every year the South West produces around 2.5 million tonnes of domestic waste, 5.5 million tonnes of commercial & industrial waste, and 12.5 million tonnes of construction and demolition waste.

Total municipal waste (including household, street litter, recycling centre & civic amenity sites) is increasing. Between 2000/2001 and 2004/2005 total municipal waste increased by 12% and now stands at its highest point of 3 million tonnes.

Around 10% of all municipal waste in England (29.7 million tonnes) was produced in the South West in 2004/2005. This was the 3rd lowest of the English regions, behind the North East and East Midlands.

Household waste accounted for 87% (over 2.6 million tonnes) of all municipal waste in 2004/2005, with non-household sources and non-household recycling contributing 13% (377,000 tonnes). Total household waste increased by just under 5% between 2000/2001 and 2004/2005. However, total municipal waste from non-household sources increased by 119% over the same period.

Landfill remains the major method of waste disposal in England, as it is in the South West. Just under 2.1 million tonnes (70%) of municipal waste was sent to landfill in the region in 2004/2005. This was the 3rd highest rate in the English regions, behind Yorkshire & the Humber and the North West and higher than the English average of 67%. However, there has been a positive movement away from reliance on landfill in the region and municipal waste managed in this way reduced by 109,000 tonnes between 2000/2001 and 2004/2005 (proportionately from 82% to 70%). This mirrored the national trend.

Just under 27% of household waste was recycled in the South West in 2004/2005. This was the 2nd highest recycling rate in the country, behind the East with just over 29% and significantly higher than the English average of 22%. The proportion of household waste recycled or composted increased from just under 15% in 2000/2001 to around 27% in 2004/2005.

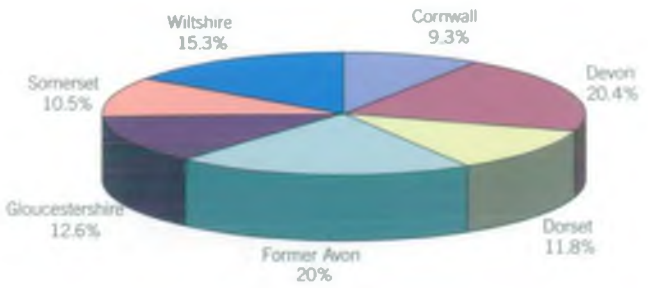
Over 5.56 million tonnes of industrial and commercial waste was produced in the South West during 2002/2003. Accounting for 8% of the national total, the region produced the 2nd lowest amount of the English regions behind the North East with 7%. Total industrial and commercial waste produced in the region increased by 6% between the last survey in 1998/1999 and 2002/2003. This was due to a 28% increase in commercial waste (from 2.32 million tonnes to 2.97 million tonnes). Industrial waste actually declined by 11% during this period (from just over 2.91 million tonnes to almost 2.59 million tonnes) (Environment Agency, 2005).

Around 40% of all commercial & industrial waste in the region was recycled or re-used, an increase of 8 percentage points (549,000 tonnes) on 1998/1999. 43% of this waste was sent to landfill in 2002/2003, a decline of 2 percentage points (36,000 tonnes) on 1998/1999 (Environment Agency, 2005).

A more local perspective
Best Value Performance Indicators show local authority recycling and composting rates during 2003/04. Both recycling 29% of their waste, Dorset and Bath & North East Somerset had the highest recycling rates in the region whilst the Forest of Dean showed the greatest increase since 2002/2003 (16%). Only 4 local authorities showed a small decline in recycling on 2002/2003 (Bournemouth Borough Council, North Devon District Council, Kennet District Council and Bristol City Council) (Defra, 2005).

KEY FACT

Household recycling has been steadily increasing in the region, by almost 42% since 1996/1997.



Total industrial and commercial waste produced in the South West according to county 2002/2003 (Environment Agency, 2005)

7 South West local authorities appear in Defra's top 50 best performers. The Forest of Dean District Council and North Cornwall District Council were also highlighted as amongst the top 10 best improvers since 2002 / 2003.

Commercial and industrial premises in Devon produced the largest total amount of waste, with 20% of the regional total (1.13 million tonnes), closely followed by the former Avon area also with 20% (1.11 million tonnes). With 9%, the least amount was produced in Cornwall (516 thousand tonnes).

In terms of just industrial waste, Devon produced the largest amount with 20% of the regional total (519 thousand tonnes). Commercial waste was highest in the Former Avon area with 23% (685 thousand tonnes). Cornwall produced the least amount of both commercial and industrial waste with 9% (266 thousand tonnes) and 10% (250 thousand tonnes) of the regional total respectively (Environment Agency, 2005).

National perspective

Over 29.7 million tonnes of municipal waste was produced in England during 2004/2005, an increase of just under 6% (1.7 million tonnes) since 2000/2001.

Landfill remains the dominant form of disposal, with 67% (19.9 million tonnes) of all municipal waste managed in this way. The proportion of waste sent to landfill varied across the regions, with the lowest in the West Midlands (49%) and the highest in North West (75%). However, the proportion of waste being sent to landfill decreased in all regions between 2000/2001 and 2004/2005. Nationally, landfilled waste reduced by 2.1 million tonnes (proportionately from 79% to 62%).

Around 86% (just under 26 million tonnes) of all municipal waste came from household sources in 2004/2005. Just under 5.8 million tonnes of household waste was recycled in 2004/2005, an increase of almost 3 million tonnes since 2000/2001 (proportionately from 11% to 22%).

Best Value Performance Indicators showing local authority recycling and composting rates during 2003/04 reveal that more waste is being recycled throughout the country with the recycling and composting rate increasing by 3 percentage points - the highest rate of increase ever recorded in England (Defra, 2005).

Between 1989/1999 and 2002/2003, the total amount of commercial and industrial waste produced in England reduced by almost 3%, from 75 million tonnes to 73 million tonnes. Industrial waste reduced by 7% over this period, from around 45 million tonnes to 42 million tonnes. However, total commercial waste increased by 3%, from 30 million tonnes to 31 million tonnes. Industrial waste was highest in Yorkshire & the Humber (22% of the English total) and lowest in London (5%) (Environment Agency, 2005).

Around 44% of all commercial and industrial waste was re-used and recycled during 2002/2003, whilst the amount landfilled reduced by almost 5 million tonnes to account for 40%.

European and worldwide perspective (where available)

Europe generates around 1.3 billion tonnes of waste every year. Waste generation is still thought to be coupled to economic growth, making it impossible to pursue economic growth without generating increasingly serious waste management problems.

The EU target to reduce municipal waste generation to 300 kg/capita/year by 2000 was not achieved and no new targets have been set. The average amount produced in many western European countries has reached more than 500 kg per capita.

England currently has one of the lowest rates of recycling in Europe, with Germany recycling 57% of its waste, the Netherlands 64% and Denmark 41% (European Environment Agency, 2005).

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/waste.asp.

Low Waste South West is a web-based facility that brings together in one place the relevant regional strategies and actions to help the region become a low waste region. It will undergo continuous development as activities are developed by regional partners:
www.oursouthwest.com/low-waste

fly tipping

Background
Flycapture is a national web-based database of fly tipping incidents that went live in April 2004. It contains information on fly tipping incidents, action taken and a vehicle registration hot-list that is encouraging joint working between authorities. All information in this section is from Flycapture (Defra, 2005), unless otherwise stated.

South West perspective
Between April 2004 and March 2005 approximately 30,000 fly tipping incidents were reported by South West local authorities, an average of 2,567 incidents per month. With 0.5 incidents per 1000 population, the region had the lowest number of incidents per head of population in England.

The highest percentage of fly tipping incidents took place on the region's highways (1,500 or 58%), followed by council land (500 or 19%).

Waste from households accounted for almost 40% of all incidents in the South West and black bag household waste was responsible for around 19%.

29% of all incidents were the size of a small van load, closely followed by car boot size or less with 28% and single items with 23%.

The clearing and disposing of fly tipped waste cost the region almost £2 million (£1,856,171). Although accounting for only 5% of incidents, tipper van loads of fly tipped waste were the most expensive to clear and dispose of, costing around £550,810.

A more local perspective
A map of fly tipping incidents having some environmental impact in the South West reveals concentrations around major urban areas such as Plymouth, Bournemouth, Exeter and Bristol.

National perspective
Rubbish is illegally dumped somewhere in England and Wales every 30 seconds and costs local authorities almost £100 a minute to clean up.

A total of 891,170 fly tipping incidents (88,500 per month) were reported by waste collection authorities in England between April 2004 and March 2005.

The highest number of monthly incidents were reported in London (25,700), followed by Yorkshire & the Humber (18,500). The South West had the lowest number of incidents.

Clearing these 88,500 incidents costs local authorities over £44 million - nearly £4 million per month.

Local Authority Districts containing the 88 most deprived wards were much more likely to experience fly tipping and accounted for almost 70% of total incidents.

Flytipping incidents in the South West in 2004 having some environmental impact (category 1-3) (Environment Agency, 2005)

KEY FACT

With 0.5 incidents per 1000 population, the region had the lowest number of incidents per head of population in England.

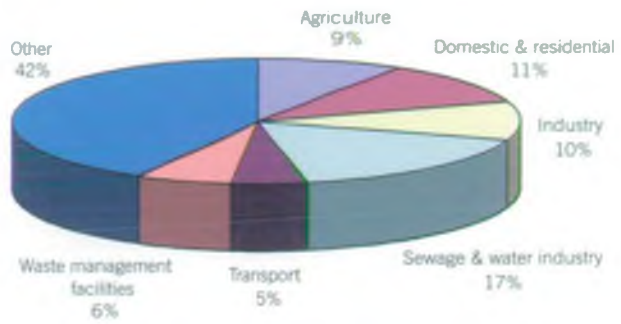
update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/waste.asp#fly_tipping

pollution incidents

Background
Pollution events such as oil spills or the accidental release of raw sewage can damage the environment. Pollution can be fatal for fish and invertebrate life and can pose a threat to human health, as well as degrading areas of natural beauty.

All of the following information is from the Environment Agency (2005), unless otherwise stated.



South West pollution incidents by source in 2004 (category 1-4) (Environment Agency, 2005)

South West perspective
There were 5,728 substantiated and unsubstantiated pollution incidents reported affecting air, land and water in the South West in 2004, the third highest of the English regions and Wales.

Total substantiated pollution incidents declined by over 19% between 2001 and 2004. 11 of these incidents caused major harm to the environment in 2004, an increase from 3 in 2003.

The South West had the highest number of incidents caused by sewage & water industry, agriculture and domestic & residential in England during 2004. The source of those classified as 'other' could not be identified.

The number of pollution incidents caused by agriculture has steadily decreased by 33% between 2001 and 2004. Water industry and domestic/residential incidents both showed small increases in 2003 but reduced in 2004.

A more local perspective
The Environment Agency's North Wessex region (Somerset, South Gloucestershire, North and West Wiltshire) had the highest number of pollution incidents in the South West with 1,323 incidents to air, water and land. This was followed by Cornwall with 918, Devon with 764 and South Wessex (including parts of Dorset, Wiltshire, Somerset and Hampshire) with 533.

National perspective
There were 25,196 substantiated pollution incidents in England and Wales during 2004. Of this total, 131 had a serious impact on the environment, around 83% of which affected water, 12% impacted on land and 5% impacted on air. The number of serious pollution incidents impacting on water increased from 94 to 114 between 2003 and 2004.

Although the source of over 42% of all incidents could not be identified, the sewage and water industry was responsible for almost 13%, waste management 9.5%, industry 8.4%, domestic and residential 7.5%, agriculture 5.4% and transport 4.3%.

The Environment Agency takes enforcement action against serious pollution incidents. In 2004, 233 limited or public limited companies were prosecuted, 18 more than in 2003, with a total of £2.3 million in fines.

European and worldwide perspective (where possible)
Transboundary pollution is ranked as the 1st or 2nd most serious environmental issue in three-quarters of all international waters (UNEP, 2006).

KEY FACT

Total substantiated pollution incidents have declined by over 19% in the South West since 2001.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/pollution.asp

diffuse pollution

Background
Diffuse pollution can arise from many sources, which are generally dispersed and diverse in nature. Derived from current and past land use in both agricultural and urban environments, sources may individually be small but their collective impact can be damaging.

South West perspective
Diffuse water pollution can have significant effects on water quality through the contamination of both groundwater and surface water supplies. Wildlife too can be impacted through smothering of fish spawning gravels, eutrophication (enrichment of water by nutrients), oxygen depletion and toxic chemicals.

Nitrate levels in groundwater have been steadily rising over the past few decades as a result of increased application of fertilisers to agricultural land. Subsequently, large areas in the region have been designated as Nitrate Vulnerable Zones. Levels of nitrate in the Lower Otter sandstone in east Devon have increased from a mean value of 4.6 mg/l in 1992 to 8.3 mg/l in 2004 (an 80% increase) (Environment Agency, 2005).

As shown in the Nitrate General Quality Assessment (GQA) map, nitrates in rivers are generally lower in Cornwall and Devon and highest in Dorset, Wiltshire and South Gloucestershire. This reflects the influence of the nitrate contaminated groundwater on the quality of the surface water (Environment Agency, 2005).

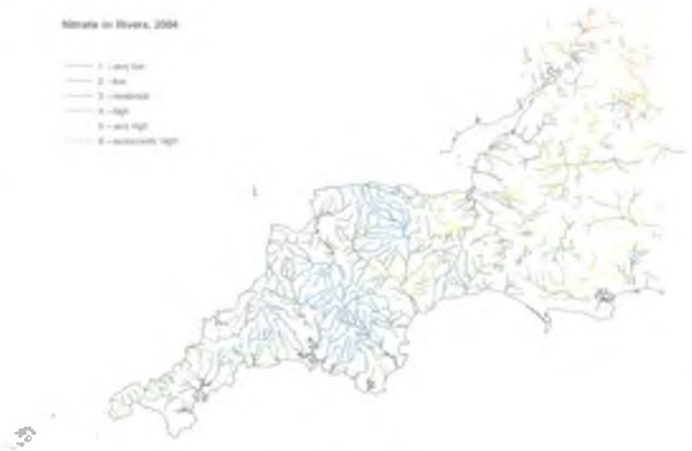
In 2005, over 5.5 million hectares of land in the South West was treated with pesticides, revealing a 25% increase since 1990 (Environment Agency, 2005).

Regular monitoring of drinking water by water companies in the region has found the presence of both pesticides and herbicides, although not at levels considered to pose a threat to the environment. The herbicide atrazine is one of those that has been detected in our groundwater, which can feminise male frogs (Pesticide News, 2005).

Millions of pounds are spent by water companies in the region to remove both nitrate and agricultural chemicals before our water is fit to drink.

KEY FACT

In 2005, over 5.5 million hectares of land in the South West was treated with pesticides, revealing a 25% increase since 1990.



Nitrate General Quality Assessment: nitrates in South West rivers 2004 (Environment Agency, 2005)

A more local perspective
16 local case studies aimed at reducing diffuse water pollution from agriculture in England have been highlighted in a recent report by Defra (2005). These include the Cornwall Rivers Project, Cycleau Axe and Char project, Cycleau Dart Catchment Project, Life into Landscape Project, Empool Project (Wessex Water), Farm Environment Link Project, Hampshire Avon Landcare Project, Helford Cycleau (Cornwall), Parrett Catchment Project, Tale Valley Project, Tamar 2000 Support Project, Tone Project, Upper Torridge, WAGRICO - Life Project, Wessex Chalk Rivers Project and West Country Rivers Project (Defra, 2005).

An example of these projects is the Cycleau Axe and Char project, which aims to promote best farming practice to reduce the impact of agriculture on watercourses and bathing waters in catchments. Covering 300km^2 of primarily agricultural land, this area has seen levels of nutrients rise, and sediment over river gravels increase. There has also been increased soil and riverbank erosion, a reduction in fish numbers and increased flooding. Key outcomes of this project have so far shown a reduced likelihood of infringing regulations as well as healthier soils as a result of the changing practices. There has been improved water quality, protected spawning gravels, improved soil structure, improved nutrient management and a reduction of pollution incidents.

Another example is the Farm Environment Link Project, which covers the whole of Cornwall. Intensive agriculture, inappropriate siting of gateways, poor timing for field works and over application of nutrients have all added to the problem of silting up of rivers, poor water quality, invertebrate absence and compaction of soils. The project aims to enhance the economic sustainability of Cornish agricultural holdings, which should result in a reduction in the levels of phosphates and nitrates in local rivers. Key outcomes so far include gross additional

sales/costs saved well in excess of the project target of £122,386. Over 2,500 ha of land are also subject to measures to reduce soil erosion, flooding or other adverse effects from current agricultural practice.

National perspective

Water quality in the UK has improved significantly in recent years, but diffuse sources of pollution remain a concern. Many rivers and lakes could fail to meet the "good status" objectives because of diffuse water pollution from agriculture.

Pesticide use has increased as farming methods have intensified over the last 50 years. Agriculture and horticulture use over 80% of all pesticides in England and Wales. The most frequently occurring pesticide found in groundwater in 2004 was Atrazine (Environment Agency, 2005).

The vast majority of groundwater sample concentrations are below the 0.1 µg/l drinking water limit. Just over 5.4% of pesticides in surface waters in England and Wales were above this drinking water limit in 2004, roughly the same as in 2003 despite the wetter weather conditions meaning that more pesticides could be washed into rivers (Environment Agency, 2005).

According to the water industry (Water UK), each water customer pays £7 a year for the removal of pesticides and nitrates from drinking water, and this is likely to rise (Defra, 2005)

Improved regulation and our promotion of best practice on farms will reduce the detrimental impact agricultural practices can have on the environment.

European and worldwide perspective (where available)

Inorganic nitrogen pollution of inland waterways has more than doubled since 1960 and has increased tenfold in many industrial parts of the world (Convention on Biological Diversity, 2006)

Agriculture is the main source of diffuse pollution to water in Europe, in particular nutrients such as nitrates and phosphates. More than half of the nutrient discharges in Europe now come from diffuse sources arising from farm fertiliser and manure (European Environment Agency, 2005).

Over the last 50 years, the rising use of commercial inorganic mineral fertilisers and increased concentrations of livestock have resulted in a sharp increase in the application of nutrients to the land.

update or more detail

For an up-to-date picture visit:
www.swenvo.org.uk/environment/diffuse_pollution.asp

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