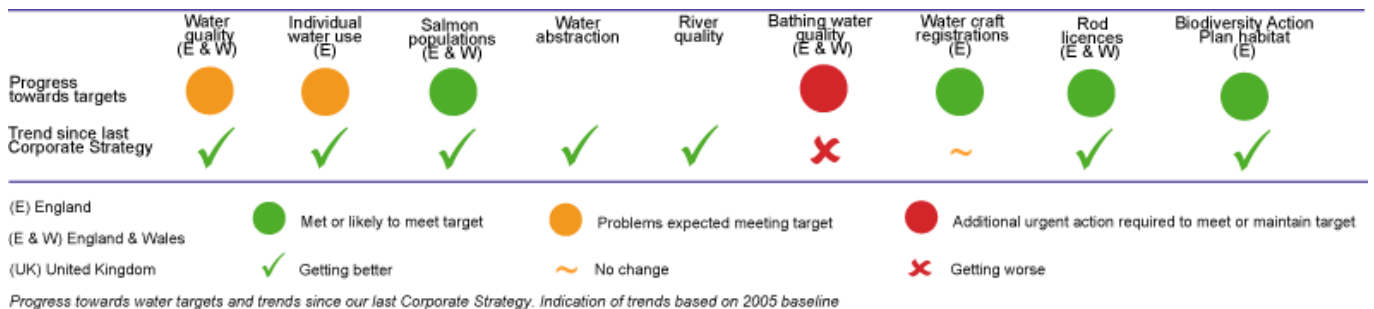


Our corporate strategy 2010 - 2015

Evidence: water and the water environment

See also: climate change, land and farming, waste, business, flooding and coastal erosion

Where are we now?



Why do we need to act now?

Water quality and quantity

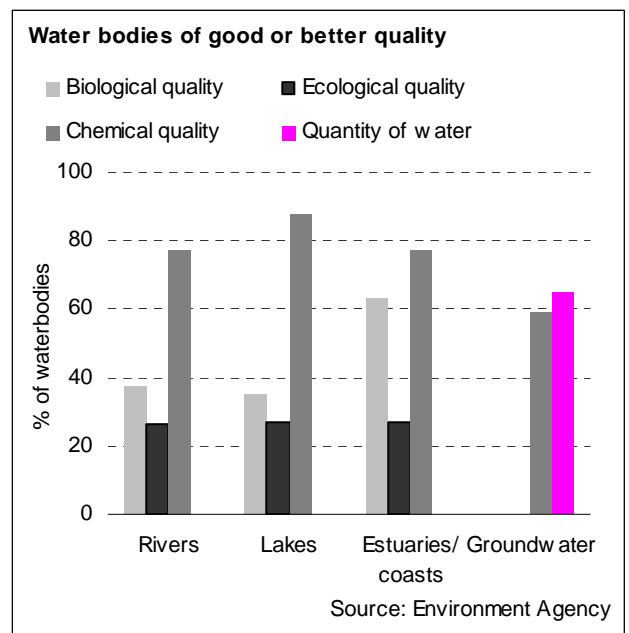
Challenging new Water Framework Directive (WFD) targets measure the health of the water environment. 26 per cent of rivers, 36 per cent of lakes and reservoirs and 27 per cent of estuaries and coasts in England and Wales are at good or better ecological status in every one of the characteristics looked at. As new monitoring information becomes available it is likely that some water bodies currently labelled as good will be reported to have a lower quality.

65 per cent of groundwaters meet good status in terms of the effect of abstraction and 59 per cent meet good status for every one of the new standards for chemicals.

14 per cent of water bodies in England have abstractions that may not support good environmental conditions at low flows. In a further 10 per cent of water bodies, if licences were used to their full allocation they could cause damage to the environment at low flows. For Wales these figures are 3 per cent and 5 per cent respectively. Climate change is expected to reduce the amount and reliability of water available, for example:

- average river flows in summer and autumn could drop by 50 per cent to 80 per cent by 2050 in some parts of the country.¹
- by 2025 the water that replenishes groundwater is likely to decrease by up to 9 per cent overall.² More than one quarter of the public water supply comes from groundwater.³

Unsustainable abstraction of groundwater and surface water could be contributing to environmental damage of rivers and wetlands at around 500 sites in England and Wales, including sites of national and international conservation importance.



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Water use

We use nearly 150 litres of water per person per day⁴ and our total water footprint (including water used in the manufacture of the products used in food and so on) is about 3,400 litres per person per day.⁵ The UK Government wants to reduce individual water use in England to 130 litres per person per day by 2030.⁶

Bathing waters

Under the revised Bathing Water Directive all bathing waters will be required to achieve at least 'sufficient' quality by 2015, which is twice as stringent as the current mandatory standard.⁷ In 2008, 17 bathing waters failed to meet the mandatory standard. 16 of these were in England and one was in Wales.⁸ We predict that about 40 bathing waters could fail to be of sufficient quality under the new Directive if no further action is taken.

Wildlife

Despite major improvements in air and water quality the variety and numbers of species in England and Wales is still decreasing and habitats continue to be under threat.

- Each year 100 hectares of saltmarsh is lost to erosion.⁹
- Water voles are now found in only 6 per cent of their former range in Wales.¹⁰
- Eel numbers (glass eel recruitment) across Europe are down by 95 per cent on their 1980 levels.¹¹
- 36 per cent of salmon rivers are considered 'at risk'.¹²
- 12 per cent of the 1.1 million hectares of protected wildlife sites (SSSIs) in England need urgent action to rectify environmental damage.¹³
- Between 1994 and 2008 almost a third of priority species declined and 2 per cent disappeared from the UK. Fifteen of 35 priority habitats assessed in 2008 were declining in extent.¹⁴

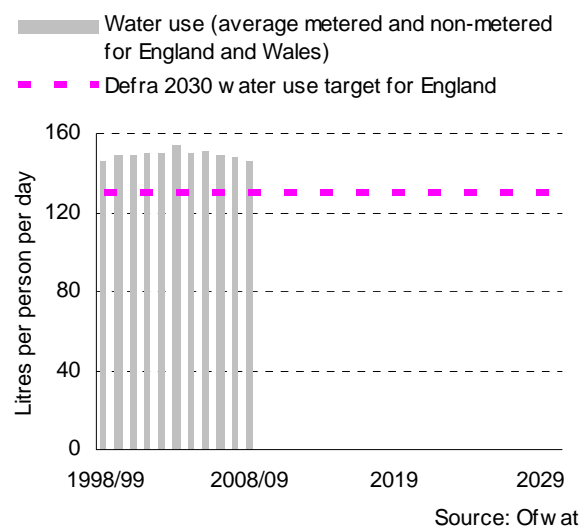
The benefits of action

The right amount of good quality water brings benefits for people, commerce and industry, agriculture and the environment.

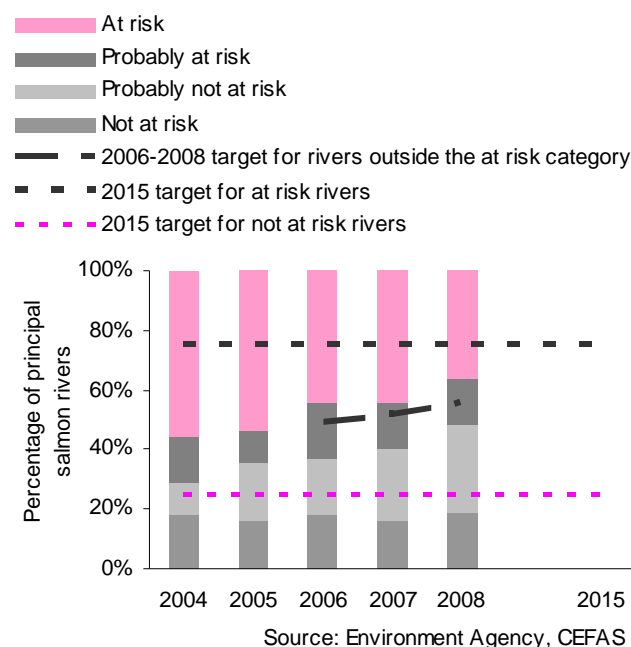
- 1.7 million more people enjoyed inland waters in 2008 than in 2006 (53 per cent of the population compared with 50 per cent).¹⁵ Fishing rod licence sales have doubled since 1993. There were almost 32,000 craft registered to use Environment Agency managed inland waterways in 2008.
- Salmon have returned to some of our historically most polluted rivers such as the Tyne, Mersey and Taff. More than 10,000 have been recorded migrating up the Tyne this year.
- Otters have this year been recorded in both Greater Manchester and the lower Thames for the first time in 40 years and can now be found in every English county.¹⁶ They are also increasing in population in Wales.¹⁷

Reducing water use can help reduce greenhouse gas (GHG) emissions. In 2006/07 the UK water industry emitted 5 million tonnes of GHGs through treating and supplying water, and dealing with wastewater and sewage. This constituted 0.8 per cent of annual GHGs in the UK. The use of hot water in homes for activities such as personal

Household water use in England and Wales, 1992 to 2008



Salmon stock status 2004 - 2008



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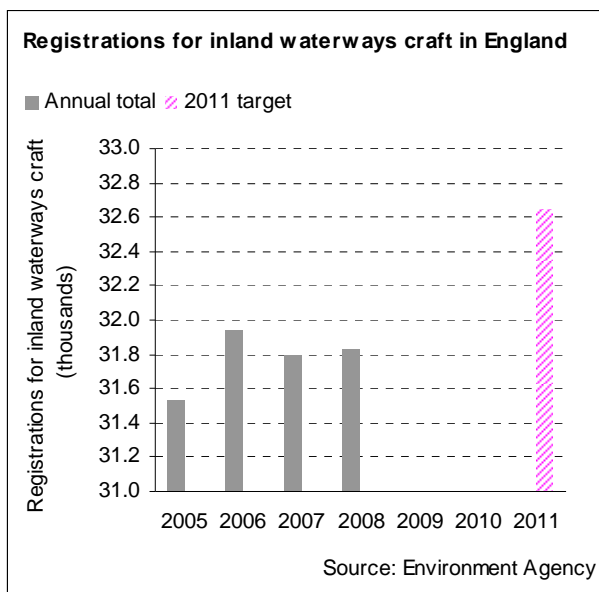
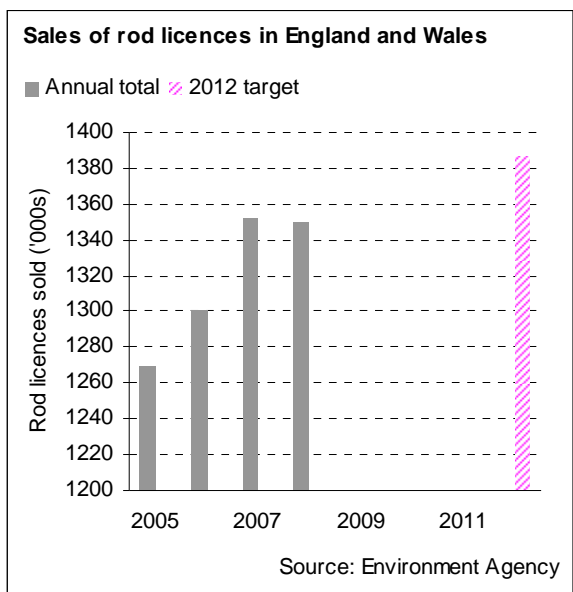
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use and household washing, cooking and cleaning contributes roughly 35 million tonnes of GHGs each year. This is 5.5 per cent of total UK emissions.¹⁸

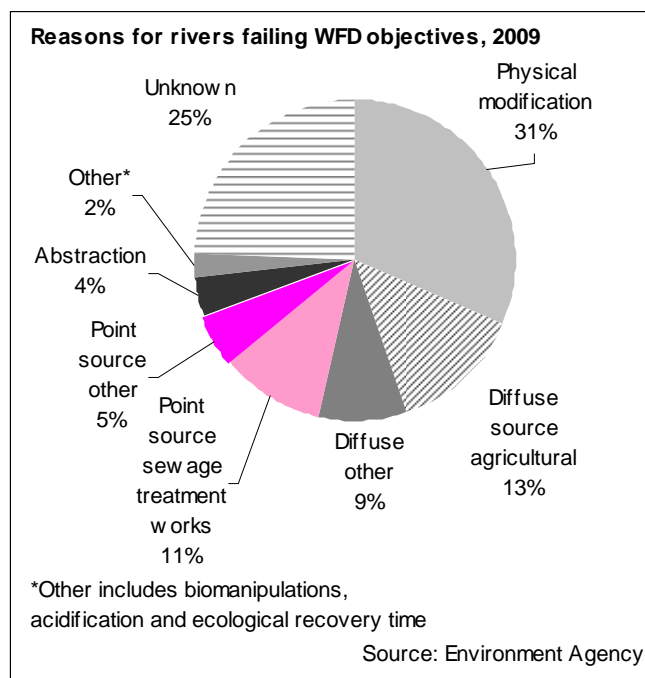


Source of the problem

Historically, discharges to water from businesses and the water industry in particular have been the main source of water pollution. Much of recent improvement has resulted from action to reduce these discharges, although more remains to be done. 16 per cent of failures against WFD targets in rivers come from point source pollution. Two-thirds of these are from sewage treatment works. Other sources of point source pollution are water industry storm overflows and other industry.

Diffuse pollution causes failures against WFD targets in 22 per cent of rivers. The single biggest threat of diffuse pollution is agriculture.¹⁹

- 28 per cent of phosphate in UK freshwaters comes from diffuse – mainly agricultural sources.²⁰ Agriculture needs to reduce phosphate losses by almost half to reduce its share of the pollution load and achieve WFD standards.²¹
- Almost a third of rivers in England show high levels of nitrate. Nitrate²² is the main, or one of the main, reasons for 49 per cent of estuaries and 33 per cent of coastal waters failing WFD objectives. Over 60 per cent of nitrate in surface waters is from farming.²³
- A quarter of groundwater bodies are failing WFD objectives as a result of nitrate pollution. 15 per cent of groundwater monitoring sites in England and Wales have an average nitrate concentration above the maximum permissible concentration in drinking water (50 mg/l). Water companies, and therefore their customers, spent about £300 million between 1975 and 2005 dealing with high nitrate levels in groundwater.²⁴
- The quality of a third of rivers in England and Wales is at risk of deteriorating from sediment derived from soil.²⁵ Up to three-quarters of sediment found in water comes from farming.²⁶



Nine per cent of WFD river failures can be attributed to diffuse pollution from sources other than agriculture such as run-off from roads, misconnected foul drains, spilled chemicals, oil and fuel.

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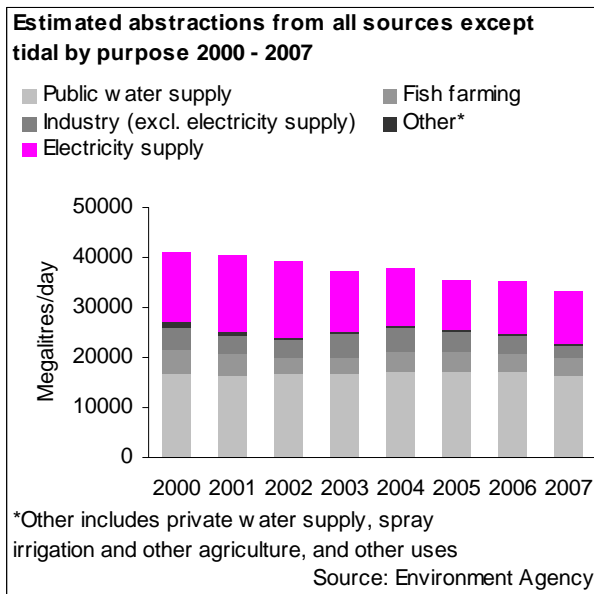
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Other causes of WFD failures in rivers are physical alterations (31 per cent for example for navigation and the management of floods) and discharges from sewage treatment works (11 per cent). Physical alterations to watercourses can degrade natural habitats and act as barriers to fish and other wildlife. This is the main cause of failures for Welsh rivers.

Heavy rainfall was a contributory factor in most of the bathing water failures in 2008; summer 2008 was one of the wettest on record.²⁷ Heavy rainfall results in more diffuse pollution from agricultural and urban sources, and storm sewage overflows operate more frequently.

Over-abstraction is often the result of abstractions being licensed historically when the environment was less of a concern in decisions than it is today.

The volume of water abstracted has reduced slightly over the last seven years primarily due to less being used in electricity production. However, most of the freshwater abstracted for electricity production is returned to rivers and can be used again downstream.



Successes

We have a leading role as the regulator tasked with managing water quality and quantity and safeguarding the water environment. We are the competent authority under the Water Framework Directive (WFD).

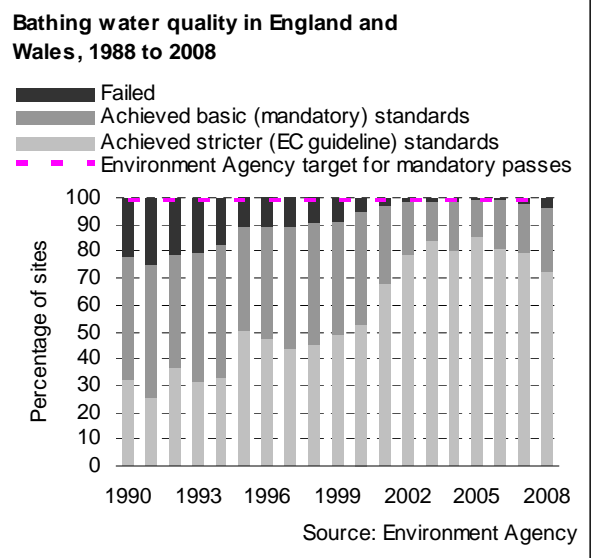
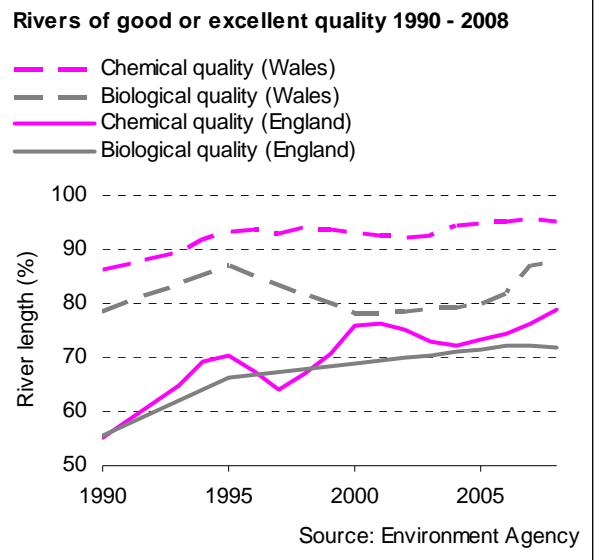
Over the last two decades river quality has improved. In 2008, 72 per cent of English rivers and 88 per cent of Welsh rivers were of good biological quality or better, compared with 55 per cent and 79 per cent respectively in 1990. We've seen similar improvements in chemical quality.

The way we measure water quality is changing. Monitoring for the WFD is focussed where there is likely to be a problem, and classification uses a far wider range of assessments than previously used. Under WFD the poorest individual result drives the overall classification, which means that results will *appear* poorer than those we've previously used. It is the same improving water environment, just a more sophisticated way of measuring it.

Bathing water quality has also improved over this time. In 2008, 97 per cent of bathing waters in England and Wales met water quality standards, compared to 78 per cent in 1990.²⁸

Much of this improvement has resulted from investment we orchestrated and targeted for the water industry. Under the current improvement programme (2005-10) 2,500km of rivers have been improved or maintained, as well as 200km² of coastal waters and 114km² of lakes. The programme of work agreed for the water industry for 2010 to 2015 will cover 1,200 schemes and investigations costing £4.3 billion.

We have started putting controls on nutrients from waste water treatment plants as a requirement under the Urban Waste Water Treatment Directive and the Nitrates Directive.



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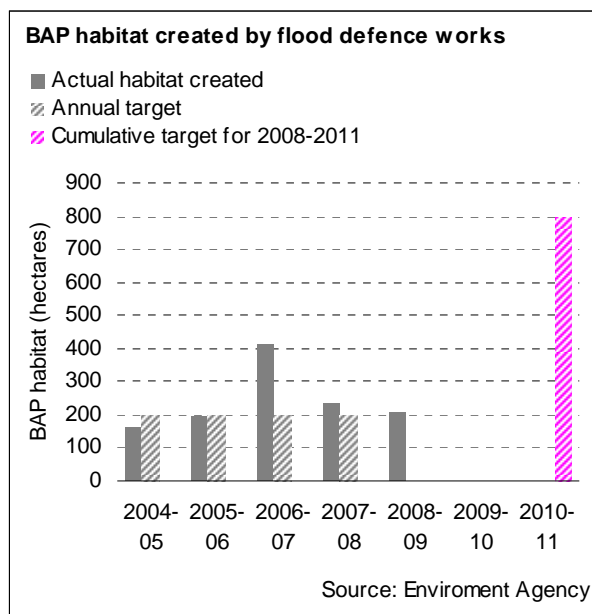
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We also work with Government, Ofwat and water companies to plan the strategic management of our water resources. We operate water transfer and river regulation schemes and issue licenses for people and businesses to abstract water directly from the environment to ensure a secure and safe supply. We're working on a programme to reduce the impact of abstraction on our most important nature conservation sites (Restoring Sustainable Abstractions).

With Ofwat and water companies we have helped to reduce leakage from the water supply network. 36 per cent less water was lost in 2007/08 than in 1994/95. A third of households also now have water meters²⁹ compared to 17 per cent in 2000/01.³⁰

We have a specific duty to conserve and maintain the diversity of freshwater fish, salmon, sea trout and eels, and we have responsibility to lead action for a wide variety of water and wetland habitats and associated wildlife.

Our work on flood risk management protects vulnerable habitats and creates new places for biodiversity. Between 2004 and 2009 our work with partners helped to create more than 2,000 hectares of new wetland and saltmarsh habitat.



There are fewer principal salmon rivers regarded as 'at risk' and more assessed as 'probably not at risk' than five years ago.

Our response: the future

Our Corporate Strategy describes how we will work with others to protect and improve the water environment and to conserve and maintain biodiversity.

¹ Environment Agency (2008) Climate change and river flows in the 2050s. Science report SC070079/SS1.

² Environment Agency (2009) Water for people and the environment, water resources strategy for England and Wales

³ Environment Agency data (available at www.defra.gov.uk/evidence/statistics/environment/inlwater/iwabstraction.htm. Tables 23a and 23d).

⁴ Ofwat (2007) Security of supply 2006-07 report

http://www.ofwat.gov.uk/regulating/reporting/rpt_sos_2006-07secofsupply

⁵ Waterwise (2009) http://www.waterwise.org.uk/reducing_water_wastage_in_the_uk/the_facts/the_facts_about_saving_water.html

⁶ Defra (2008) Future Water, The Government's water strategy for England

⁷ Defra (2009) <http://www.defra.gov.uk/environment/quality/water/waterquality/bathing/index.htm#waterdirective>

⁸ Environment Agency (2009) <http://www.environment-agency.gov.uk/research/library/data/34381.aspx>

⁹ UK BAP (2009) <http://www.ukbap.org.uk/UKPlans.aspx?ID=33#4>

¹⁰ C. Strachan, R. Strachan and D.J. Jefferies (2003) The Second National Water vole and Mink Survey of England, Scotland and Wales

¹¹ Dekker, W., Pawson, M., and Wickstrom, H. (2007) Is there more to eels than slime? An introduction to the papers presented at the ICES theme session in September 2006. ICES Journal of Marine Science, 64. 1366-1367

¹² Environment Agency and CEFAS (2009) Annual assessment of salmon stocks & fisheries in England and Wales 2008

¹³ Natural England (2009) State of the natural environment 2008 and <http://www.sssi.naturalengland.org.uk/Special/sssi/report.cfm?category=N>

¹⁴ Defra (2009) UK biodiversity indicators in your pocket 2009. Published by Defra on behalf of the UK Biodiversity Partnership

¹⁵ Ipsos MORI (2009) Water related recreation survey

¹⁶ Environment Agency (2009) press releases, <http://www.environment-agency.gov.uk/news/111199.aspx?> and <http://www.environment-agency.gov.uk/news/111266.aspx?page=3&month=9&year=2009>

¹⁷ Environment Agency (2004) Otter survey of Wales 2002

¹⁸ Environment Agency (2008) Greenhouse gas emissions of water supply and demand management options, Environment Agency science report SC070010/SR

¹⁹ Defra (2009) <http://www.defra.gov.uk/foodfarm/landmanage/water/csf/index.htm>

²⁰ White, PJ and Hammond, JP (2006) Updating estimates of the sources of phosphorus in UK waters. Defra funded project WTO701 CSF

²¹ Defra (2007) Partial regulatory impact assessment on proposals relating to tackling diffuse pollution from agriculture.

²² Dissolved inorganic nitrogen

²³ Defra (2009) <http://www.defra.gov.uk/environment/quality/water/waterquality/diffuse/nitrate/index.htm>

²⁴ Figure includes both capex and opex. UKWIR (2004) Implications of changing groundwater quality for water resources and the UK water industry, Phase III: Financial and water resources impact (appendices).

²⁵ Environment Agency (2007) WFD river basin characterisation II

²⁶ Defra (2009). Nitrates – reducing water pollution from agriculture www.defra.gov.uk/environment/quality/water/waterquality/diffuse/nitrate/intro.htm

²⁷ Met Office (2008) <http://www.metoffice.gov.uk/corporate/pressoffice/2008/pr20080829b.html>

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²⁸ Refers to the improvement against mandatory (basic) standards.

²⁹ Ofwat (2008) Service and delivery – performance of the water companies in England and Wales 2007-08
<http://www.ofwat.gov.uk/publications/serviceanddelivery>

³⁰ Ofwat (2003) Security of supply, leakage and the efficient use of water 2002–2003 report
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