Environment Agency

North West Regional Contribution 2010-2015

Evidence Pack

Act to reduce climate change and its consequences

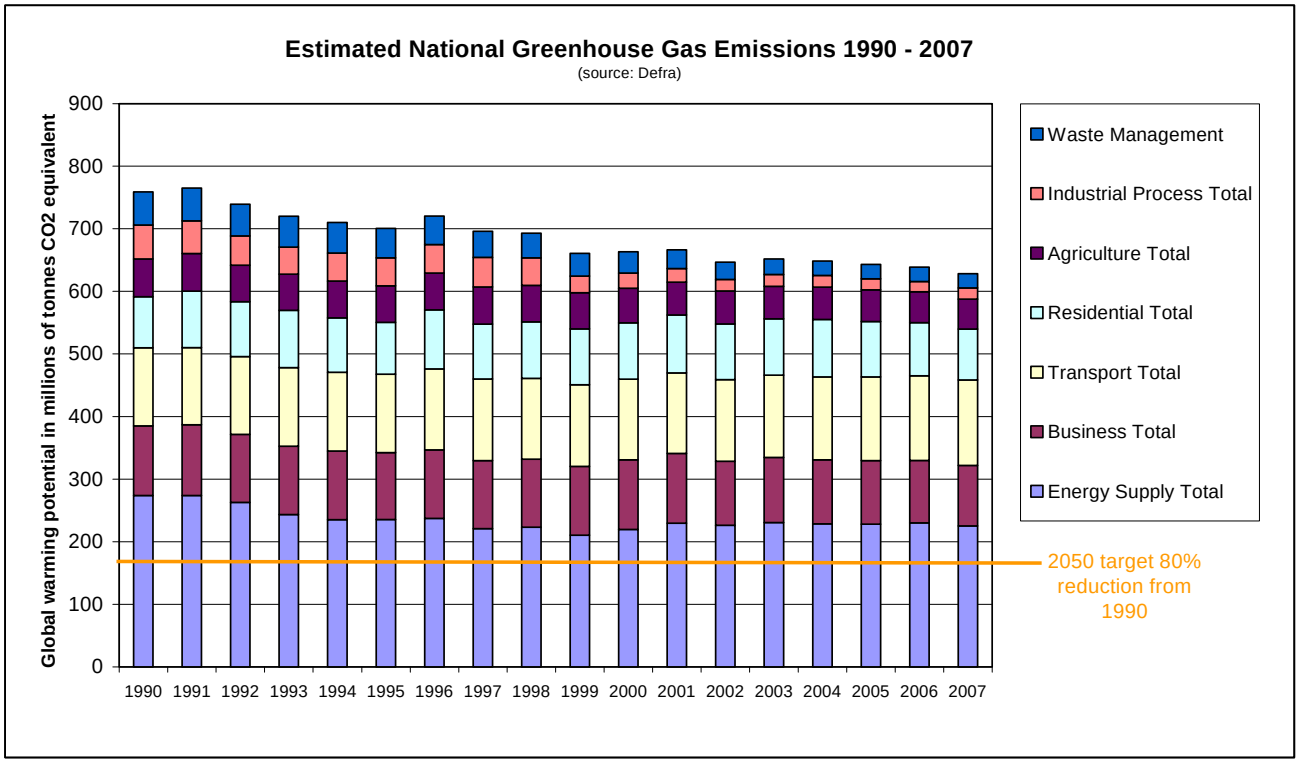
Where are we now?

Climate change is already happening. Projections of future climate from the UK Climate Impacts Programme (UK Climate projections: UKCP09[1]) identify that we can expect climate changes to intensify over the century. The latest projections are for hotter, drier summers and milder, wetter winters, along with rising sea levels and an increased frequency of extreme weather events. While broadly in line with previously published predictions, UKCP09 contains a much more detailed analysis down to a smaller scale.

The major cause of climate change is the release of greenhouse gases (GHG). We need to act now to limit our contribution to climate change if we are to avoid far more serious impacts in the future. We will also have to understand and plan to adapt to the unavoidable consequences of future climate change due to past emissions of GHG.

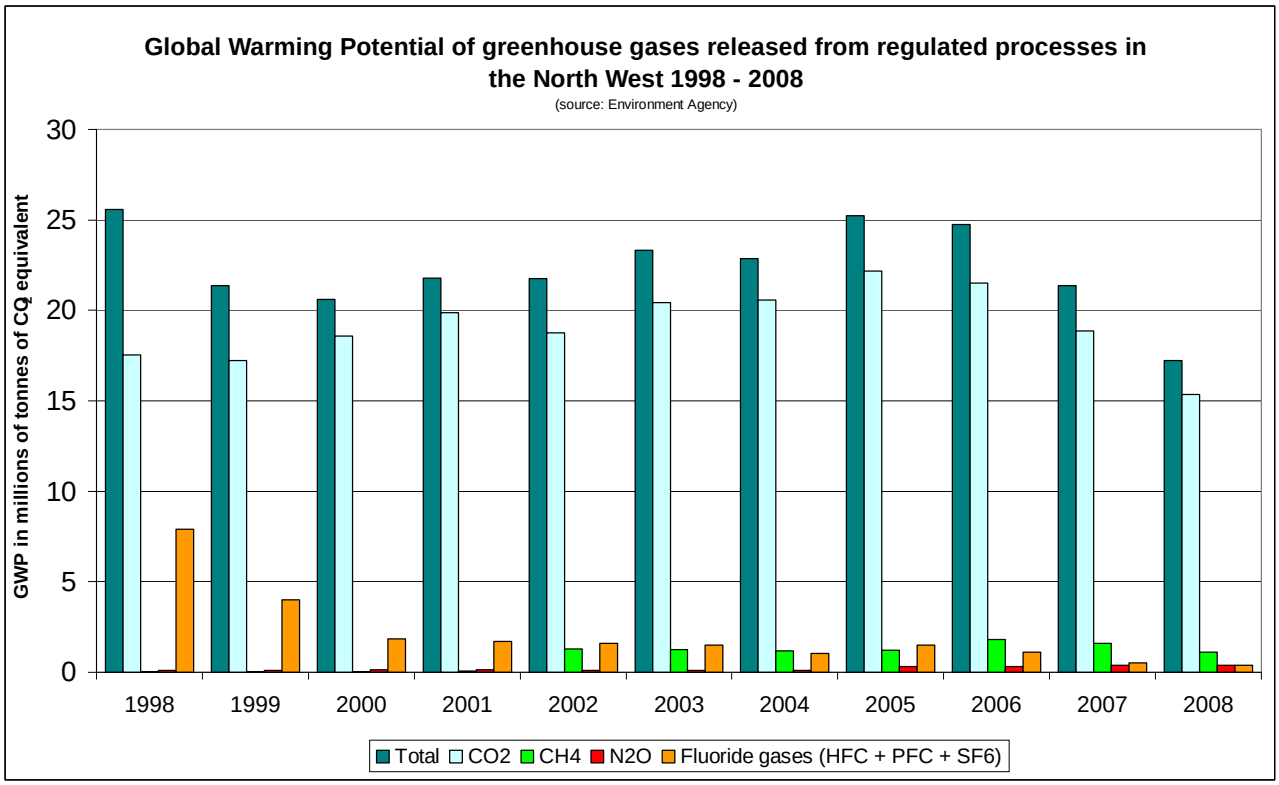
Greenhouse gas emissions

The bar chart shows the national trend in GHG emissions. The orange line indicates the legally binding target set in the Climate Change Act 2008 - to reduce carbon dioxide (CO_2) emissions to 80% of 1990 levels by 2050. This shows just how ambitious the target is. Meeting the targets will require a massive shift in the way energy is generated and consumed - both nationally and in the region.



The next bar chart shows the North West's releases of GHG from processes which we regulate directly under the Environmental Permitting Regulations (EPR). This covers major production processes and large scale waste management.

[1] http://ukclimateprojections.defra.gov.uk//



Defra estimated the total global warming potential (GWP) from all sources in the North West was 66.5 million tonnes of CO_2 equivalent in 2005. The contribution from EPR-regulated processes was about 25 million tonnes, equivalent to 38% of the region's total GWP in that year.

The largest contribution to EPR-regulated GHG releases in the North West is CO_2 from the fuel and power sectors. After CO_2, the next most significant GHG released is methane. Currently, over 90% of methane is released as landfill gas. It contributed 6% of the region's total EPR-regulated global warming potential in 2008.

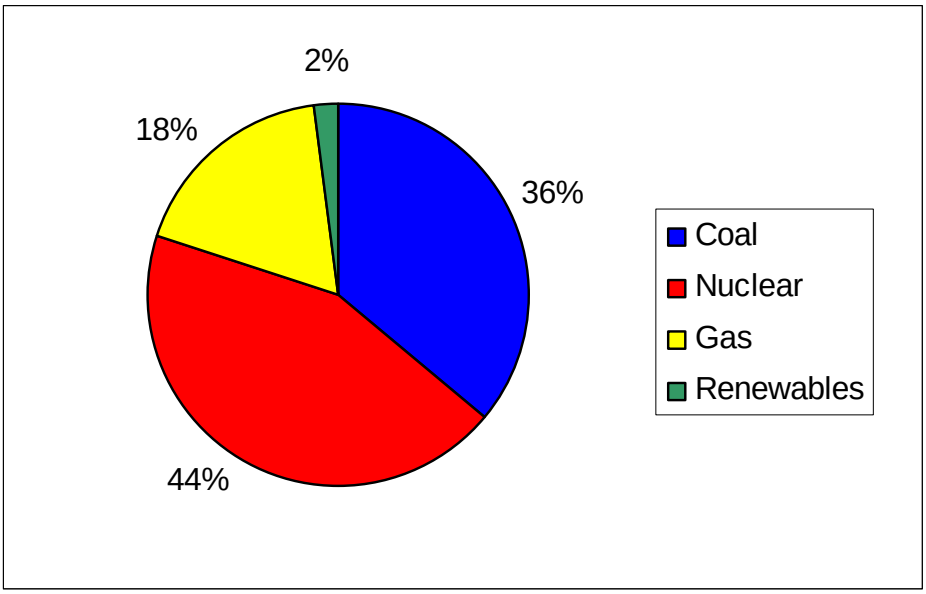
The EU Emissions Trading Scheme (ETS) forms an integral part of the UK and EU's strategy to tackle the challenges posed by climate change. The objective of the current EU ETS is to reduce greenhouse gas emissions from installations and activities covered by the scheme in order to meet obligations under the Kyoto Protocol.

Both the UK National Audit Office[2] and other carbon market commentators have provided evidence that the EU ETS is affecting company investment decisions. In the 2008 compliance year, all UK institutions surrendered sufficient allowances to match their verified emissions before the compliance deadline. The UK has maintained a 100% compliance record since 2006.

[2] http://www.nao.org.uk/publications/0809/eu_emissions_trading_scheme.aspx 5

Energy Generation

Sources of North West electricity generating capacity



Source: Environmental Considerations of Sustainable Economic Growth (ECOSEG) (2008)

In 2007, Renewable Energy Statistics for the UK (RESTATS) estimated that existing renewable capacity in the North West stood at 477.7MW and generated 1,608GWh of electricity. A breakdown of the renewable capacity is given in the table.

North West Installed Renewable Capacity

2007	Hydro	Wind	Landfill Gas	Bio-fuel *	North West Total
Sites Generating (Number)	17	37	59	27	140
Installed Capacity (MW)	5.4	276.4	159.4	36.6	477.7
Generation (GWh)	15.0	468.3	755.9	368.8	1608

***** Biomass, not including co-firing. Source: RESTATS website (2009)

As at November 2008, the North West had renewable schemes totalling 1,386 MW of capacity awaiting construction according to estimates by RESTATS[3]. The North West was the leading English region in terms of its operational renewable capacity, followed by the East of England and the South East.

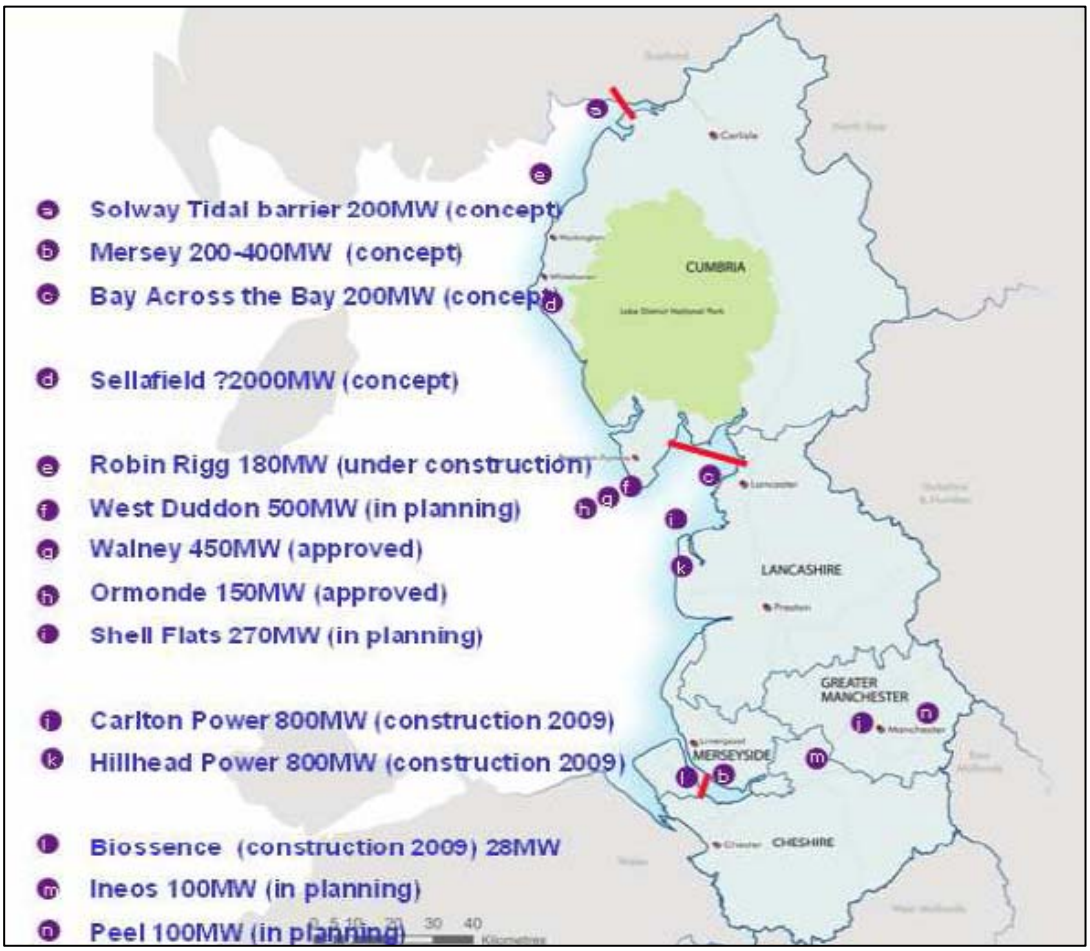
In the North West, landfill gas and bio-fuel/mass together currently account for over 40% of total capacity and 70% of supply. However, the majority of future growth is expected to be through the development of wind generation, although there can be difficulties in obtaining planning permission for onshore wind developments.

The UK Low Carbon Transition Plan was published in July 2009. It envisages a large increase in the proportion of total electricity generated from renewable sources by 2020, with a corresponding reduction in the proportion generated from gas. It also aims to reduce the UK's total CO_2 emissions by over 100 million tonnes per year by 2020.

[3] RESTATS (2008) Renewable Energy Statistics Database for the UK – planning database extract, AEA on behalf of BERR

The North West also has considerable tidal power potential to exploit. The Solway Firth, Morecambe Bay, the Dee Estuary and the Mersey Estuary are all currently being considered. The schematic map outlines some of the planned or proposed renewable energy schemes with potential to be developed in the North West.

Planned and proposed renewable energy developments in the North West



Source: Environmental Considerations of Sustainable Economic Growth (ECOSEG) (2008).

In a recent report[4], we estimated the maximum hydro power potential in the North West to be around 1207kW.

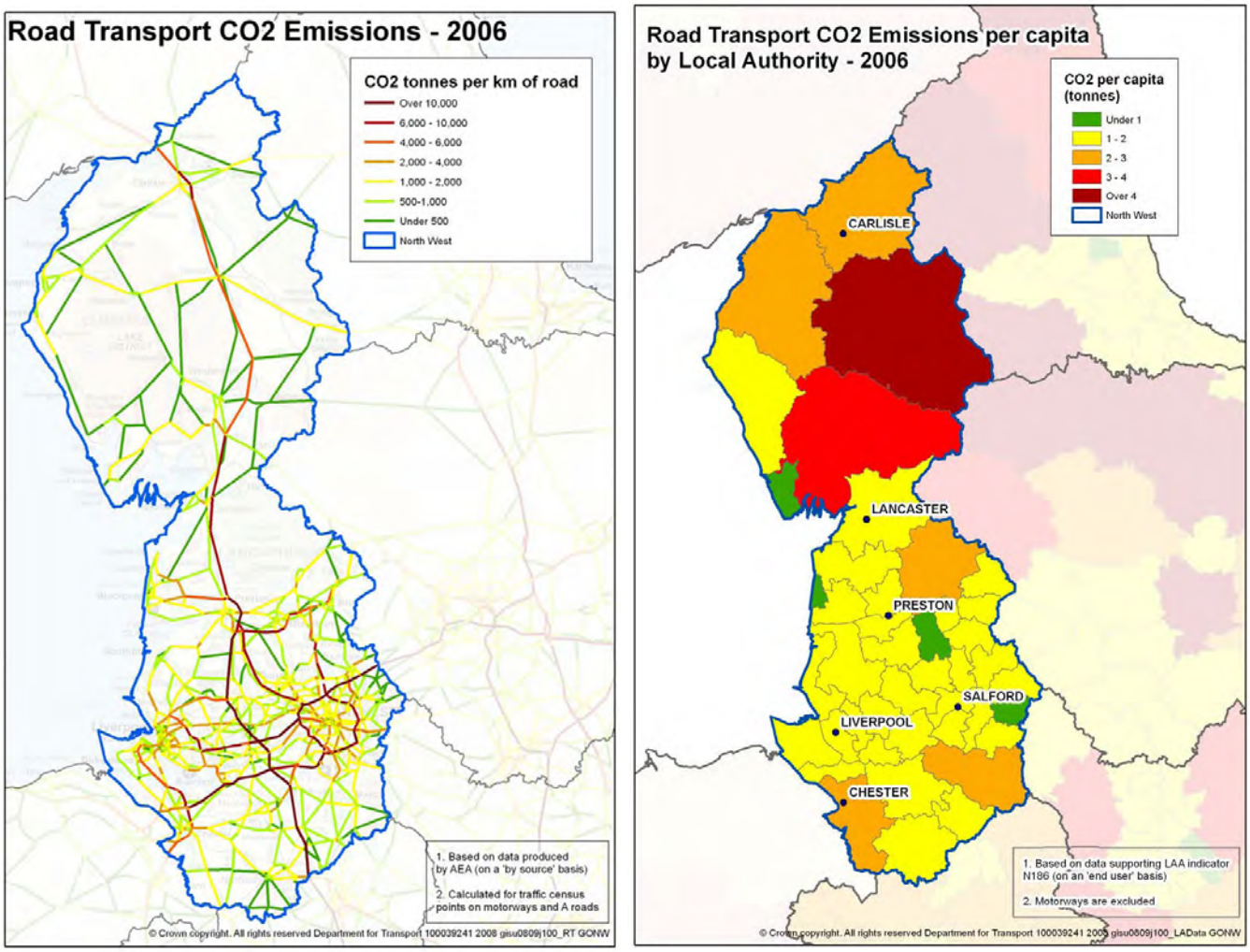
Environlink Northwest is seeking to raise the profile of the renewable energy sector and assist the businesses. It is supporting programmes that include the Northern Wind Innovation Programme, the North West Tidal Energy Group, and the low carbon demonstration programme.

[4] Mapping hydropower opportunities in England and Wales, Environment Agency, 2009

Transport

The Department for Transport (DfT) has invited the English regions to set out their strategic priorities against the goals and challenges identified in 'Delivering a Sustainable Transport System' (DaSTS). The main DaSTS report makes clear that the greatest challenge in transport policy is supporting economic growth while also tackling carbon emissions.

4NW has commissioned a report[5] on implementing DaSTS and the emerging regional strategy. Various data sources were considered, including the DfT data[6] on road transport carbon emissions presented in these two maps.



[5] Implementing DaSTS and the North West Regional Strategy, Atkins, June 2009
[6] http://www.dft.gov.uk/pgr/regional/strategy/databook/

Value

- The Stern Review estimated that if we don't act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and into the future. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more. In contrast, the costs of action - reducing greenhouse gas emissions - can be limited to around 1% of global GDP each year.

- A study by Deloitte[7] on the responses to climate change legislation, regulation and policy suggested that, without exploiting opportunities and mitigating effectively, over the period 2009 to 2020 the Manchester city region alone could lose an estimated £20 billion in gross value added. Over the same period, the North West as a whole could lose an estimated £70 billion.

Challenges

- Since 1990, the combined effects of industrial decline and tighter regulation have significantly reduced the amount of GHGs released from regulated processes in the North West. However, emissions from the transport sector are increasing[8]. We need to continue to work with regulated industry, explore opportunities with non-regulated sectors, and support others to promote and encourage actions and initiatives that lead to reduced emissions.

- Tidal power technologies and other large scale renewable energy production schemes could play an important role in reaching renewable energy targets and mitigating climate change. Many schemes have potential environmental impacts and face planning obstacles. Making the schemes acceptable to the public, and striking the right balance between possible impacts on protected species and habitats, is a challenge.

- The UKCP09 trends report demonstrated that the UK climate is changing but that many of the trends in climatic factors are currently difficult to distinguish from natural climatic variability. The headline messages from the report are:
    - Climate change is happening now and is being seen directly in temperature and sea level rise.
    - The effects of climate change on rainfall and storm frequency are not apparent yet because natural year to year variability is large. This does not mean that rainfall and storm frequency are not being affected by climate change.

- The new UKCP09 projections represent a fundamentally different way of characterising future climates. Their use will require modifications to our existing methodologies for incorporating the effects of climate change.

[7] Mini stern for Manchester, Assessing the EU and UK climate change legislation on Manchester City Region and the North West, Deloitte, August 2008

[8] http://www.statistics.gov.uk/downloads/theme_environment/transport_report.pdf

The future

- In Phase II, the EU ETS aims to help achieve the EU's Kyoto target for the UK. It will also help to reduce CO_2 emissions from the sectors included in the scheme and contribute to the UK's domestic interim target of a 20% reduction in CO_2 emissions by 2010 from 1990 levels.

- The Carbon Reduction Commitment Energy Saving scheme (CRC) will affect around 5,000 large public and private organisations across the UK. The CRC is predicted to save at least 1.3 million tonnes of CO_2 per year by 2015, rising to 3.2 million tonnes per year by 2020.

- It is not yet known how many organisations in the region will participate in the CRC scheme which we will be administering. We are working to raise awareness of the scheme, and point participating organisations towards the support and advice available.

- Climate change will increase the risk of flooding and coastal erosion. We have a national Long Term Investment Strategy to help us understand future levels of flood risk, and to prioritise the investments necessary to manage them over the next 25 years and beyond. We also take account of climate change in our Catchment Flood Management Plans and the Shoreline Management Plans that we prepare with others.

- We will continue to work with United Utilities to understand the impacts of future climate change on the region's water resources and to optimise their management.

- We will look for opportunities to engage with non-regulated sectors and with other partners so that reductions in GHG emissions can be achieved. This may include engagement with the regional transport projects implementing DaSTS, and influencing local transport planning processes in our role as a statutory consultee.

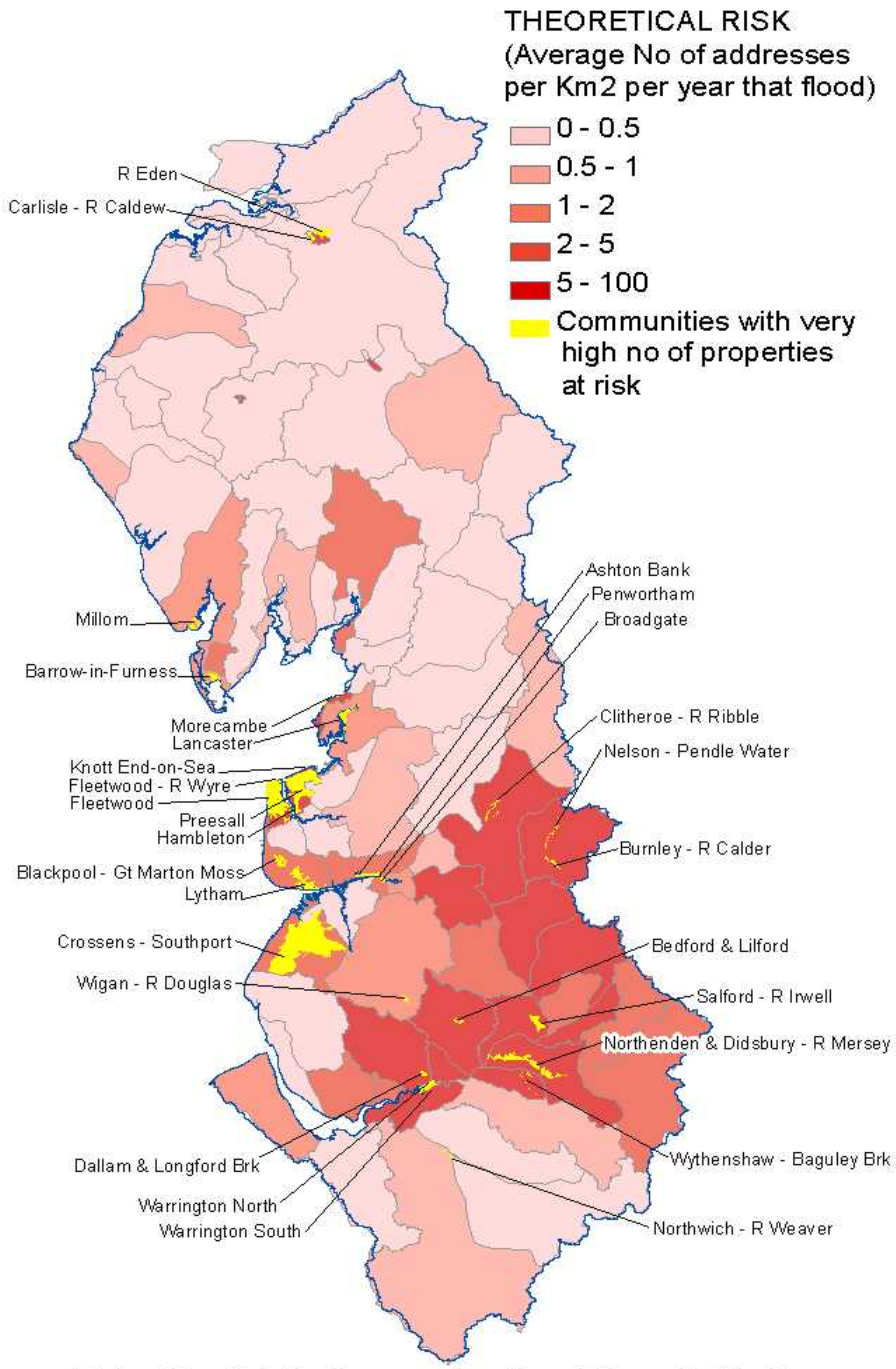
Work with people and communities to create better places

Where are we now?

Flood and coastal risk management

In the North West, we spend over £50 million a year protecting people and property from flooding. There are around 159,000 homes and 14,000 commercial properties at risk of flooding in the region. Many of these are already protected by flood defences.

The map below shows the location of areas most at risk from flooding. The areas highlighted in yellow are our top priority areas at risk in the flood plain.

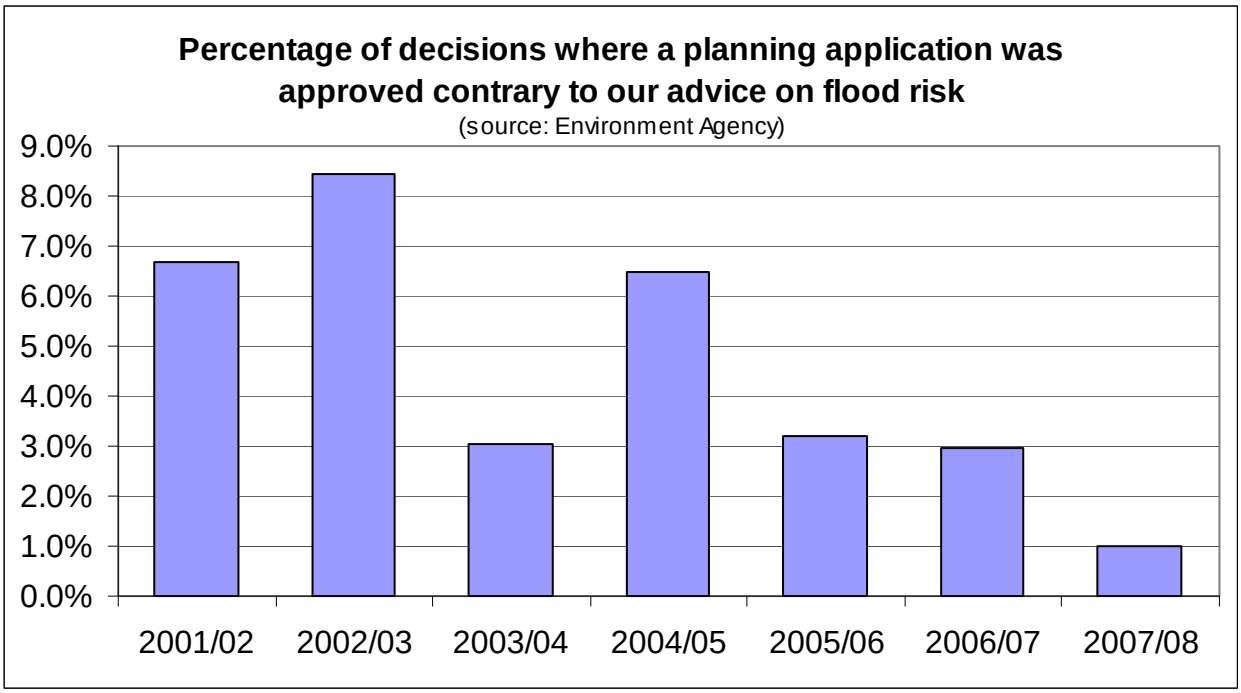


Priority Risk Areas in the Flood Plain

Around 122,000 homes in the North West are currently being offered a flood warning service. By 2013 we plan to increase the number to almost 140,000 homes. In 2008-9, 24% of households and businesses at high risk of flooding took up the flood warning service we offered.

The Corporate Spending Review (CSR) period runs for three years, from 2008/9-2010/11. In this period, we will move 18,864 properties out of any flood probability category to a lower one.

Number of households moved to a lower flood risk category		
2008/09	2009/10	2010/11
4,816	1,966	12,082

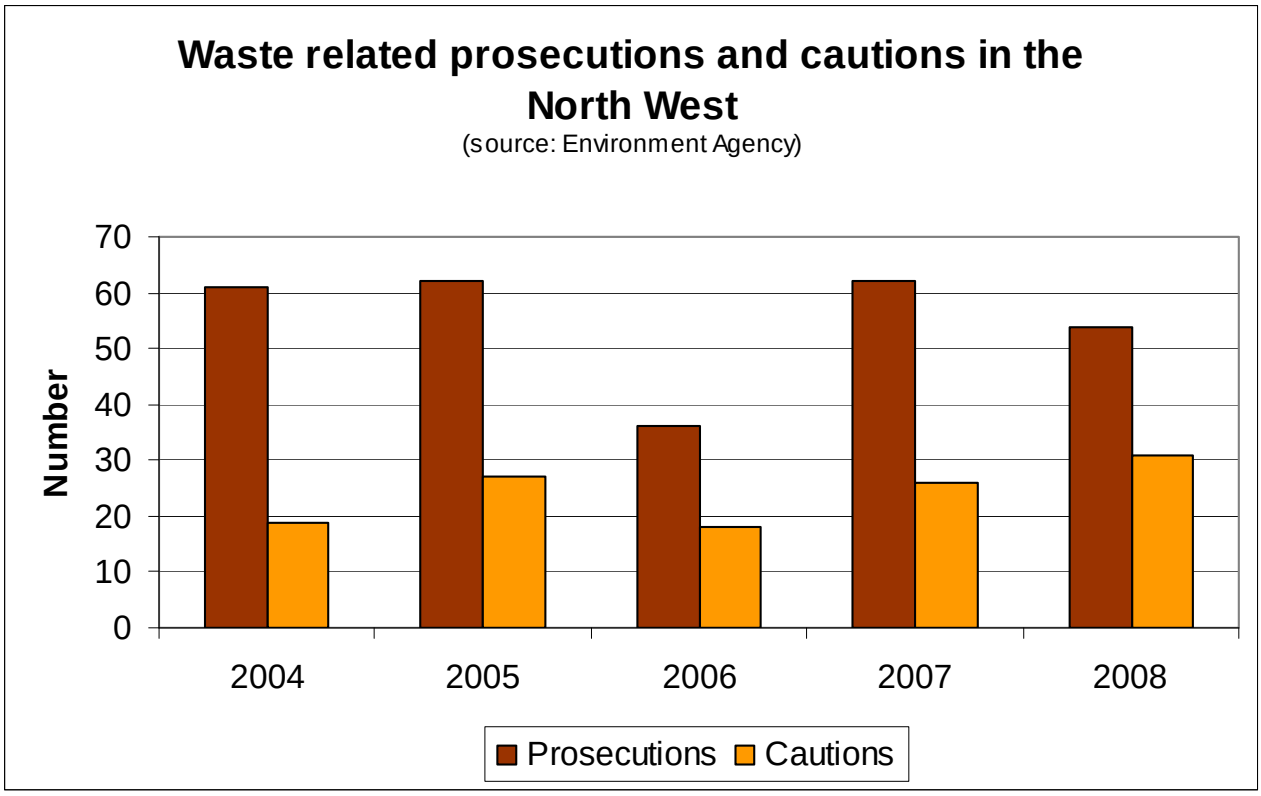


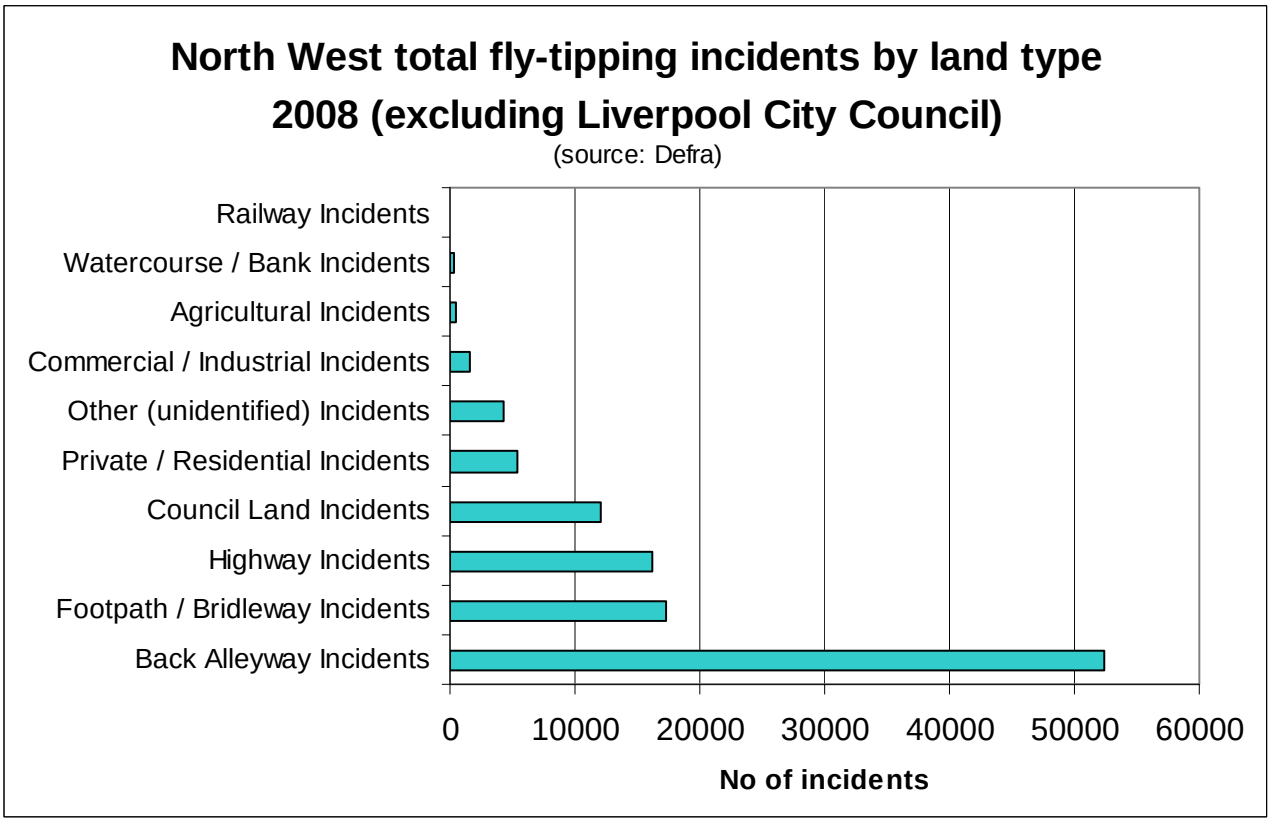
Local Environmental Quality

We have assessed the local environmental quality of our local authority areas using an in-house software tool (the Environmental Quality Index tool). We have then added local knowledge to the output to arrive at a short-list of upper tier local authorities for priority engagement.

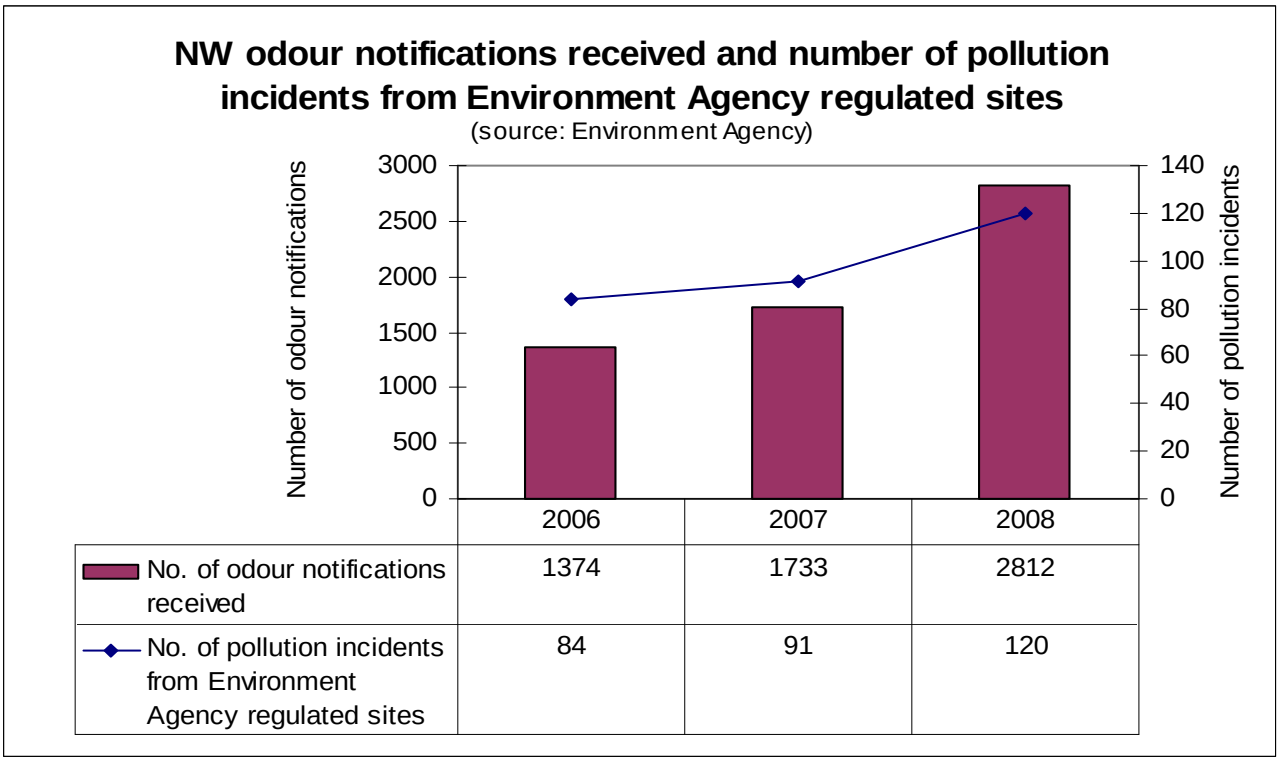
In all but one case, poor water quality was a major driver. Other factors were poor biodiversity, derelict land, flood risk, lack of green space, and proximity to regulated sites. Many of the priority local authorities also feature in the region's top 20% when ranked for deprivation.

Waste Crime


Waste related prosecutions and cautions in the North West
(source: Environment Agency)
Number
70
60
50
40
30
20
10
0
2004
2005
2006
2007
2008
Prosecutions
Cautions


North West total fly-tipping incidents by land type 2008 (excluding Liverpool City Council)
(source: Defra)
Railway Incidents
Watercourse / Bank Incidents
Agricultural Incidents
Commercial / Industrial Incidents
Other (unidentified) Incidents
Private / Residential Incidents
Council Land Incidents
Highway Incidents
Footpath / Bridleway Incidents
Back Alleyway Incidents
0
10000
20000
30000
40000
50000
60000
No of incidents

Odour Complaints



Fisheries

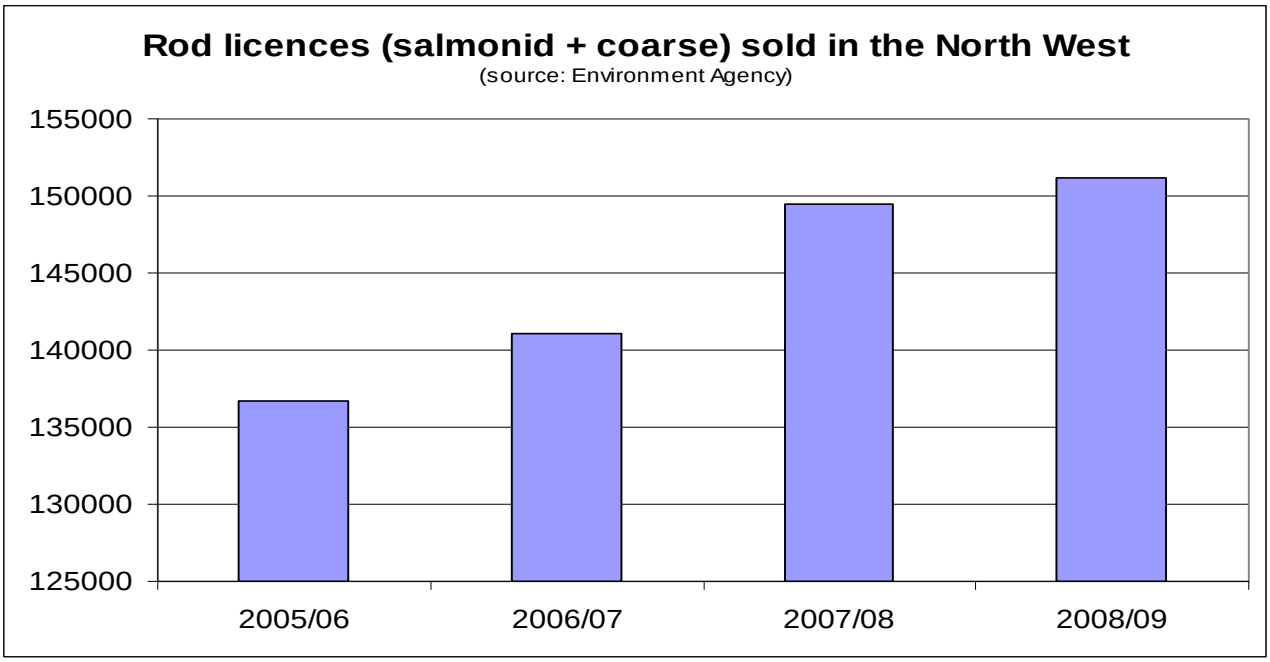
The North West has 14 main salmon rivers, of which three; the Wyre, the Crake and the Calder are deemed 'probably at risk' of failing their management targets in 2013. Three rivers are designated as Special Areas of Conservation for salmon. We have four of the top ten salmon rivers in England in terms of rod catch. We have the largest number of commercial netsmen who catch the second largest number of salmon, only the North East region recording a higher catch. We also have important recovering rivers in post-industrial cities, such as the Mersey where the reappearance of salmon is a good indicator of the improving water quality.

We have a large number of important coarse fisheries within the region, including river and still-water fisheries, providing excellent fishing for many species including bream, roach, chub, carp, pike and perch.

We undertake an annual programme of habitat improvements on rivers and still-waters to ensure we continually improve the environment for fisheries.

As the following chart shows, the number of rod licences we have sold has increased substantially. Every year we carry out improvements to angling pegs and pathways at fisheries throughout the region. We are also active in coaching and developing angling skills in people who are coming into fishing for the first time.

Other key issues for us at the moment are the need to conserve eels and protect several rare fish species in our Cumbrian lakes whose survival is threatened by climate change.



Value

- The environment is estimated to contribute £2.6bn Gross Value Added to the region's economy, and supports 109,000 jobs (source: Natural Economy Northwest).

- Two people died as a result of the Carlisle floods in 2005. The estimated damage caused by the floods amounted to £250 million.

- Local authorities in the North West reported that they dealt with 174,000 incidents of fly-tipping during 2007/2008. The estimated cost of clearance was £19.2 million and enforcement action costs were £3.7 million. A total of 455 prosecutions were carried out, all of which achieved a successful outcome.

Challenges

- There is a Government-driven target to build over 400,000 new homes in the North West by 2021. Our challenge will be to ensure these developments are sustainable and to minimise the potential impacts they may have on the environment.

- The impact of the current economic downturn on housing development is uncertain. However, growth is still expected in the longer term, with the targets needing to be met.

- There will be challenges in how we adapt our plans for sustainable fisheries to the impacts of climate change.

The future

- From 2009/10, we will be introducing new strategic plans for managing eels, salmon and sea trout.

- The project to restore Bassenthwaite Lake and the Mersey Life project both include a high degree of community involvement, and are models for how we can and should engage with local communities.

- We are supporting 'Green Infrastructure', a new concept that describes a network of green spaces designed to meet the environmental, social and economic needs of a community.

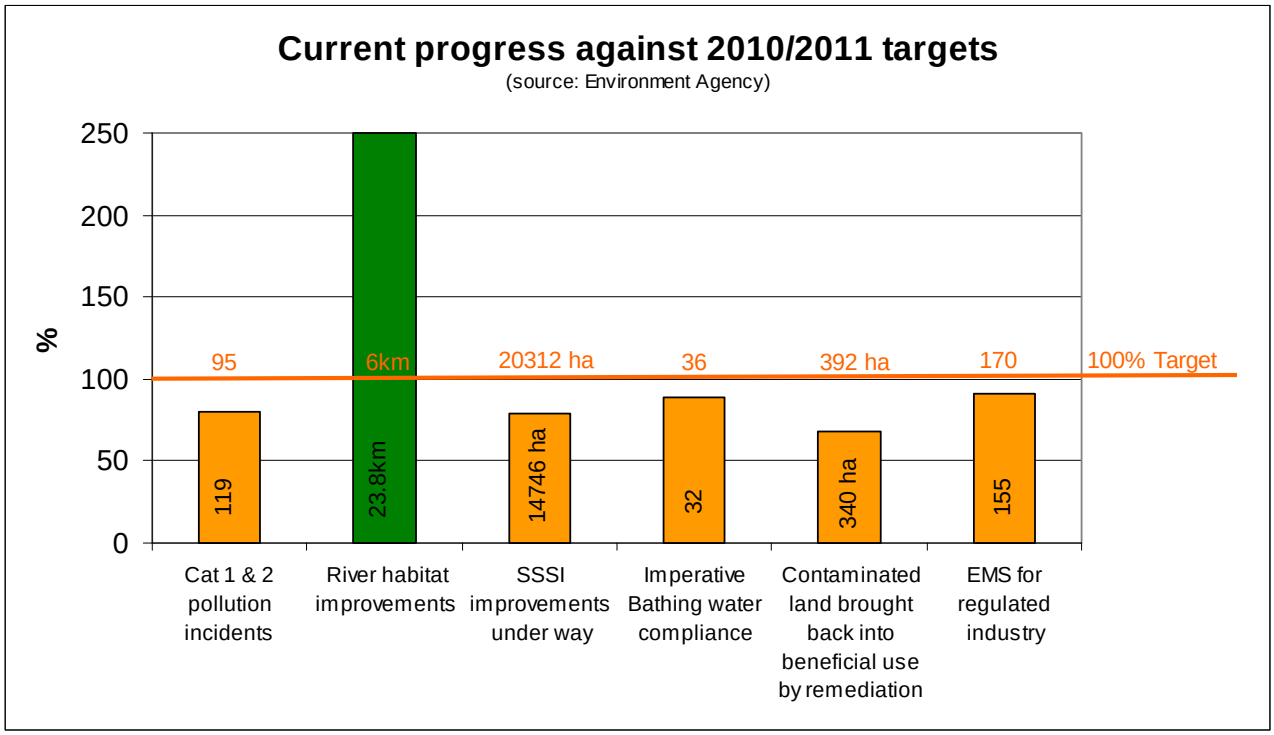
- We are beginning to incorporate sources of flooding other than rivers and sea into flood and coastal risk management planning processes, to include groundwater, surface run-off, and drains and sewers.

Protect and improve water, land and air

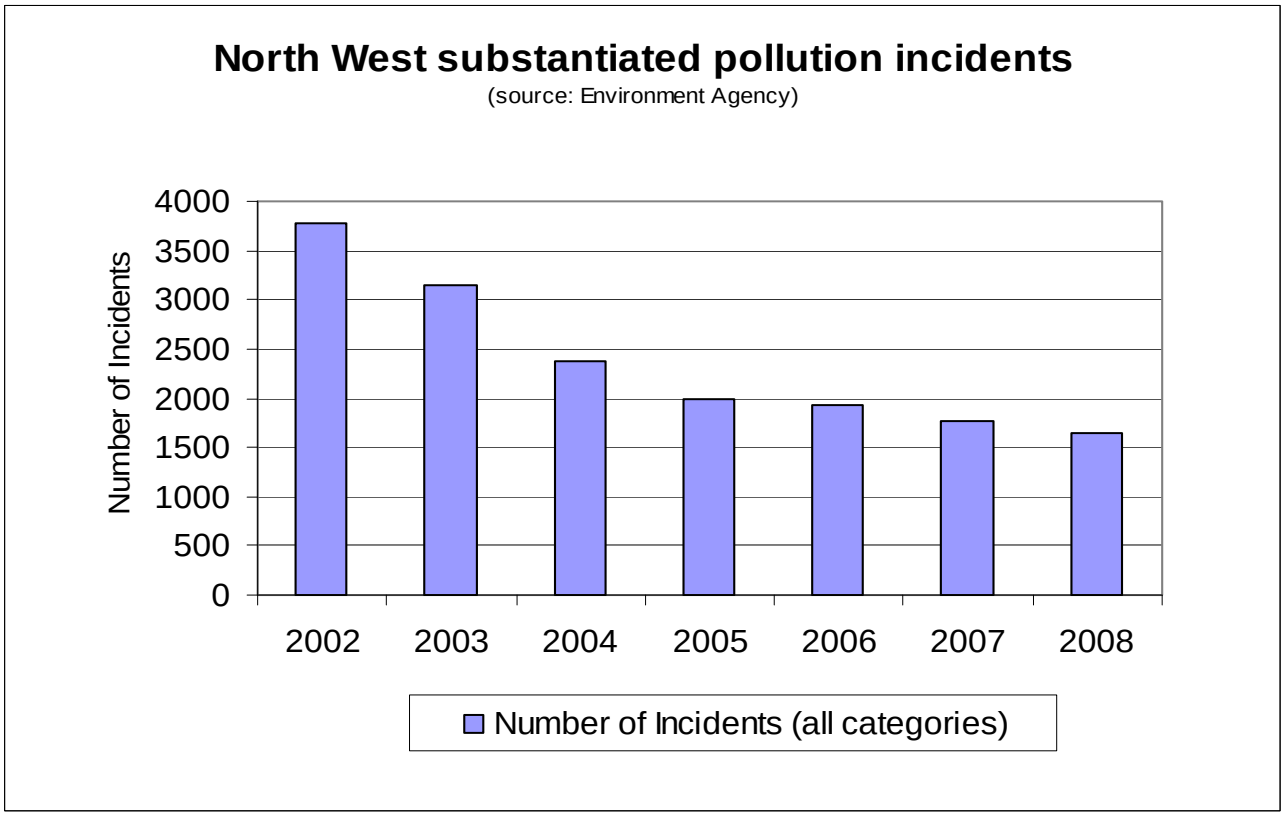
Where are we now?

The North West has seen significant improvements in water, land and air quality over recent years, with decreasing emissions of air pollutants and marked progress in water quality. Maintaining this improvement over the coming years will be a real challenge.

Environmental quality



Pollution incidents



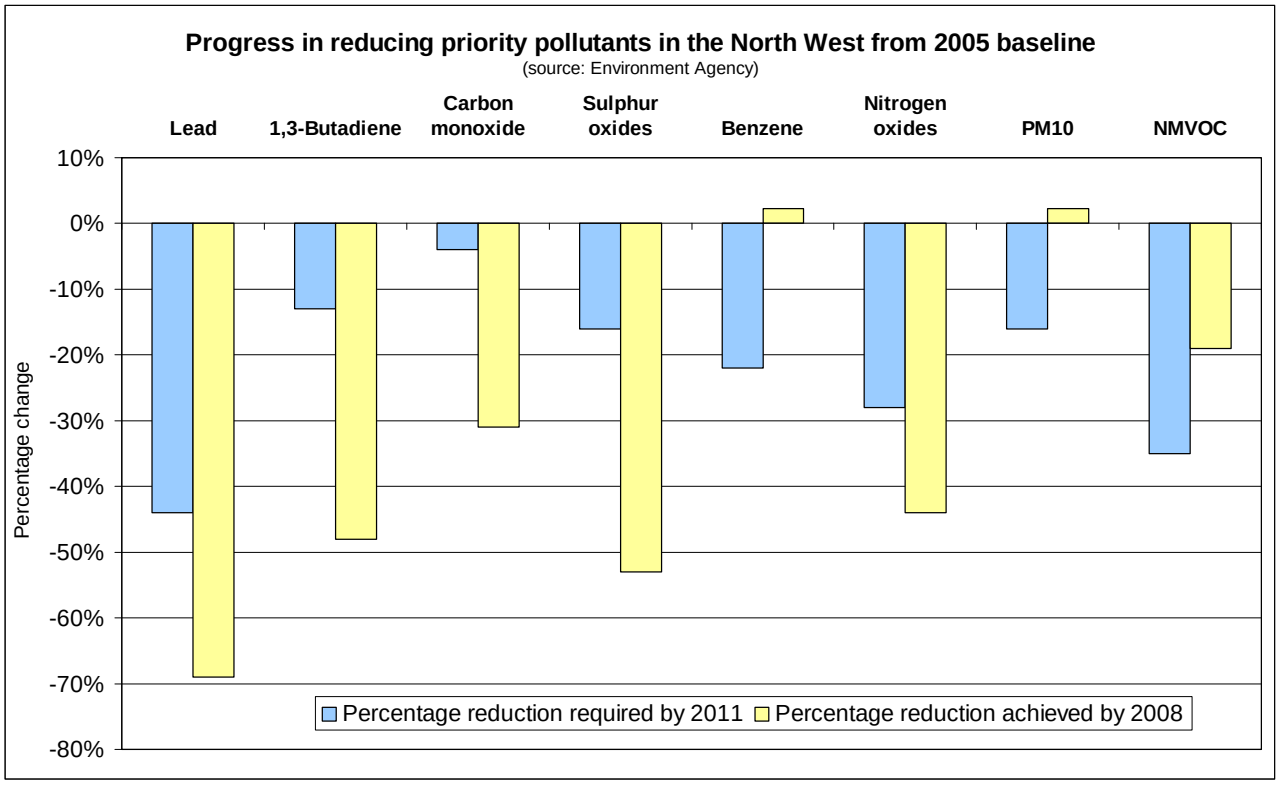
2008 Compliance Performance

We regulate around 1300 processes in the North West. This table shows the compliance performance of North West Environmental Permitting Regulation (EPR) regulated processes in 2008 (band A is the best score, representing full compliance). The less compliance with there is with EPR conditions, the more potential there is for pollution to occur.

Regime	A	B	C	D	E
Pollution Prevention Control	372	96	26	20	6
Waste Management Licence	962	204	91	25	12
Total	1334	300	117	45	18

Operator Pollution Risk Appraisal (OPRA) scores, which include compliance and risk, put 45% of the region's sites in bands D & E in 2008, down from 59% in 2007. Our target for 2010-15 is to achieve further 10% year-on-year reductions.

Air



This chart shows the progress we have made in reducing emissions of priority air pollutants from EPR-regulated processes in the North West when measured against a 2005 baseline. Targets for reductions required by 2011, driven by the requirements of the National Air Quality Strategy and the National Emission Ceiling Directive, are shown in blue.

Emissions of Particulate Matter below 10µm in diameter (PM10) have increased as additional sectors have come within our regulatory framework, especially intensive agricultural units.

Land

We have more previously developed land (PDL) than any other region, around 11,600 hectares (ha) - roughly the size of the city of Manchester. In 2006/07, the proportion of new build on PDL was 88% which was above the regional target of 80%.

Figures from Natural England show that the total area of SSSIs in the North West is 207,274ha. A report from June 2009 indicates that about 107,000ha are not in "favourable" condition, of which 20,312ha are currently targeted for improvement. By the end of 2008/09, remedial measures were underway for 1,303ha. The provisional target for 2009/10 is to raise this figure to 14,746ha.

In 2008/09, 456 farms in the North West had Environmental Stewardship agreements in place. We aim to increase the amount of rural land covered by this and other environmental agreements.

Water

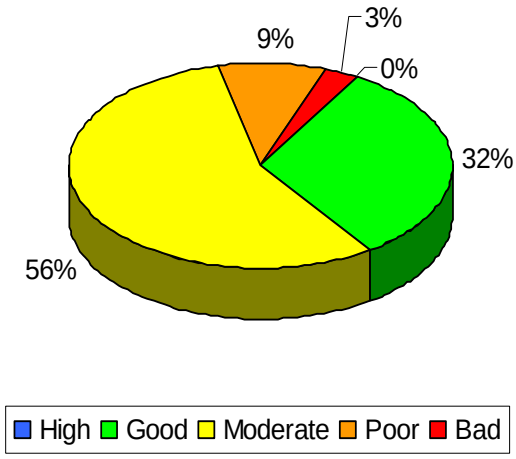
The Water Framework Directive (WFD) is EU legislation which became part of UK law in December 2003. It takes an approach to managing water called River Basin Management Planning (RBMP) that looks at all aspects of water within the wider ecosystem.

There are 866 surface water bodies covered by the RBMPs that lie within the North West Region (North West, Solway Tweed and Dee).

All the water bodies in the region have been classified and had objectives set for 2015, 2021 and 2027. The pie charts and table summarise their current status, and expected water quality for 2015 based on the actions in the current management plans.

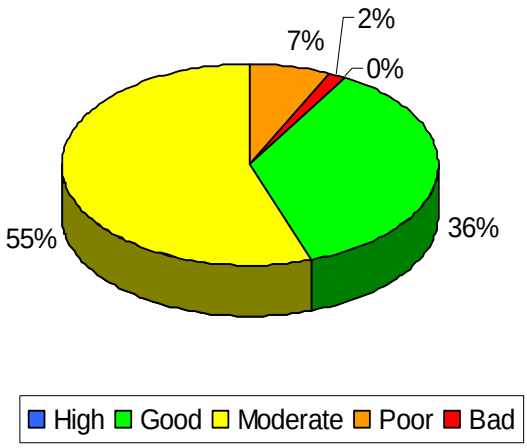
Current status of all surface water bodies in the North West region

(source: Environment Agency)



2015 target of all surface water bodies in the North West region

(source: Environment Agency)



Status of surface water bodies in the North West region – current quality and expected outcomes for 2015			
	Current	**2015**	**Change**
High	1	1	0
Good	276	313	+38
Moderate	486	480	-6
Poor	80	59	-21
Bad	23	13	-10
Total	866	866	--

Of the 68% not currently meeting 'good' status, the majority fail because the invertebrate, fish and phosphorus quality elements do not meet the standard required for 'good'. Where known, the reasons for failure to meet 'good' status in the North West are attributable to:

- Diffuse sources – agricultural
- Point sources – water industry
- Physical modification – water storage and supply
- Physical modification – flood protection
- Diffuse sources – urban run-off

In many cases we need to undertake further investigations to understand the causes of the failures to achieve 'good' status and the actions required to address the problem.

There are 21 groundwater water bodies in North West. All of them have been assessed as part of the RBMP. Their current status and that predicted for 2015 is summarised in the table, expressed as the percentage of water bodies in each class. The classification system for groundwaters differs from that for other water bodies. It comprises two components, quantitative and chemical, and these are combined into an overall class.

Status of groundwater water bodies in the North West region – current quality and expected outcomes for 2015						
%	**Current**			**Prediction 2015**		
	Quantitative	**Chemical**	**Overall**	**Quantitative**	**Chemical**	**Overall**
High	0	0	0	0	0	0
Good	67	48	29	67	52	33
Moderate	0	0	0	0	0	0
Poor	33	52	71	33	48	67
Bad	0	0	0	0	0	0

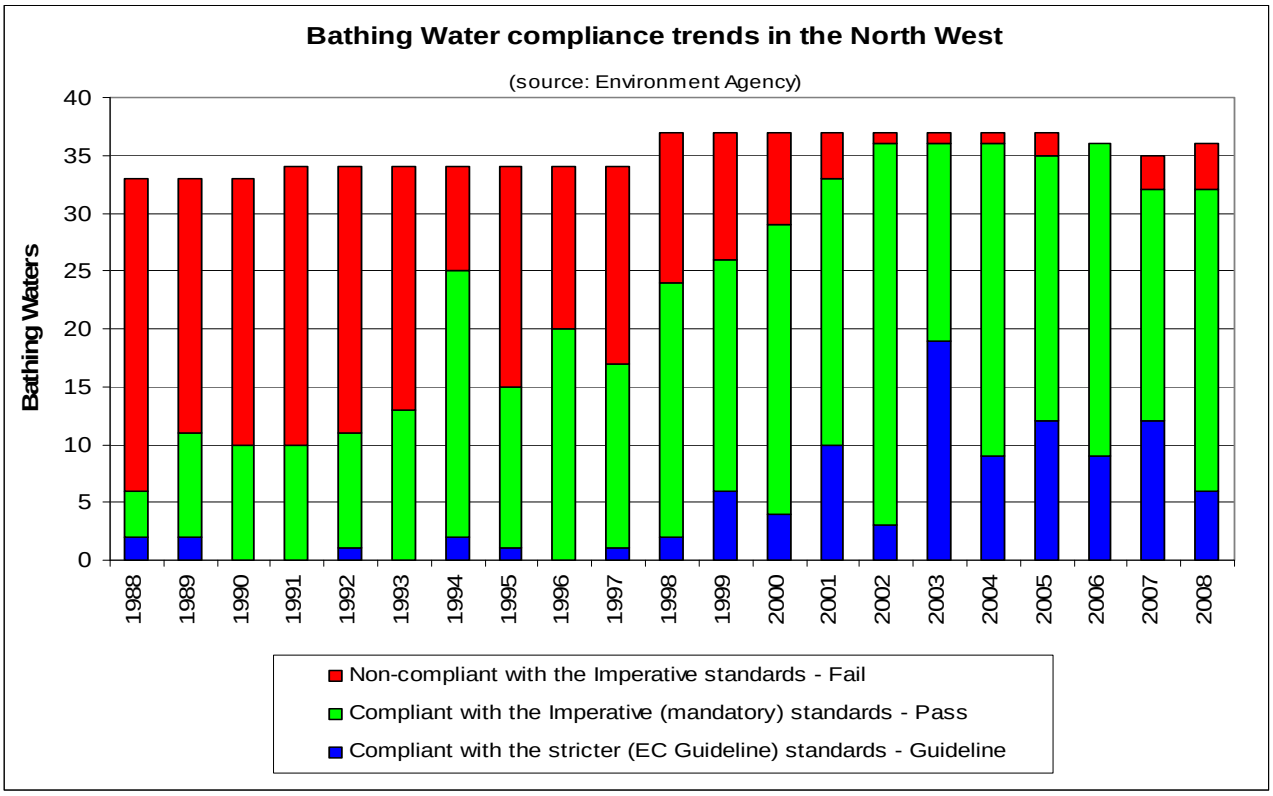
Based on the current classification, the elements responsible for groundwater water bodies not meeting 'good' status are:

- Chemical status in order of increasing importance: Impact on Wetlands, Saline Intrusion, General Chemical Test, Drinking Water Protected Area, and Impact On Surface Waters.
- Quantitative status: Saline Intrusion, Water Balance, and Impact On Surface Waters

The final RBMPs are due to be published in December 2009. The assessments will be subject to annual review as new monitoring data is acquired and as criteria are refined in response to emerging knowledge.

Bathing Waters

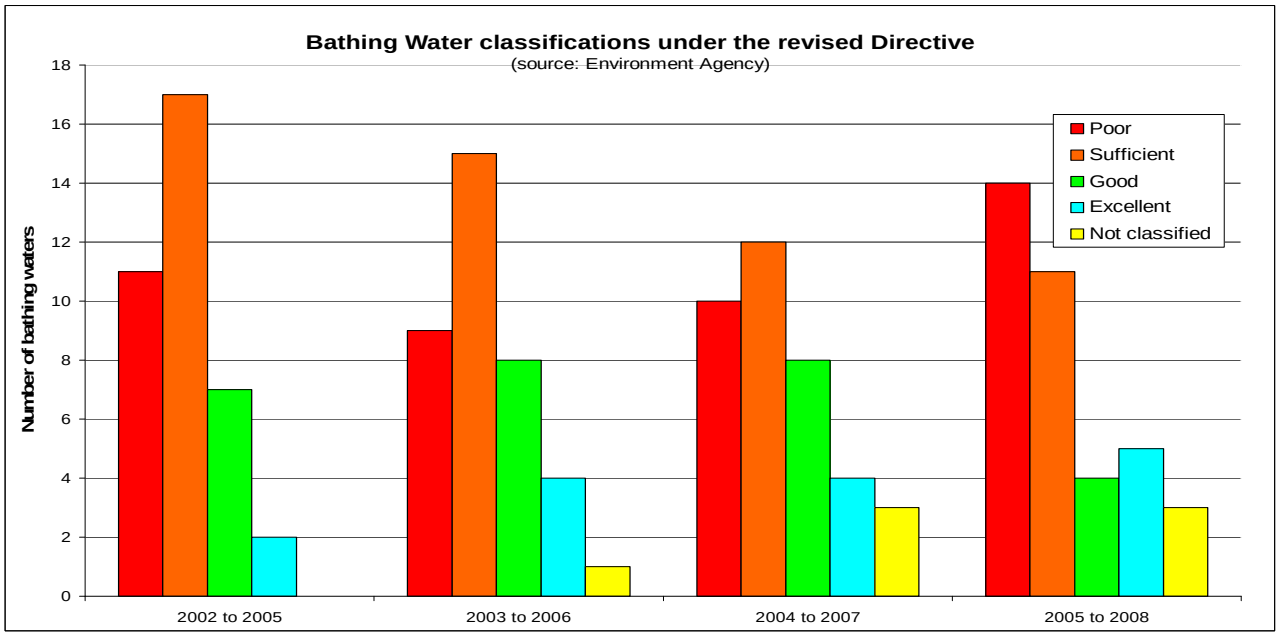
The chart below shows the quality of our bathing water, as measured by the current Bathing Water Directive.



The revised Bathing Water Directive requires that, as a minimum, all designated bathing waters must comply with the 'sufficient' standard by 2015. Defra is reviewing the designation of bathing waters as part of the implementation of the revised directive.

On the latest available assessment of current designated bathing waters using data for 2005-2008, there are a total of 60 bathing waters in England and Wales that are either 'poor' (fail the standard) or 'risky sufficient' (at a significant risk of failing to meet the standard). The North West region has 21 of these (35%).

We confidently expect that one of our 21 bathing waters at risk of failure can be improved to 'sufficient' by 2015. For a further 14, we are moderately confident that they can be improved, but we have low confidence that the remaining 6 can be improved in time.



Biodiversity action plan species and habitat

The table shows habitat targets for wetland habitats for which the Environment Agency has a lead role:

Source: Counting up: A regional biodiversity strategy for the NW. Version: 02 July 2009

				Existing resource			New resource	
Habitat	**Units**	**NW resource**	**NW as % England Resource**	**Maintain Extent Target**	**Achieve Condition Target** (Maintain or improve condition)	**Ongoing and planned Achieving Condition delivery to 2015 (%)**	**Restoration and Expansion Target**	**Ongoing and planned Restoration and Expansion delivey to 2015 (%)**
Purple Moor Grass & Rush Pastures	Hectares	1,866	9	1,866	1,866	69	40	100 +
Limestone Pavement	Hectares	1,177	47	1,177	1,177	100 +	NA	NA
Blanket Bog	Hectares	68,139	28	68,139	68,139	54	NA	NA
Coastal saltmarsh /mudflat	Hectares	69,606	34	69,606	69,606	91	1,090	29
Coastal Sand dunes	Hectares	2,414	20	2,414	2,414	80	75	7
Coastal Vegetated Shingle	Hectares	64	1	64	64	70	NA	NA
Maritime Cliff and Slope	Kilometres	57	5	57	35	80	14	0
Saline Lagoons	Hectares	169	14	169	26	100 +	15	0
Eutrophic Standing Water	Sites	416	11	NA	416	10	NA	NA
Mesotrophic Lakes	Sites	127	20	NA	127	23	NA	NA
Coastal & Floodplain Grazing Marsh	Hectares	39,860	23	39,860	17,595	16	690	90.2
Lowland Raised Bogs	Hectares	5,534	49	5,534	5,534	81	760	21
Fens	Hectares	9,871	n/a	9,871	9,871	83	360	2
Wet Reedbeds	Hectares	1,176	23	1,176	1,176	96	180	64

Five targeted species from the Environment Agency biodiversity strategy	**National status (Source: Biodiversity action reporting System)**
Freshwater pearl mussels	Declining (continuing/accelerating)
Water vole	Fluctuating (probably increasing)
Otter	Increasing
White clawed crayfish	Declining (continuing/accelerating)
Vendace	Declining (slowing)

Value

- Air pollution is believed to reduce average life expectancy by seven to eight months, which translates into annual health costs estimated at £20 billion for the UK.
- £2.9 billion was spent by United Utilities in the Asset Management Plan 4 programme for 2005 - 2010 (AMP4), half of which was for water quality improvements.
- The current provisional estimate from Ofwat's draft price proposals (as at July 2009) for United Utilities' expenditure in AMP5 (2010-2015) is £3.4 billion.
- Between 2005 and 2009, average annual household water utility bills increased from £269 to £370 in the North West.
- In 2007, Natural England estimated that non-native invasive species cost the UK economy £2 billion.
- Salmon have reappeared in the Mersey; otter numbers and sightings are increasing.

Challenges

- Diffuse rural pollution, from agriculture and other sources, is one of the leading reasons for failure of WFD 'good' status. Working with farmers and other stakeholders to tackle this problem, as outlined in the RBMPs, will be very challenging.
- In many cases, we do not know the reasons why our water bodies do not meet 'good' status. We need to investigate the reasons before we can take action.
- Addressing diffuse urban pollution will require new technical solutions and partnerships with local authorities, highways authorities and others.
- Future water quality priorities will have to accommodate the impacts of planned growth in the region and actions to mitigate climate change.

The future

- By 2015, the actions in the RBMPs aim to deliver the following improvements:
    - 38 water bodies will improve to 'good' status
    - 145 water bodies will improve for one or more elements
    - 2491km of river will improve
    - Number of bad or poor water bodies will be cut from 23 to 13
- We will have to balance improvements to air, land and water quality with the need to mitigate the impacts of climate change whilst simultaneously achieving sustainable economic growth.

Work with businesses and other organisations to use resources wisely

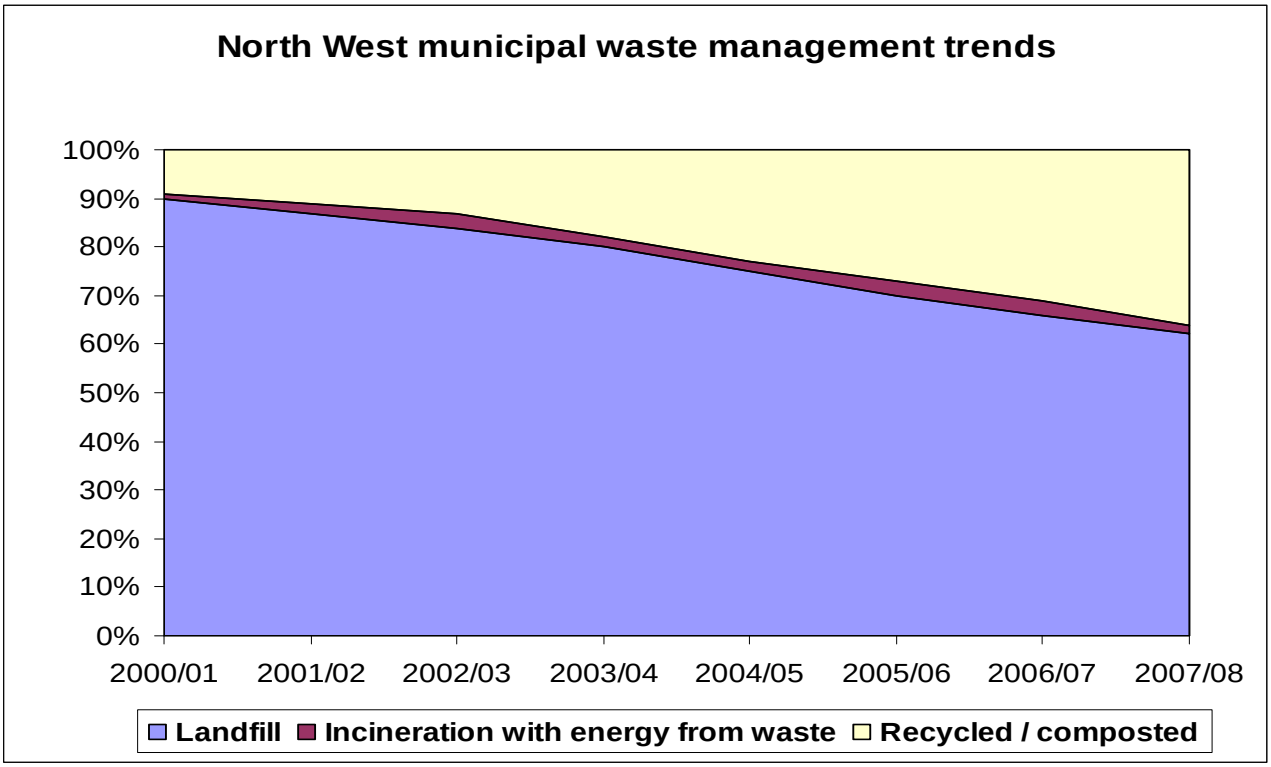
Where are we now?

An assessment of the ecological footprints of 60 major British cities indicated that if everyone in the world consumed resources and released carbon dioxide at the same rate as the average British city dweller, then we would need the equivalent of three planets to support us[9]. Most major North West cities are close to this average. Clearly this is not sustainable in the long term.

Municipal Waste

In 2007/8, the North West produced an estimated 4.1 million tonnes of municipal waste, 62% of which went to landfill. The Defra 2007 Waste Strategy for England includes national targets for recovery of municipal waste of 53% by 2010, 67% by 2015 and 75% by 2020.

We are seeing a steady increase in the municipal recycling trend in the North West. We are currently recycling or composting 36% of the region's waste, with an additional 2% being used in incineration for energy recovery. We are confident of meeting the 2010 Defra waste recovery target, though achieving the 2015 target will require timely commissioning of new facilities.



Source: North West Regional Technical Advisory Board [10]

Commercial and Industrial (C&I) Waste

The North West produced an estimated 7.5 million tonnes of C&I waste in 2006, of which 2.4 million tonnes had potential for recycling and recovery.

Only 5% of readily recyclable materials in the industrial sectors are being sent for disposal. However, the worst recycling performance is in the public sector where 87% of potentially recyclable waste materials are sent for disposal[2].

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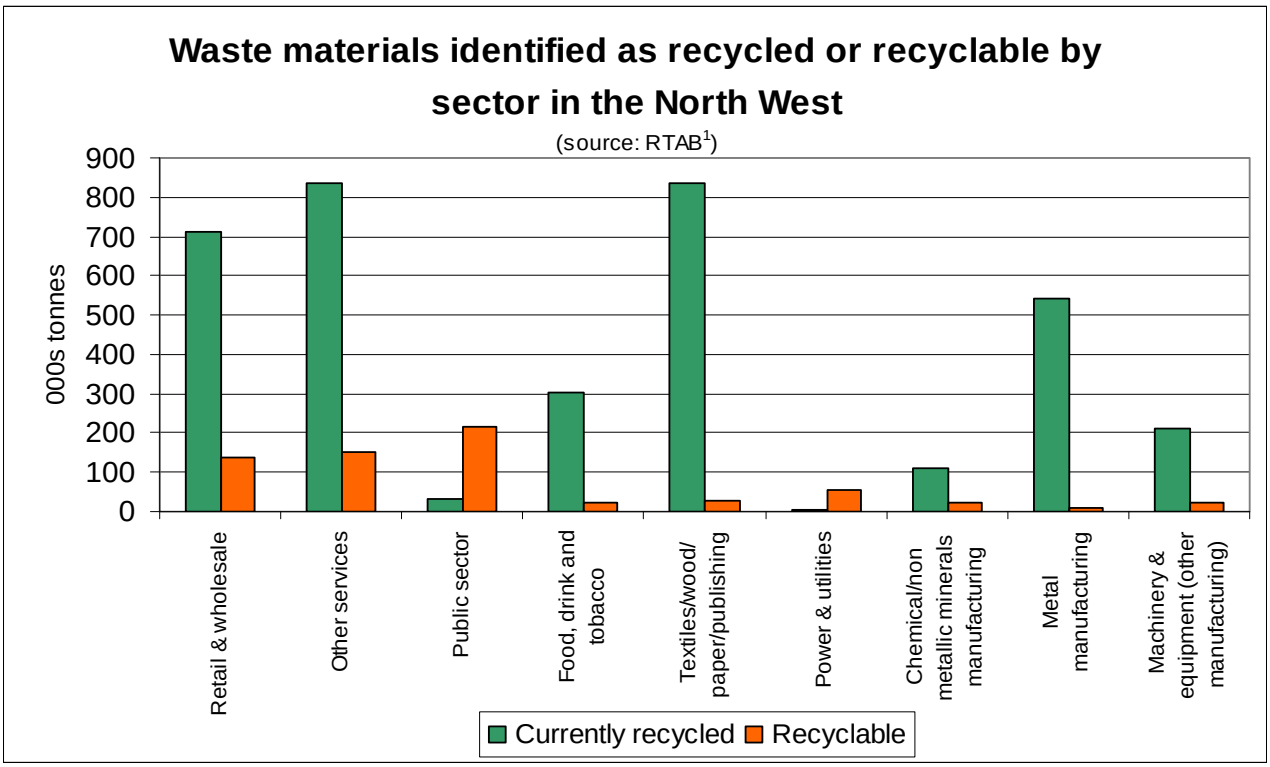
[9] World Wildlife Fund: http://www.oneplanetliving.org/index.html

[10] North West Regional Technical Advisory Board, 4th Waste Management Monitoring Report



Landfill

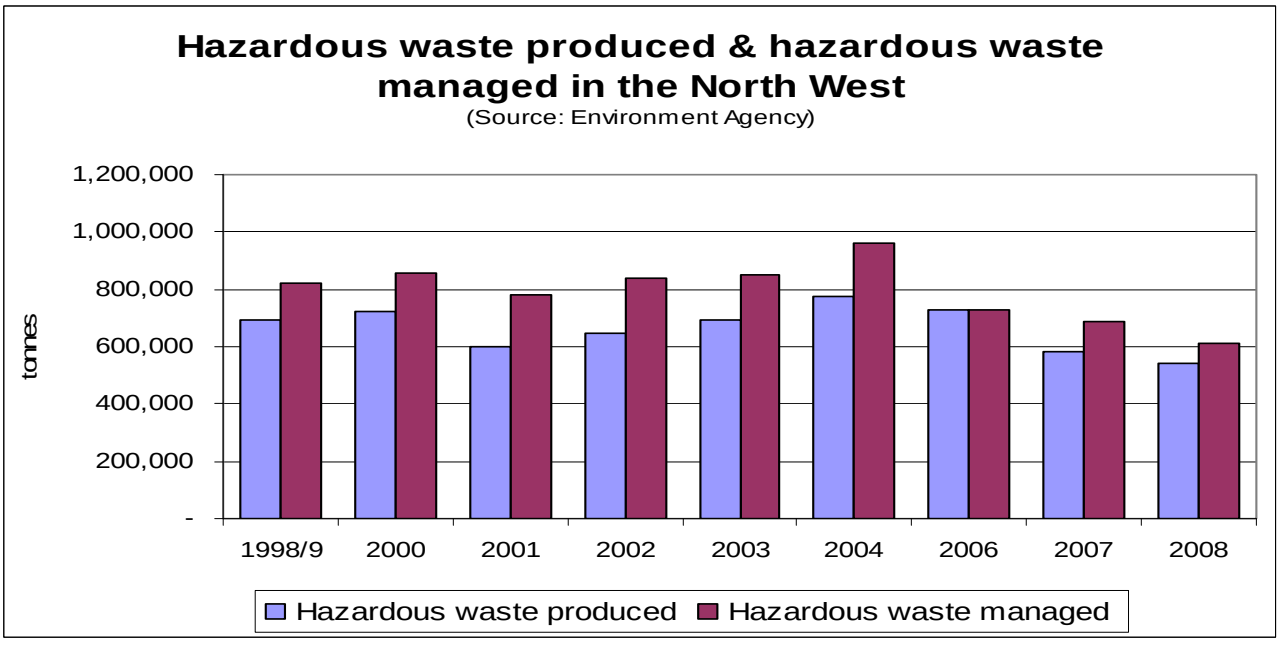
Landfill remains the main method of waste disposal. There is an estimated 63.5 million m^3 of landfill capacity remaining in the North West. At current rates, this is only enough for another 7.5 to 10 years.

Space is not the only issue to consider with landfills. Sending waste to landfill can also have long-term environmental impacts including releases of greenhouse gas (methane) from rotting waste and odours arising from landfill operations.

North West landfill deposit data 2006
(source: RTAB[1])

	Site type	Input (000s tonnes)
Hazardous	Hazardous	165
Non-inert	Inert/C&D	2,711
	HIC	4,779
	Hazardous	20
Inert	Inert only	1,153
Restricted user	Inert/C&D	349
	HIC	123
	Hazardous	9
Total		**9,309**

Hazardous Waste



Water Resources
Total water demand in the North West is currently around 1,900Ml/d. This is the demand on United Utilities' systems and includes household, non-household demand and leakage. In addition, about another 800 Ml/d is abstracted directly in the region by non-households and for agricultural spray irrigation.

Per capita consumption by United Utilities' customers is currently about 140 litres/head/day - above the Defra strategy target of 130l/h/d. This is forecast to reduce to 133 l/person/day by 2015 (during a normal year).

26% of households in the North West currently have water meters. This is below the national average of 33%, but is forecast to rise to 38% by 2015. Metering is a proven way of reducing demand by 5% to 15% per metered household.

Leakage of 462 Ml/d in 2008/9 (against the Ofwat target of 465 Ml/d) accounts for about a quarter of total demand in North West. This is the third highest leakage rate in the country and is showing little sign of changing. Leakage is forecast to be 463 Ml/d by 2015.

There is considerable uncertainty over the impact of climate change on water supplies to 2030 and beyond. United Utilities predict supply/demand deficits as soon as 2014/15 in West Cumbria, and for 2023/24 in the integrated supply zone.

Housing Development
There is a shortfall between housing supply and current and future demand. The Government has set challenging national housing development targets. These call for an increase in housing in the North West by 416,000 new homes, to be built from 2003 - 2021.

These figures have increased with the approval of six new Growth Points (GP) to deliver extra housing by 2016.

Housing growth ambitions 2008-09 to 2016-17

	Growth Point	**2003 Regional Planning Guidance** (Dwellings per annum)	**Emerging Regional Spatial Strategy** (Dwellings per annum)	**Total dwellings proposed 2008-16/17**	**Of which additional**	**Percentage Uplift over draft Regional Spatial Strategy**
NORTH WEST						
1	Greater Manchester (Manchester, Salford, Trafford and Bolton)	2,600	6,256	67,572	11,268	20%
2	Carlisle	315	450	5,400	1,350	33%
3	Central Lancashire and Blackpool	810	1,785	20,079	4,014	25%
4	West Cheshire	848	1,317	14,553	2,700	23%
5	Halton / St.Helens / Warrington	1,110	1,450	18,756	5,706	43%
6	Mersey Heartlands	1,260	2,450	26,460	4,410	20%

Values

- The total national value of public sector procurement is approximately £150 billion per year, and in the North West the public sector accounts for around 40% of total spending on goods and services. If we can influence this huge buying power to be more resource efficient, the effect will be very significant.

- £25 billion is needed to operate and maintain environmental infrastructure to support existing communities in the North West from 2008 up to 2029. A further £7 billion will be needed to provide, operate and maintain environmental infrastructure to support the planned housing growth.

- The recycling industry in the North West is worth £1 billion per year.

Challenges

- The economic downturn has placed significant pressure on achieving the rate and scale of development in the region. We will be at the forefront of ensuring that the North West is resource efficient, and that new development is planned and built in a way that is environmentally sustainable. We expect growth targets to be achieved without harm to the environment, but this will require early investment and careful planning.

- Delivering the environmental infrastructure, principally recycling and waste incineration facilities, to meet the targets of the Defra 2007 Waste Strategy, is especially challenging. Meeting the 2015 targets is particularly reliant on the commissioning of these facilities.

The future

- It is very hard to find reliable waste data, especially for the commercial and industrial sector. The best information we currently have is from a 2006 survey. A further North West survey is due in 2009/10, and Defra have outlined plans to use our survey methodology nationally from 2011.

- Due to climate change, summer river flows could drop by up to 80% by 2050 while at the same time there may be a slight increase in domestic water demand. This could have a significant effect on water resource management.

- Adequate environmental infrastructure provision is essential to ensure clean water, safe handling of our waste and sewage and protection from flooding. The North West faces substantial environmental infrastructure costs to accommodate levels of housing growth set out in the Regional Spatial Strategy. Pressures associated with housing growth are intensified by wider factors including historic under-investment in water and sewer capacity, the urgent need to reduce the amount of waste going to landfill, and the unavoidable impacts of climate change such as increased risks of droughts and flooding.