

Water for life and livelihoods

River Basin Management Plan North West River Basin District



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The Environment Agency website holds the River Basin Management Plans for England and Wales, and a range of other information about the environment, river basin management planning and the Water Framework Directive. www.environment-agency.gov.uk/wfd

You can search maps for information related to this plan by using 'What's In Your Backyard'. <http://www.environment-agency.gov.uk/maps>.

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This plan at a glance

This plan is about the pressures facing the water environment in the North West River Basin District, and the actions that will address them. It has been prepared under the Water Framework Directive, and is the first of a series of six-year cycles of planning and action.

By 2015, 21 per cent of surface waters (rivers, lakes, estuaries and coastal waters) in this river basin district are going to improve for at least one biological, chemical or physical element, measured as part of an assessment of good status according to the Water Framework Directive. This includes an improvement of **1867 kilometres** of the river network in relation to fish, phosphate, specific pollutants and other elements.

33 per cent of surface waters will be at good or better ecological status/potential and 28 per cent of groundwater bodies will be at good status by 2015. In combination 33 per cent of all water bodies will be at good status by 2015. The Environment Agency wants to go further and achieve an additional two per cent improvement to surface waters across England and Wales by 2015.

The biological parts of how the water environment is assessed – the plant and animal communities – are key indicators. **At least 41 per cent of assessed surface waters will be at good or better biological status by 2015.**

The North West River Basin District has a very special environment, with iconic places such as the Lake District, Blackpool and the Liverpool waterfront driving the region's £13bn tourist economy. Water is an important element of this environment. Water has also played an important role in the growth of the cities and manufacturing industries that have shaped history. The rich industrial past has left a legacy of poor water quality. In the past there has been considerable progress in protecting the natural assets of the North West River Basin District and cleaning up many of the problems for the water environment - the transformation of the Salford Docks is one example of this progress.

However, a range of challenges remain, which will need to be addressed to secure the predicted improvements. These include:

- diffuse pollution from agricultural activities;
- point source pollution from water industry sewage works;
- diffuse pollution from urban sources;
- physical modification of water bodies;
- point source pollution from industrial discharges;
- water abstraction and artificial flow regulation.

At present, because of these pressures and the higher environmental standards required by the Water Framework Directive only 30 per cent of surface waters are currently classified as good or better ecological status/potential. 37 per cent of assessed surface water bodies are at good or better biological status now, although we expect this to change to 34 per cent when we have assessed all water bodies.

In order to meet these targets, it is important for everyone to play their part now and in the future. River basin management is an opportunity for this generation, for people and organisations, to work together to improve the quality of every aspect of the water environment – to create an environment we are all proud of and can enjoy.

1 About this plan

This plan focuses on the protection, improvement and sustainable use of the water environment. Many organisations and individuals help to protect and improve the water environment for the benefit of people and wildlife. River basin management is the approach the Environment Agency is using to ensure our combined efforts achieve the improvement needed in the North West River Basin District.

River basin management is a continuous process of planning and delivery. The Water Framework Directive introduces a formal series of six year cycles. The first cycle will end in 2015 when, following further planning and consultation, this plan will be updated and reissued.

The North West River Basin District Liaison Panel has been central to helping us manage this process. The panel includes representatives of businesses, planning authorities, environmental organisations, consumers, navigation, fishing and recreation bodies and, regional and local government, all with key roles to play in implementing this plan. The Environment Agency has also worked extensively with local stakeholders to identify the actions needed to address the main pressures on the water environment.

This plan has been prepared under the Water Framework Directive, which requires all countries throughout the European Union to manage the water environment to consistent standards. Each country has to:

- prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters;
- aim to achieve at least good status for all water bodies by 2015. Where this is not possible and subject to the criteria set out in the Directive, aim to achieve good status by 2021 or 2027;
- meet the requirements of Water Framework Directive Protected Areas;
- promote sustainable use of water as a natural resource;
- conserve habitats and species that depend directly on water;
- progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants;
- contribute to mitigating the effects of floods and droughts.

The plan describes the North West River Basin District, and the pressures that its water environment faces. It shows what this means for the current state of the water environment, and what actions will be taken to address the pressures. It sets out what improvements are possible by 2015 and how the actions will make a difference to the local environment – the catchments, the estuaries and coasts, and the groundwater.

Looking towards implementation, the plan highlights the programme of investigations to be undertaken. This will identify more actions, particularly those associated with diffuse pollution, for delivery during the first cycle. New national measures, made available by government, will also lead to additional improvements. At local level, the Environment Agency will be working closely with a wide variety of organisations and individuals, not only to deliver the commitments contained in the plan, but wherever possible to expand upon them for the benefit of the water environment.

Strategic Environmental Assessment

A Strategic Environmental Assessment of the draft plan was completed to review the effects of the proposals on the wider environment. The assessment enabled us to make sure that this first plan represents the most sustainable way of managing the water environment. The Post Adoption Statement and accompanying Statement of Environmental Particulars is available at www.environment-agency.gov.uk/wfd.

Habitats Regulations Assessment

A Habitats Regulations Assessment of this plan has been carried out to consider whether it is likely to have a significant effect on any Natura 2000 sites. The assessment was undertaken by the Environment Agency, in consultation with Natural England.

The assessment concluded that the River Basin Management Plan is unlikely to have any significant negative effects on any Natura 2000 sites. The plan itself does not require further assessment under the Habitats Regulations. This conclusion is reliant on the fact that before any measures in the plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, project or permissions required to implement the measures must undergo an appropriate assessment if they are likely to have a significant effect.

A copy of the Habitats Regulations Assessment of this plan is available at www.environment-agency.gov.uk/wfd.

Impact Assessment

An impact assessment of this plan has been completed. It looks at the costs of a reference case, which includes existing actions and new actions required by existing obligations, and the incremental costs and benefits of implementing the additional new actions required by this plan. The impact assessment also provides a forward look to the costs and benefits of potential action in future cycles (2015 to 2021 and 2021 to 2027).

A copy of the impact assessment is available at www.environment-agency.gov.uk/wfd.

2 About the North West River Basin District

The North West River Basin District (Figure 1) is home to over 6.8 million people and some of the most stunning landscapes and water environments in the world. A large part of the region is rural and has three national parks, including the Lake District National Park that is a candidate world heritage site. Many of the waters are also internationally important because they are home to vulnerable or rare wildlife or habitats.

Water is central to our lives and livelihoods in the North West, with iconic places such as Blackpool, the Lake District, and the Liverpool waterfront all adding a significant contribution to the region's £13bn tourist economy. Angling contributes about £141M to the North West economy and social schemes involving fishing have successfully kept vulnerable young people from anti-social behaviour and crime.

North West has many excellent salmon rivers. In the south of the region, the coarse fisheries attract many anglers. In fact, angling supports over three thousand jobs in the region. An extensive network of canals also provides transport, tourism opportunities, and coarse fishing throughout the area.

Around 80 per cent of the North West Region is rural, with the majority being managed for agricultural purposes. Livestock farming is the most common, which can be seen to shape the landscape of the region.

The availability of water has also been important in supplying the cities and manufacturing industries with water, whilst the coasts are still important trade routes to the rest of the world. Development has left a legacy of poor water quality although significant progress has been made over the last 20 years in cleaning up the waters – indeed where this has happened places, such as Salford Docks, have been transformed.

The North West will continue to grow into the future, with one million additional people living in the region by 2035. From the North West's Regional Spatial Strategy target to deliver 416,000 new homes (23,111 a year from 2003 to 2021), about 400,000 will fall within the North West River Basin District. This strategy identifies five growth points in the region where the largest and most rapid changes to urban areas are expected. This will support associated employment, infrastructure and commercial development. By promoting sustainable development and the efficient use of water, we can balance the social, economic and environmental needs, whilst also taking into account the potential effects of climate change.

Water facts in the North West River Basin District

34 Bathing waters.

9 Shellfish waters.

20 Special Areas of Conservation and 7 Special Protection Areas.

60 per cent of the drinking water for the North West is taken from sites designated for their habitats / wildlife.

We will see an additional 400,000 homes by 2021 and one million people by 2035.

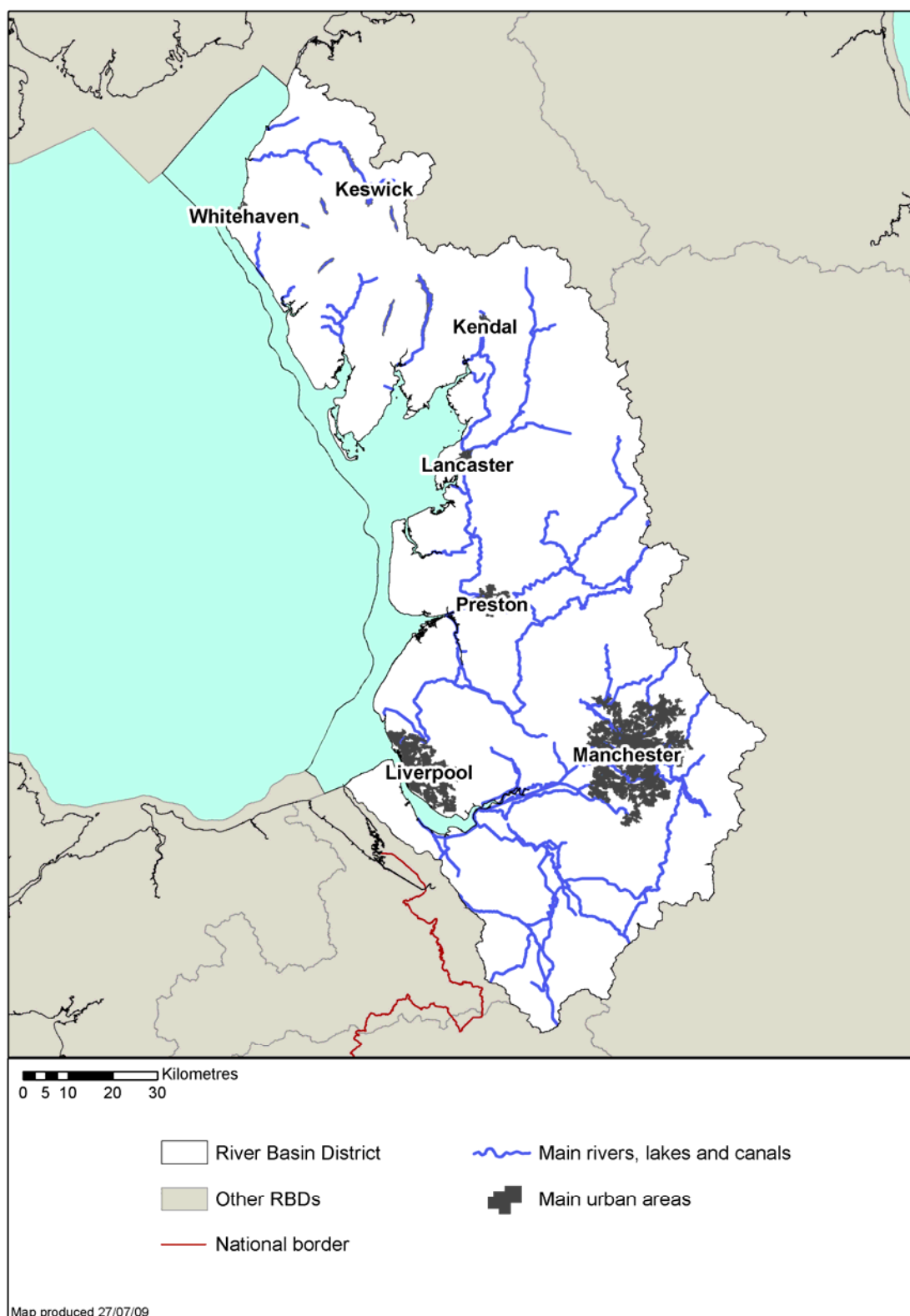
North West region may receive up to 20 per cent less rainfall in the summer by the 2080's.

Tourism is worth £13 billion per annum and supports 12,000 jobs.

The Mersey Estuary has three ports that deal with 34 million tonnes of freight a year.

Recreational fisheries and angling contribute £141M into the NW economy of which £79M stays in the region. In excess of 3,000 jobs are supported by angling.

Figure 1 **Map of the North West River Basin District**



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Pressures on the water environment

The latest climate change projections from UKCP09 indicate that the North West region may receive up to 20 per cent less rainfall in summer by the 2080's (medium emissions scenario, central estimate). The Office for National Statistics forecasts that nearly a million more people will be living in the region by 2035. Historical issues and these challenges relate to a range of specific pressures that need to be dealt with in this river basin district. The most significant are:

- **Diffuse pollution from rural areas** – nutrients, sediments and pesticides in runoffs.
- **Point source pollution caused by discharges from sewerage systems**– an excess of organic matter which depletes the oxygen available for wildlife.
- **Diffuse pollution from roads and urban areas** – a range of pollutants related to urban areas and the transport network.
- **Physical modification of rivers and coastline** - changes to the structure of water bodies, such as for flood defence.
- **Point source pollution caused by discharges from industry** - a range of pollutants and chemicals related to various industries that may affect the physiology, growth, development and reproduction of aquatic organisms.
- **Abstraction and other artificial flow regulation** – problems related to taking water from rivers, reservoirs, lakes and groundwater.

A great deal is already being done to protect and improve the water environment. However, it will take more time, effort and resources to deal with the pressures that have significantly altered and damaged the environment over the last few hundred years.

There are a number of major challenges.

High population densities and transport networks put pressure on the water environment.

Discharges from sewage works can impact on water quality or the enjoyment of it, and water companies will implement a major programme of work to address this issue.

Government has identified a need for 2 million new homes in England by 2016 as a result of a changing population. In response to this, North West's Regional Spatial Strategy aims to deliver 400,000 new homes within the river basin district by 2021. The North West Development Agency has also identified 35 strategic regional sites, the delivery of which is important to the achieving sustainable economic growth within the region. Managed well, this **growth and regeneration will be an opportunity** to make improvements to the water environment in a way that enhances people's quality of life.

There are approximately three million homes in the region, and they lie on the intersection of important transport corridors including, the West Coast Main Line, the M6, M56 and M62 motorways, with Manchester Airport, the Port of Liverpool and Liverpool John Lennon Airport which provide international gateways. Planning authorities need to get the locations right for new housing, plan for infrastructure in the longer term and reduce demand on environmental services.

The way land is managed has given rise to complex pollution issues. This **diffuse pollution is a major pressure** on the water environment, and can come from urban areas as well as rural areas. Around 80 per cent of the North West region is classified as rural, with the majority of this being used for agriculture, principally livestock production. Further improvements are needed to farming practices to protect water quality and allow wildlife to thrive.

Rivers and estuaries have been significantly modified physically, to facilitate development, flood and coastal risk management or navigation. **Physical modification** needs to be

addressed in more than 45 per cent of rivers and lakes, in order to achieve more natural functioning of wetland ecosystems, and to protect fish and their habitats.

The North West region is highly dependent on surface water sources like reservoirs, lakes and rivers for drinking water - accounting for around 85 per cent of the total demand. About 60 per cent of the public water supply is abstracted from highly sensitive designated sites. It is therefore a challenge to **maintain the water resources** for people and the environment.

3 Water bodies and how they are classified

In the context of the Water Framework Directive, the water environment includes rivers, lakes, estuaries, groundwater and coastal waters out to one nautical mile. For the purposes of river basin management, these waters are divided into units called water bodies, as summarised in Table 1. In addition, this plan aims to protect wetlands that depend on groundwater.

Table 1 **Water body numbers in the North West River Basin District**

	Water body types					Total
	Rivers Canals and Surface Water Transfers (SWTs)*	Lakes and reservoirs	Estuaries (transitional)	Coastal	Groundwater	
Natural water bodies	296	30	4	3	18	351
Artificial water bodies	63	18	0	2	n/a	83
Heavily modified water bodies	188	116	8	3	n/a	315
Total	547	164	12	8	18	749

* The total length of river covered by the Directive in this river basin district is 6,020 kilometres.

The Water Framework Directive sets a target of aiming to achieve at least 'good status' in all water bodies by 2015. However, provided that certain conditions are satisfied, in some cases the achievement of good status may be delayed until 2021 or 2027.

Surface waters

For surface waters, good status is a statement of 'overall status', and has an ecological and a chemical component. Good ecological status is measured on the scale high, good, moderate, poor and bad. Chemical status is measured as good or fail.

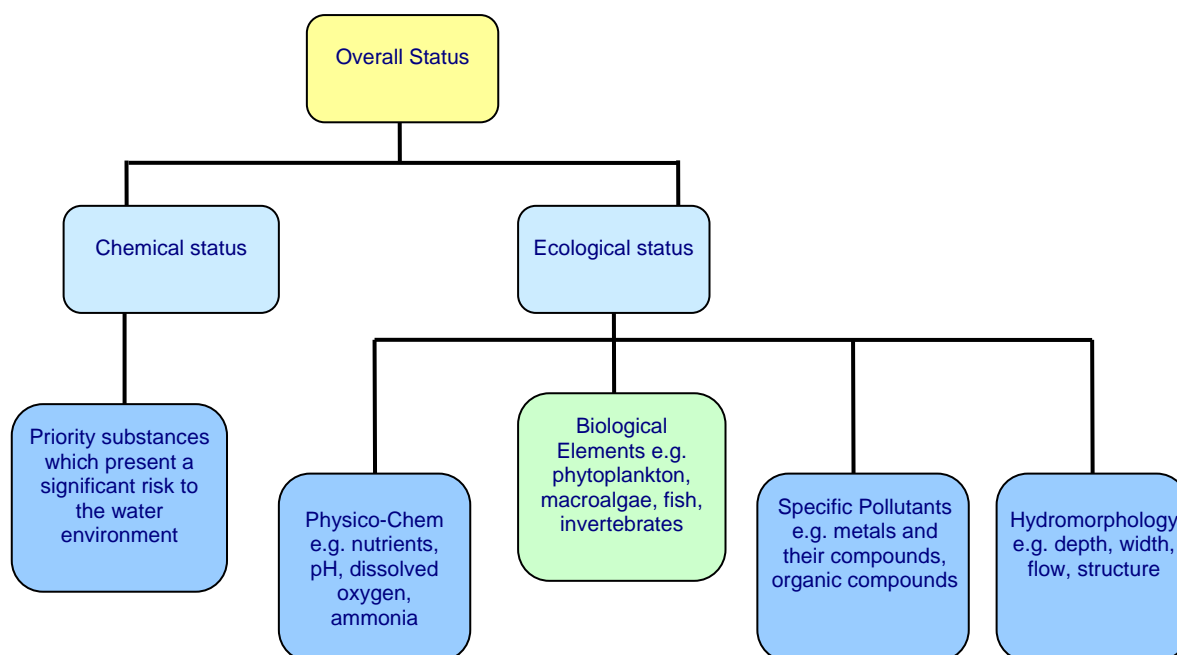
Good ecological status applies to natural water bodies, and is defined as a slight variation from undisturbed natural conditions. Figure 2 below shows how status is determined for surface waters. Each component has several different elements. These are measured against specific standards and targets developed by the Water Framework Directive UK Technical Advisory Group (UKTAG) and the European Union.

To understand the underlying reasons for water body status it is helpful to break down the results. Ecological status could be driven by the presence of a single chemical substance slightly exceeding the required standard. As well as ecological status this plan highlights the results of biological assessments (referred to as biological status) as these are the main indicators of the health of the environment for surface waters.

Monitoring and components of overall status

The monitoring programme for river basin management is based on a far wider range of assessments than were carried out in the past. A range of elements are measured in each water body, and a classification is produced based on a 'one out, all out' principle. This uses the poorest individual element result to set the overall classification.

Figure 2 The components of overall status for surface water bodies



The classification of water bodies will improve as new monitoring data are collected and better methods of assessment are developed. Future monitoring will help show where environmental objectives are already being met and where more needs to be done to improve the water environment. Monitoring will also give us some information on the spread of invasive non-native species.

The Water Framework Directive recognises the key role that water resources and habitats play in supporting healthy aquatic ecosystems. It requires that water bodies are managed to protect or improve hydromorphological conditions. Hydromorphology is a term that covers the flow of water in a water body and its physical form. The term encompasses both hydrological and geomorphological characteristics that help support a healthy ecology in rivers, lakes, estuaries and coastal waters.

Artificial and heavily modified waters

Some surface water bodies are designated as 'artificial' or 'heavily modified'. This is because they may have been created or modified for a particular use such as water supply, flood protection, navigation or urban infrastructure.

By definition, artificial and heavily modified water bodies are not able to achieve natural conditions. Instead the classification and objectives for these water bodies, and the biology they represent, are measured against 'ecological potential' rather than status.

For an artificial or heavily modified water body to achieve good ecological potential, its chemistry must be good. In addition, any modifications to the structural or physical nature of

the water body that harm biology must only be those essential for its valid use. All other such modifications must have been altered or managed to reduce or remove their adverse impact, so that there is the potential for biology to be as close as possible to that of a similar natural water body. Often though, the biology will still be impacted and biological status of the water body may be less than good.

Groundwater

For groundwater, good status has a quantitative and a chemical component. Together these provide a single final classification: good or poor status.

A ground water body will be classified as having poor quantitative status in the following circumstances; where low ground water levels are responsible for an adverse impact on rivers and wetlands normally reliant on ground water; where abstraction of ground water has lead to saline intrusion; where it is possible that the amount of groundwater abstracted will not be replaced each year by rainfall.

Poor chemical status occurs if there is widespread diffuse pollution within the groundwater body, the quality of the groundwater is having an adverse impact on wetlands or surface waters, there is saline intrusion due to over abstraction, or the quality of water used for potable supply is deteriorating significantly. There are other objectives for groundwater quality in addition to meeting good status. These are the requirements to prevent or limit the input of pollutants to groundwater and to implement measures to reverse significant and sustained rising trends in pollutants in groundwater.

Protected areas

Some areas require special protection under European legislation. The Water Framework Directive brings together the planning processes of a range of other European Directives. These Directives, listed in Table 2, establish protected areas to manage water, nutrients, chemicals, economically significant species, and wildlife – and have been brought in line with the planning timescales of the Water Framework Directive. Meeting their requirements will also help achieve Water Framework Directive objectives.

Table 2 Other Directives and their Water Framework Directive protected areas

Directive	Protected area	Number of protected areas
Bathing Waters	Recreational waters	34
Birds	Natura 2000 sites (water dependent special protection areas)	7
Drinking Water	Drinking water protected areas	156
Freshwater Fish	Waters for the protection of economically significant aquatic species	830
Shellfish Waters	Waters for the protection of economically significant aquatic species	9
Habitats	Natura 2000 sites (water dependent special areas of conservation)	20
Nitrates	Nitrate Vulnerable Zones	46 per cent of the North West River Basin District
Urban Waste Water Treatment	Sensitive areas	16

Achieving the objectives of these protected areas is a priority for action in this plan. Annex D sets out their objectives and the actions required for Natura 2000 sites and the new Drinking

Water Protected Areas required under the Directive. Annex C describes the actions required for all protected areas. In addition, there are two new daughter Directives (Groundwater and Environmental Quality Standards) that will be used to implement specific parts of the Water Framework Directive.

4 The state of the water environment now

The current status classification is the baseline from which improvements and the 'no deterioration in status' objective of the Water Framework Directive is measured. The current status classification has been updated since the draft River Basin Management Plan. It is different to that presented in the draft plan because:

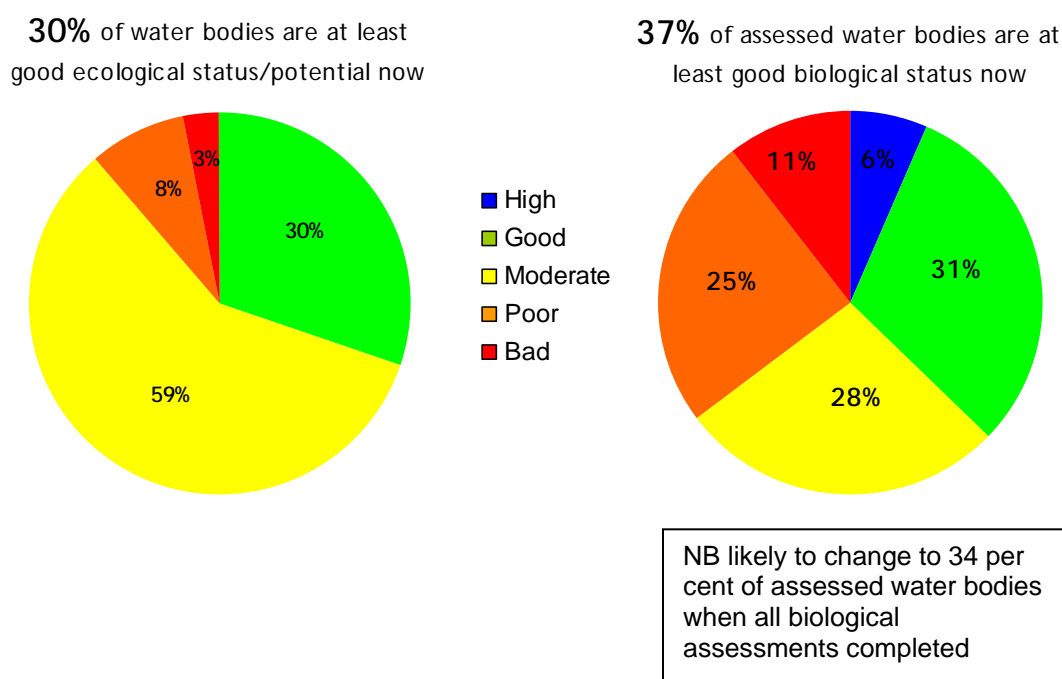
- the quality of assessments has been improved by refining classification methods;
- the accuracy of individual assessment tools has improved, especially for fish;
- a number of water bodies that were identified as potentially being heavily modified have not been designated as such in this plan because monitoring shows that they currently achieve good status;
- improvements from the water companies' Asset Management Plan (4) have now been factored in;
- an additional 77 rivers and lakes have been classified that were previously unassessed.

There are 749 water bodies in the North West River Basin District; 731 are surface water bodies and 18 are groundwaters. 218 surface water bodies and 222 of all water bodies are at good or better overall status/potential. For groundwater bodies, currently 61 per cent are at good quantitative status and 44 per cent are at good chemical status.

219 surface water bodies (30 per cent) are at good or better ecological status/potential.

431 surface water bodies are assessed for biology. 160 (37 per cent) of those are at good or better biological status.

Figure 3 **Ecological status/potential and biological status of surface water bodies now**



Statistics for both good ecological status or potential and biological status are influenced by the relative number of artificial and heavily modified waters and their classification. In the North West River Basin District, 27 per cent of 398 artificial and heavily modified water bodies are currently classified as at good or better ecological potential, compared to 35 per cent of 333 natural surface water bodies having good or better ecological status. As

discussed in the previous section the higher percentage of poor and bad water bodies assessed for biological status compared to ecological status/potential reflects the fact that even where all mitigation measures are in place to allow an artificial/heavily modified water body to be classified as good, the use of the water body may mean that biology is still impacted.

As biological monitoring continues it is likely that the percentage of water bodies at good or better biological status will change from 37 to 34 per cent. This is explained further in the section on "Biological status and monitoring".

Reasons for not achieving good status or potential

This section takes a closer look at rivers. The majority of management actions in the first river basin management cycle will be applied to rivers. Reasons for not achieving good status or potential in other surface waters are being investigated. The first course of action for lakes, coasts and estuaries is to develop a better understanding of the issues.

To identify what needs to be done to improve the environment, the reasons for not achieving good status need to be understood. The main reasons most frequently identified by Environment Agency staff using monitoring data, their knowledge and experience of individual water bodies are shown in Table 3. Each relates to one or more pressures, which in turn impact on elements of the classification.

The reasons for failure include point source discharges from water industry sewage works, diffuse source pollution from agriculture, abstraction and a range of reasons due to physical modifications. The actions in this plan will increase the number of waters achieving good status or potential, for example through significant investment in improving discharges from sewage works and changes to land management practices. Even if good status is not completely achieved, these will lead to improvements to the key elements impacted.

Table 3 Main reasons (where known) for not achieving good ecological status or potential in rivers

Reason for Failure	Key elements impacted
Diffuse source agricultural	ammonia, diatoms, fish, invertebrates, phosphate
Point source water industry sewage works and storm discharges	ammonia, diatoms, fish, invertebrates, phosphate,
Physical modification water storage and supply (including for power generation)	mitigation measures for morphology
Physical modification flood protection and land drainage	fish, invertebrates, mitigation measures for morphology
Diffuse source mixed urban run-off, housing and contaminated land (inc. Landfill, excl disused mines)	ammonia, fish, invertebrates, phosphate
Physical modification Urbanisation and Wider Environment	invertebrates, mitigation measures for morphology
Point source domestic (non water industry)	ammonia, invertebrates, phosphate
Physical modification barriers to fish migration	fish
Abstraction	hydrology
Point source trade industry (non water industry)	ammonia, phenol, phosphate

It is important to note that because classification involves a wider range of elements than previous monitoring schemes, and many of the key pressures are complex and occur in combination, we often do not know the reason for a failure. For many water bodies either the reasons for failure are unknown or it is uncertain whether there is a failure or whether pressures really are causing an impact. In these cases we will need to investigate, as discussed in “Investigations – improving outcomes for 2015” in Section 6.

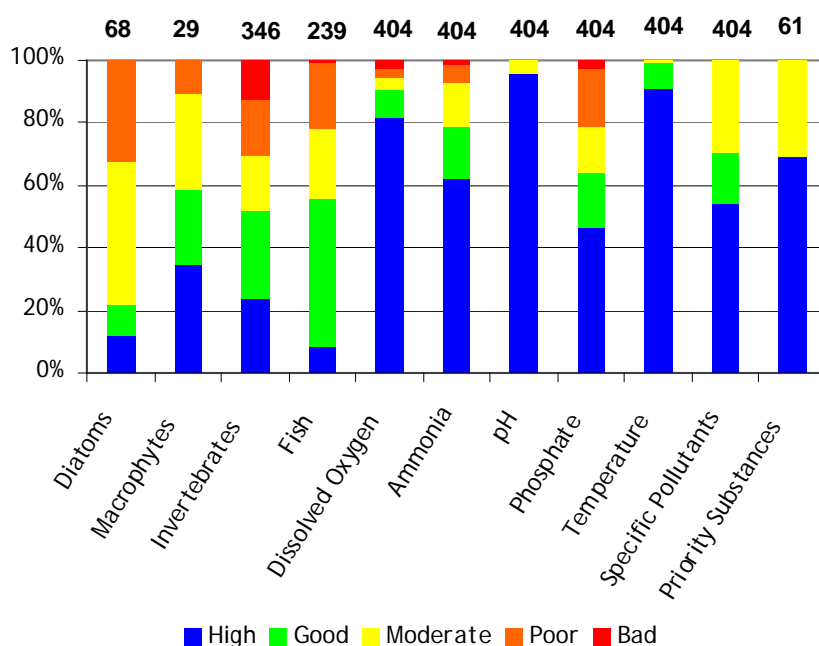
For groundwater quality, the main reasons for poor status are high or rising nitrate concentrations, with some failures for pesticides and other chemicals. The main reason for poor quantitative status is that abstraction levels exceed the rate at which aquifers recharge. The plan identifies a range of actions to prevent deterioration and improve groundwater elements, as well as investigations to improve the confidence in groundwater classification.

Classification of individual elements

For rivers, which comprise the majority of water bodies in the river basin district, the main elements indicating that the standards for good ecological status are not being achieved are fish, invertebrates and phosphate. This is shown in Figure 4.

The results for macrophytes (aquatic plants) and diatoms (microscopic algae) are from relatively fewer water body assessments based on a new (2007) risk based monitoring programme. However, as would be expected, the results for these elements confirm the presence of pressures on biology in many of the assessed water bodies.

Figure 4 Proportion of assessed river water bodies in each status class, by element
(numbers above bars indicate total number of water bodies assessed for each element)



Excessive sediment is a possible cause for biology not being good in a number of water bodies. At present however, standards are not available to identify clearly where sedimentation is excessive. The Environment Agency will be developing techniques to assess the impact of sedimentation as one of the actions in this plan.

Biological status and monitoring

New monitoring programmes for the Water Framework Directive since 2007 focus on locations where the Environment Agency suspects there may be a problem caused by pressures on the water environment. The Environment Agency does not yet have biological assessments for all relevant water bodies. In this river basin district 59 per cent (431 water bodies) of surface waters have an assessment for at least one biological element. The number of water bodies covered by biological monitoring is set to increase over the next three years. As new information becomes available it is likely that some water bodies currently labelled as good biological status will be shown to have a lower quality.

For instance, from the chemical monitoring the Environment Agency is now clear that there is a link between high levels of phosphate in surface waters and biological failures in the main river type (lowland alkaline rivers). The assessment of reasons for failure that we have started to undertake shows that across England and Wales 22 per cent of river water bodies are failing to achieve good status/potential because of excessive levels of phosphate. In this river basin district phosphate results show that it is likely that the percentage of water bodies at good or better biological status will change from 37 to 34 per cent when additional water bodies are assessed for diatoms and/or macrophytes. This same analysis points to discharges from sewage treatment works and releases from agriculture being responsible for the majority of this. Rather than wait for the results of more biological assessments, we need to ensure corrective action is started in the first plan cycle.

Through the Water Services Regulation Authority (Ofwat) determination of the water industry periodic review of investment, the water industry will continue their investment programme targeted at addressing their contribution to phosphate pollution. It is important that agriculture also makes a contribution in the first cycle improvements.

The Environment Agency is now working with the main farming groups to understand better the main ways in which phosphate from land enters and is transported in water bodies. Farming groups have agreed to use this information to encourage individual farmers to take action to reduce their contribution to water pollution. We will trial this new approach in the Anglian river basin district and through the Campaign for Farmed Environment. We will also look at what the advice and incentives available through agri-environment schemes and the England Catchment Sensitive Farming Delivery Initiative can do to reduce phosphate pollution of water and wetlands.

In parallel with this approach, the Environment Agency will continue to develop work on regulatory measures, such as piloting Water Protection Zones (WPZs) so that if voluntary approaches are shown not to work in a particular area, or where higher environmental standards are needed in for example protected areas, we are ready and able to ensure progress is made before 2015. The work to identify the ways in which phosphate enters water bodies and the means of reducing this will inform the measures that might be applied in Water Protection Zones. These Zones will only be effective if the means of control have been clearly identified.

5 Actions to improve the water environment by 2015

The following gives an overview of the key contributions from sectors and organisations that the Environment Agency will work with to implement this plan.

[All sectors](#)

[Agriculture and rural land management](#)

[Angling, fisheries and conservation](#)

[Central government](#)

[Environment Agency](#)

[Industry manufacturing and other business](#)

[Local and regional government](#)

[Mining and quarrying](#)

[Navigation](#)

[Urban and transport](#)

[Water industry](#)

[Individuals and communities](#)

These actions are summarised versions of the full programme of actions that can be found in Annex C.

The lead organisation for each action is given in brackets. Note that many actions will involve more than one sector and need to be implemented in partnership. Actions in Annex C are therefore duplicated across the relevant sectors. Sectors are encouraged to put further actions forward during the implementation of this plan.

After the action tables there are sections on:

[Actions to protect drinking water](#)

[The costs of action in this plan](#)

[Taking action in a changing climate](#)

[Working with other plans and programmes](#)

All sectors

All sectors must comply with the range of existing regulations, codes of practice and controls on the use of certain substances.

Investigations will be carried out by the Environment Agency and partner organisations where appropriate, to establish the extent and source of pressures and to identify any further actions that are technically feasible and not disproportionately costly. These actions will be carried out during this or future management cycles.

Investigations and actions will also be carried out in drinking water protected areas (where necessary focused in safeguard zones) to reduce the risk of deterioration in raw water quality and therefore reduce the need for additional treatment to meet drinking water standards.

A small number of candidate Water Protection Zones (WPZ) will be promoted nationally early in the first plan cycle, where there is clear evidence that voluntary mechanisms such as the England Catchment Sensitive Farming Delivery Initiative and pollution prevention campaigns are not sufficient by themselves to achieve the required environmental objectives. The candidate Water Protection Zones will be used to establish the usefulness of the concept, but as we have said earlier in describing the results of the biological monitoring, this in turn relies on a clear understanding of the practices causing problems and the techniques to avoid them.

Agriculture and rural land management

This sector has a big role in looking after and improving the quality of the rural environment. Around 80 per cent of the North West Region is classified as rural with a majority of this being managed by agriculture. A combination of incentive, advisory and regulatory measures have been in place for a number of years to help farmers and other land managers protect the environment. For instance the Code of Good Agricultural Practice and agri-environment schemes, such as Entry Level Stewardship and Higher Level Stewardship. Wise stewardship of resources such as soil, nutrients, water and energy helps to cut costs while maintaining or improving the productivity of land and livestock.

Nevertheless, the way in which land is managed is still having a negative impact on natural resources and further action is needed to address diffuse pollution and other key pressures in rural areas. Government will consider the introduction of further restrictions of activities and restrictions on chemicals where there is evidence that voluntary actions failed to deliver.

Example actions
<p>Continue Cross-Compliance – to help farmers comply with a range of Directives to reduce pollution from agriculture at farms receiving subsidies (all land managers).</p> <ul style="list-style-type: none"> Across the river basin district
<p>Encourage uptake of Voluntary Initiative best practice on pesticide use by land managers within the agricultural and amenity sectors (Voluntary Initiative, Environment Agency)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Maintain a nationally funded advice-led partnership under the England Catchment Sensitive Farming Delivery Initiative (Natural England, Environment Agency) to reduce diffuse water pollution from agriculture in priority areas.</p> <ul style="list-style-type: none"> Bassenthwaite, Wyre catchment, some Meres and Mosses of Cheshire (existing); and expanded to Ribble and Kent/Leven catchments.
<p>Establish and enforce Nitrate Vulnerable Zones in catchments at high risk from nitrate pollution (Environment Agency) to reduce the amount of nitrate and other pollutants entering water from farmland.</p> <ul style="list-style-type: none"> Across the river basin district
<p>Form Strategic Partnerships with the England Catchment Sensitive Farming Delivery Initiative and other advice led partnership work (Natural England, Environment Agency, United Utilities) to provide further funding to reduce diffuse water pollution from agriculture.</p> <ul style="list-style-type: none"> Lune catchment
<p>Work with Natural England to target England Catchment Sensitive Farming Delivery Initiative-type activities and agri-environment schemes (Natural England, Environment Agency) to ensure adoption of best farming practice and reduce diffuse pollution from agriculture.</p> <ul style="list-style-type: none"> Priority water bodies as specified in Annex C
<p>Cumbria Wetland Birds Project funds a project officer to provide face-to-face advice on agri-environment schemes and through the High Level Stewardship scheme (HLS), Entry Level Stewardship scheme (ELS) and England Catchment Sensitive Farming Delivery Initiatives support farmers and land managers, to deliver management and create of floodplain wetlands. (Royal Society for Protection of Birds)</p> <ul style="list-style-type: none"> South West Lakes Catchment; Kent/Leven Catchment; Derwent (NW) Catchment
<p>Rural Development Programme for England [RDPE] running from 2007 to 2013 in the North West delivers the majority of RDPE funding via agri-environment and forestry schemes. The Programme, which is jointly funded by the European Agricultural Fund for Rural Development and the UK Government, will enable the North West Development Agency (NWDA) to deliver over £74 million of investment into rural areas and issues. (North West Development Agency)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Proactive targeted farmer education on control of agri-chemicals and nutrients. Promote best practice initiatives and effective implementation of codes of good agricultural practice (such as covering slurry stores, bank-side fencing etc) by targeting the farming sector based on location, soil type, geology etc. (Environment Agency, Rivers Trusts, other partners)</p> <ul style="list-style-type: none"> Across the river basin district

<p>Deliver Habitat improvement projects with Rivers Trusts and partners that help provide opportunities for habitat to flourish and possible floodplain reconnection, subject to the conditions of improved ecology and reduced flood risk.</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Pesticides statutory code of practice – advise operators on control of plant protection products to prevent and limit pollution of waters (all operators)</p> <ul style="list-style-type: none"> • Across the river basin district

Angling and conservation

The angling and conservation sector has a large role to play in delivering local ‘on the ground’ improvements to the water environment as well as working to establish new mechanisms. It engages communities and individuals, building on their skills and experience and actively involves them in making these improvements. Angling is a popular past time that brings people closer to nature and provides local intelligence on environmental quality, besides supporting around 3000 jobs in the region. Creation and maintenance of habitats for wildlife is critical to ensure that the wildlife survive and adapt to changing climate.

Many environmental organisations can influence environmental quality through the land they own or manage. Riparian owners have specific responsibility for the management of their watercourses so their support, involvement and investment in implementing the actions is crucial.

Example actions
<p>Carry out audits of high-risk fish movements (to and from the wild) to enforce against illegal activity in priority sites and catchments. (Environment Agency)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Implement the requirements of the Trout and Grayling Strategy for stocking of triploid brown trout. Develop an annual programme to deliver increased triploid stocking. By 2015, all brown trout stockings are to be triploid (except for specific exemptions as outlined in the strategy). (Environment Agency)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Deliver component actions of the North West Eel Management Plan and implement the requirements of the proposed national eel byelaws as they apply to the North West river basin district. Develop and deliver component actions of the Regional Sea Trout and Salmon Management Plans. (Environment Agency)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Regeneration at Dutton Park Farm. Create otter habitat management improving the chances of Otters being able to hunt and breed and provide a better habitat for wading birds such as waterfowl. (Environment Agency)</p> <ul style="list-style-type: none"> • Weaver/Gowy catchment
<p>Following consultation in 2009 on proposed byelaws on: Removal of Fish by Rod and Line, Closed season for Brown Trout and Salmon and Improved management of Eel Stocks, implement these and assist in improved management of Fisheries in the Region. (Environment Agency)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Monitoring, survey and habitat creation for water voles through withdrawal of maintenance and working pro-actively with farmers. This will also involve the removal of redundant revetment and structures to enhance in-channel habitat for water vole, with additional benefits for fish and invertebrates. (Environment Agency)</p> <ul style="list-style-type: none"> • Upper Mersey Catchment; Weaver/Gowy Catchment; Ribble; Lune; Wyre

Central government

Government will continue to influence the development of European legislation to help bring forward initiatives that protect and improve the water environment, and that are technically feasible and not disproportionately costly. Defra are considering further policy options to help improve ambition in achieving objectives in this first plan cycle. These include controls on

phosphate in detergents, tackling misconnections, general binding rules, a code of practice on septic tanks and options to increase the use of sustainable drainage systems to reduce risks of flooding and pollution of surface waters during periods of high rainfall.

The Environment Agency, Forestry Commission, Natural England and the Marine and Fisheries Agency (to become the Marine Management Organisation) are the key government agencies for this plan. The agencies will work together on relevant actions.

Example actions
Offer tax incentives for the purchase of efficient plant and fittings by commercial organisations to reduce water demand (Defra). <ul style="list-style-type: none"> Nationally
Comprehensive monitoring to understand the sources and pathways for the pollutants in an urban area in Burnley LSP, where road runoff is causing pollution. A project has been set up through Defra funding to design, install and test some remediation techniques to see which one can effectively reduce the impact on the river to acceptable levels. (Defra) <ul style="list-style-type: none"> Ribble
Defra is funding two project officers (Cumbria invasive species co-ordinator and Mersey Life invasive species co-ordinator) to tackle the threat of invasive non-native species in the North West. Control projects to tackle invasive plant species such as Japanese Knotweed and Himalayan Balsam in River Kent, Rothay Valley, River Derwent will be coordinated. Mapping of Japanese Knotweed, Giant Hogweed and Himalayan Balsam will be carried out on selected rivers in Mersey Basin and an eradication programme developed in partnership with land owners and managers. <ul style="list-style-type: none"> Kent/Leven, Derwent (NW), Upper Mersey
Implement the water related actions of the Invasive Non-native Species Framework Action Plan for Great Britain (Defra, Environment Agency). <ul style="list-style-type: none"> Nationally
Defra is funding investigative projects worth £110K on urban diffuse pollution in the North West. These include an urban run-off investigation project on River Calder; Haverigg, Heysham & Morecambe Bathing Water Investigation and investigation of diffuse pollution from golf courses on River Mersey. (Defra) <ul style="list-style-type: none"> South West Lakes, Lune, Wyre, Mersey Estuary, Upper Mersey catchments
Make appropriate use of existing legislative powers e.g. prohibit the sale of high-risk species; Salmon and Freshwater Fish act (S30); Import of Live Fish Act; Wildlife & Countryside Act 1981; Environment Agency Fisheries byelaws; Convention on biological diversity; NERC Act; Habitats Directive; IMO convention on ballast water. (Defra, Environment Agency) <ul style="list-style-type: none"> Nationally

Environment Agency

The Environment Agency is the Government's lead agency for implementing the Water Framework Directive. We will continue to monitor, provide advice and manage improvements to the water environment. We regulate discharges to and abstraction from the water environment by issuing and enforcing environmental permits and licences. Where necessary we take enforcement action against those who act illegally and damage or put the water environment at risk. We also have responsibility to make sure there is enough water to meet the needs of industry, agriculture and wider society in the future.

We will work closely with all sectors to learn from them, build on existing knowledge and to develop a shared commitment to implementing environmental improvements.

Example actions
Continue and develop a monitoring programme , to maintain and improve our understanding of the state of the water environment (Environment Agency). <ul style="list-style-type: none"> Across the river basin district

<p>Run local pollution prevention campaigns (Environment Agency) to raise awareness of the need for responsible handling and disposal of chemicals, oil and other pollutants.</p> <ul style="list-style-type: none"> Specified water bodies identified at risk, such as safeguard zones
<p>Action to reduce the physical impacts of flood risk management activities in artificial or heavily modified water bodies (Environment Agency).</p> <ul style="list-style-type: none"> Waters specified in Annex C
<p>Action via the Restoring Sustainable Abstraction programme to investigate sites at risk due to abstraction pressures. (Environment Agency)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Work with planners to ensure that new and existing homes and buildings take account of the water environment. (Environment Agency)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Contribute to achieving favourable condition on the river basin district's conservation sites by implementing water level management plans, revoking or amending discharge consents and various restoration projects. (Environment Agency)</p> <ul style="list-style-type: none"> Waters specified in Annex D
<p>Tackling diffuse pollution through collaborative programmes and projects targeting urban enterprises. Embedding WFD in the development of the tourism sector and visitor economy in more rural areas. (Environment Agency, Voluntary sector)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Support the Lake District Still Waters Partnership (SWP) and Bassenthwaite Restoration Programme and Windermere Restoration Programme. Enhanced protection of lakes, catchment restoration and sharing of best practice. Some examples are: Ghyll planting to reduce erosion, improvement of sewerage discharges, control of invasive non native species. (Environment Agency, United Utilities, Natural England, Forestry Commission, Planning Authorities, Voluntary sector)</p> <ul style="list-style-type: none"> Kent/Leven Catchment; Derwent (NW) Catchment
<p>Building a robust Data and Information Resource to underpin the WFD information. This will provide evidence for targeted interventions, and provide the basis upon which interventions can be baselined, monitored and evaluated. The existing information on WFD classifications and objectives will help us to target resources and partnerships and help improve water body status/ potential. (Environment Agency)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Mersey Life is an ambitious project that aims to realise the ecological and socio-economic potential of our rivers by bringing together stakeholders and partners, building partnerships and encouraging investment into the restoration of the rivers. One of the aims of Mersey Life is to reduce barriers to fish migration in the River Mersey and its tributaries. For this river basin management planning cycle the project plans to deliver scoping, design and construction of 10 Fish passes in 6 priority catchments. (Environment Agency, Voluntary sector)</p> <ul style="list-style-type: none"> Mersey Estuary, Irwell, Upper Mersey

Industry, manufacturing and other business

North West is home to an estimated 230,000 companies, employs over 4 million people, and contributes £98 billion to the UK economy. Most of the Top 100 companies in the UK have operations in the region. The key economic sectors in the district are Aerospace, Automotive, Biomedical, Chemicals, Digital & Creative, Energy & Environmental Technologies, Food & Drink and Financial & Professional. Tourism contributes about £13 billion to the North West economy.

Most relevant actions in this plan are already underway or are part of the existing regulatory system. However, some actions are new, and will help the river basin district reduce nutrients such as phosphates and will help meet tighter standards on ammonia. Industry has an obligation to reduce pollution caused by 40 priority substances and pollutants as listed in the Pollution Reduction Plans. Where appropriate, industry will participate in pollution prevention campaigns and in investigations to establish the extent and source of pressures to define any further actions required for this and future planning cycles.

Example actions
<p>Comply with regulations such as Environmental Permitting, Environmental Damage and Groundwater, to limit environmental damage and help prevent land contamination, pollution and deterioration of waters.</p> <ul style="list-style-type: none"> Nationally
<p>Voluntary pollution prevention and remediation of existing land contamination, to bring land back into beneficial use and remove potential sources of groundwater contamination.</p> <ul style="list-style-type: none"> Sites contributing to potential environmental quality standard failure
<p>Run pollution prevention advice and campaigns to provide targeted advice and enforcement (Environment Agency) to reduce contaminants being released to groundwater from industrial estates, petrol stations and other sources.</p> <ul style="list-style-type: none"> High risk areas such as safeguard zones
<p>Implement abstraction licensing controls to encourage water efficiency and reduce demand from high abstraction industries. Besides obvious sustainability benefits this will minimise and manage risks from saline intrusion. (Environment Agency)</p> <ul style="list-style-type: none"> Manchester and East Cheshire Permo-Triassic Sandstone Aquifers; Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers; Wirral and West Cheshire Permo-Triassic Sandstone Aquifers
<p>Water Framework Directive - Daughter Directive requires reductions in Priority Substances and elimination of Priority Hazardous Substances from discharges subject to overall environmental impact assessment (energy; carbon footprint) and disproportionate cost. (Environment Agency, Industry)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Environment Agency regularly targets industrial and commercial parks with pollution prevention campaigns. This includes providing general education, advice and recommendations and finding mutual agreements that help improve water quality in receiving watercourses. (Environment Agency)</p> <ul style="list-style-type: none"> Across the river basin district
<p>Industry support to investigate emissions from sites and pollution from contaminated land, to reduce uncertainty and provide additional information.(Industry)</p> <ul style="list-style-type: none"> Sites contributing to potential environmental quality standard failure
<p>Through our Waterside Campaign raise awareness with SMEs and traders around docklands on the problems caused to the environment by what people put down their drains; specifically on chemicals in the products used, vehicle washings and on the disposal of fats, oils and greases. (Environment Agency)</p> <ul style="list-style-type: none"> Across the river basin district

Local and regional government

Local and regional government have a major role in implementing this plan. The sector has a far reaching influence on businesses, local communities and leisure and tourism sectors. There are **21** unitary authorities, two county councils and **17** district, borough or city councils within the North West River Basin District, which deliver the full range of services, including education, social services, council tax, traffic and transportation, refuse collection, recycling and disposal, planning, environmental health etc. The Environment Agency and others will work with Local Authorities to ensure that all relevant actions are identified, prioritised, resourced and implemented.

Example actions
<p>The Water Cycle Strategies provide Planning Authorities and development organisations with the necessary planning tools to ensure that growth can be supplied with sufficient water resources and wastewater treatment facilities, without detrimentally affecting the natural water cycle. Environment Agency will advocate that appropriate Water Cycle Strategies are included in regional and local plans, particularly in growth or high risk areas. (Environment Agency)</p> <ul style="list-style-type: none"> At least one in each of the 5 growth points in the river basin district

<p>Ensure that planning policies and spatial planning documents take into account the objectives of the North West River Basin Management Plan, including Local Development Documents and Sustainable Community Strategies (Local Authorities). Produce guidance for planning authorities in partnership with Royal Town Planning Institute, to support this plan. (Environment Agency)</p> <ul style="list-style-type: none"> • Across the river basin district and Nationally
<p>Promote the use of Sustainable Drainage Schemes (SuDS) in new urban and rural development where appropriate to reduce the risks of flooding and of impact on surface water quality at times of high rainfall and retrofit areas including highways where possible (Environment Agency, Local Authorities)</p> <ul style="list-style-type: none"> ▪ Across the river basin district
<p>Involve local action groups in beach combing and awareness raising about marine litter. Improve coordination of beach and coastline monitoring and agree common methods. (Environment Agency, Voluntary sector)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Fire service Memorandum of Understanding (MoU) on implementing pollution control measures in emergencies. (Environment Agency, Fire Services)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Action to reduce the physical impacts of urban development in artificial or heavily modified waters, to help waters reach good ecological potential (Local Authorities). Big regeneration projects such as Irwell City Regeneration and Northwich Vision provide opportunities for creating habitats, providing access to waterfronts, improving water quality and alleviating detrimental impacts of physical modification. (Environment Agency)</p> <ul style="list-style-type: none"> • Water bodies specified in Annex C
<p>Support the Lake District National Park partnership to ensure sustainable development in the Lake District. (Environment Agency, Lake District National Park partnership)</p> <ul style="list-style-type: none"> • Kent/Leven, South west Lakes, Derwent (NW) catchments
<p>Support the North West Coastal Group to look at Shoreline Management issues and to oversee the development of North West Shoreline Management Plans. Links need to be made between river basin planning and the Marine Bill and communicate coastal issues from a regional perspective. (Environment Agency)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Endeavour to ensure that strong green infrastructure, water efficiency and water quality improvement policies are included in the RS2010 (Regional Strategy for the North West) which is currently being developed; and also included in the Local Development Frameworks, Local Spatial Strategies and Multi Area Agreements in the North West river basin district.</p> <ul style="list-style-type: none"> • Across the river basin district

Mining and quarrying

The varied geology of the North West River Basin District means that there has been considerable production of industrial and constructional minerals from quarries and underground mines. Historically deep mining has been important to the region with copper and lead mining predominant in the north of the district and coal mining predominant in the south. Although many of the deep mines in the region have closed, open cast mining and quarrying continues, along with the continuing deep mining of salt in Cheshire. The most important environmental issues are to do with water quality and sediment management.

Examples of work needed to reduce pollution includes identifying sustainable treatment methods for metal mine discharges, cleaning up pollution from abandoned mines and introducing new technologies to recover energy and other resources from mine water and treatment residues.

Example actions
<p>Coal Authority Schemes for remediation of mine discharges from several former mines in the North West, which includes restoration schemes to remove pollution risk to groundwater. (Coal Authority)</p> <ul style="list-style-type: none"> • Aspull Sough, Bridgewater Canal, Deerplay, Down Brook, Ewanrigg, Fennyfield, Great Clifton, Old Meadows, Pemberton, Summerscale

Investigate emissions from working sites and appraise options of best practice controls at mines and quarries to ensure environmental quality standards are met (operators).
<ul style="list-style-type: none"> • Sites contributing to potential environmental quality standard failure.
Implementation of best practice controls and remediation at abandoned coal mines . (Environment Agency, Coal Authority)
<ul style="list-style-type: none"> • 2 water bodies Douglas Catchment; 2 water bodies in the Irwell Catchment; 2 water bodies in the Mersey Estuary Catchment; 2 water bodies in the Ribble Catchment
Investigate discharges from abandoned metal, and other non-coal mines . Prioritise for inclusion in national agreement with relevant mines partner organisations. (Environment Agency)
<ul style="list-style-type: none"> • River Derwent; River Derwent upstream Bassenthwaite Lake; Newlands Beck (Force Crag) ; River Annas; Yewdale/Church Beck; River Derwent downstream Bassenthwaite Lake
Monitoring, scoping and possible remediation of South West Lakes acidification legacy due to its historic copper and lead mining industry. (Environment Agency, Land managers and owners)
<ul style="list-style-type: none"> • River Crake; River Derwent upstream Bassenthwaite Lake; River Derwent downstream Bassenthwaite Lake; Coniston Water

Navigation

Ports, harbours and marinas are essential for economic prosperity. Many navigation and port authorities have already done a great deal to help improve ecology and water quality and some harbours are home to internationally important wildlife. Careful planning will be needed to ensure that waters remain navigable whilst at the same time water quality is protected and improved.

Proposals to build new ports or expand existing ones need to take sustainable water management goals into account. Physical changes are permitted to waters for navigation but only if certain conditions are met.

The North West river basin district is home to the internationally important Port of Liverpool and the Manchester Ship Canal alongside other smaller commercial ports and ferry terminals. There are also a number of harbours and marinas. These important activities are in addition to other uses of our navigable waters. The North West coast is popular with tourists and recreational boaters; and commercial shell-fisheries are a viable business. Much of the North West coast is designated for its wealth of habitats and species. We want to encourage commercial use of our coasts in the river basin district, whilst taking action to minimise any negative environmental impacts.

Example actions
Ban TBT use on ship hulls unless there is a coating to prevent leaching of underlying TBT anti-foulants, to prevent or limit pollution in marine waters (Marine and Fisheries Agency, others).
<ul style="list-style-type: none"> • Nationally
Develop a dredging and disposal framework (Ports sector), which will provide guidance to all those undertaking or permitting navigation dredging and dredged material disposal activities to assist in achieving the statutory objectives of the Water Framework Directive and related Environmental Quality Standards Directive (2008/105/EEC).
<ul style="list-style-type: none"> • Nationally (England)

Urban and transport

Development and regeneration is a major opportunity to improve the water environment. However, when poorly planned or designed, urban and transport infrastructure can adversely impact on water quality, habitat or water resources. The Environment Agency and others want to work with the urban and transport sector to achieve an urban water environment rich in wildlife that local communities can benefit from and enjoy.

A good quality water environment has the potential to help economic regeneration and to enhance the economic and social amenity value of developments, and improve the quality of life in cities, towns and villages.

Spatial planning and design for urban development and infrastructure should aim to reduce surface water run off; protect and restore habitats; improve the quality of rivers, coastal waters, and groundwater, and thus protect drinking water supplies and bathing areas. The release of toxic pollutants that harm the water environment also need to be reduced.

Example actions
Encourage uptake of Voluntary Initiative best practice on pesticide use by land managers within the agricultural and amenity sectors (Voluntary Initiative, Environment Agency) <ul style="list-style-type: none"> Across the river basin district
Action to reduce the physical impacts of urban development in artificial or heavily modified water bodies, to help waters reach good ecological potential (Local Authorities). <ul style="list-style-type: none"> Waters specified in Annex C
Follow sustainable drainage systems Code of Practice which provides advice to operators on sustainable drainage systems. (Environment Agency, Local Authorities, Highways Agency and Industry) <ul style="list-style-type: none"> Across the river basin district
Designate and enforce Water Protection Zones and apply appropriate measures to control high risk activities (Environment Agency, Defra). The Zones will provide a regulatory tool to control diffuse pollution in water or physical pressures in high risk areas where existing mechanisms will not meet Water Framework Directive objectives. <ul style="list-style-type: none"> Initially around eight Zones in locations to be decided across England.
Comply with Environment Agency's site-specific notices (Water Resources Act Section 86 and Section 161, Groundwater Regulations) to remove pollutant risks to groundwater. (Environment Agency, Industry) <ul style="list-style-type: none"> Across the river basin district
Support investigation of emissions from sites and pollution from contaminated land to reduce uncertainty and provide additional information (Industry) <ul style="list-style-type: none"> river basin district wide sites contributing to potential environmental quality standard failure
Memorandum of Understanding (MoU) with the Highways Agency to use environmental grab packs and close outfalls to water bodies during highway spillages. This prevents downstream water quality deteriorations and possible detrimental impacts on wildlife. There are many opportunities for other partnership activities and collaborations with the Highways Agency and these are currently being explored. <ul style="list-style-type: none"> Across the river basin district

Water industry

Water companies are major partners in the management and protection of the water environment. The Environment Agency works with companies, consumers and government to ensure that the sector's environmental work is planned and implemented in a way that is affordable for the public.

Improvement of continuous and intermittent sewage effluent discharges and of water resources management will be carried out as part of the ongoing water industry asset management programme.

The companies' programme of work under the Asset Management Plan (5) covering 2010-2015 will make a large contribution to meeting the objectives in this plan. This includes carrying out investigations and specific improvement schemes to address water quality or water resources.

In addition, specific actions will be carried out in drinking water protected areas to help safeguard drinking water supplies.

Example actions
<p>Reduce leakage through active leakage control and customer supply pipe repair policies to help ensure sufficient water for people and wildlife (water companies).</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Complete the current round of water company asset investment to deliver water quality improvements and reduce the impact of abstraction (water companies).</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Continue to reduce the impact of abstraction under a range of Environmental Directives. (Water companies, Environment Agency)</p> <p>Across the river basin district</p>
<p>Promote water efficiency through the provision of household water audits, cistern displacement devices and supply pipe repair and replacement. (Water companies, Environment Agency)</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Programme of investigation of ecological impacts of managed flows in Heavily Modified Water Bodies with water supply use.</p> <ul style="list-style-type: none"> • Across the river basin district
<p>Implement a solution to the low flow issue at Brennand and Whitendale using Environment Agency powers under Section 52 of the Water Resources Act 1991 - as amended by the Water Act 2003. (United Utilities, Environment Agency)</p> <ul style="list-style-type: none"> • Ribble catchment
<p>Extend United Utilities Sustainable Catchment Management Programmes (SCaMP) to other land assets where it may benefit the water quality. This work is done through Water Company's Asset Management plans. (United Utilities, Natural England, Royal Society for Protection of Birds)</p> <ul style="list-style-type: none"> • Bowland in Lancashire and parts of the Peak District
<p>Improvements to water company assets under the next round of company investment (Asset Management Plan – AMP5), to deliver water quality improvements and continue to reduce the impact of abstraction under a range of environmental Directives (water companies).</p> <ul style="list-style-type: none"> • Across the river basin district

Individuals and communities

Everyone can help protect and improve the water environment. Actions people can take include the following.

To save water

In houses or offices

- Turn off the tap when brushing teeth, and take short showers rather than baths.
- Wash fruit and vegetables in a bowl rather than under the running tap - and use the remainder on plants.
- Install a 'hippo' or 'save-a-flush' in toilet cisterns.
- Run dishwashers or washing machines with a full load on an economy setting, and boil the minimum amount of water needed in kettles or saucepans.
- Purchase low energy and low water use appliances.
- Hand wash cars.
- Ask water companies to fit a meter. This can reduce household water consumption.
- Install a low-flush toilet, put flow regulators on taps and showers, and install waterless urinals at work.
- Consider installing grey-water recycling systems in homes or workplaces. This can save one third of domestic mains water usage.

In gardens

- Choose plants that tolerate dry conditions. To help lawns through dry periods, don't cut them too short.
- To save water in gardens, collect rain in a water-butt, water at the beginning or end of the day, mulch plants, and use watering cans where possible instead of sprinklers or hosepipes.
- Fix dripping taps, and lag pipes to avoid them bursting in freezing weather.

To prevent pollution

- Use kitchen, bathroom and car cleaning products that don't harm the environment, such as phosphate-free laundry detergents, and use as little as possible. This helps prevent pollution.
- Take waste oil and chemicals such as white spirit to a municipal recycling facility: don't pour them down the sink or outside drains.
- Check that household appliances are connected to the foul sewer, not the surface water drain.
- Ensure septic tanks or private sewage treatment plants are well maintained and working effectively.
- Ensure household oil storage is in good condition, with an up-to-date inspection record.
- Report pollution or fly-tipping to the Environment Agency on 0800 807060.

To protect water dependent wildlife

- Put cotton buds and other litter in the bin, not down the toilet. It may end up in the sea where it can harm wildlife.
- Eat fish from sustainable sources, caught using fishing methods that don't cause damage to marine wildlife and habitats.
- Eliminate invasive non-native species from gardens, disposing of them responsibly.
- Adopt-a-beach to help keep beaches clean of litter than can harm wildlife and cause pollution.
- Join a river group to spot pollution, invasive non-native species, and take part in practical tasks.

Actions to protect drinking water

Drinking water supplied to households by water companies is of high quality and complies with strict standards enforced by the Drinking Water Inspectorate. Where water is abstracted from a water body for human consumption, the water body is designated as a Drinking Water Protected Area (DrWPA) – additional objectives apply and where necessary, additional action is put in place to protect the quality of the raw water abstracted.

Where we are reasonably confident that the DrWPA objective is at high risk of not being complied with, a Safeguard Zone has been identified. In the Safeguard Zone additional actions will take place. These may include voluntary agreements, pollution prevention campaigns and targeted enforcement action of existing legislation. Additional monitoring is taking place to assess whether those DrWPAs currently not assessed at high risk, need a Safeguard Zone and additional action taken.

In parallel with this approach, the Environment Agency will continue to develop work on regulatory measures, such as piloting Water Protection Zones in England. If voluntary approaches are shown not to work in a Safeguard Zone, we are ready and able to ensure progress is made before 2015.

The costs of action in this plan

Overall the Environment Agency estimate that the cost for implementing the actions in the North West River Basin Management Plan will £217 million annually. A significant proportion of this cost relates to existing measures. The existing measures are mainly required to fulfil the requirements of earlier EC Directives and are defined as the Reference Case in the Impact Assessment.

There are new measures in the plan which we estimate to cost £10 million with a benefit of £13 million.

In addition investigations will be carried out that will help to identify the additional measures necessary in future planning cycles. The new measures are defined as the Policy Option in the Impact Assessment.

Further information on the approach used to assess the costs and benefits is contained in the Impact Assessment.

Taking action in a changing climate

The UK's Climate Projections (UKCP09) show that this region is likely to experience hotter drier summers, warmer wetter winters and rising sea levels. This is likely to have a significant effect on environmental conditions and will increase the impact of human activity on the water environment. Table 4 shows the likely effects of climate change on known pressures and the risk they pose on the water environment in the river basin district.

It is essential that the actions in this plan take account of the likely effects of climate change. What is done now must not make it harder to deal with problems in the future. Most actions in this plan will remain valid as the climate changes. Others can be adapted to accommodate climate change.

Table 4 Qualitative assessment of increased risk from climate change by 2050 and beyond

Pressure	Increased risk
Abstraction and other artificial flow regulation	Very high
Nutrients (nitrate and phosphate)	High
Physical modification	Medium
Sediment	High
Biological (invasive non-native species)	Medium
Microbiology (including faecal indicator organisms)	Medium
Organic pollution (sanitary determinands)	Medium
Salinity	Medium
Biological (fisheries management)	Low/Medium
Acidification	Low for freshwater medium/high for marine
Priority hazardous substances, priority substance and specific pollutants, such as pesticides	Low
Temperature of point source discharges	Low

It is important to assess the carbon implications of the plans to avoid adding unnecessary carbon dioxide burdens that could increase the problem of climate change.

The carbon costs associated with actions in the water industry Periodic Review 2009 (PR09) have been quantified. This is where the most significant carbon impacts will occur as the actions will require additional water treatment, construction of new works or upgrades to existing sites.

The approximate operational carbon implications of PR09 measures in England and Wales is approximately 4,722,000 tonnes per year at the start of the AMP5 cycle (2009-10) and 4,564,200 tonnes per year at the end of the AMP5 cycle (2014-2015). This does not include the carbon implications of constructing the schemes. These figures are from the water company plans and result from schemes to satisfy a number of existing drivers such as Urban Waste Water Directive and Bathing Waters Directive as well as the Water Framework Directive.

In this river basin district, the operational carbon component driven by the additional requirement to meet good status under the Water Framework Directive is estimated, at this time, to be 1,101 tonnes per year. In the majority of cases this will be balanced by reductions elsewhere as part of the CRC Energy Efficiency Scheme (formally known as the Carbon Reduction Commitment).

The CRC Energy Efficiency Scheme is a legally binding scheme which covers large business and public sector organisations, and is intended to promote energy efficiency and help reduce carbon emissions. See www.decc.gov.uk for further information.

The majority of other actions are likely to have low impact as they are investigations, partnerships or encouraging best practice management. The potential impact of these can be assessed as the work is progressed.

No organisation has sole responsibility for ensuring that society adapts successfully to the effects of climate change on the water environment. Most will be achieved by working together and in partnership. This river basin management process provides an excellent framework to help focus and co-ordinate activities. In particular it will allow action to be taken on existing pressures at sites that are at risk and where appropriate restore the natural characteristics of catchments to protect water quality, maintain water resources and reduce the risks of floods and droughts thus building resilience to the further impacts of climate change.

Working with other plans and programmes

A wide range of planning processes help ensure more sustainable management of the water environment. They are briefly described here.

Development planning

Development planning plays a key role in sustainable development and the Environment Agency will continue to work closely with planning authorities. We aim to ensure that planners understand the objectives of the River Basin Plan and are able to translate them into planning policy.

There are many planning processes and provisions involved. They include:

- national guidance;
- Regional Spatial Strategies
- Local Development Documents;
- local guidance (e.g. Supplementary Planning Documents).

In the North West River Basin District, there are already spatial plans which set out proposed levels of growth and development up to 2021.

Good development planning requires a very clear understanding of:

- where to build houses and supporting infrastructure;
- the options for sewage treatment and water availability;
- the best ways to reduce urban diffuse pollution and;
- green infrastructure.

In the North West River Basin District, the Environment Agency is already working with water companies, developers and local government to assess the implications of housing growth on water availability, wastewater treatment works discharges and consequently on receiving water quality. This work will continue during the life of this plan. The forecast growth must

pay special attention to phosphate load on existing wastewater treatment works which is already causing significant failures across the urban rivers. Growth associated infrastructural needs such as roads, highways, hospitals, commercial/business parks etc may also adversely impact on the chemical and hydrocarbon loading of the water bodies, especially as the increased demand on water resources may decrease flows. The reduction of nutrients and hazardous pollutants from diffuse pollution are all vital in planning growth, and river basin management planning will help to clarify the way forward.

Flood risk and coastal erosion planning

There is a separate planning process for flood and coastal erosion risk management introduced alongside the new European Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks). This requires that the environmental objectives of the Water Framework Directive are taken into account in flood and coastal erosion plans. Implementation of the Floods Directive in England and Wales will be co-ordinated with the Water Framework Directive. The delivery plans and timescales for the two directives will be closely aligned.

Catchment Flood Management Plans (prepared by the Environment Agency) and Shoreline Management Plans (prepared by local coastal authorities and the Environment Agency) set out long term policies for flood risk management. The delivery of the policies from these long term plans will help to achieve the objectives of this and subsequent River Basin Management Plans.

The Environment Agency plans its flood and coastal risk management capital investment through the 'Medium Term Plan', which is a rolling five-year investment plan. Using this, we have identified flood and coastal risk management activities that will deliver one or more restoration or mitigation measures included in this plan. Although these activities will be carried out for flood risk management purposes, they will be carried out in such a way to ensure any impacts are minimised and that the ecology is protected. Activities will not lower water body status unless fully justified under Article 4.7 of the Water Framework Directive.

Marine planning

The Marine Strategy Framework Directive is closely linked with the Water Framework Directive and their application overlaps in estuaries and coasts. The Environment Agency is working with Defra, Welsh Assembly Government and others to ensure that the implementation of both Directives is fully integrated.

Managing new physical modifications

In specific circumstances the Water Framework Directive provides a defence for when, as a result of a new physical modification, good ecological status or potential cannot be achieved or where deterioration in status occurs. This is covered under Article 4.7 of the Directive.

Although protecting the water environment is a priority, some new modifications may provide important benefits to human health, human safety and/or sustainable development. Such benefits can include:

- public water supply;
- flood defence/alleviation;
- hydropower generation;
- navigation.

It is often impossible to undertake such activities without causing deterioration of status to the water body. The benefits that such developments can bring need to be balanced against the social and economic benefits gained by maintaining the status of the water environment in England and Wales.

The Environment Agency has developed a process for applying the tests and justifications required for such new modifications (Article 4.7) and will work with stakeholders to ensure these provisions are met during the first cycle of river basin management.

Other planning processes

The Environment Agency is also working to align planning processes in other areas. These include water resources and water quality, agriculture and rural development and natural heritage.

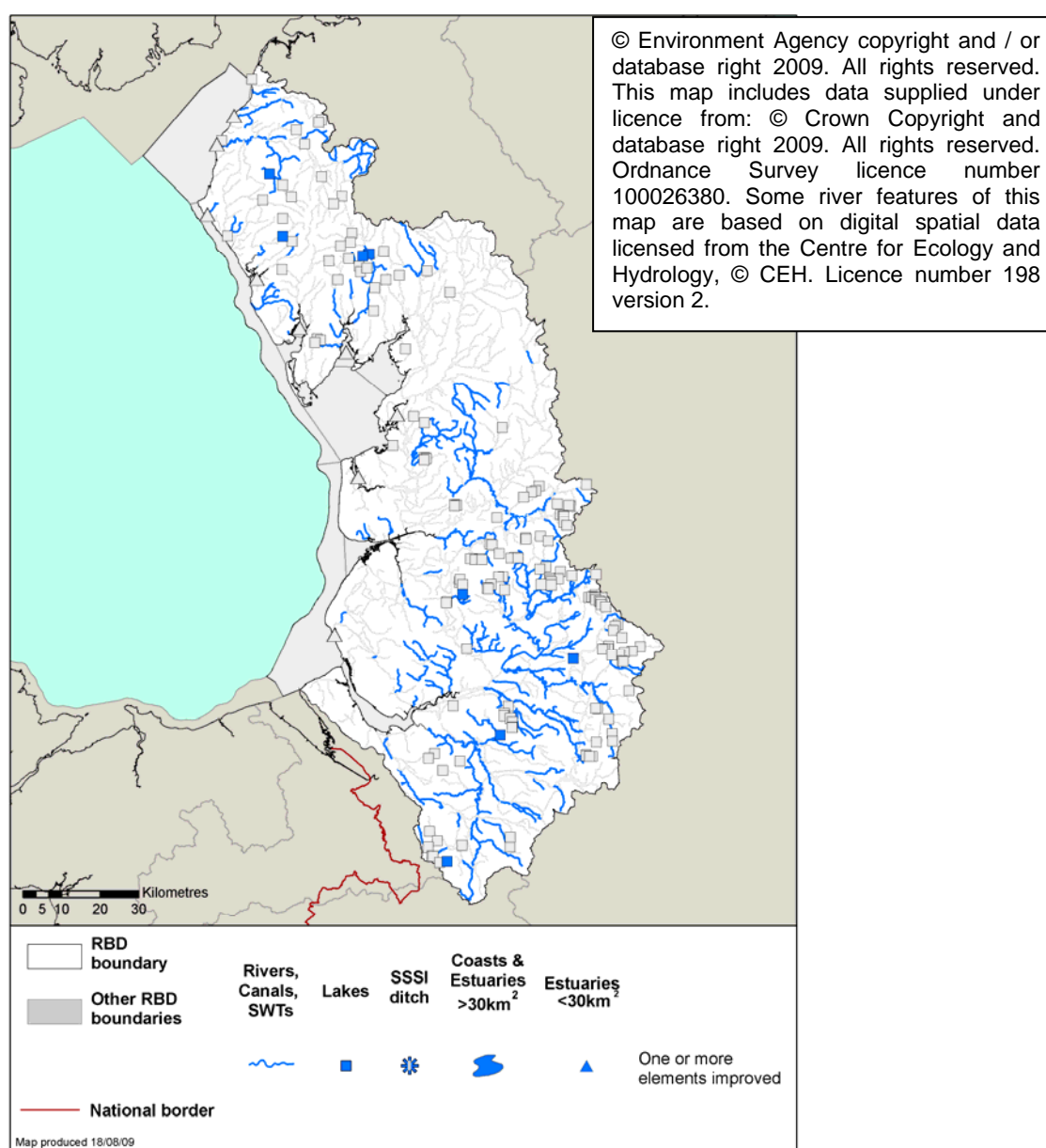
Annex J provides further information about these and other planning processes.

6 The state of the water environment in 2015

One of the objectives of the Water Framework Directive is to aim to achieve good status in water bodies by 2015. However, for 67 per cent of all North West water bodies (67 per cent of surface water bodies) this target cannot be met by this date. Greater improvement in status is limited by the current understanding of pressures on the water environment, their sources, and the action required to tackle them.

By 2015, 23 per cent of rivers, canals and surface water transfers – 151 water bodies - will show an improvement for one or more of the elements measured. This translates to 1867 kilometres of river or canal improved. All surface water improvements are illustrated in Figure 5.

Figure 5 Surface water bodies showing an improvement for one or more elements by 2015



There will be tangible benefits from meeting these objectives. For example, major investment by United Utilities will continue to address problems such as the high levels of nutrients in sewage effluent.

By 2015 around 180 storm overflows will have been upgraded so that they discharge less often and/or are screened to minimise their impact. In addition, investment from water companies will result in improved water quality in over 70 rivers, six lakes, 19 bathing waters and eight shellfish waters, along with several internationally important wildlife sites.

Figures 6 and 7 show what the ecological and biological status will be in 2015 compared to now. By 2015, 33 per cent of surface water bodies will be in at least good ecological status/potential and 44 per cent of currently assessed surface water bodies will be in at least good biological status. A map showing predicted status for surface water bodies in 2015 is provided in Figure 9. Figures 10 and 11 show the predicted quantitative status and chemical status for groundwater in 2015.

Figure 6 Ecological status/potential of surface water bodies now and in 2015

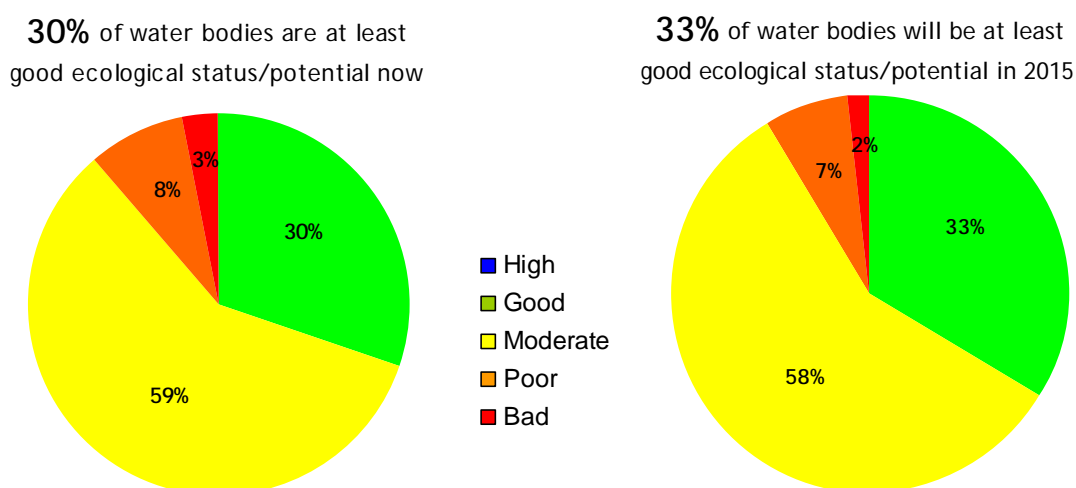
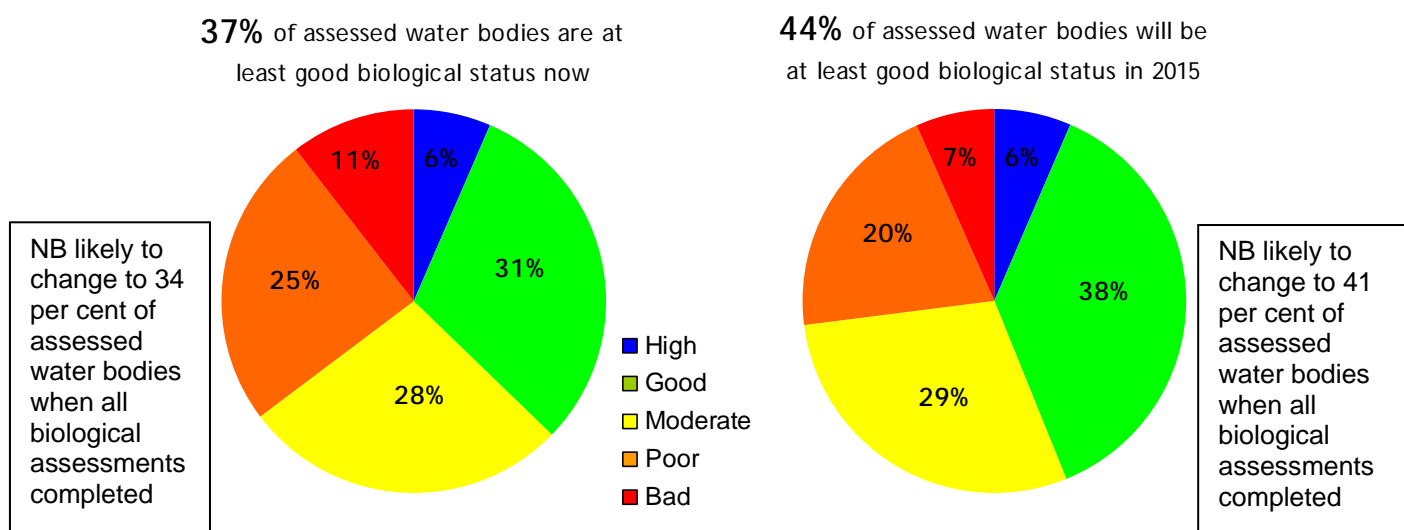
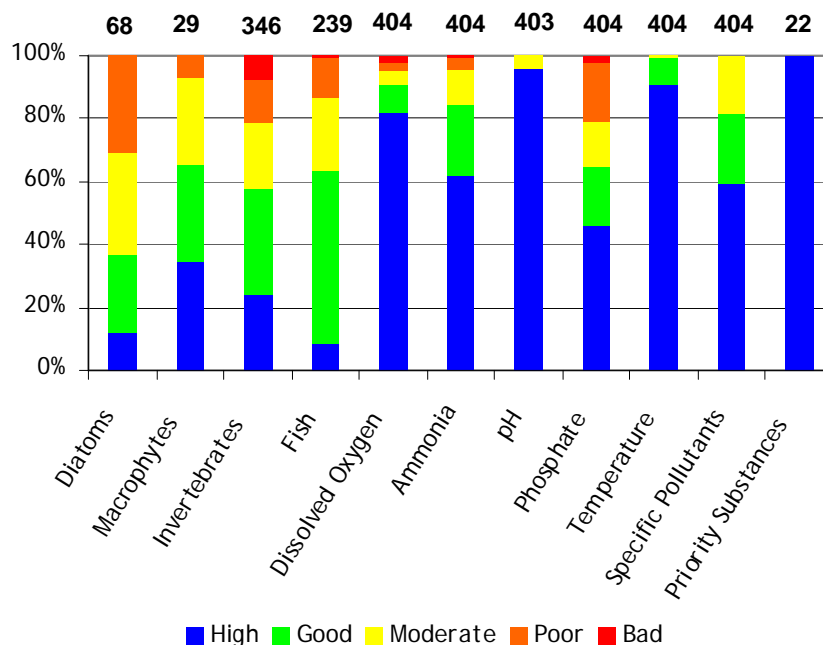


Figure 7 Biological status of surface water bodies now and in 2015



For the 398 artificial and heavily modified water bodies, 27 per cent will be in at least good ecological potential by 2015. 41 per cent of 333 natural surface water bodies will be at good or better ecological status.

Figure 8 Predicted proportion of river water bodies in each status class, by element, for 2015 (numbers above bars indicate total number of water bodies assessed for each element)



There will be no deterioration in groundwater status in 2015, but improvement will take place over longer timescales. 61 per cent of groundwater bodies are currently at good quantitative status which will be unchanged by 2015. 44 per cent of groundwater bodies are currently at good chemical status and this will improve to 50 per cent by 2015.

For many estuaries, coasts and lakes it is unlikely that an improvement in the number of water bodies at 'good' status/potential can be achieved by 2015. The biological tools and monitoring data needed to classify these types of water bodies have only recently been developed. There is limited knowledge about the pressures that affect many of these water bodies and how their biology responds to changes in these pressures. It has therefore not been possible to identify many additional cost effective and proportionate measures. In many cases though there will be improvements to some key elements as the result of actions in this plan and there will be investigations to help find technically feasible actions that are not disproportionately costly. The Environment Agency wants these waters to achieve good overall status or potential by 202 or 2027.

- 26 water bodies improve to good ecological status/ potential by 2015.
- Out of the total 6020 km of rivers (including canals and surface water transfers), almost a third (1867 km) are improving for at least one element by 2015.
- 10 out of 22 of surface water bodies that are currently at bad ecological status/potential will be improved.
- 62 surface water bodies (out of a total of 731) will be worse than moderate ecological status/potential in 2015.
- Biological status is measured in 431 surface water bodies. Out of these, 152 are currently bad or poor. With the actions listed in this plan, 36 of these will be improved.

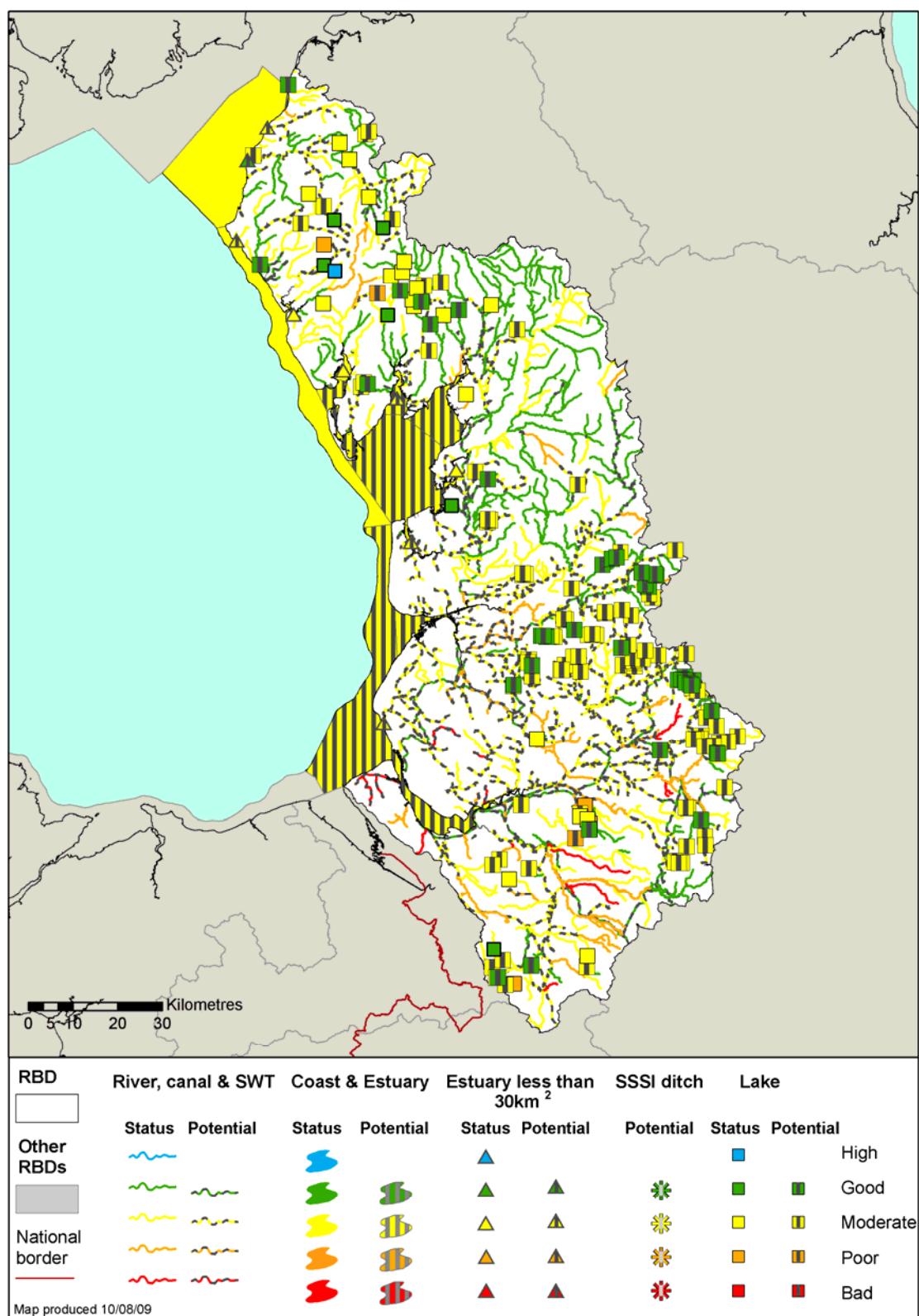
Investigations – improving outcomes for 2015

In many cases the Environment Agency is not able to identify appropriate status actions for water bodies that are currently not achieving good ecological status/potential. Sometimes this is because the cause of the problem and its sources are not yet known. Sometimes this will involve gaining corroborative evidence of biological problems to justify expenditure where there is low confidence of failure of chemical standards. In other cases the most appropriate solution to the problem needs to be researched. Investigations into these types of issues will be an important measure during the first cycle.

Where possible, investigations will take place before 2013 so that the results are known in time for the formal review of this plan by 2015. The Environment Agency has identified several surface water bodies that require investigations in this plan. A proportion of these will lead to actions that should be straightforward to put in place before 2015. The outcome of our detailed planning work is that we have confidence that 33 per cent of surface waters will be in good ecological status or potential by 2015. This is the formal target for this plan.

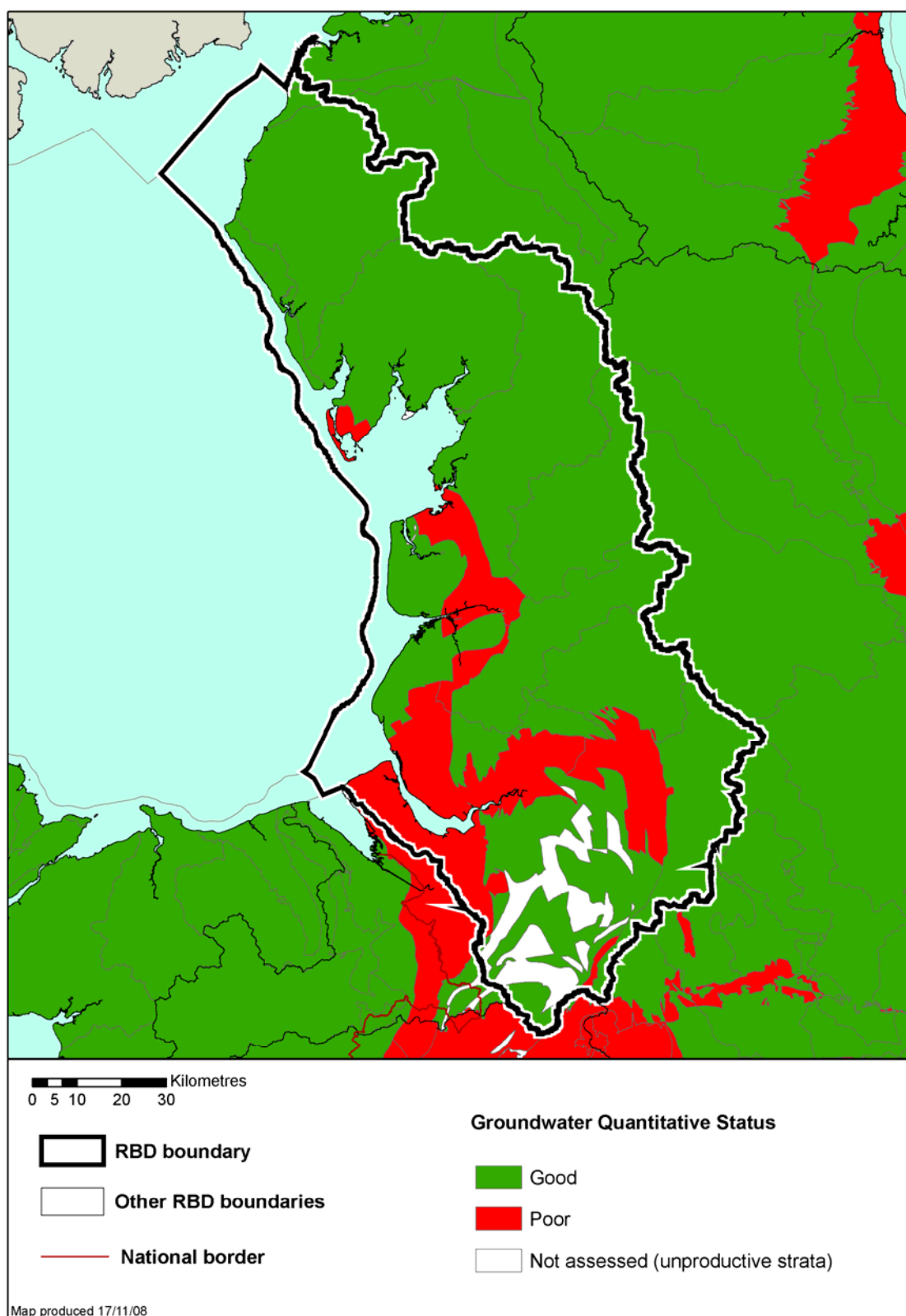
Across England and Wales we have a formal target of achieving 31 per cent of surface waters in good or better ecological status/potential by 2015. Improvement to the water environment has to be managed as a continuum, not in isolated six year cycles. We are confident that a proportion of investigations will lead to action that we can put in place before 2015. To ensure we capture these additional opportunities, we will be ensuring that the North West River Basin District makes its contribution to a goal of achieving up to 33 per cent of surface waters across England and Wales at good or better status/potential by 2015.

Figure 9 Predicted ecological status or potential for surface water bodies in 2015



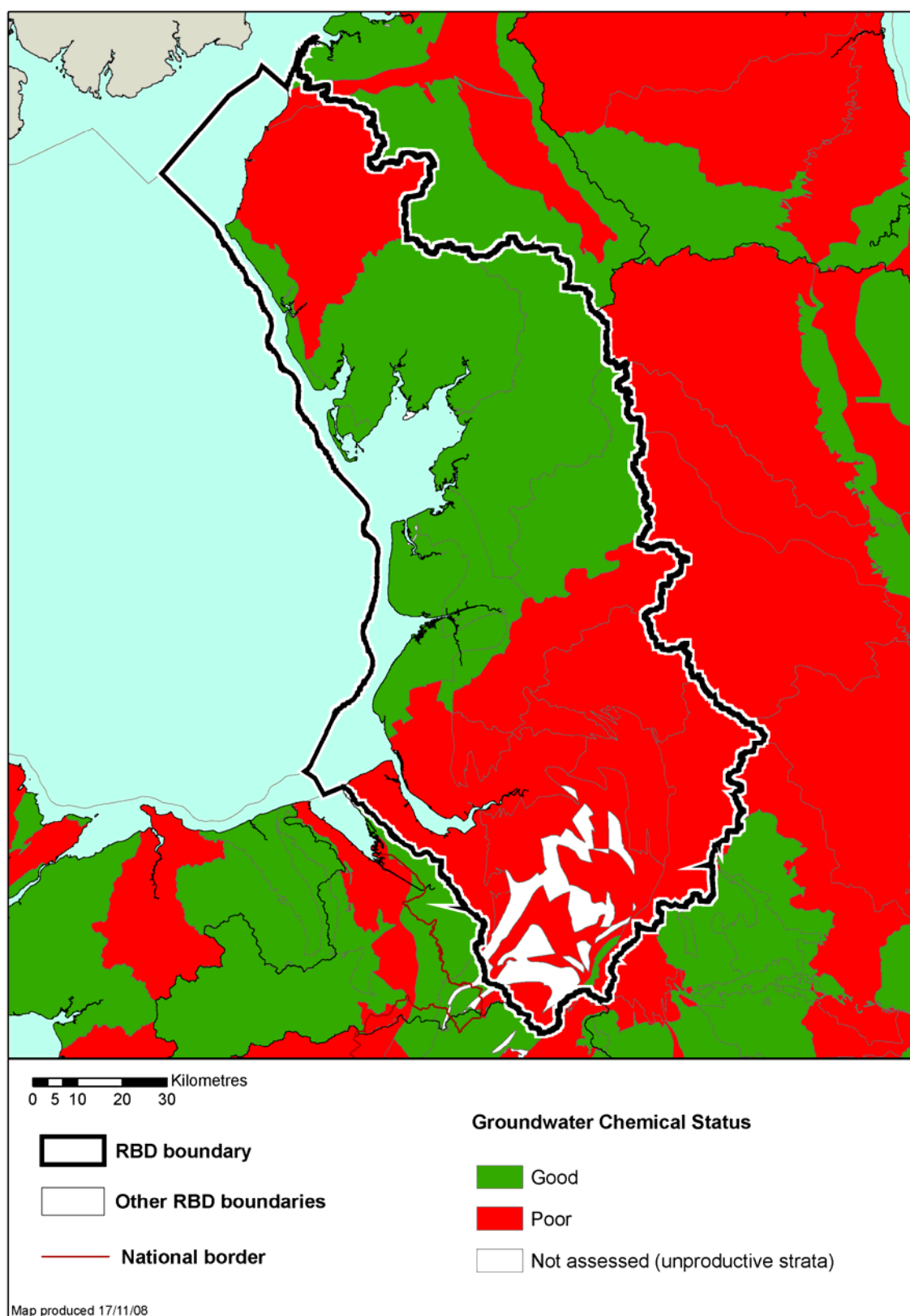
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Figure 10 Predicted quantitative status for groundwater in 2015



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Figure 11 Predicted chemical status for groundwater in 2015



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7 Targets for subsequent cycles

There are three river basin management cycles: 2009-2015, 2015-2021 and 2021-2027. Achieving good status in all water bodies by 2027 is a significant challenge.

The information gained from investigations during the first cycle will help to accelerate improvement to known issues using both traditional and novel techniques in both second and third cycles. New issues will arise though.

This plan sets out where good overall status cannot be achieved by 2015. This relates to 65 per cent of rivers, 71 per cent of lakes, 92 per cent of estuaries, 63 per cent of coastal waters and 72 per cent of groundwater.

In these cases an alternative objective of good status or potential by 2021 or 2027 is set (see Annex E). Over the period to 2027, the pressures on the water environment will change, particularly because of climate change. It is not known in detail how the water environment will respond to this.

The population in the river basin district will continue to increase, with further urbanisation. Agriculture will respond to the changing climate both here and abroad, market conditions, financial incentives and regulatory pressures. Technology and other solutions to address the pressures will improve, but the rate at which some new solutions can be introduced will depend on the economic climate.

The Environment Agency believes that achieving good status in all water bodies by 2027 will not be possible using only current technologies. Even achieving 75 per cent good status will require marked changes in land use and water infrastructure, such as a major programme to separate foul and surface water sewers across most of the river basin district. By current standards, such changes are extremely unlikely to be economically or socially acceptable. For some waters therefore, achieving good status by 2027 could be not technically feasible or disproportionately costly.

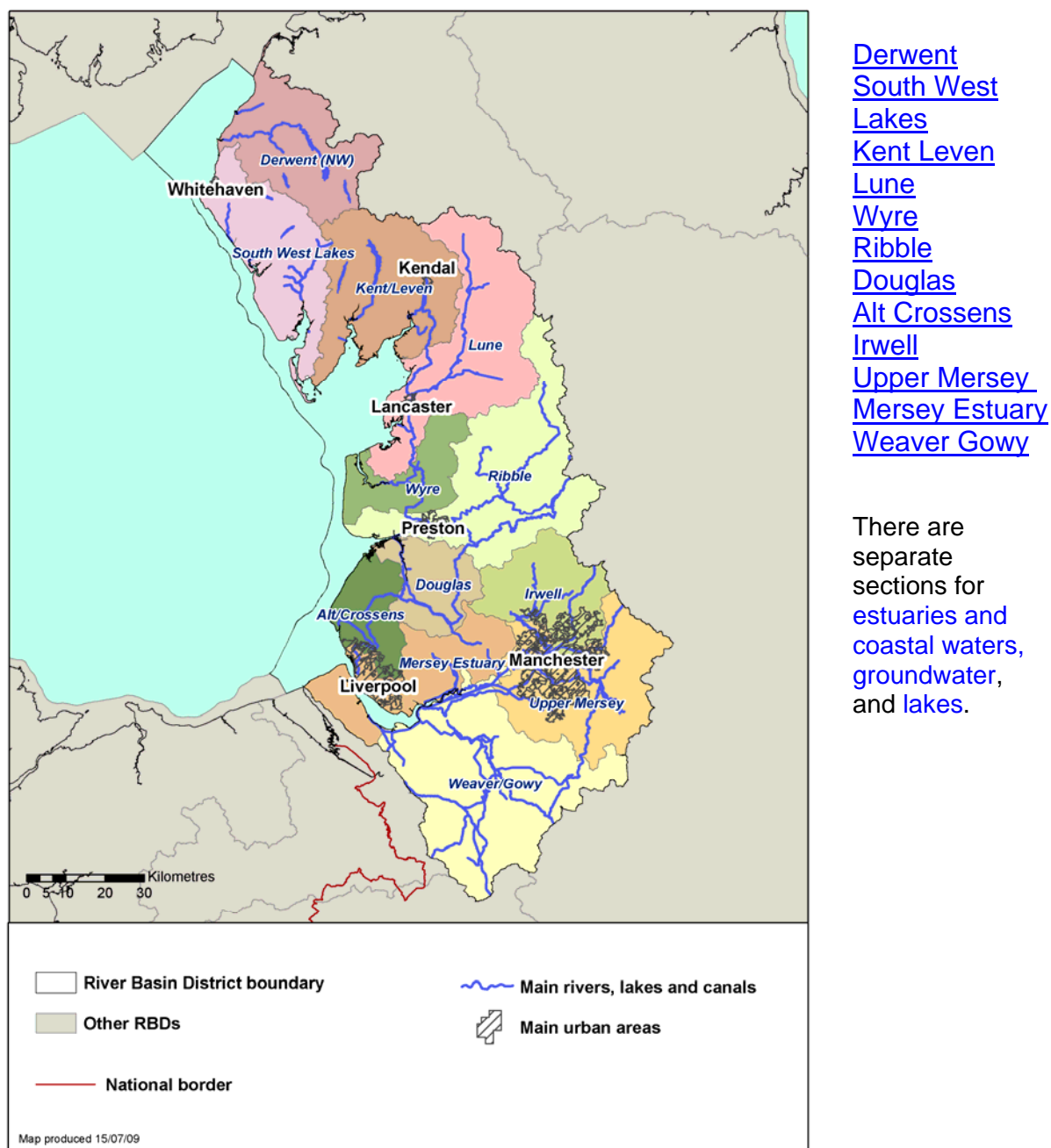
The Environment Agency wants to work with others to find and implement additional actions to improve the environment, with the aspiration of achieving good status in at least 60 per cent of waters by 2021 and in as many waters as possible by 2027.

The water environment now and objectives for 2015 are described further in the section '[North West River Basin District catchments in 2015](#)'. A summary of the key statistics for the North West River Basin District is provided in the table in Section 10.

8 North West River Basin District catchments

This section summarises information about the status of waters in the different parts of the North West river basin district, their objectives and some of the actions for them. Rivers and lakes are grouped by catchment. There are 12 catchments, presented here from North to South shown in Figure 12.

Figure 12 North West River Basin District catchments



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Derwent



The Derwent catchment is located within the lakes and fells of the world-famous Lake District National Park. A wide range of habitats in the catchment are of high conservation value including the ancient oak woodlands that give the river its name (the name Derwent comes from the Celtic word “derw” or “daur” meaning oak tree).

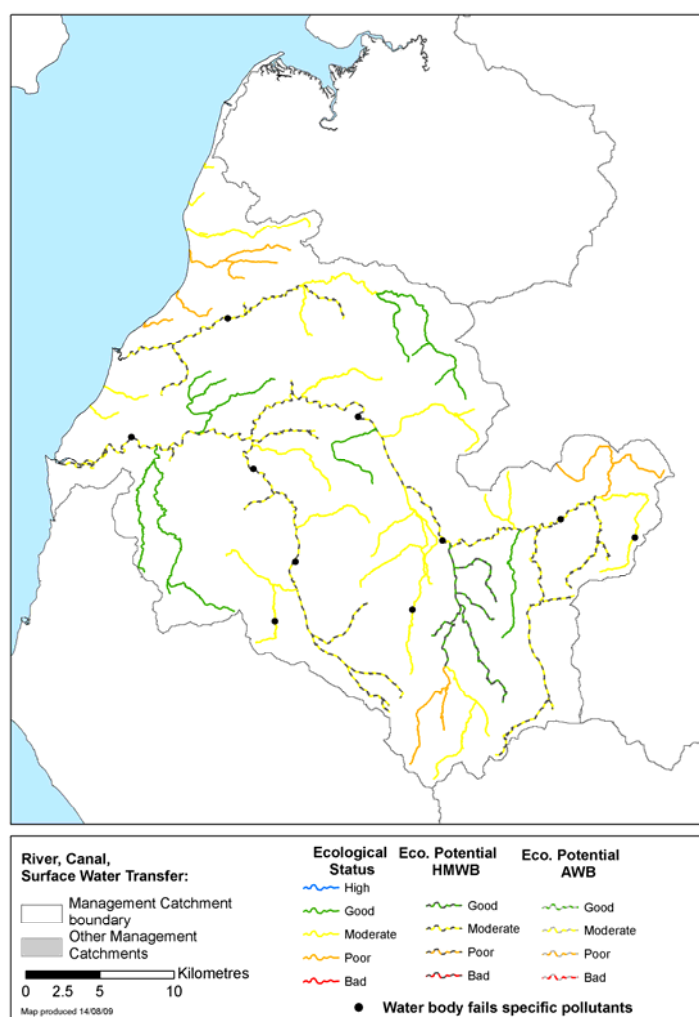


Figure 13 Map showing the current status/potential of waters in the Derwent catchment

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Table 5 Key statistics for the Derwent catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	24	31
% assessed at good or high biological status (34 water bodies assessed)	51	66
% assessed at good chemical status (3 water bodies assessed)	67	67
% at good status overall (chemical and ecological)	24	31
% improving for one or more element in rivers		36

The Derwent catchment is predominantly rural with the population centred in the market towns of Keswick and Cockermouth together with the main coastal town of Workington. The Derwent's many tributaries drain some of Lakeland's highest fells including Blencathra and Skiddaw. The catchment includes the main river Derwent, the River Cocker, River Marron and the River Greta, together with a number of lakes including Bassenthwaite Lake, Derwent Water, Buttermere and Crummock Water.

Agriculture is the predominant land use across the catchment. There are a number of abstractions for public water supply, agriculture and industry from its lakes, rivers and reservoirs. Not only is this water used locally but it is also piped to other more populated parts of the North West. This demand must be carefully balanced with the needs of the local environment, as it is likely to come under increasing pressure in the future due to planned growth elsewhere in the Region.

Tourism is an important contributor to the economy with honey pot sites such as Keswick popular with visitors. On the other hand, the catchment still contains remnants of its industrial heritage. There are a number of contaminated sites reflecting a long history of mining and the more recent industrial past of the coastal town of Workington.

The main towns in this area have been identified as locations that can contribute to future housing growth in the region. Additional homes are proposed across the catchment, with the potential for increased pressure on existing infrastructure including water supply, drainage, roads and sewage treatment works and the water environment.

The River Derwent is designated as a Special Area of Conservation and supports internationally important populations of salmon, otter, and lamprey. Many of the rivers and lakes in the area offer high-quality angling and recreation opportunities. Vendace are a rare fish species that, in England and Wales, are found only in the Derwent catchment. The catchment suffers from problems due to invasive non-native species including the aquatic weed *Crassula helmsii* in the lakes, Himalayan Balsam along much of the riverbanks and Signal Crayfish in some of the rivers.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Supporting and providing funding to the Lake District Still Waters Partnership and Bassenthwaite Lake Restoration Programme, which aims to enhance the protection of lakes, aid catchment restoration and sharing of best practice.
- Researching the impact of historic mining activity and investigate remediation.
- Translocation of Vendace to safe "ark" sites.
- Contribute to the achievement of sustainable abstraction in Natura 2000 sites to achieve favourable conservation status.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities making improvement to its assets at Keswick (Wastewater Treatment Works) WwTW, Keswick WwTW storm tanks, Greta Grove Pumping Station, Rowrah WwTW to help achieve favourable condition for phosphate in Bassenthwaite Lake and the River Marron (Special Areas of Conservation (SACs)).

These, and the actions in Annex C, will lead to 7 per cent of rivers and lakes improving to good or better ecological status or potential, and 15 per cent of rivers and lakes improving to good biological status. Overall, 185 km of rivers (canals and surface water transfers) in the catchment will improve by at least one element by 2015. The number of rivers at poor status will also reduce from five to two.

South West Lakes



Much of the South West Lakes catchment falls within the Lake District National Park, famous for its beauty, wildlife, mountains and lakes. This catchment is home to England's largest Pearl Mussel population. The poet William Wordsworth wrote extensively of this part of the Lake District, an area he knew and loved.

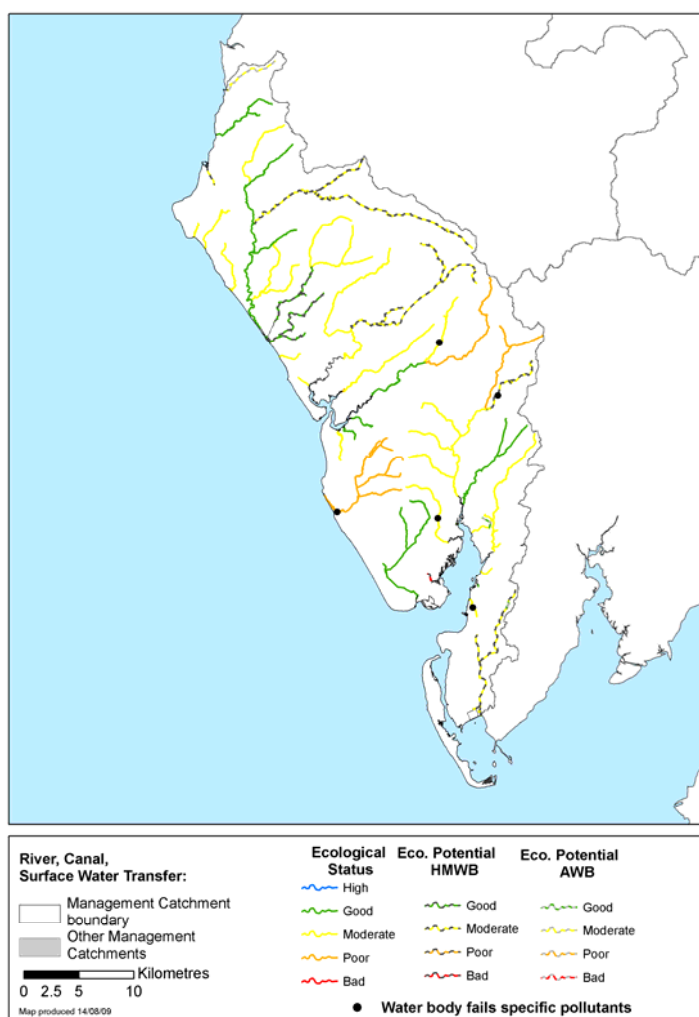


Figure 14 Map showing the current status/potential of waters in the South West lakes catchment

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Table 6 Key statistics for South West lakes catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	31	33
% assessed at good or high biological status (30 water bodies assessed)	47	53
% assessed at good chemical status (2 water bodies assessed)	100	100
% at good status overall (chemical and ecological)	31	33
% improving for one or more element in rivers		17

Tourism is important to the local economy. The Wasdale valley has recently been awarded the title of 'Britain's Favourite view', containing the two extremes of Wastwater and Scafell Pike, both famous for being England's deepest lake and highest mountain. Beautiful beaches such as St. Bees, historic towns including Broughton-in-Furness and maritime ports like Whitehaven characterise this area. Working with partners the Environment Agency can limit the impact of tourism on the environment so the natural attractions of the area can be protected for future generations.

Human activity has had a hand in shaping the environment in this catchment. A legacy of contaminated sites exist, reflecting a history of coal and ore mining and the recent industrial past of nuclear industry sites at Sellafield and Drigg. Agriculture defines the landscape of many upland areas and contributes to the rural economy. The Environment Agency, Natural England and other partners work with farmers to reduce any adverse impact of this activity on the environment.

Lakes and reservoirs supply water to local industry and local consumers. Partnership and voluntary initiatives with Local Authorities, Natural England, Forestry Commission, Lake District National Park Authority, The National Trust and United Utilities in this catchment have provided a mechanism to enhance the landscape, improve water quality and encourage integrated catchment management at a local level.

The rivers and tributaries within this catchment are some of the best salmon rivers in the North West of England. The River Ehen supports the largest and most viable freshwater pearl mussel population in England and is designated as a Special Area of Conservation (SAC). The Special Areas of Conservation and Sites of Special Scientific Interest (SSSIs) around Barrow, Ravenglass, Wastwater and Ennerdale, protect some of our most vulnerable species including salmon, freshwater pearl mussel, arctic char and otters. Non-native invasive species are becoming more of a problem, putting pressure on these protected species and habitats.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Working with farmers to promote best practice initiatives and implementation of codes of good agricultural practice.
- Undertaking habitat improvement and captive breeding of fresh water pearl mussels to enable existing populations and re-introductions to flourish.
- Restoring sustainable abstraction in Natura 2000 sites to achieve favourable conservation status.
- Gathering data and evidence on fish populations.
- Developing and delivering our Regional Sea Trout and Salmon Management Plan commitments.
- Researching the impact of historic mining activity and investigate remediation.

- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- Updating and modernising the floodgates on tidal flaps on the Gilpin, Winster, Gleaston Beck, Red Barn Dyke, Newlands, Colton and Leighton Beck to improve fish passage.

These, and the actions in Annex C, will lead to one per cent of rivers and lakes improving to good or better ecological status or potential, and six per cent of rivers and lakes improving to good biological status. Overall, 75 km of rivers (canals and surface water transfers) in the catchment will improve by at least one element by 2015. The number of rivers at bad /poor status will also reduce from four to two.

Kent Leven



With two thirds of the catchment nestling in the Lake District National Park, the Kent Leven catchment has a particularly high environmental and landscape value. It is home to Windermere, the largest lake in England and designated Areas of Outstanding Natural Beauty, the historic towns of Kendal, Windermere, Bowness, Hawkshead, Coniston and the picturesque coast of Grange over Sands, which are a focus for tourists.

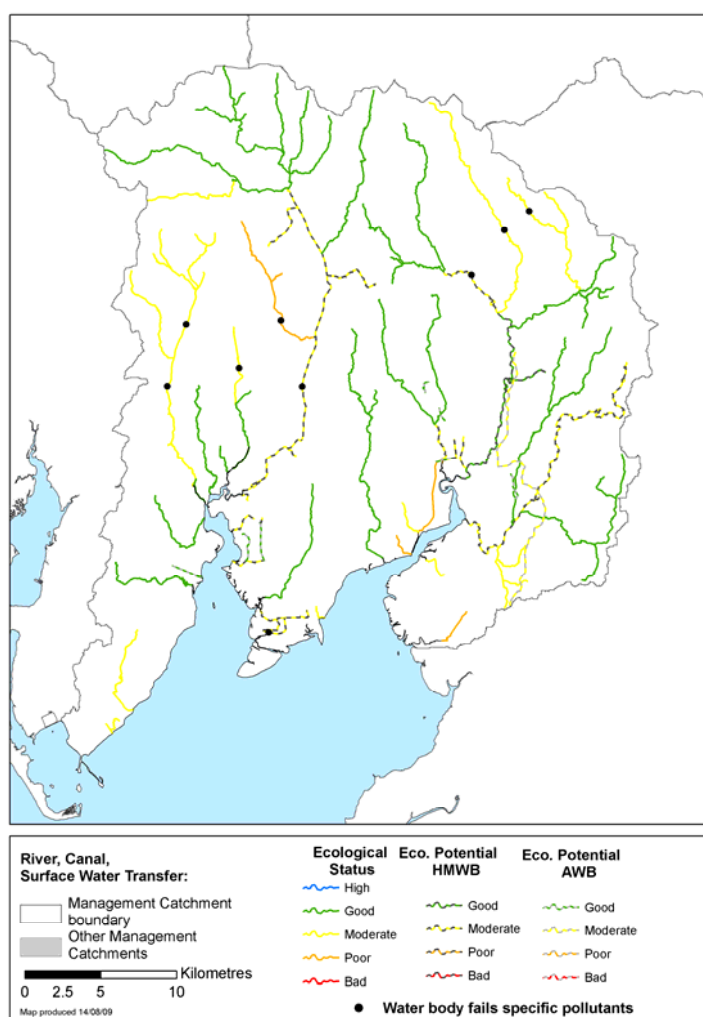


Figure 15 Map showing the current status/potential of waters in the Kent Leven catchment

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Table 7 Key statistics for the Kent Leven catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	42	48
% assessed at good or high biological status (35 water bodies assessed)	67	70
% assessed at good chemical status (5 water bodies assessed)	80	80
% at good status overall (chemical and ecological)	42	48
% improving for one or more element in rivers		20

The catchment flows out into Morecambe Bay, the largest continuous intertidal area in the whole of Britain designated for its conservation importance nationally and internationally. It is a Ramsar site (wetland site of international importance), Special Area of Conservation (SAC), Special Protection Area (SPA) and a Special Site of Scientific Interest (SSSI) for wintering wading birds and wildfowl, and has a whole range of estuarine habitats.

The Kent Leven catchment is predominantly rural, managed mostly for livestock farming. The recent adoption of the England Catchment Sensitive Farming Delivery Initiative in the area will focus on advising farmers on how to reduce diffuse pollution. There are a large number of surface and groundwater abstractions within this catchment including a significant public water supply from Windermere. The future population growth predicted in the North West region could put pressure on this important water environment.

One third of the rivers in this catchment achieve good status, reflected in the large number of protected species the rivers, lakes, tarns and estuary support. There are excellent populations of the native White Clawed Crayfish, a small population of freshwater Pearl Mussels and a diverse range of fish species including populations of the Atlantic Salmon. Windermere, and Coniston Water both have populations of the rare Arctic Char.

This catchment has an industrial past including mining, manufacturing and generating power through water. Man made barriers, such as that located at the outflow of Esthwaite Water on Cunsey Beck, are still a feature of this catchment. The Cunsey Beck barrier will be removed by 2015 and should bring about real environmental improvement.

Despite its wealth of native species, non-native invasive species are establishing in this area. Coniston Water was unfortunately one of the first lakes in the Lake District where the invasive non-native species *Crassula helmsii* was found. The abundant White Clawed Crayfish are under threat from the American Signal Crayfish and crayfish plague.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Providing support to the Windermere Catchment Restoration Programme.
- Developing and delivering the Regional Sea Trout and Salmon Management Plan.
- Addressing man-made barriers to fish migration.
- Providing support to the work of Morecambe Bay Wetlands Network.
- Investigating the impact of historic mining activity on the River Crake and Coniston Water.
- Funding and supporting volunteers to tackle invasive species problems in affected rivers.
- Addressing the water quality issues in Esthwaite Water, which also impacts quality of water in Windermere and wild fish migration, through partnership projects with Natural England, Lake District National Park Authority and by addressing impacts from Esthwaite Fish farm.

- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities making improvements to their assets at Morecambe Road Combined Sewer Overflow and Cart Lane Pumping Station to improve compliance with Bathing Waters Directive and Morecambe Bay East Shellfish Water. The proposed phosphorus removal scheme at Kendal WwTW will contribute to the achievement of Favourable Condition for the River Kent.
- Addressing man-made barriers to fish migration at Ainsworth's Dam on the Leven, and Heron Corn Mill on the Bela.

These, and the actions in Annex C, will lead to six per cent of rivers and lakes improving to good or better ecological status or potential, and three per cent of rivers and lakes improving to good biological status. Overall, 122 km of rivers (canals and surface water transfers) in the catchment will improve by at least one element by 2015. The number of rivers at poor status will also reduce from two to one.

Lune



The Lune Valley is one of the most picturesque parts of the North West and tourism is increasingly important to the economy of the area with visitors attracted by its natural beauty. The historic city of Lancaster, which originated as a roman settlement and takes its name from the River Lune, is famous for its medieval architecture.

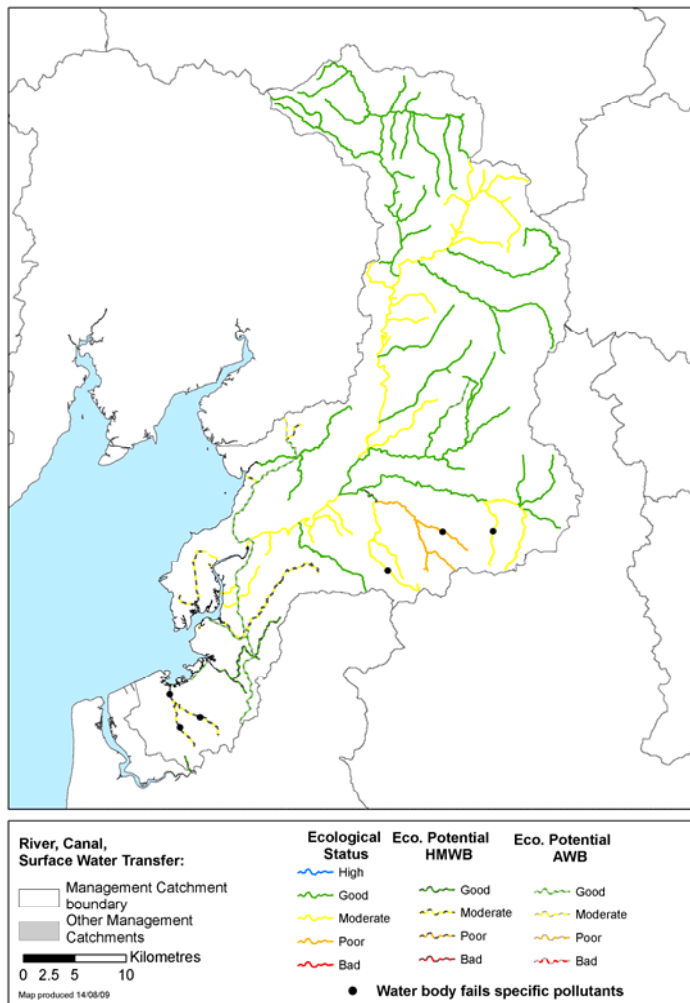


Figure 16 Map showing the current status/potential of waters in the Lune catchment

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Table 8 Key statistics for Lune catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	56	62
% assessed at good or high biological status (38 water bodies assessed)	68	71
% assessed at good chemical status (2 water bodies assessed)	50	50
% at good status overall (chemical and ecological)	56	62
% improving for one or more element in rivers		8

The Lune rises on the Howgill Fells, where the steep glaciated valleys give rise to fast-flowing streams. The river flows west to Tebay before turning southwest and flowing into Morecambe Bay. The environment that attracts tourists is also important to wildlife. The Forest of Bowland is of national and international importance because of its unspoiled and richly diverse landscapes, wildlife and heritage, with outstanding heather moorland, blanket bog and rare birds. Morecambe Bay is the largest expanse of intertidal mudflats in the UK, notorious for its quicksands and fast moving tides, and is an important site for its wildlife and birds.

The upper and middle reaches of the catchment are predominantly rural and much of the land is used for agriculture. Sheep and beef farming are common to the uplands with dairy farming being the major land use in the valleys. Good agricultural practice is important to protect the water bodies from diffuse pollution. Schemes such as Environmental Stewardship help farmers to reduce their impact on the environment.

The lower catchment is more urbanised and industrial, particularly around Lancaster and Heysham. The river and coast in this area are important to the local economy attracting tourists, particularly at Morecambe, and also providing a link to Ireland for cargo and passengers, at Heysham. Because this area is more urbanised the water environment here is at risk from point source and urban diffuse pollution.

The River Lune is one of the four best salmon fisheries in England and Wales and salmon stocks continue to improve. It has recently recorded the fourth highest salmon count in a seventeen-year series, which is in keeping with its current trend in meeting conservation targets. Several watercourses in the catchment support populations of otters, with upland reaches also having populations of native crayfish and Freshwater Pearl Mussels.

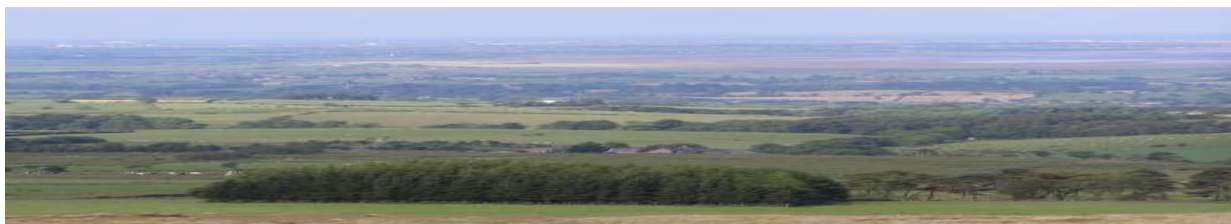
In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve our water bodies through:

- Working with farmers to promote best practice initiatives and implementation of codes of good agricultural practice through the England Catchment Sensitive Farming Delivery Initiative.
- Promoting water efficiency in business and households.
- Supporting the Fresh Water Pearl Mussel project that enables species re-introduction and creation of viable, sustainable communities through captive breeding and habitat improvement.
- Raising awareness of the spread of non-native crayfish and assessing the impact on fisheries.
- Using Salmon Action Plans (SAP) for Cumbria and Lancashire to set specific targets such as spawning fish numbers, reducing exploitation, improving habitat and water quality and minimising obstructions to migration, for individual rivers.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities making improvements to their assets at Lancaster WwTW, St Nicholas Lane Pumping Station and intermittent discharges at Scale Hall

Pumping Station, Willow Lane Pumping Station and 7 combined stormwater overflows to improve compliance at Bathing Waters and Shellfish Waters in the catchment.

These, and the actions in Annex C, will lead to six per cent of rivers and lakes improving to good or better ecological status or potential, and three per cent of rivers and lakes improving to good biological status. Overall, 57 km of rivers (canals and SWTs) in the catchment will improve by at least one element and one river will remain at poor status by 2015.

Wyre



The River Wyre emerges from the Bowland Fells in the East, flows through historic towns such as Garstang and Poulton-le-Fylde, seaside resorts such as Cleveleys, Fleetwood and North Blackpool before joining the Irish Sea in the spectacular Morecambe Bay.



Figure 17 Map showing the current status/potential of waters in the Wyre catchment

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Table 9 Key statistics for the Wyre catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	27	31
% assessed at good or high biological status (13 water bodies assessed)	46	46
% assessed at good chemical status (2 water bodies assessed)	50	50
% at good status overall (chemical and ecological)	27	31
% improving for one or more element in rivers		14

The catchment is mainly rural with some urban pockets, mostly concentrated in the western part around the seaside towns of Blackpool and Fleetwood. There is a lot of dairy, and some arable, farming in the area, which has led to the problem of diffuse pollution. Several agri-environment stewardship schemes and England Catchment Sensitive Farming Delivery Initiative are helping farmers to reduce nutrient and sediment inputs and help to manage flooding.

There are many water related recreational opportunities within the catchment such as Blackpool's "Golden Mile" beachfront, Abbeystead Reservoir, Lancaster Canal and a series of coastal and inland paths and bridleways. Yachting and other water-sports are also popular in the Wyre Estuary. Blackpool is identified for regeneration and growth. In an area popular with tourists, a healthy water environment will play an important role in its success. The River Wyre supports both coarse and game fisheries. Actions such as gravel management and increasing the number of suitable salmon spawning areas are all planned to create and protect habitats.

The Wyre catchment supplies drinking water mainly to people living in Lancashire, although United Utilities' integrated water grid can also move this water further south in the region, if needed. Securing sustainable amounts of water is important for this catchment particularly due to the proposed growth and regeneration planned for Blackpool and other areas.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Working with farmers to promote best practice initiatives and implementation of codes of good agricultural practice through the England Catchment Sensitive Farming Delivery Initiative.
- Tackling pollution caused by poor drainage and misconnections from both housing and industrial estates.
- Grip blocking on the upper Wyre to reduce erosion and sediment pollution of water.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities conducting an investigation, on the adverse affects of abstraction in Tarnbrook Wyre; perceived to be adversely affecting a local nature conservation site at Upper and Middle Wyre.
- Working pro-actively with farmers and reducing the Environment Agency's active maintenance on river banks, will help create and enhance existing habitats for water voles. This work will be monitored and surveyed to show improvements in populations within the Wyre catchment.

These, and the actions in Annex C, will lead to four per cent of rivers and lakes improving to good or better ecological status or potential. Currently the catchment has no bad or poor rivers, we will work with partners to ensure this does not change and aim to improve 74 km of rivers (canals and surface water transfers) by at least one element by 2015.

Ribble



The Ribble is one of the longest rivers in the North West, rising in the Yorkshire Dales and flowing into the Irish Sea. Its two main tributaries reflect the contrasts in the catchment. The River Hodder drains much of the Forest of Bowland Area of Outstanding Natural Beauty whilst the River Calder flows through many of the industrial east Lancashire towns.

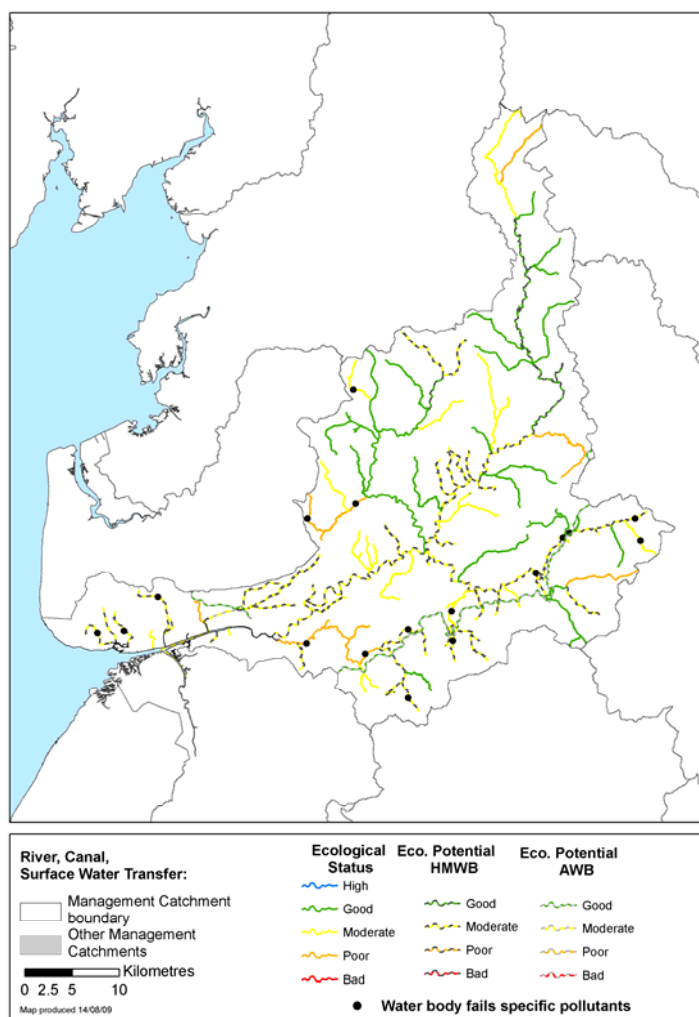


Figure 18 Map showing the current status/potential of waters in the Ribble catchment

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Table 10 Key statistics for the Ribble catchment at a glance

River and lake water bodies	Now	2015
% at good ecological status or potential	38	42
% assessed at good or high biological status (63 water bodies assessed)	45	50
% assessed at good chemical status (9 water bodies assessed)	67	67
% at good status overall (chemical and ecological)	38	42
% improving for one or more element in rivers		27

The Ribble Valley is known for its unspoilt countryside, natural watercourses and historic villages that attract tourists, anglers, canoeists and historians. The upper Ribble is largely rural, and so actions that address impacts from rural land use, such as the recent introduction of England Catchment Sensitive Farming Delivery Initiative, will be a priority for this catchment.

The urban areas, such as Preston, Blackburn, Burnley and Clitheroe, have been identified for housing growth and renewal in the Ribble catchment. This growth needs to be planned and delivered in a way that reduces pressures on the water environment.

In 2003 the Ribble was one of 19 catchments in Europe chosen as a pilot for developing the process of river basin management planning for the Water Framework Directive. Locally it provided information about the pressures affecting the catchment and the need to work in partnership to deliver positive actions to improve the water environment.

The Ribble and its tributaries provide good habitat for salmon and otters. Although numbers have increased over recent years, action is required to improve habitats for these species further. The upper Ribblesdale area also supports significant populations of native crayfish. The Ribble Estuary is one of the largest in the UK and its wetlands are home to thousands of overwintering migratory birds, which account for its designation as a Special Protection Area.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- The Sustainable Catchment Management Programme (SCaMP) and England Catchment Sensitive Farming Delivery Initiative.
- Promoting habitat creation schemes along the Ribble (and estuary) for both flood risk and biodiversity purposes.
- Supporting the second phase of the Hesketh Bank managed realignment scheme to restore over 100ha of agricultural land to original salt marsh.
- Encouraging further grip blocking in the Forest of Bowland and West Pennine Moors.
- Raising awareness, and monitoring the spread of non-native crayfish and assessing the impact on fisheries.
- Implementing a solution to low-flow issues in the Brennand and Whitendale catchments.
- Working with Local Authorities and developers on housing development to ensure we all improve and protect the water environment.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities making improvement to their assets at Croston WwTW, Anchorsholme Pumping Station, Manchester Square Pumping Station, Blackburn WwTW, Walton le Dale WwTW. Proposed improvements to infrastructure at 12 sites will reduce intermittent discharges, helping to meet the requirements of the Bathing Water and Shellfish Water Directives.

These, and the actions in Annex C, will lead to four per cent of rivers and lakes improving to good or better ecological status or potential, and five per cent of rivers and lakes improving to good biological status. Overall, 213 km of rivers (canals and surface water transfers) in the catchment will improve by at least one element by 2015. The number of rivers at poor status will also reduce from eight to five.

Douglas



The River Douglas rises in the hills of South Lancashire and is fed by the Rivington reservoirs. The catchment also includes the River Lostock and River Yarrow. The Douglas and its tributaries flow through the historic industrial towns of Wigan, Chorley and Leyland before joining the Ribble Estuary. Urban pollution places significant pressures on the catchment at these locations.

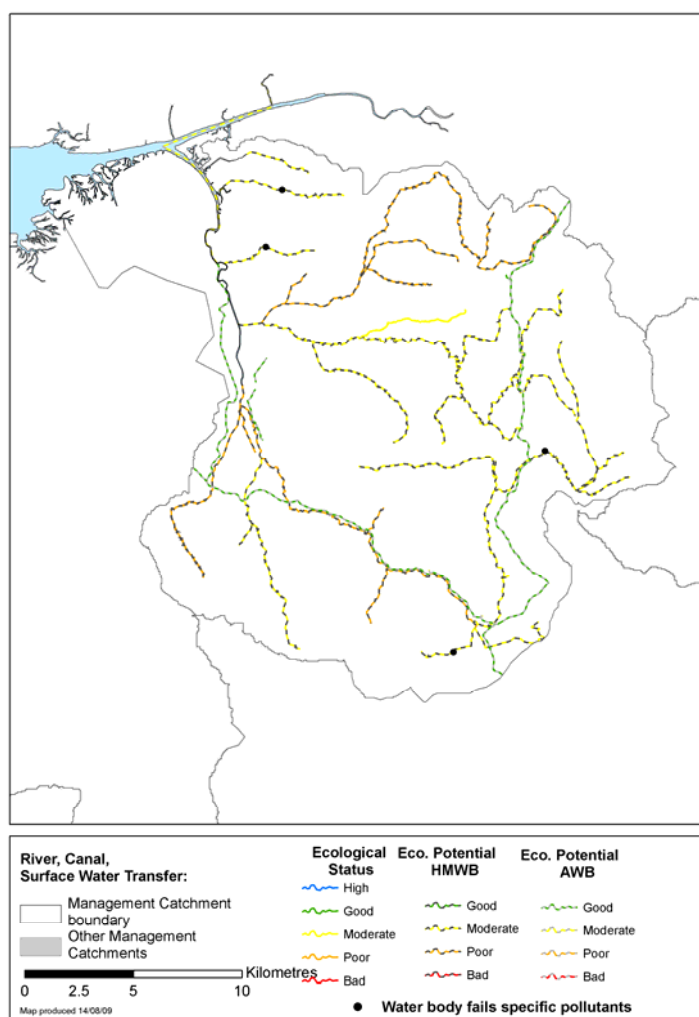


Figure 19 Map showing the current status/potential of waters in the Douglas catchment

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Table 11 Key statistics for Douglas catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	8	12
% assessed at good or high biological status (17 water bodies assessed)	16	16
% assessed at good chemical status (8 water bodies assessed)	88	88
% at good status overall (chemical and ecological)	8	12
% improving for one or more element in rivers		15

A large proportion of the catchment is rural and the agricultural activity in this area puts some pressure on the water environment. There are also several industrial sites within the catchment, where hazardous substances have the potential to cause contamination of both land and water. Much of the catchment is designated as heavily modified due to channel realignment and actions are needed to improve habitats for wildlife.

Within the catchment there are areas where rivers pose significant flood risk to communities. Future works to minimise the flood risk will be required to take account of the River Basin Management Plans and future growth pressures. The catchment contains part of the new Central Lancashire growth point, which, in combination with other planned economic development provides a potential opportunity to improve the water environment.

Fens, coastal and floodplain grazing marsh, lowland raised peat bogs and reed beds are all found within the catchment, providing ideal habitats for internationally protected animals such as water voles, otters and great crested newts.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Promoting best practice initiatives and implementation of codes of good agricultural practice and urban pollution campaigns.
- Encouraging the use of appropriately designed Sustainable drainage systems (SuDS) to control run off at source.
- Investigations into the (industrial legacy) contaminated land in the catchment and identifying remediation opportunities.
- Investigating the impact landfill sites have on the water environment.
- Carrying out Water Cycle Studies for the growth points planned in the catchment.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities investigating the causes of intermittent discharges to the River Douglas using Integrated Catchment Modelling. Asset improvements at Croston WwTW will improve compliance with Shellfish water guideline standards.

These, and the actions in Annex C, will lead to four per cent of rivers and lakes improving to good or better ecological status or potential. Overall, 55 km of rivers (canals and surface water transfers) in the catchment will improve by at least one element by 2015. The number of rivers at poor status will remain at four.

Alt Crossens



© Peter Lucas / Sefton MBC

The River Alt rises in the urban area of Huyton, east of Liverpool and flows into the Irish Sea at Hightown, south of Formby. The estuaries of the Alt and the Crossens form part of an area designated for its conservation importance nationally and internationally. The coastline between Liverpool and the Ribble Estuary is a Ramsar site (Wetland site of international importance), Special Area of Conservation (SAC), Special Protection Area (SPA) and a Special Site of Scientific Interest (SSSI).

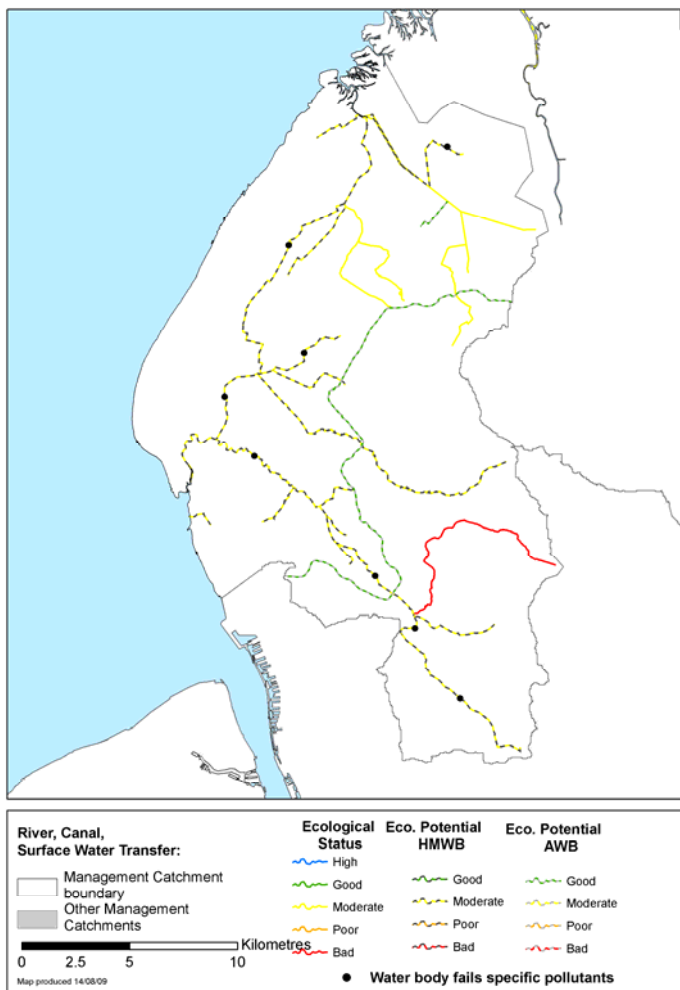


Figure 20 Map showing the current status/potential of waters in the Alt Crossens catchment

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Table 12 Key statistics for Alt Crossens catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	0	0
% assessed at good or high biological status (11 water bodies assessed)	18	18
% assessed at good chemical status (3 water bodies assessed)	0	0
% at good status overall (chemical and ecological)	0	0
% improving for one or more element in rivers		14

The River Alt follows a path through low-lying areas and is classified as heavily modified to reflect the engineering modifications that have been made to it. In the past, this catchment was entirely pumped, however in recent years, the pumping regime has been reduced. The catchment contains two thirds of the top quality farmland in the North West, capable of growing a wide range of agricultural and horticultural crops. The catchment historically has had problems with water quality, due to; nutrient enrichment and agro-chemical input from agricultural activities, and sediment input contaminated with heavy metals from the area's industrial legacy.

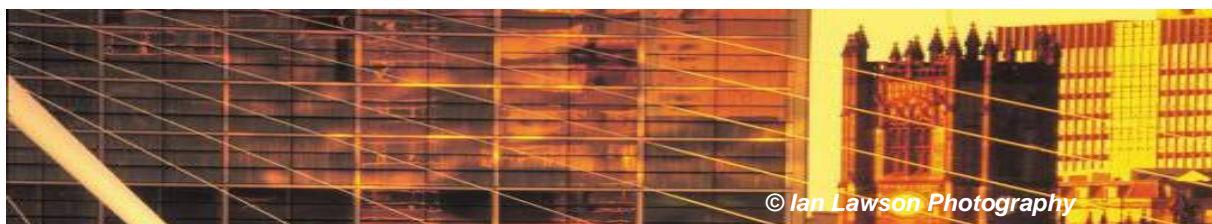
Water quality in the catchment is showing signs of improvement. In a 2005 fisheries survey, three small sea trout were found in the River Alt. This is particularly encouraging as sea trout, like salmon, migrate to the sea and then return to the river to spawn. They need fairly good water quality and oxygen levels to survive and their presence suggests the River Alt is getting cleaner. There is coarse fish angling interest in parts of the catchment and some water bodies already support populations of Water Vole, (a protected species under the Wildlife and Countryside Act).

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Delivering the Lunt Meadows project, which seeks to increase flood storage in the Sefton area by realigning the River Alt and creating new wildlife habitat.
- Working with farmers to promote best practice initiatives and towards implementation of codes of good agricultural practice.
- Managing rivers to protect against the establishment of non-native species.
- Researching and remediating historically contaminated sediments (from the industrial legacy of the catchment) to prevent leachate contaminating the rivers.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities will make improvements to their assets at Barrow Nook WwTW and Formby WwTW to meet ammonia standards required by the Water Framework Directive.

Much of the catchment contains rivers designated as artificial or heavily modified. The improvements planned in Annex C, and building on our work with partners to investigate and deliver solutions, will lead to environmental improvements. Currently, there are 6 Km proposed to improve by at least one element by 2015.

Irwell



The Irwell catchment drains the Southern Lancashire Pennines and has rural headwaters in the internationally protected South Pennine Moors. As the waters flow through the industrial towns of Bolton, Bury, Rochdale, Salford, Oldham and Manchester the river becomes predominantly walled and channelised. There are, however, large semi-rural sections along significant stretches of the Irwell catchment, from Rawtenstall to Radcliffe, from Rochdale to Bury and Belmont to Astley.

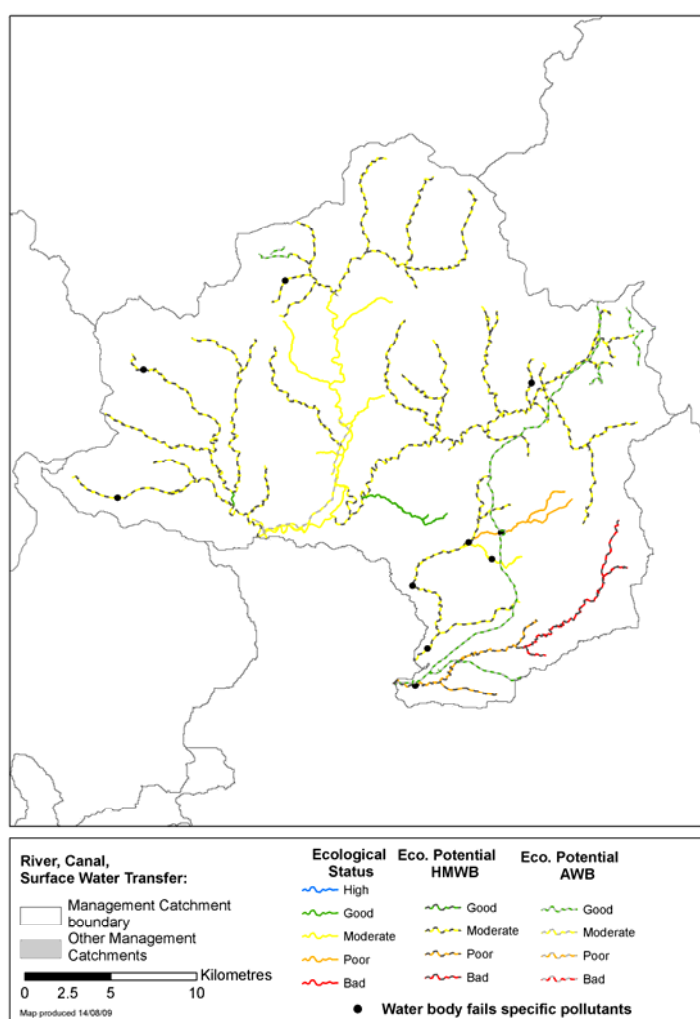


Figure 21 Map showing the current status/potential of waters in the Irwell catchment

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Table 13 Key statistics for Irwell catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	13	13
% assessed at good or high biological status (24 water bodies assessed)	17	38
% assessed at good chemical status (5 water bodies assessed)	100	100
% at good status overall (chemical and ecological)	13	13
% improving for one or more element in rivers		50

Canals - once used for trade and now for recreation - are a key feature of the catchment, with the Rochdale Canal being a designated Special Area of Conservation (SAC) for its rare plant species. The River Basin Management Plan designates canals as artificial water bodies and channelised rivers as heavily modified water bodies; 95 per cent of the water bodies in the catchment fall under these categories.

The River Irwell joins the Manchester Ship Canal near Salford Quays. Whilst much of the catchment has been impacted by historical development, some of the areas are now being restored to allow wildlife to return, highlighted with the recent arrival of otters. The risk of flooding lower down the catchment, in areas such as Slaford, has initiated pilot projects to work with communities to raise awareness of the potential impacts of flooding.

The major towns in this catchment are highlighted as some of the key areas for large-scale future growth and regeneration. As well as major commercial and economic developments, there are aspirations to increase port activity along the Manchester Ship Canal to the docks at Salford. This presents us with a unique opportunity to work alongside the local authorities and developers to make the water environment a place to live, work and play. This has been successfully demonstrated at Salford Quays with initiatives such as Media City and Irwell City Park.

Significant improvements have already been seen in water quality over the last thirty years, allowing the river's coarse fish populations to recover from very low levels. Water quality improvements have also allowed opportunities for enhancement and regeneration. For example in Manchester City centre, the waterways are increasingly being opened up through bar, restaurant and residential development, allowing the rivers to be enjoyed by all living in and visiting the city.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Supporting improvements to the water environment during developments and regeneration, such as the Irwell City Park.
- Working with local authorities to identify and remediate contaminated land sites.
- Identifying opportunities to remove redundant river modifications.
- Encouraging habitat enhancement to improve the water environment for people and wildlife throughout the catchment.
- Implementing the Old Irwell project in Irlam, Greater Manchester, which will seek to address pollution incidents and fish kills.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities investigating the intermittent discharges to the River Irk and Irwell using Integrated Catchment Modelling.
- Undertaking a study to look into the current and future maintenance practices and wider habitat management, in the floodplains of the River Irwell, River Croal and River Roch. Following the recommendations and implementing actions have the

potential to reconnect the floodplain, improve habitat for ecology and reduced flood risk.

These, and the actions in Annex C, will lead to 21 per cent of rivers and lakes improving to good biological status. Overall, 235 km of rivers (canals and surface water transfers) in the catchment will improve by at least one element by 2015.

Upper Mersey



Covering a significant part of urban Manchester and encompassing parts of the South Pennine Moors Special Protection Area and Special Area of Conservation, the Upper Mersey catchment is one of contrasts. The internationally protected conservation sites support rare and endangered habitats and bird species. Salmon are returning to the River Bollin following installation of two new fish passes and the River Goyt supports the Mersey's only known population of juvenile Atlantic salmon.

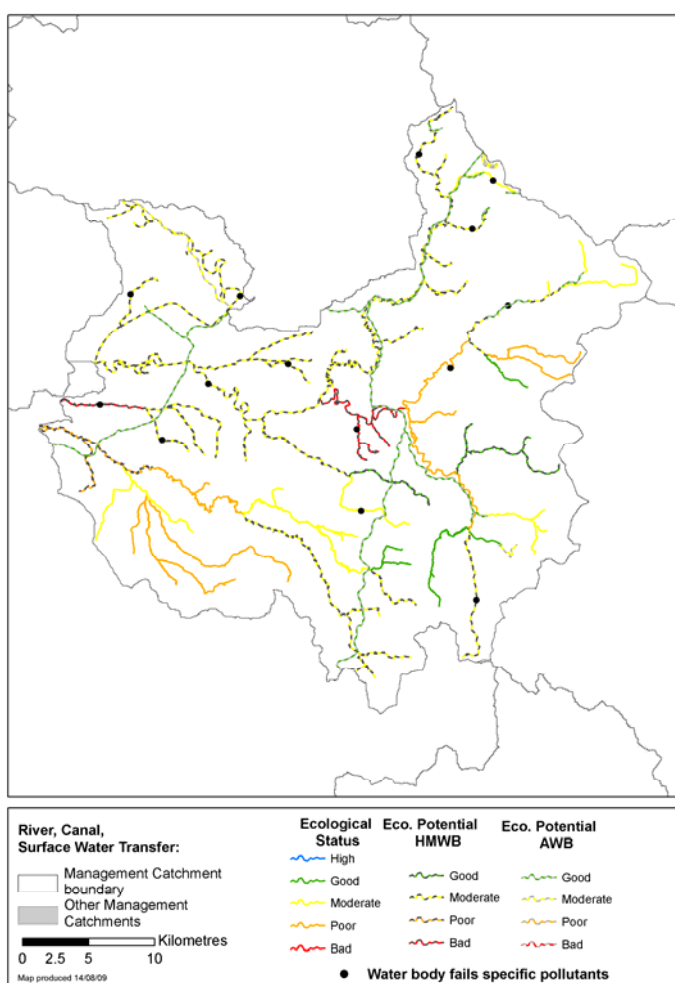


Figure 22 Map showing the current status/potential of waters in the Upper Mersey catchment

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Table 14 **Key statistics for Upper Mersey catchment**

River and lake water bodies	Now	2015
% at good ecological status or potential	18	22
% assessed at good or high biological status (36 water bodies assessed)	24	32
% assessed at good chemical status (8 water bodies assessed)	63	75
% at good status overall (chemical and ecological)	18	22
% improving for one or more element in rivers		48

Historically, industry and development have had a significant impact on the waterways of the catchment. Around half of the water bodies are heavily modified and many are enclosed in culverts in urban areas. This means that fragmentation of habitat and changes to the channel are key limiting factors in the recovery of the water environment. The Mersey Life project aims to address these problems and enhance the area through river restoration. The project will look specifically at restoring degraded habitats, increasing biodiversity, developing sustainable fish populations and improving access and recreation throughout the river corridor.

The catchment is also an important area for future economic development, an example being the expanding Manchester Airport. In the urban areas of the catchment, which cover the Greater Manchester Boroughs of Trafford, Manchester, Tameside, Stockport and Oldham, a significant number of new homes are proposed by 2021.

The catchment is largely reservoir fed with the water supply predominantly coming via the Haweswater Aqueduct from the Lake District and the Longdendale system which was the first public water supply reservoir chain in the world. Development pressures mean that the sustainable use of water will be a key issue in this area.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Investigating phosphate inputs to identify whether the sources are agricultural and/or sewage related.
- Working with developers and Local Authorities to ensure new housing developments protect and improve the water environment.
- Delivering habitat improvement, encouraging urban fisheries and river restoration through the Mersey Life project.
- Increasing Atlantic Salmon stocks through the Regional Sea Trout and Salmon Management Plan actions (such as construction of fish passes on the Rivers Goyt and Bollin).
- Promoting water efficiency to both business and household.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- Addressing man-made barriers to fish migration at on the River Goyt and River Bollin for improvements.
- Working pro-actively with farmers and reducing the Environment Agencies active maintenance on river banks, will help create and enhance existing habitats for water voles. This work will be monitored and surveyed to show improvements in populations within the Upper Mersey catchment.

These, and the actions in Annex C, will lead to 4 per cent of rivers and lakes improving to good ecological status/potential and 8 per cent of rivers and lakes improving to good biological status. Overall, 348 km of rivers (canals and surface water transfers) in the

catchment will improve by at least one element by 2015. The number of rivers at bad /poor status will also reduce from 11 to seven.

Mersey Estuary



© Ian Lawson Photography

The Mersey is a tidal river with the second highest tidal range in the UK; its strong tides have created deep channels, mudflats and sandbanks that are home to many species of birds, leading to its designation as a European Special Protection Area (SPA) and a Ramsar (wetlands) site. The area is also known for the Manchester Mosses Special Area of Conservation (SAC) - internationally important lowland raised bogs - and for healthy populations of water voles and Great Crested Newts. The Liverpool waterfront is a UNESCO World Heritage Site.

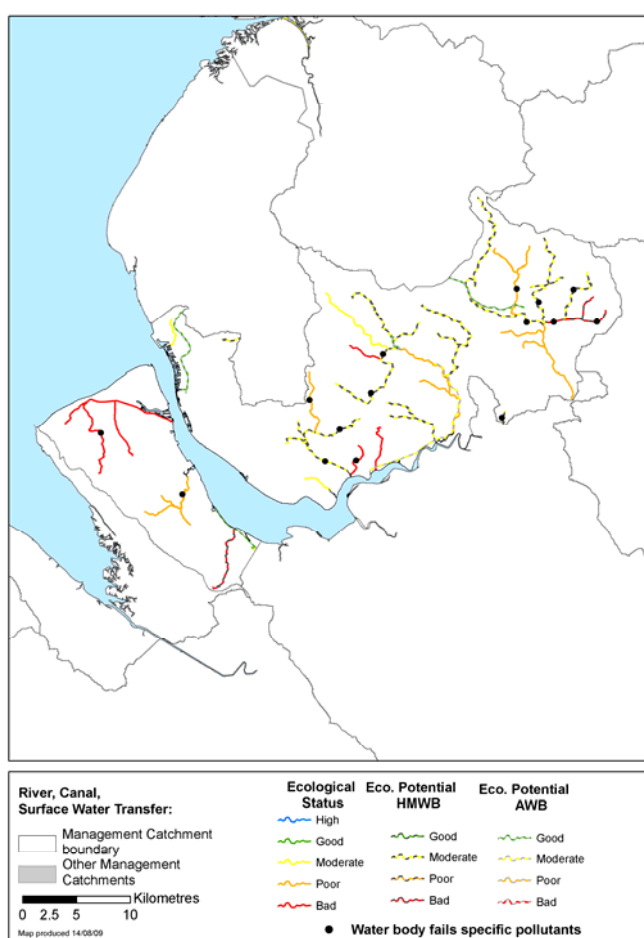


Figure 23 Map showing the current status/potential of waters in the Mersey Estuary catchment

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Table 15 Key statistics for Mersey Estuary catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	0	0
% assessed at good or high biological status (25 water bodies assessed)	0	4
% assessed at good chemical status (6 water bodies assessed)	100	100
% at good status overall (chemical and ecological)	0	0
% improving for one or more element in rivers		48

The Mersey Estuary catchment is home to much of the North West's heavy industry and major ports and has one of the most thriving economies in the region. The catchment has a rich industrial past. Consequently, it became one of the most polluted rivers in Europe. The historic coal and chemical industries also left a legacy of contaminated land. In addition, canals such as St Helens Canal were built to link Lancashire coal mining fields and cotton manufacturing with the Port of Liverpool.

Recently significant improvements have been seen in water, land and air quality due to tighter regulation of industrial sites and environmental awareness. An ongoing programme of remediation of contaminated land with the Coal Authority and Local Authorities has helped to reclaim land for people and wildlife. Improvements to water quality mean that salmon and sea trout now return to the Mersey. The coarse fisheries are also improving as water quality improves, but there is still much to do.

Many of the rivers in the catchment have been modified through channelisation, culverting and flood protection schemes; these modifications may pose barriers to fish migration and impact on the overall condition of the watercourse.

Home to Liverpool and several other key towns and cities, the catchment is set to see significant new housing, economic growth and regeneration activities over the coming years. By working with planners and developers the Environment Agency hope to identify opportunities to improve the water environment. Large projects, such as the Atlantic Gateway and Mersey Waterfront, enable a new approach that can help to reverse errors of the past.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve our water bodies through:

- Supporting and funding River Mersey Fry refuge project for creating suitable juvenile habitat in downstream reaches of modified rivers.
- Carrying out research or targeting local investigations to find the origins, cause and solutions to pollution where there is the most risk, for example industrial estates.
- Investigating contaminated land issues and possible remediation at Hoole Bank, Gatewarth Landfill, Spittle brook, Pilkington Sullivan developments, and Johnson's Lane.
- Implementing practical measures to tackle oil pollution in ports, harbours and docks by applying Code of Practice on Oil storage, legislation and pollution prevention campaigns; to improve water quality and reduce sedimentation.
- United Utilities improving their assets at Widnes and Warrington WwTWs. As a result of the 2007 inland sensitive areas (eutrophic) designations, improvements will be made to Leigh, Glazebury, Westhoughton, Worsley and Tyldesley WwTW. There will be improvement schemes put in place at Sandon Dock (Liverpool) WwTW.
- Carrying out elver and eel pass improvements in tributaries of the Lower Mersey, to encourage eel migration currently obstructed by man-made barriers.

These, and the actions in Annex C, will lead to four per cent of rivers and lakes improving to good biological status. Overall, 135 km of rivers (canals and surface water transfers) in the catchment will improve by at least one element by 2015. The number of rivers at bad or poor status will also reduce from 12 to 10.

Weaver Gowy



The Weaver Gowy catchment is characterised by low-lying rolling countryside and beautiful plains however, parts are heavily industrialised. The River Weaver flows through dairy farmed areas of Cheshire, through Nantwich and onto Winsford where it becomes impounded and navigable, joining the Manchester Ship Canal at Runcorn. The Gowy runs to the east of Chester and meets the Mersey Estuary near the oil refinery at Stanlow.

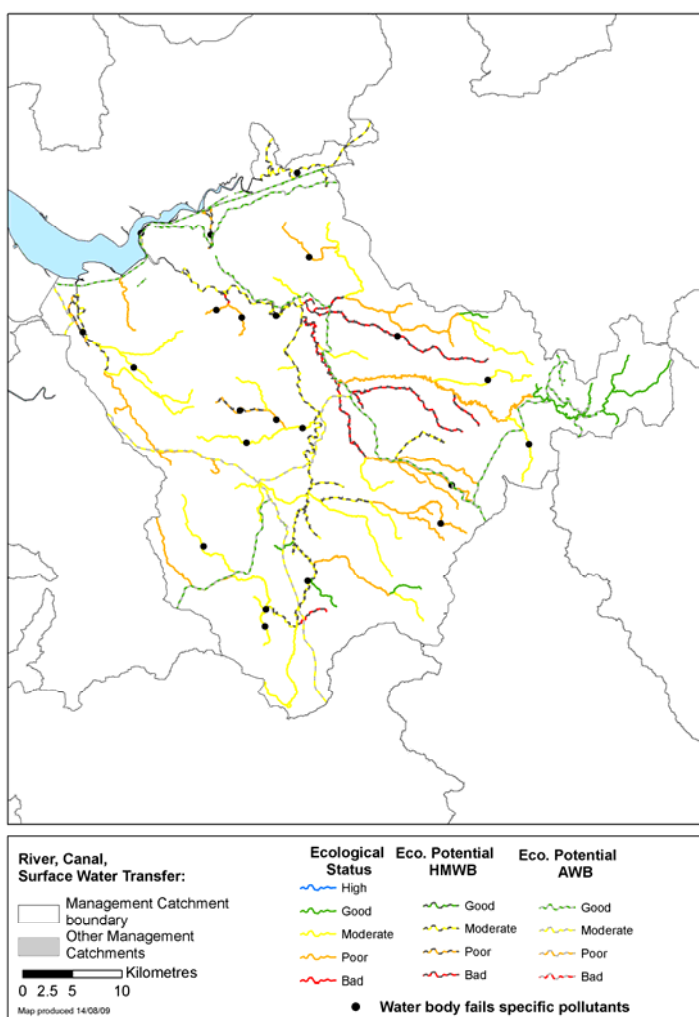


Figure 24 Map showing the current status/potential of waters in the Weaver Gowy catchment

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Table 16 Key statistics for the Weaver Gowy catchment

River and lake water bodies	Now	2015
% at good ecological status or potential	13	16
% assessed at good or high biological status (58 water bodies assessed)	18	28
% assessed at good chemical status (7 water bodies assessed)	43	43
% at good status overall (chemical and ecological)	13	16
% improving for one or more element in rivers		41

The area has many Sites of Biological Importance and Sites of Special Scientific Interest. The Cheshire Meres and Mosses form part of the internationally important West Midlands Meres and Mosses, which include sites designated as SSSI, SAC and Ramsar sites. Otters are becoming established and the Lesser Silver Water Beetle, a nationally important, and protected species, is found in several parts of this catchment. The native White Clawed Crayfish is found in several watercourses in the catchment. The catchment is popular with anglers as the Rivers Gowy and Weaver both support good coarse fish populations; this catchment also supports our largest eel populations.

Rural land use and agriculture is a major feature of the Weaver Gowy catchment and agricultural and septic tank pollution are common problems. Industry is concentrated around the lower catchment near Runcorn, which is an area particularly known for its chemical industry, and Ellesmere Port. The catchment is also known for its salt mines which supply salt for industrial use and for road gritting. In parts, the aquatic ecology suffers from current and past industrial discharges compounded by river modifications including weirs and locks that act as barriers to fish migration.

The towns of Runcorn, parts of Warrington and Crewe will all see housing growth by 2021, this is likely to increase the pressure on the water environment. Ellesmere Port and Runcorn have also been identified as towns suitable for growth and development.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve water bodies through:

- Investigating pollutants and industrial inputs to the watercourses in Weaver catchment.
- Adopting best practice farming to reduce pollution from fertilisers in Wade Brook.
- Promoting eel recovery through the Regional Eel Management Plan actions (such as installing eel passes on weirs).
- Monitoring the movement of mercury contaminated sediments within the Trent and Mersey Canal.
- Delivering a long-term nutrient study in the Cheshire Meres to identify and address inputs.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities improving their assets at Northwich WwTW to meet the requirements of the Freshwater Fish Directive and contribute to achieving favourable condition at Over Water SSSI and Betley Mere SSSI.

These, and the actions in Annex C, will lead to four per cent of rivers and lakes improving to good or better ecological status or potential and 10 per cent of rivers and lakes improving to good biological status. Overall, 362 km of rivers (canals and surface water treatments) in the catchment will improve by at least one element by 2015. The number of rivers at bad or poor status will also reduce from 26 to 20.

Estuaries and Coasts



During winter migration, the sand and mud flats of Morecambe Bay and the Ribble and Mersey estuaries provide a vital breeding ground for thousands of wildfowl and waders. This, along with the breeding sea bird colony at St Bees Head and the Royal Society for the Protection of Birds Marshside Nature reserve, make the region's coasts and estuaries internationally important for many bird species.

Table 17 Key statistics for the estuaries and coast in the North West River Basin District	Estuaries		Coastal	
	Now	2015	Now	2015
% at good ecological status or potential	8	8	38	38
% assessed at good or high biological status (10 water bodies assessed)	33	33	0	0
% assessed at good chemical status (9 water bodies assessed)	80	80	75	75
% at good status overall (chemical and ecological)	8	8	38	38
% improving for one or more element		0		0

In 2007, the ports in the North West region handled 47 million tonnes of freight, making a significant contribution to the economy. Liverpool and the Manchester Ship Canal are the region's largest ports for bulk cargo, where as Fleetwood and Heysham are largely ferry ports for the Irish Sea market.

The coast and estuaries also support many communities. The beauty of the coast, the UNESCO World Heritage Site on the Liverpool Waterfront and traditional seaside resorts such as Blackpool and Southport, attract many tourists to the area. Commercial fishing, shipping and supporting industries remain important to the region. The needs of the communities these industries support needs to be balanced with those of the environment.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve coasts and estuaries through:

- Assess the environmental impact of navigational dredging in estuaries and coastal waters.
- Investigate practical measures to tackle oil pollution in docklands.
- Support the North West Flood and Coastal Erosion Risk Management group in their role to oversee the development of North West Shoreline Management Plans and future projects that may arise.
- Restore, re-create & re-connect coastal grazing marsh for example Hesketh Out Marsh West.
- Work with local action groups in beach combing and awareness raising about marine litter.
- Actively influence tidal energy proposals on the Mersey, Ribble and Solway estuaries.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities improving their assets at, Blackburn, Walton le Dale, Garstang WwTWs, Maryport and Morecambe Road combined stormwater overflows and Cart

Lane Pumping Station. This will improve discharges into Bathing Waters and Shellfish Waters.

Lakes, Meres and Reservoirs



The North West River Basin District is home to some of the most stunning landscapes and still water environments in the world. The network of lakes, meres and reservoirs provide drinking water to the populations of many urban areas of the North West. The southern “Cheshire Meres”, Pennines and the iconic Lake District lakes provide an ideal environment and habitat for many nationally and internationally rare species, with designations such as SSSIs, National Nature Reserves, SACs, SPAs, and Ramsar Sites.

Table 18 Key statistics for lakes, meres and reservoirs in the North West River Basin District

Lakes and Reservoirs	Now	2015
% at good ecological status and potential	28	30
% assessed at good or high biological status (37 water bodies assessed)	43	43
% assessed at good chemical status (0 water bodies assessed)	0	0
% at good status overall (chemical and ecological)	28	29

The River Basin Management Plan provides, for the first time, a set of standards and targets to steer lake, mere and reservoir protection into the future. Working with recognised institutes such as the Fresh Water Biological Association, the Centre for Ecology and Hydrology and other partners, we all can combine our information, to give us a better understanding of the health of our lakes, meres and reservoirs, and the actions we all need to take to improve them.

Our lakes, meres and reservoirs are important places for recreation and tourism - the Lake District being the second most visited location in the UK after London, with some 28 million visitor days / year. Whilst bringing benefits to the local economy, increasing numbers of visitors places additional pressure on the existing infrastructure, such as private and public sewage treatment facilities. As tourism increases, our lakes and meres are at greater risk from declining environment quality. A wide range of partners need to work together to actively manage the lakes, meres, reservoirs and associated infrastructure, to ensure development is sustainable both now, and into the future.

Intensification of agriculture in many of the mere and reservoir catchments in the North West has also contributed to changes in the quality of our lakes. England Catchment Sensitive Farming Delivery Initiatives at Cheshire Meres and Mosses, Windermere and Bassenthwaite are important steps towards tackling diffuse pollution from farms. The vulnerability of lakes to various land management pressures requires a whole catchment approach for preventative action. This has led to the development of a range of catchment partnerships, which have a ‘responsibility’ for maintaining the health of our lakes, meres and reservoirs. The approach is also being facilitated through the international networks of the Living Lakes Group. Working in partnerships also develops a sense of ownership by the community, living, working and visiting the region.

Over the last two decades we have taken many actions to reverse the declining trend in our lakes, meres and reservoirs (for example many of United Utilities sewage treatment works now have nutrient removal) although much more needs to be done as illustrated in Table 18. Future strategies and actions will not only need to address existing issues but also take account of the potential impacts of climate change if deterioration is to be avoided.

In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve lakes, meres and reservoirs through:

- Implementing the actions of the five-year programme for the Bassenthwaite Lake Restoration programme and Windermere Catchment Restoration Programme.
- England Catchment Sensitive Farming Delivery Initiative programmes in the Cheshire meres, Bassenthwaite and Windermere catchments.
- Supporting the ongoing work of the Lake District Still Water Partnership.
- Joining our data with other key partners who monitor the lakes and reservoirs to improve our ability to classify them.
- Investigations to understand what mitigation measures are required on reservoirs designated as artificial or heavily modified water bodies.
- The Environment Agency will be investigating, with partners, waters that are at less than good status.
- United Utilities running a feasibility study to identify the options to reduce the phosphate load to Lake Windermere from its discharges. Another feasibility study will present options to remove enriched sediments in Elterwater.
- United Utilities running a phosphate reduction scheme at Coniston WwTW.
- Working in partnership with Natural England and the Lake District National Park Authority, to address the impacts from Esthwaite Fish farm will improve water quality in Esthwaite Water and Windermere, which will encourage fish migration to upper tributaries.

These, and the actions in Annex C, will lead to improvements. Audenshaw Reservoirs in the Upper Mersey Catchment are predicted to improve from moderate to good status by 2015.

Still waters present a significant challenge to the North West River Basin District, currently, there is limited knowledge about the pressures that affect many of our lakes, meres and reservoirs, or how the biology responds to these pressures. The tools we use to monitor the biology of these systems and the data used to classify them, have only recently been developed. Over the first river basin planning cycle, we will work with a wide range of partners to identify cost effective and proportionate actions that will deliver environmental improvements to our lakes, meres and reservoirs.

Groundwater Bodies



Groundwater is an important resource in the North West river basin district. Although the principal aquifers are sandstones, which are important as a source of water for public water supply, all the other groundwater bodies are also locally important for industrial, agricultural and private water supplies.

Table 19 Key statistics for groundwater in the North West River Basin District

Groundwater	Now	2015
% at good quantitative status	61	61
% assessed at good chemical status (18 water bodies assessed)	44	50
% at good status overall	22	28

Groundwater and surface waters are often linked. Abstracting more groundwater than is naturally replaced can lower groundwater levels and have an impact on rivers, lakes and wetlands, as well impacting on the amount available for use. This unsustainable abstraction can also lead to intrusion of saltwater from the sea or from deeper aquifers, which can cause the groundwater quality to deteriorate.

Pollution in groundwater can persist for many years and therefore actions to prevent pollution are particularly important. The groundwater in the North West is at risk from a range of pressures as a result of industrial and agricultural activities as well as former mine workings in the river basin district.

As groundwater is difficult and slow to improve, the River Basin Management Plans reflect this by setting objectives for their improvement to a later date than 2015 or to less than good. Less stringent objectives have been set for three of the groundwaters in the North West: Wirral & West Cheshire, Manchester & East Cheshire and Lower Mersey Basin & North Merseyside. All of these suffer from saline intrusion and two are polluted from historic industrial discharges. Actions within this, and subsequent, River Basin Management Plans will involve working with abstractors and other co-deliverers to ensure that there is 'no deterioration' from the current condition of these aquifers - they are however unlikely to improve to good status by 2027.

Groundwater quality must be protected, and improved, and abstraction should be balanced with the needs of the environment. In implementing the River Basin Management Plan, the Environment Agency will work with partners to improve groundwater bodies through:

- Monitor and investigate mining related issues in aquifers.
- Investigate sources of ammonia in the Lune, Wyre and Ribble aquifers.
- Investigate Wybunbury Moss to assess if it has been significantly damaged because of groundwater pollution.
- Manage the abstraction of groundwater for industrial and commercial use through Catchment Abstraction Management System (CAMS).
- Work with the Coal Authority on various schemes to pump and treat minewater discharges.
- Use environmental permitting and pollution prevention campaigns to control discharges of hazardous substances into groundwater.
- The Environment Agency investigating, with partners, waters that are at less than good status.
- The Environment Agency continuing to monitor and investigate the increasing trends in nitrate and phosphate in the South Cumbria Aquifers.
- Minimising and managing risks from saline intrusion of the Wirral And West Cheshire, Manchester And East Cheshire and Lower Mersey Basin And North Merseyside Aquifers, we will apply abstraction licensing controls.

9 Next steps – implementing this plan

Diffuse pollution investigation and action

In developing the River Basin Management Plans approximately 8,500 investigations have been identified for England and Wales, including further monitoring. The vast majority of these will be undertaken by the Environment Agency and all of these will be completed by the end of 2012. The investigations will focus on resolving what is causing the problem and what the best method to tackle it is. As a result of the evidence they will provide, we will be able to take further action in the first cycle where practicable.

The remainder of the investigations – including over 100 water company catchment management investigations – will be carried out by co-deliverers across England and Wales during the course of the first delivery cycle. Working with the river basin district liaison panels, the Environment Agency will welcome the input of local data and knowledge from other parties to help drive action at catchment level.

We are confident the investigation programme will lead to actions enabling a further reduction in diffuse pollution and more environmental improvement before 2015. As we have said earlier, the Environment Agency is already committed to delivering, through its own work or through working with others, an additional two per cent improvement towards good status or potential by 2015 across England and Wales

Additional national measures

In addition to commitments already provided, the UK Government and Welsh Assembly Government will continue to demonstrate their commitment and bring forward significant work starting with;

- banning phosphates in household laundry detergents;
- a new requirement contained within the Flood and Water Management Bill making the right to connect to surface water sewers contingent on Sustainable Drainage Systems (SuDS) being included in new developments. Local authorities will be responsible for adopting and maintaining SuDS that serve multiple properties and the highways authorities will maintain them in all adopted roads;
- general binding rules to tackle diffuse water pollution by targeting abuse of drainage systems, potentially including industrial estates, car washes and construction by 2012;
- transferring the responsibility for misconnections to water companies by 2012;
- the Water Protection Zones Statutory Instrument which will enter into force on 22 December 2009 and will be used to tackle diffuse pollution where voluntary measures are not sufficient;
- more funding for the Catchment Sensitive Farming Delivery Initiative in England from 2010 – a 50% increase in capital grant spend, and evaluation of the initiative to ensure it is achieving maximum effectiveness;
- better targeting of agri-environment schemes for water protection. In Wales, this includes aligning the forthcoming “Glastir” agri-environment scheme to contribute towards meeting Water Framework Directive requirements;
- supporting the farming industry in the Campaign for the Farmed Environment, which has reducing impacts on water quality as one of its priorities;
- encouraging farmers to use buffer strips to reduce diffuse pollution through guidance and advice provided under cross compliance;
- better understanding of the impact of sediment and measures to tackle it as a result of the additional funding announced in June 2009;
- further consideration of the impact of cross compliance and good agricultural and environmental conditions (GAEC) on water quality;

- implementation of the Sustainable Use of Pesticides Directive;
- Environmental Permitting Regulations guidance setting essential standards of location, operation and maintenance for septic tanks.

These and the other actions in the plans will lead towards a greater achievement of good status and improvement within class, with more than a quarter of the length of all rivers improving.

Implementing the plans at catchment level

The Environment Agency has found river basin liaison panels extremely valuable, and will continue to work with them throughout the plan delivery period. The panels will help to encourage river basin district-wide action through their sectors, monitor overall progress and prepare for the second cycle of River Basin Management Planning.

Given that implementation requires activity 'on the ground', it is essential that there is the maximum involvement and action from locally based organisations and people. Innovative ways of working together need to be identified that will deliver more for the environment than has been captured in this plan.

The Environment Agency will adopt a catchment-based approach to implementation that is efficient and cost-effective. This will support the liaison panels, complement existing networks and relationships, and enable better dialogue and more joined up approaches to action.

In some places there will be added value from adopting more detailed catchment plans to help deliver the River Basin Management Plan objectives during the planning cycles. The River Kennet is a case in point where we have set up a pilot group with a range of stakeholders. We will share the knowledge gained with the liaison panels, to help identify other catchments that could benefit from a similar approach.

Working with co-deliverers

This plan sets out in detail the actions required to improve the water environment. All organisations involved must play their part, record their progress and make the information available.

Where the work of a public body affects a river basin district, that body has a general duty to have regard to the River Basin Management Plan. Ministerial guidance states that the Environment Agency should:

- work with other public bodies to develop good links between river basin management planning and other relevant plans and strategies, especially those plans that have a statutory basis such as the Local Development Plans and Wales Spatial Plan;
- encourage public bodies to include Water Framework Directive considerations in their plans, policies, guidance, appraisal systems and casework decisions.

For some, the actions in this plan may be voluntary and for others they will be required under existing legislation. We want to work with you to make these actions happen, and identify new action to create a better place.

Reporting on progress

The Environment Agency will use its environmental monitoring programme and, where appropriate, information from other monitoring programmes, to review whether work on the ground is achieving the environmental objectives. We will update the classification status of water bodies accordingly and review progress annually. At the end of 2012 a formal interim report will be published. This will:

- describe progress in implementing the actions set out in this plan;

- set out any additional actions established since the publication of this plan;
- assess the progress made towards the achievement of the environmental objectives.

Preparations have already begun for the next cycle period 2015 to 2021 and for the subsequent cycle to 2027. If you have proposals for actions that can be included in these future cycles please contact us.

River basin management milestones

The plan builds on a number of other documents and milestones required by the Water Framework Directive. The work to date has ensured a strong evidence base, and a framework for dialogue with interested organisations and individuals. In terms of taking this plan forwards, it helps to understand the major milestones remaining. These future milestones are summarised in the figure below.

Figure 25 River basin management planning milestones to date and to 2015



10 Summary statistics for the North West River Basin District

Table 20 **Summary statistics for the North West River Basin District**

	Rivers, Canals and SWT's	Lakes and SSSI ditches	Estuaries	Coastal	Surface Waters Combined	Groundwater
% of water bodies with improvement in any status of any element by 2015	26	5	0	0	21	6
% of water bodies at good ecological status/potential or better now						
For groundwater: % of water bodies at good or better quantitative status now	31	28	8	38	30	61
% of natural water bodies at good ecological status or better now	35	23	0	33	34	61
% of artificial and heavily modified water bodies at good ecological potential or better now	25	29	13	40	27	N/A
% of water bodies at good ecological status/potential or better by 2015.						
For groundwater: % of water bodies at good or better quantitative status 2015	35	29	8	38	33	61
% of natural water bodies at good ecological status or better by 2015	44	23	0	33	41	61
% of artificial and heavily modified water bodies at good ecological potential or better by 2015	25	30	13	40	27	N/A
% of water bodies at good chemical status now	69	0	80	75	70	44
% of water bodies at good chemical status 2015	70	0	80	75	71	50
% of water bodies at good biological status or better now	37	43	33	0	37	N/A
% of water bodies at good biological status or better by 2015	45	43	33	0	44	N/A
% of water bodies with alternative objectives (good status 2021 or 2027)	65	71	92	63	67	72
% of water bodies deteriorated under Article 4.7	0.0	0	0	0	0	0
% of all water bodies (surface waters and groundwaters) at good status now	30					
% of all water bodies (surface waters and groundwaters) at good status by 2015	33					

11 Further information – the annexes

- Annex A** **Current state of waters in the North West River Basin District**
What the waters are like now. Information on our network of monitoring stations, the classification status of water bodies and the reference conditions for each of the water body types in the river basin district.
- Annex B** **Water body status objectives for the North West River Basin District**
Information on water body status and objectives
- Annex C** **Actions to deliver objectives**
Details of the actions planned (programmes of measures) for each sector to manage the pressures on the water environment and achieve the objectives of this plan.
- Annex D** **Protected area objectives**
Details of the location of protected areas, the monitoring network, environmental objectives and the actions required to meet Natura 2000 sites and Drinking Water Protected Area objectives.
- Annex E** **Actions appraisal and justifying objectives**
Information about how the Environment Agency has set the water body objectives for this plan and how we selected the actions. It also includes justifications for alternative objectives that have been set.
- Annex F** **Mechanisms for action**
More detail about the mechanisms (i.e. policy, legal, financial tools) that are use to drive actions.
- Annex G** **Pressures and risks**
Information about the significant pressures and risks resulting from human activities on the status of surface water and groundwater.
- Annex H** **Adapting to climate change**
Information on how climate change may affect the pressures on the water environment and the ability to meet the objectives.
- Annex I** **Designating artificial and heavily modified water bodies**
Information about the criteria used to designate waters as artificial or heavily modified water bodies.
- Annex J** **Aligning other key processes to river basin management**
Aligning planning processes to deliver multiple benefits and sustainable outcomes
- Annex K** **Economic analysis of water use**
Information about the costs of water services within the river basin district
- Annex L** **Record of consultation and engagement**
Details of how the Environment Agency has worked with interested parties to develop this plan
- Annex M** **Competent authorities**
List of the competent authorities responsible for river basin management planning.
- Annex N** **Glossary**
Explanation of technical terms and abbreviations.

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