

# water for life and livelihoods

A consultation on the  
Draft River Basin Management Plan  
South West River Basin District



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December 2008

The Environment Agency works with other regulators and co-deliverers to protect the water environment in South West river basin district and improve it for the benefit of people and wildlife. Together with a liaison panel of representatives from these various sectors, the Environment Agency has produced this draft plan. Achieving the outcomes of this plan will involve an even wider range of organisations and individuals - everyone has a part to play. In preparation of the draft plan the liaison panel developed its shared vision.

## The Liaison Panel's shared vision

Water is essential for all life and for our livelihoods. Rivers, estuaries and coastal waters are defining features of the South West, and together we have made tremendous progress in protecting and improving the water environment. However, huge challenges remain. The water environment is under increasing pressure from a changing climate and a growing population. We all need to be prepared for the impacts of climate change in the future and also ensure that further development in the region is carried out more sustainably and within environmental limits.

The Water Framework Directive provides real opportunities to manage the water environment better through river basin management planning and take everyone's interests into account. It helps us all to work in partnership to achieve an environment which everyone can take pride in and can enjoy to the full.

The shared vision is to achieve Good Ecological Status in all water bodies and in the case of artificial or heavily modified waterbodies, Good Ecological Potential by 2015.

The environment is central to the economy and quality of life of the South West, so there is much to gain from river basin management. It challenges further improvement in the quality of all aspects of the water environment, from chemistry and ecology to its physical structure, to achieve:

- cleaner inland, estuarine and coastal waters, free from eutrophication, acidification and other water pollution
- wiser, more sustainable use of water as a natural resource
- a more sustainable approach to new development affecting the water environment
- healthy ecosystems for wildlife living in and around water
- rivers, lakes and coastal waters that are valued features of the urban and rural landscape.

These aims must be met in a sustainable way, using cost-effective and innovative solutions to deal with pollution at source where possible, and making sure that everyone who can contribute plays their part. This means looking to the longer term too, as not everything can be done by 2015. A substantial amount of work will continue beyond 2015.

This draft plan has been written with input from the South West River Basin Liaison Panel representing major stakeholders. It describes how we are all going to meet the challenge of the Water Framework Directive to improve the quality of every aspect of the water environment in the South West. We are consulting you because we want to know if you think we've got it right. We hope you will help by giving us your views.

By 2015, we will work with partners to deliver the following benefits:

- No deterioration in current ecological status in any waterbodies
- Clean water for drinking, bathing, communities and economic uses – *protecting water from pollution, including the impacts from sewage treatment works, farming, the public, industry and transport.*
- Wiser, more sustainable use of water - *establishing an effective demand management system and managing the impact of abstraction on aquatic ecosystems whilst ensuring enough water for public and commercial use*
- Better habitats for wildlife that live in and around water – *Improving rivers, estuaries and shoreline where they have been damaged by navigation, land drainage, abstraction, or industrial legacy, and where possible replacing damaging flood defences with more sustainable systems*
- Protected and improved native aquatic wildlife - *Protecting and improving the condition of wetlands and quality of waters, and protecting aquatic ecosystems from the damage caused by the introduction of non-native invasive species*

## Your views count – how to respond

The proposals in this draft plan may affect you, your business or your environmental interests, and we want to know what you think. **This consultation runs from 22 December 2008 until 22 June 2009.**

**Q** Questions throughout this document are marked by this sign. Turn to the inside back cover to see how to respond.

This document describes the main issues for the South West river basin district and sets out the key actions proposed for dealing with them. The annexes to the document give much more detail on the conditions in the river basin district, the proposed actions and the mechanisms that can be used to take them forward.

You can help in creating an effective and achievable river basin management plan by responding to this consultation, and giving any other suggestions or comments you have on this draft plan.

We will use your comments to help revise the proposals, and will publish a response document on our website by 22 September 2009 to show how we will take your comments into account. Our main questions concern the following:

**Q** This plan sets out objectives for the water environment for the next six years and beyond. To what extent do you agree with what the plan aims to achieve?

**Q** This plan sets out the actions required to meet the objectives. To what extent do you agree that the right actions have been identified (actions that are proportionate and feasible)?

**Q** There are some extra actions that could be put in place if there were more certainty that they would be effective. These are listed under Scenario C and we would like to know if you can help make these actions happen.

**Q** Any other comments you may have on this plan

You will be able to get a good understanding of what is proposed for the river basin district simply by reading this main document. You may also want to look at the more detailed information in the annexes before you send your comments.

This sign indicates where you can find further information.

» The annexes to the plan can be downloaded from our website at [www.environment-agency.gov.uk/wfd](http://www.environment-agency.gov.uk/wfd)

**It would be extremely helpful if you could provide comments as soon as possible within the consultation period.**

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You can look at the information in this annex in another way through the 'What's in your backyard?' feature on our website. This allows you to search by place name or postcode to get the details of an individual water body. Link through [www.environment-agency.gov.uk/wfd](http://www.environment-agency.gov.uk/wfd)

## Supporting annexes

A	Current state of waters in the SW RBD	H	Adapting to climate change
B	Objectives for waters in the SW RBD	I	Designating candidate artificial and heavily modified water bodies
C	Actions to deliver objectives	J	Refining the water bodies
D	Protected area objectives and Natura 2000 actions	K	Economic analysis of water use
E	Actions appraisal	L	Record of consultation and engagement
F	Mechanisms for action	M	Competent authorities
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## Corrections

11/02/09 Correction to Figure 14 Predicted chemical status for groundwater bodies in 2015

# Introduction

## 1.1. Background

- 1.1.1. The Environment Agency works with other regulators and co-deliverers to protect the water environment in the South West river basin district, and improve it for the benefit of people and wildlife. Together we are using an approach called river basin management planning to involve others in this work.
- 1.1.2. The South West Liaison Panel has been central to helping us manage this process. Amongst others, the panel includes representatives of businesses, planning authorities, environmental organisations, navigation authorities, water companies and consumers, fishing and recreation bodies and regional government, all with key roles to play in implementing the plan.
- 1.1.3. This draft river basin management plan has been prepared with the Liaison Panel, whose members support its publication for consultation. It sets out detailed proposals for the next 6 years and looks beyond.
- 1.1.4. We want to know what you think, so we can improve the proposals, and compile an effective river basin management plan for the river basin district, which will be published in December 2009. It will review the current condition of the water environment, set out what improvements are necessary, and the actions that we all need to take. In this latest consultation we are now seeking your views on the proposed action plan
- 1.1.5. We have previously produced a report on the risks of human activities on the water environment and have consulted on how we should work together with others. We have also consulted on what are the most significant issues that need to be dealt with in the river basin district.

» [A record of consultation and participation that has helped to develop this plan and the river basin management planning process, and a description of the South West District Liaison Panel is given in annex L](#)

## 1.2. River basin management

- 1.2.1. The water environment is a precious and vital resource that must be protected. The draft river basin management plan focuses on achieving the protection, improvement and sustainable use of the water environment - surface freshwaters (including lakes, streams and rivers), groundwater, some wetlands that depend on groundwater, estuaries and coastal waters out to one nautical mile beyond baseline. The draft river basin management plan has been prepared under the Water Framework Directive, which requires all countries throughout the European Union to manage the water environment to consistently high standards.
- 1.2.2. All countries in the European Union have to:
  - prevent deterioration in the classification status of aquatic ecosystems, protect them and improve the ecological condition of waters;
  - aim to achieve at least good status for all waters by 2015; Where this is not possible, good status should be achieved by 2021 or 2027<sup>1</sup>;
  - promote sustainable use of water as a natural resource;

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<sup>1</sup> Annex B explains the objective setting process. Annex E contains the appraisal of measures including justifications for extended deadlines

- conserve habitats and species that depend directly on water;
- progressively reduce or phase out releases of certain pollutants that present a significant threat to the aquatic environment
- progressively reduce the pollution of groundwater;
- contribute to mitigating the effects of floods and droughts.

1.2.3. It is very important to recognise that a wide range of organisations need to be involved in achieving these objectives. As well as regulatory approaches and voluntary initiatives, organisations and people will need to work together to protect and improve the water environment. Everyone has a part to play.

1.2.4. The river basin management plan will be reviewed and revised every six years.

» Further information on the Water Framework Directive can be found on the European Union website [http://ec.europa.eu/environment/water/water-framework/index\\_en.html](http://ec.europa.eu/environment/water/water-framework/index_en.html).

» Further information on river basin management planning can be found on our website [www.environment-agency.gov.uk/wfd](http://www.environment-agency.gov.uk/wfd)

» Government Ministerial guidance on river basin management planning can be found at <http://www.defra.gov.uk/environment/water/wfd/management.htm>

1.2.5. To prepare this plan, the water environment was divided into units called 'water bodies'. They include rivers, lakes, estuaries, coastal waters and groundwaters. Some water bodies have been identified as candidates for designation as artificial or heavily modified if they have been substantially modified or created for water supply, urban purposes, flood protection or navigation. This is important because it recognises their uses, whilst making sure that ecology is protected as far as possible.

1.2.6. The Water Framework Directive sets a target of aiming to achieve at least 'good status' in all waters by 2015. For surface waters, good status looks at ecology and chemistry. Ecological status is classified as high, good, moderate, poor or bad; and chemical status as pass or fail. For groundwater, status is based on quantity and chemical quality, which together provide a single final classification: good or poor status.

1.2.7. Good ecological status is defined as a slight variation from undisturbed natural conditions, but by definition artificial and heavily modified waters are not able to achieve this. Instead the target for these waters is good ecological potential, which recognises their important uses and at the same time ensures that the ecology is protected as far as possible. Good ecological potential is also measured on the scale high, good, moderate, poor and bad. The chemical status of these water bodies is measured in the same way as natural water bodies.

1.2.8. Protected areas have been established under European legislation, for instance Bathing Waters and Natura 2000 sites, which are important nature conservation areas protected under the Habitats and Birds Directive. For many years action has been taken progressively to make sure the objectives set for them are achieved, but there is more to do. Achieving protected area objectives is also a key part of the Water Framework Directive and one of the priorities for this first cycle of river basin management. Many of the actions in this plan are directed towards these objectives and most also help in aiming to achieve the good status or good potential objective.

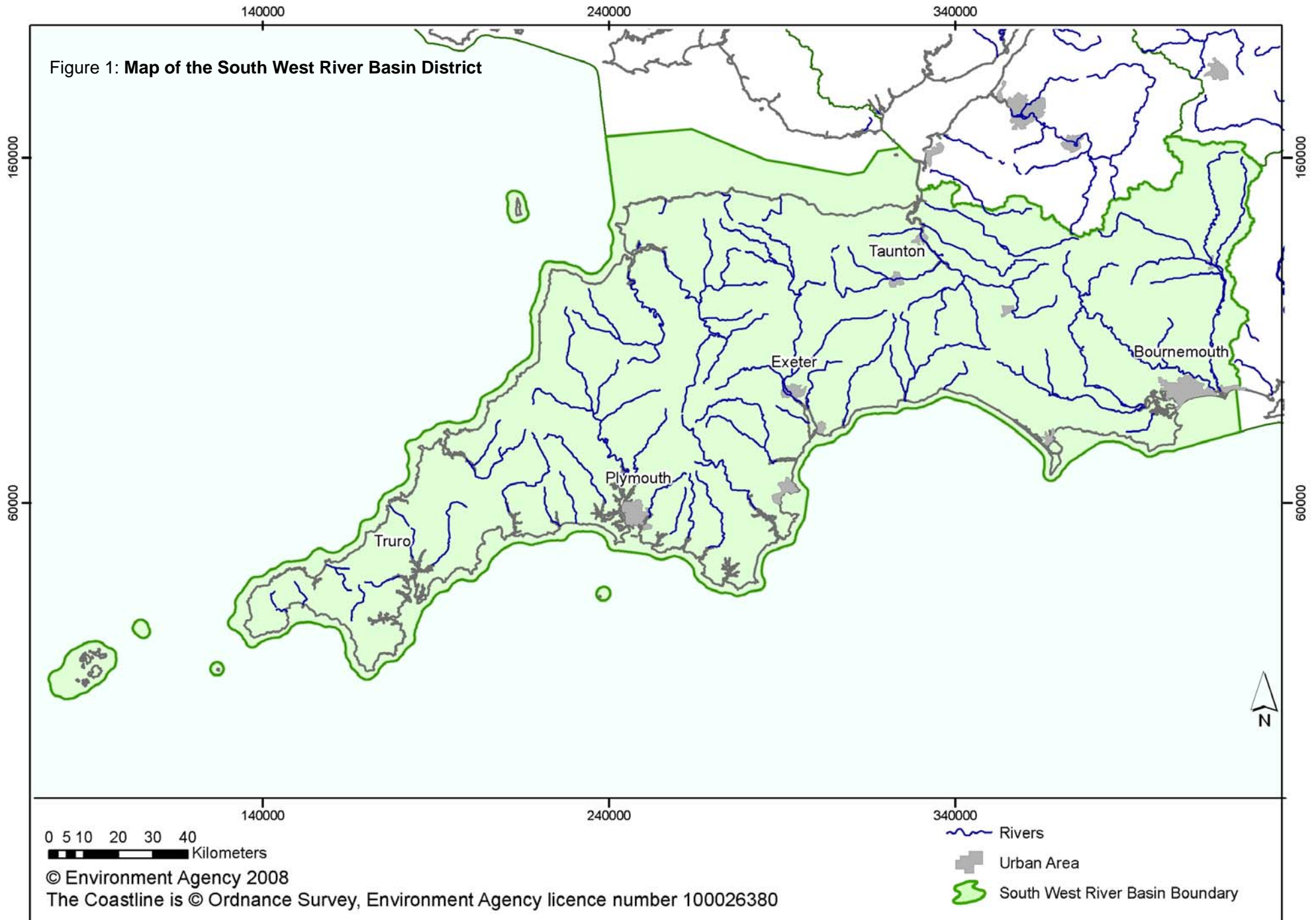
## 2. About the South West River Basin District

### 2.1. Background

- 2.1.1. The South West river basin district covers over 21,000km<sup>2</sup>. It includes the counties of Cornwall, Devon, Dorset and parts of Somerset, Hampshire and Wiltshire. The district is predominantly rural, but also includes the urban areas of Exeter, Plymouth, Torquay, Bournemouth and Poole. The Isles of Scilly and Lundy, an island off the North Devon coast, are also included.
- 2.1.2. The outstanding natural environment is recognised as one of the South West's greatest assets. The district has two National Parks (Exmoor and Dartmoor) and twelve Areas of Outstanding Natural Beauty wholly within the district; one-fifth of England's Sites of Special Scientific Interest, and England's only Marine Nature Reserve around the island of Lundy. Lundy has an established no-take zone, where all fishing activity is banned. The district also supports forty three Special Areas of Conservation and twelve Special Protection Areas protected under the Habitats Directive, including Dartmoor, several estuaries and the Hampshire Avon. These natural landscapes and their outstanding wildlife attract millions of visitors to the district each year.
- 2.1.3. The district has approximately a thousand kilometres of coastline, representing some sixty per cent of the UK's Heritage Coast, and almost half the UK's designated bathing waters. The Jurassic Coast, in Devon and Dorset, is the only natural world heritage site in England. The district supports nearly half of England's commercial fishing operations and a half of all shellfish waters in England and Wales.
- 2.1.4. Just over 3 million people live in the South West river basin district making it one of the least populated of all of the river basin districts. It does however contain significant urban areas such as Plymouth (population 250,000) and Poole and Bournemouth (population 330,000). A higher proportion of the population lives in rural areas when compared to other parts of the country. The economy is dominated by the service sector and the popularity of the district as a holiday destination makes tourism a significant sector. The huge seasonal fluctuations in population that result bring challenges for managing water resources, especially in coastal areas. Public administration and defence is the largest economic sector in the South West, followed by construction, wholesale and distribution, retailing and health. Although agriculture is relatively less important to the overall economy, it is the most important sector in many rural areas and is also a major influence on the water environment.
- 2.1.5. There are significant variations in household income across the district and some pockets of real deprivation. In the west of the district, water and sewerage charges are significantly higher as a proportion of disposable income than in the rest of the country. This is due to a combination of higher bills and lower than average income in these areas.
- 2.1.6. The population in the South West is growing with the fastest population growth being seen in predominantly rural areas in the last two decades. North Dorset, Torridge, Restormel, West Wiltshire and Exeter were among the fastest growing ten percent of local authority areas in England between 1994 and 2004. By 2028 the South West's population will have grown by sixteen percent, the second highest increase of the English regions.

- 2.1.7. The draft South West Regional Spatial Strategy published by the South West Regional Assembly provides for nearly thirty thousand new homes per year, approximately three quarters of these falling in the South West river basin district. The strategy targets growth at larger settlements and discourages growth in rural areas with poor services and transport. Significant urban extensions are proposed at Plymouth, Taunton, Exeter, Torbay, Truro and Bournemouth. With the exception of Plymouth, these places are recognised nationally as 'Growth Points'. One Ecotown is proposed in the river basin district near to St Austell in Cornwall.

Figure 1: Map of the South West River Basin District



### **3. The environmental outcomes for the South West river basin district**

#### **3.1. Background**

- 3.1.1. The South West river basin district supports a wide range of industries and other human activities. The potential environmental impacts of many of these have already been successfully managed. However, there is more to achieve. The plan sets out an ambitious but realistic set of objectives and actions - statutory obligations will be enforced and the voluntary actions which form a significant part of the plan will be completed where the identified partner remains able and committed to carrying them through.
- 3.1.2. The environmental outcomes of the planned actions are grouped under the headings below.
- improving rural land management and agricultural pollution control
  - reducing the impact of transport and built environments
  - securing sustainable amounts of water
  - improving wildlife habitats
  - addressing point sources of pollution
- 3.1.3. More detail on the environmental outcomes under each of these headings is provided on pages 12 to 16.
- 3.1.4. Preventing deterioration in the current quality of the water environment is one of the key objectives of the Water Framework Directive, and the challenges in achieving it should not be underestimated. Delivering more sustainable water management requires a balance to be struck between the needs of society and the environment. We think that the measures outlined in this plan achieve this balance. They will prevent deterioration, and by 2015 will deliver a wide range of additional improvements across the river basin district and in particular in protected areas.
- 3.1.5. Working together with partners, Phosphate will reduce in almost 1200km of river, fish populations will improve in almost 750km of river. There will also be improvements in other indicators of ecological health, for instance improvements in almost 700km of river will be reflected in their diatom populations, and around 100km will see improved invertebrate communities and reduced levels of ammonia. Significant reductions in the amount of water taken from some of the most important rivers and ground waters will also be made.
- 3.1.6. The extent to which the good status objective will be achieved by 2015 is limited because:
- all elements of a water body's ecology and chemistry have to be at good status before it reaches good status overall;
  - more research is needed in many areas, for instance in relation to nutrients, to establish how, or how best, to reach good status;
  - there are situations where it is not clear what is causing the problems found or how to improve things; in these situations investigations will ensure the effectiveness of future actions and achievement of objectives in successive cycles;
  - there are situations where the water environment takes a long time to benefit from improvements (for example groundwater), or the most cost effective way to make improvements is to spread them over a longer timescale.

- 3.1.7. It is important to recognise that although not all of the improvements that are being delivered will result in the achievement of good status because of the way waterbodies are classified under the Water Framework Directive, they do represent a significant step towards this target and one which sets the stage for further delivery in the future. All improvements made help towards the target of protecting and improving the water environment for the benefit of plants, wildlife and for people.
- 3.1.8. It is expected that by 2015 the implementation of the measures planned will allow achievement of good status in nearly a quarter of all surface water bodies. Just under thirty per cent of surface water bodies have yet to be assessed.
- 3.1.9. The direct and indirect effects of abstractions in thirty three groundwater bodies, representing nearly fourteen thousand square kilometres of aquifer outcrop and one hundred square kilometres of associated wetlands, will be addressed by the actions in the plan, delivering “good quantitative status” by 2015.
- 3.1.10. In addition to these improvements, we need to work in partnership to investigate and identify the solutions to the issues– these investigations are an important part of the work between now and 2015 and will help achieve more environmental outcomes in successive cycles of river basin management planning.

## **3.2. Improving rural land management and agricultural pollution control**

3.2.1. Changes in the way rural land is used and managed will encourage the restoration of natural habitats, species and natural sediment transport processes. This will ensure that the water environment, including sources of drinking water and sources of groundwater are protected. By preventing and reducing nutrient enrichment of surface waters, ecological damage from the resulting excessive growth of algae and other plants will be avoided. Reducing and where possible preventing the transport of toxic pollutants such as pesticides in runoff from the land, will prevent impacts on the quality and ecology of waters. Reducing sediment loss will deliver widespread ecological benefits, for instance by protecting fish spawning grounds and encouraging healthy and more sustainable fish stocks.

3.2.2. The main causes of the problem have been associated with:

- poor soil structure leading to increased run-off from agricultural land;
- inappropriate management of manure and slurry on farms;
- use of too much fertiliser, pesticides or sewage sludge, or using them in areas sensitive to groundwater pollution;
- accidental spillage of fertilisers, pesticides and liquid wastes with high organic content.

3.2.3. The main responsibility for implementing measures that will improve rural land management falls on the agricultural sector. In many cases this will require significant changes and some times restrictions to farming practices – the measures in this plan include a mix of economic instruments, education and enforcement. For example, extending Nitrate Vulnerable Zones and their action programmes, revising the Code of Good Agricultural Practice, creating new Water Protection Zones and developing partnerships offering land management advice.

### **3.2.4. What this means for the South West river basin district**

The benefits of the actions planned include:

- continued improvements to water quality by reducing diffuse agricultural pollution through the Catchment Sensitive Farming programme and the newly formed Strategic Partnerships. Among the river catchments targeted are the Hampshire Avon, Axe, Exe, Tamar, Tavy, Taw and Torridge. Catchment Sensitive Farming aims to deliver a fifteen per cent reduction in water pollution in the areas targeted helping to achieve good ecological status or potential in water bodies;
- less soil erosion as a result of improved land management and ongoing soil survey work to improve understanding of the extent of soil degradation. Of over 2000 soil surveys carried out in the South West by the Environment Agency to date, we have found that forty per cent of agricultural soils are severely or highly degraded, with this figure rising to almost seventy per cent on the most vulnerable sandy soils;
- better bathing water quality as a result of advisory campaigns aiming to improve agricultural land management;
- benefits for land managers from agri-environment scheme funding, targeted at resource protection in those waters at risk from diffuse pollution.

### **3.3. Reducing the impact of transport and built environments**

- 3.3.1. Spatial planning and design for urban development and infrastructure should contribute to reducing surface water runoff and help protect and restore water habitats, drinking water supplies and bathing areas. It can also help reduce and in some cases prevent run-off of toxic pollutants that harm the water environment. The way in which urban areas are used, managed and developed should contribute to the protection and restoration of habitats, species and more natural water management systems.
- 3.3.2. The main causes of urban and transport related problems have been linked to:
- flood defences – for example with artificial river embankments;
  - housing growth, leading to pressures on water quality and water resources;
  - overloaded surface water drainage systems causing overflows from sewerage systems and private sewage treatment works;
  - using fertilisers and biocides in parks and gardens;
  - navigational dredging and river maintenance work which can release contaminants from stirred up sediment;
  - run-off from roads, contaminated land, driveways, car parks and car washing.
- 3.3.3. A number of sectors are responsible for taking action that will contribute to lowering the impact of transport and the built environment including urban and transport, the water industry and the construction industry. Local government, particularly planning authorities should take a significant lead. However, for many of the measures to be successfully implemented there will need to be a change in public attitudes and behaviours in order to help drive improvements in the urban environment.
- 3.3.4. Examples of the actions that are being proposed in this plan include changes in planning permissions and more pro-active implementation of sustainable drainage systems. In many cases these are actions that will deliver benefits across the country or river basin district, for example the proposed ban on phosphorus in detergents or the promotion of sustainable drainage, but in some cases they are specific to catchments or sub-catchments.
- 3.3.5. What this means for the South West river basin district**
- The benefits of the actions planned include:
- sustainable drainage systems will become a feature in new developments to reduce the impact from urban and highway run-off;
  - dredging will be carried out in a way that is compatible with achieving good ecological potential in estuaries and coasts;
  - bathing waters and other protected areas will be improved by addressing urban discharges to beaches and coastal waters, making these places more pleasant for swimming and other water uses;
  - new development will not contribute to a deterioration in the quality of the water environment, and will take opportunities to improve ecology;
  - We expect spatial planning to take river basin management plans into account through Sustainability Appraisals such as Strategic Environmental Assessment. These appraisals should take into account evidence from the studies that river basin management plans indicate are needed. The draft South West Regional Spatial Strategy includes policies that address the potential impacts of proposed levels of development on water resources, water quality, biodiversity, coastal management, green infrastructure, contaminated land and managing surface water and flood risk. Local Development Frameworks need to reflect these policies.

### **3.4. Securing sustainable amounts of water**

- 3.4.1. There should be sufficient water in the environment for wildlife to flourish. Water should also be provided to consumers in a sustainable way through demand management and should be affordable. Water resources are managed to aim to ensure that there is enough water to protect the ecology of rivers, particularly at their most sensitive life stages, for instance adequate river flows are particularly important to migrating fish.
- 3.4.2. The main causes of flow problems have been linked to:
- providing public water supply and associated water transfers;
  - modified channels and structures such as weirs;
  - industrial abstractions;
  - irrigation for agriculture, horticulture and recreational use.
- 3.4.3. The responsibility for taking action to secure sustainable use and availability of water falls on a number of different sectors, including the water industry, agriculture and the public as a whole as water consumers. Planning Authorities will also have a role in terms of guiding new development. Examples of actions proposed in this plan include demand management and changes to abstraction licenses affecting sites protected under the Habitats and Birds Directive.
- 3.4.4. As the provision of public water supply is the main source of demand for water, it is clear that the main player will be the water industry, specifically the water and sewerage providers South West Water and Wessex Water, the water supply companies of Bournemouth and West Hampshire Water and the Cholderton Water Company and also the Environment Agency as the regulator.

#### **3.4.5. What this means for the South West river basin district**

The benefits of the actions planned include:

- no deterioration of the water environment as a result of the significant increases in population that will take place in growth areas;
- investigations into the impact of abstraction by 2015 at identified surface and groundwater bodies, to understand what action is required in the future to safeguard and improve their ecology;
- achieve more sustainable use of water through demand management and improved water efficiency;
- improved protection of the ecology that depends on flows in sites protected under the Habitats and Birds Directive and wetland Sites of Special Scientific Interest (SSSI) through the modification of relevant abstraction licences. This will happen by 2015 for Habitats Directive Sites and by 2021 for SSSIs.

### **3.5. Improving wildlife habitats**

- 3.5.1. Habitats should be of good quality with few artificial barriers and should be connected by wildlife corridors such as hedgerows or river corridors that allow wildlife to move freely. The impact of invasive non-native species such as Japanese Knotweed, Himalayan Balsam, Mink and the American Signal Crayfish must also be managed. These invasive species can dominate large areas and displace or wipe out native wildlife, damaging the ecology of the area they have invaded. Special consideration should be given to protected areas designated under the Habitats and Birds Directives. We want to work with partners to start to remedy the impact of historic physical modifications to rivers, lakes, estuaries and coastal waters.
- 3.5.2. The main causes of loss of wildlife habitats have been linked to:
- land drainage for agricultural improvement, reclamation for agriculture and urban development, historical structures;
  - navigation in transitional and coastal waters, weirs, bank protection, dredging and bank erosion;
  - river engineering, for instance re-sectioning, straightening, realignment, channelisation, substrate manipulation;
  - flood defence;
  - culverting to allow development;
  - a small group of invasive non-native species which are known to cause problems at specific sites
- 3.5.3. The main responsibility for taking action to secure improvement to wildlife habitats impacted by physical modifications will fall to the Environment Agency as the body responsible for flood risk management, and to the navigation sector, conservation groups and riparian owners.
- 3.5.4. Examples of the actions proposed in this plan include habitat creation and restoration programmes and education campaigns, for instance to raise public and industry awareness of the dangers and safeguards needed when stocking fish.

#### **3.5.5. What this means for the South West river basin district**

The benefits of the actions planned include:

- removal of barriers to fish and eels on estuaries and rivers, so that they can move freely.
- creation of improved habitat along coasts, lakes, rivers and estuaries as a result of local improvement, restoration and managed realignment projects. An example is the Mires Project on Exmoor, which re-wetting and restoring valuable peatland wildlife areas by ditch blocking and other water management techniques.
- improved understanding of the relationship between ecology, physical shape and water flow in the environment, in order to target work more effectively in the second river basin management plan.
- a programme of work on non-native species will be established, including clearance work at priority sites, and campaigns to prevent introductions.
- subject to consultation, fishermen and coastal waters will benefit from the protection of bass nurseries and reef habitats through the establishment of marine protected areas and a code of conduct. Coastal waters will be investigated to improve understanding of their ecology.

### **3.6. Addressing point sources of pollution**

- 3.6.1. Pollution arising from an identifiable and localised area, structure or facility, such as a discharge pipe or landfill, is known as point source pollution. There are a number of point sources of organic pollutants, nutrients and other chemicals in the South West river basin district. Although the vast majority of these discharges do not cause any problems, they do represent a potential risk of both direct and indirect pollution impacts, either as a result of toxic effects on wildlife or through less obvious impacts to the environment.
- 3.6.2. To protect and enhance life in all surface waters, further work on reducing pollution from point and diffuse sources is required. Cleaning up these sources of pollution will also mean less water requires expensive treatment to make it suitable to drink. Addressing these point sources of pollution should also protect existing water supplies and the quality of groundwater that feeds in to the rivers and important ecosystems in the river basin district.
- 3.6.3. The main sources of pollution have been identified as:
- effluent from sewerage systems or private sewage treatment works
  - diffuse source pollution (for example from road runoff or agricultural areas) can enter the sewerage system and become localised or 'point source'
  - industrial point sources, for example food or textile processing or aquaculture industries
- 3.6.4. The main responsibility for implementing measures to address localised sources of pollution will fall on the water industry, agriculture and other industry requiring them to make provision for tighter control on discharges. A lot of the actions proposed in this plan are linked to the 2009 Water Companies Price Review.

#### **3.6.5. What this means for the South West river basin district**

The benefits of the actions planned include:

- the Environment Agency, South West Water and Wessex Water will work with others to address sewage discharges at a number of locations. Between 2009 and 2014 this programme of work will:
  - maintain or improve water bodies suffering from organic pollution which directly impacts on the ecology of waters;
  - maintain or improve water bodies suffering from excess phosphorus, which contributes to overgrowth of algae and reduces biodiversity
  - improve the quality of bathing waters and deliver investigations to understand failures around Torbay, the River Parrett, Taw-Torridge estuaries, and the coast near Ilfracombe and Lyme Regis;
  - improve shellfish waters and deliver investigations to understand issues to include the Fal Estuary, Helford Shellfish Waters, Poole Harbour, Teign Estuary and the Yealm.
- a substantial number of new dwellings are planned for the river basin district. We will work with partners to manage the impact of this growth on the water environment

## 4. The water environment now

### 4.1. Pressures on the water environment

- 4.1.1. 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 from industry and social development that have significantly altered and damaged the environment over the last hundred years. By working in partnership with the water industry and others we have dealt with many of the major sources of pollution and water quality has improved dramatically year on year over the last two decades.
- 4.1.2. During 2007, we consulted on the Summary of Significant Water Management Issues consultation document, we set out the view of the Environment Agency and the liaison panel of what, together, we thought were the most important issues now facing the river basin district. Understanding this work will help to prioritise and target resources through the programme of actions proposed in this draft river basin management plan.
- 4.1.3. We have revised the significant issues following your comments and they are now grouped under the following headings:
- diffuse and point source pollution from rural areas
  - diffuse pollution from roads and transport
  - flow problems
  - physical modifications
  - point source pollution
  - biological effects
  - industrial legacy

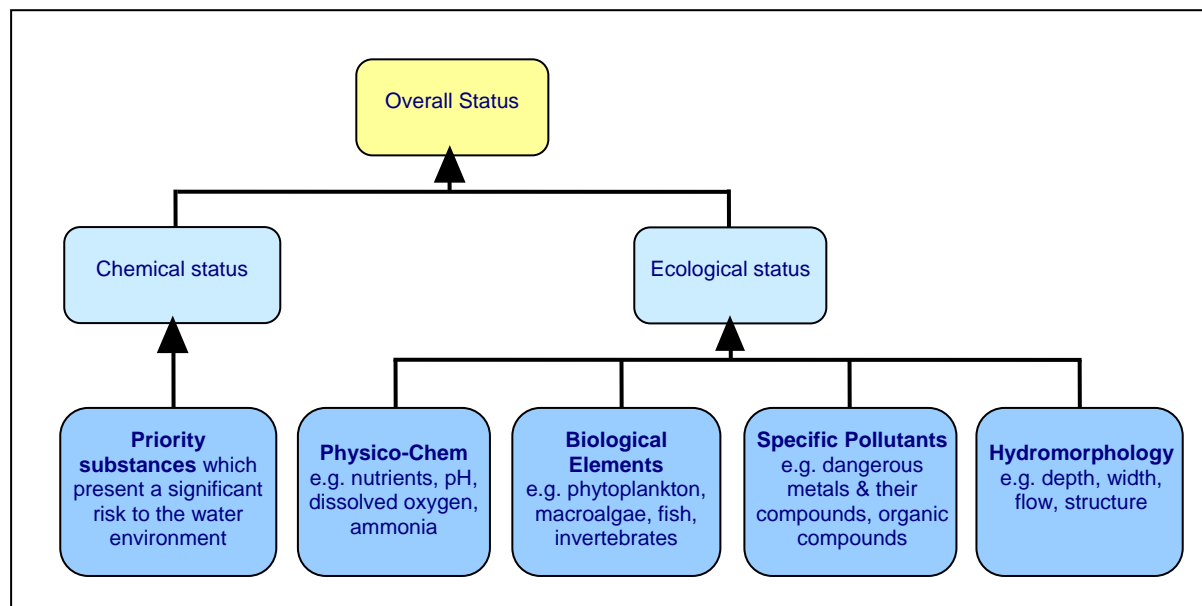
### Q1 Do you agree with the assessment of problems in water bodies? What would you change?

- » [River basin characterisation reports can be found at www.defra.gov.uk/environment/water/wfd/characterisation](http://www.defra.gov.uk/environment/water/wfd/characterisation)
- » [More information about pressures on the environment in the river basin district is given in annex G and H.](#)

### 4.2. The state of the water environment

- 4.2.1. River water quality was previously classified using General Quality Assessment (GQA), and in 2008 water quality improved for the eighteenth consecutive year. Under the Water Framework Directive the quality of the water environment is being assessed using a new methodology. In addition to rivers, these methods are being used to look at lakes, estuaries, coastal waters and groundwater.
- 4.2.2. The Environment Agency's monitoring programme for river basin management concentrates on where there is likely to be a problem. The Water Framework Directive introduces a classification system that is based on a far wider range of assessments than before, which uses a principle of 'one out, all out' - the poorest individual result sets the overall classification.
- 4.2.3. This new monitoring and classification system raises the bar. It provides a more sophisticated assessment of the whole water environment to help us all understand it better, and take action where it is most needed.

Figure 2 **The components of overall status in surface waters**



4.2.4. Each of the components of classification (ecological and chemical for surface waters, and quantitative and chemical for groundwater) in turn comprises several different elements as shown for surface waters in figure 2. For example the ecological elements include fish and invertebrates, and a series of non-biological elements; and the chemical component includes a range of substances that are harmful to human health and the environment. The elements are measured against standards and targets developed by the Department of Environment, Food and Rural Affairs, supported by the Water Framework Directive UK Technical Advisory Group. The spread of non-native invasive species and how well established they have become is also taken into account.

- » The UK Technical Advisory Group website gives these standards and targets - [http://www.wfduk.org/UK\\_Environmental\\_Standards](http://www.wfduk.org/UK_Environmental_Standards)
- » Defra and Welsh Assembly Government completed their consultation on these standards on 19th December 2008. This consultation can be found at [www.defra.gov.uk/environment/water/wfd/classification](http://www.defra.gov.uk/environment/water/wfd/classification)

4.2.5. Of the waters that have been assessed so far, just under twenty five per cent of the rivers are achieving good status. The national average for rivers achieving good status is just over ten per cent. Figures 3 to 8 show the results for all water body types. The current status classification is the baseline from which the 'no deterioration in status' objective of the Water Framework Directive is measured.

4.2.6. In the South West, most of the waterbodies are classified as being at less than good status as a result of a single factor, but sometimes it can be due to many different impacts. The biggest single reasons for not achieving good status in the South West are elevated phosphate levels, and poor fish and diatom communities.

4.2.7. There are also some key emerging pressures in the river basin district, including the need to manage the impacts of climate change, and accommodate significant growth in housing and other development.

4.2.8. Growth and regeneration in the South West river basin district will be concentrated in 'Growth Points' and much of this development is expected to be on previously developed

land which is often close to water, for example in the regeneration of former ports. New uses for previously developed land should be identified so that new development delivers more environmental improvements. Where new development is on greenfield sites (e.g. proposed urban extensions and new Ecotowns) there must be no deterioration in the quality of the surrounding water environment.

- 4.2.9. At its heart the Water Framework Directive is concerned with protecting and improving the natural health of the water environment. The “one out all out” principle of the classification system can sometimes mask the picture of the underlying biological health of the water environment. Figures 3 and 4 compare the current classification of the ecological status in rivers and their status when based solely on the biological indicators. They show that the natural life of watercourses can sometimes be healthy even when the supporting physico-chemical elements do not meet the required standards. This emphasises the importance of having confidence that there is a real problem before taking action to solve it.

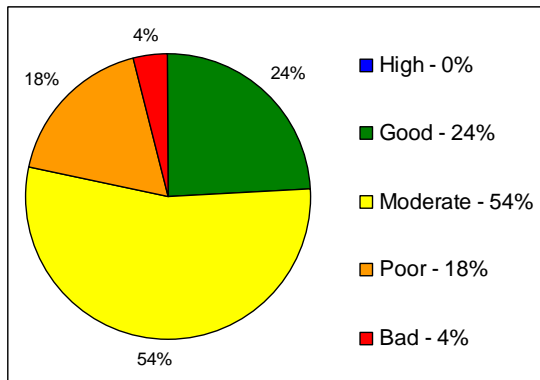
» [Monitoring and classification maps, which describe current status are in annex A](#)  
[More detailed classification results are in annex B](#)

### **4.3. Water Bodies in the South West river basin district**

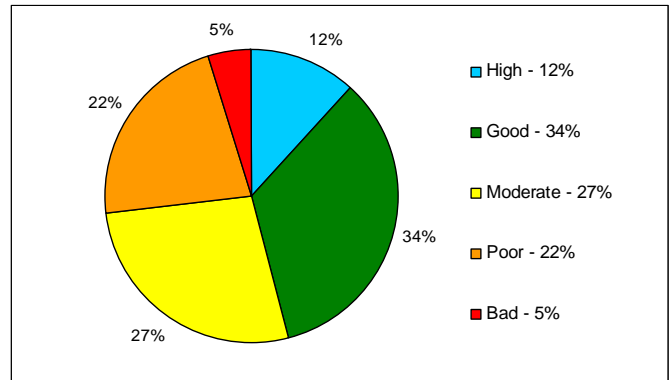
- 4.3.1. As outlined in section 1, the water environment is divided into units called ‘water bodies’, and we have worked with partners to identify some as candidates for designation as artificial or heavily modified. This is important because it recognises their uses, whilst making sure ecology is protected as far as possible. For example, Blashford Lake was assessed to be a candidate artificial water body; the Axe Estuary was considered to be heavily modified and the majority of the River Camel was assessed as natural.
- 4.3.2. It is proposed that twenty one of the surface water bodies in the river basin district (two per cent of all surface waters) are designated as artificial, and two hundred and sixteen (twenty one per cent of all surface waters) are designated as heavily modified. This conclusion was reached using a detailed screening process, which involved consultation supported by technical work.

» [The reasons for designation of artificial and heavily modified water bodies are given in annex I.](#)

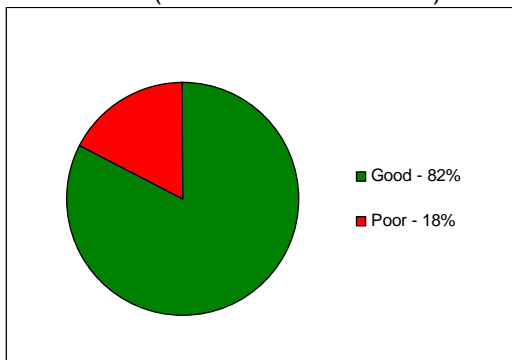
**Figure 3** – Current ecological status and ecological potential of rivers in the south west river basin district, by length assessed



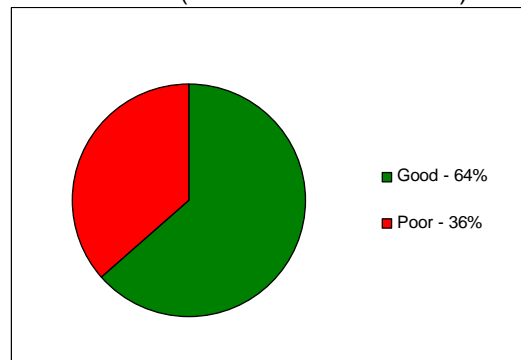
**Figure 4** – Current biological status of rivers in the south west river basin district, by length assessed



**Figure 5** Current quantitative status<sup>2</sup> of groundwater bodies in the south west river basin district (number of waterbodies)

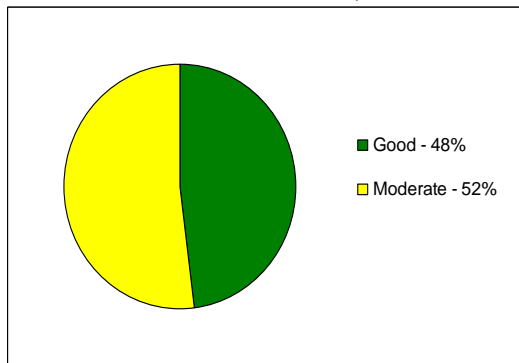


**Figure 6** Current chemical status of groundwater bodies in the south west river basin district (number of waterbodies)

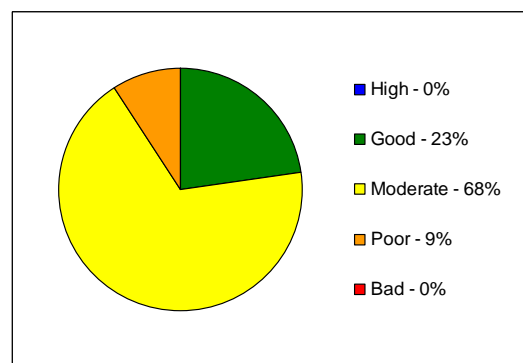


Poor groundwater quantitative status occurs if there could be adverse impacts on wetlands or where more groundwater is taken, for example for drinking water supply, and it is not certain that this will be replaced each year by rainfall.

**Figure 7** – Current ecological status and ecological potential of estuaries and coastal waters in the south west river basin district (based on the number of waterbodies)



**Figure 8** Current ecological status and ecological potential of lakes in the south west river basin district (number of waterbodies)



<sup>2</sup> An expression of the degree to which a body of groundwater is affected by direct and indirect abstractions.

Table 1 **Water body numbers in South West river basin district**

	River and canal	Lake and reservoir	Estuary (transitional)	Coastal	Groundwater	<b>Total</b>
Natural water bodies	741	3	10	10	44	<b>808</b>
Candidate artificial water bodies	15	6	0	0	0	<b>21</b>
Candidate heavily modified water bodies	162	24	13	17	0	<b>216</b>
Canals & surface water transfers	5	n/a	n/a	n/a	n/a	<b>5</b>
Water bodies not assessed	2	27	0	1	0	<b>30</b>
<b>Total</b>	<b>920</b>	<b>60</b>	<b>23</b>	<b>28</b>	<b>44</b>	<b>1080</b>

4.4. It is proposed to extend the water body network in England to include areas that are important for biodiversity. It is also proposed to split some of the largest water bodies.

» Details of these water bodies are in annex J.

## 5. The objectives for waters in the South West river basin district

### 5.1. How we set objectives

5.1.1. This draft plan sets out where the aim is to meet good status and good potential by 2015, and where the aim is different, the reasons .

5.1.2. In some cases for example, actions may not be technically feasible in the short term but can be successfully implemented over a longer period of time. Or using the available resources in this way it is no longer disproportionately costly. Investigations may be needed to understand the source of problems and how to solve these, such as the impact of pollution from abandoned mines. In these cases, an objective has been proposed for 2021 or 2027. We will review the proposals in relation to these alternative objectives before the next plan in 2015. If it is not technically or economically feasible to achieve good status or potential, even by 2027, the objective is 'less than good'.

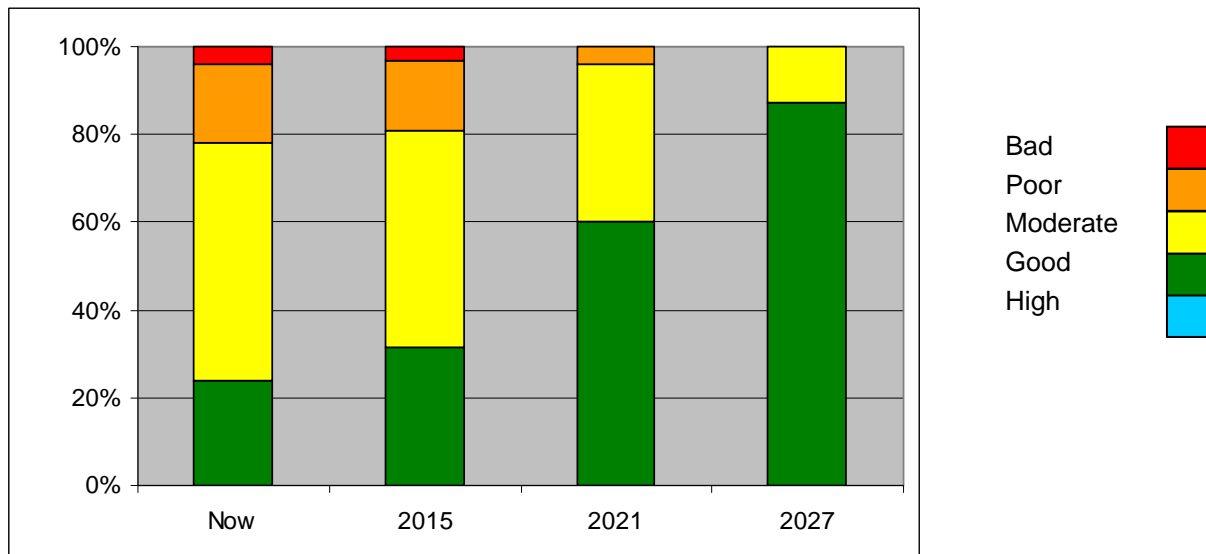
» Objectives for each water body are set out in annex B. More details about alternative objectives are included in annexes E and C.

» Information about current status and objectives for protected areas, and actions proposed, is in annexes B, C and D.

## 5.2. Targets for subsequent cycles

- 5.2.1. This draft plan sets out proposals for improving the water environment in the first river basin management plan cycle up to 2015. The objective of the Water Framework Directive is, wherever practical, to bring all water bodies up to good ecological status or potential. What can be achieved over the three cycles of the Directive will become clearer as a result of the investigations to be carried out under the first plan.
- 5.2.2. Even with all the improvements described in this draft plan, there will still be a big gap to bridge between 2015 and 2027. To make sure that good progress is made in each cycle, targets are proposed for what should be achieved by 2021 and 2027. At this stage it is believed that the target for 2021 should halve the gap between the predicted good status in 2015 and the target for 2027. The targets should also make clear that those water bodies most in need of improvement are priorities for action, with no 'bad' water bodies left by 2027.
- 5.2.3. These proposed targets are illustrated below. Because in England these targets are, in effect, the nation's targets for water and wetlands, we would like to see them feature in the Government's future Public Service Agreements.
- 5.2.4. One of the benefits of setting interim targets is that it will encourage all those with a role in achieving the objectives of the Water Framework Directive to work together to identify effective future measures. The targets will be a challenge shared by all with this role.

Figure 9 Targets for subsequent cycles, based on assessed river length



Note: The 2027 target for good environmental status or potential reflects the challenges in dealing with the impacts of pollution from historic mining activity. In many of the waterbodies affected, less stringent objectives are proposed. Investigations planned during the first plan cycle will confirm where less stringent objectives are the realistic approach, and the 2027 target will be firmed up accordingly.

**Q2** Do you agree with the proposed objectives? What would you change?

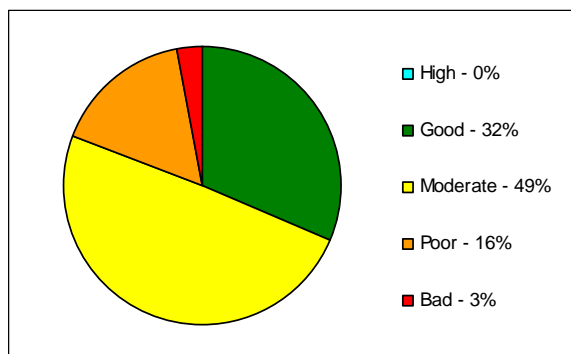
**Q3** For some water bodies we have proposed objectives with deadlines after 2015 or a lower overall target. Do you agree with these changes? What would you change?

» In some catchments, it is thought that we will not be able to achieve good status in all waters by 2027 because it is thought the measures that would be required to do so are not feasible or may be disproportionately expensive. We are particularly interested in your views on these issues

» More detailed maps of each of the catchments, and detailed information on the proposed waterbody objectives, measures and current compliance is in annex B.

Figures 10 to 14 show the expected status of waters in 2015 if the proposed actions are implemented. Figures 10 and 11 compare the predicted ecological status in 2015, and the status if based solely on the biological indicators.

**Figure 10 Predicted ecological status and ecological potential of rivers in 2015, by length assessed**



**Figure 11 Predicted biological status of rivers in 2015, by length assessed**

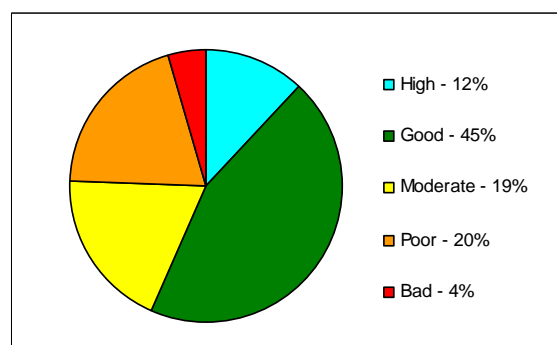
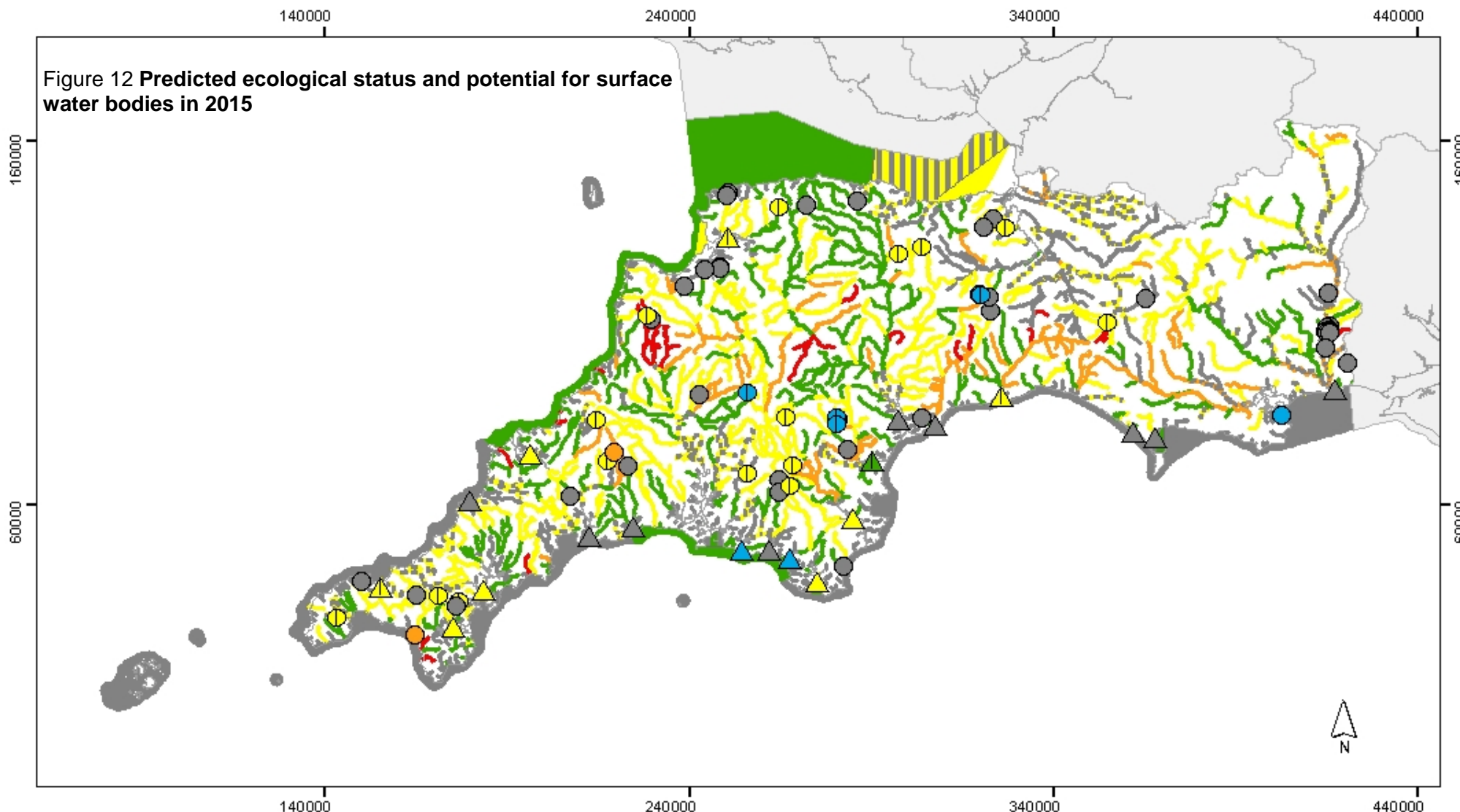


Figure 12 Predicted ecological status and potential for surface water bodies in 2015



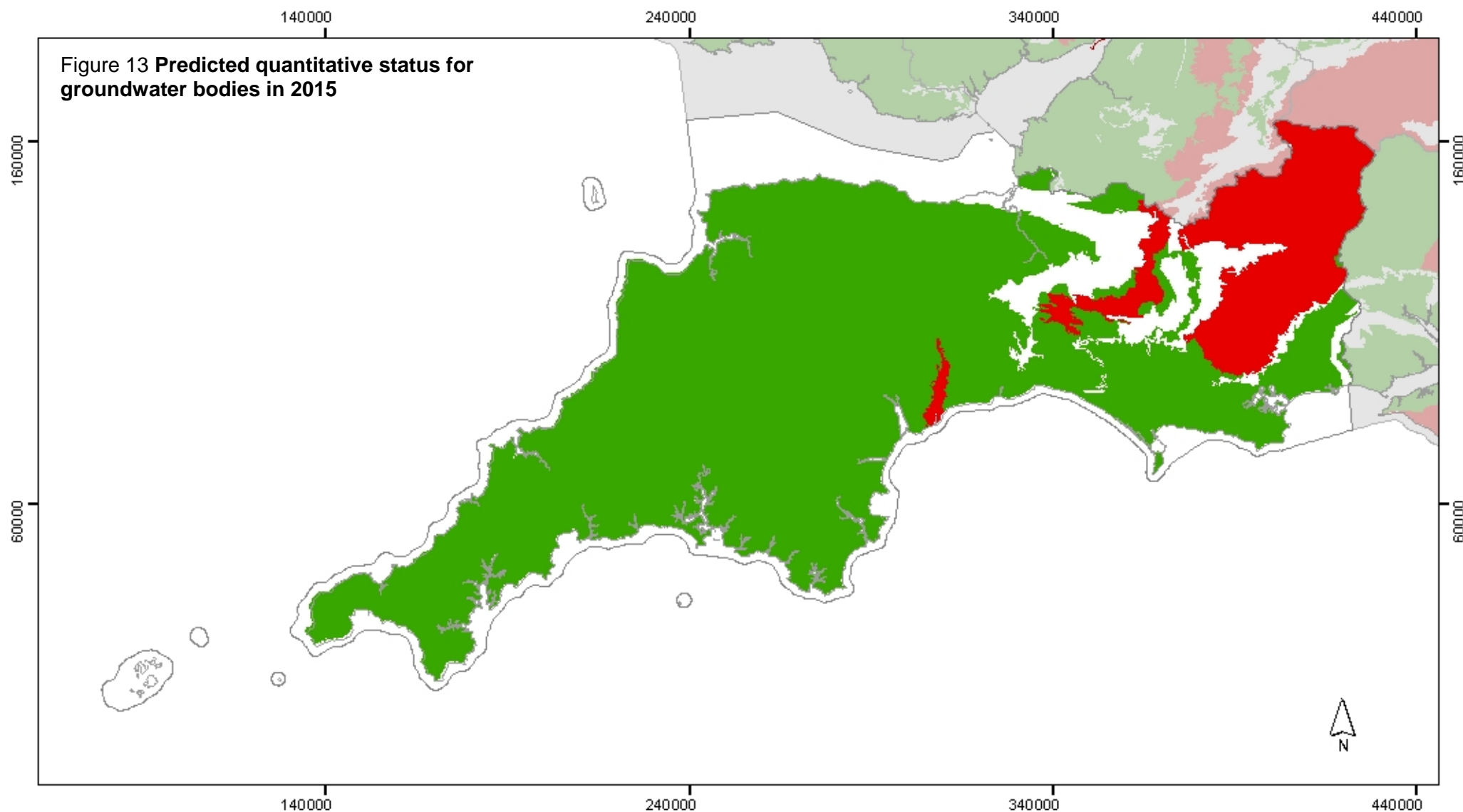
0 10 20 30 40 Kilometres

River Basin District  
 National border

© Environment Agency 2008  
 The coastline is © Ordnance Survey,  
 Environment Agency licence number: 100026380.

	Estuaries < 30km <sup>2</sup>		River		Lakes		Coasts and Estuaries > 30km <sup>2</sup>	
	Status	Potential	Status	Potential	Status	Potential	Status	Potential
High								
Good								
Moderate								
Poor								
Bad								
Not yet assessed								

Figure 13 Predicted quantitative status for groundwater bodies in 2015



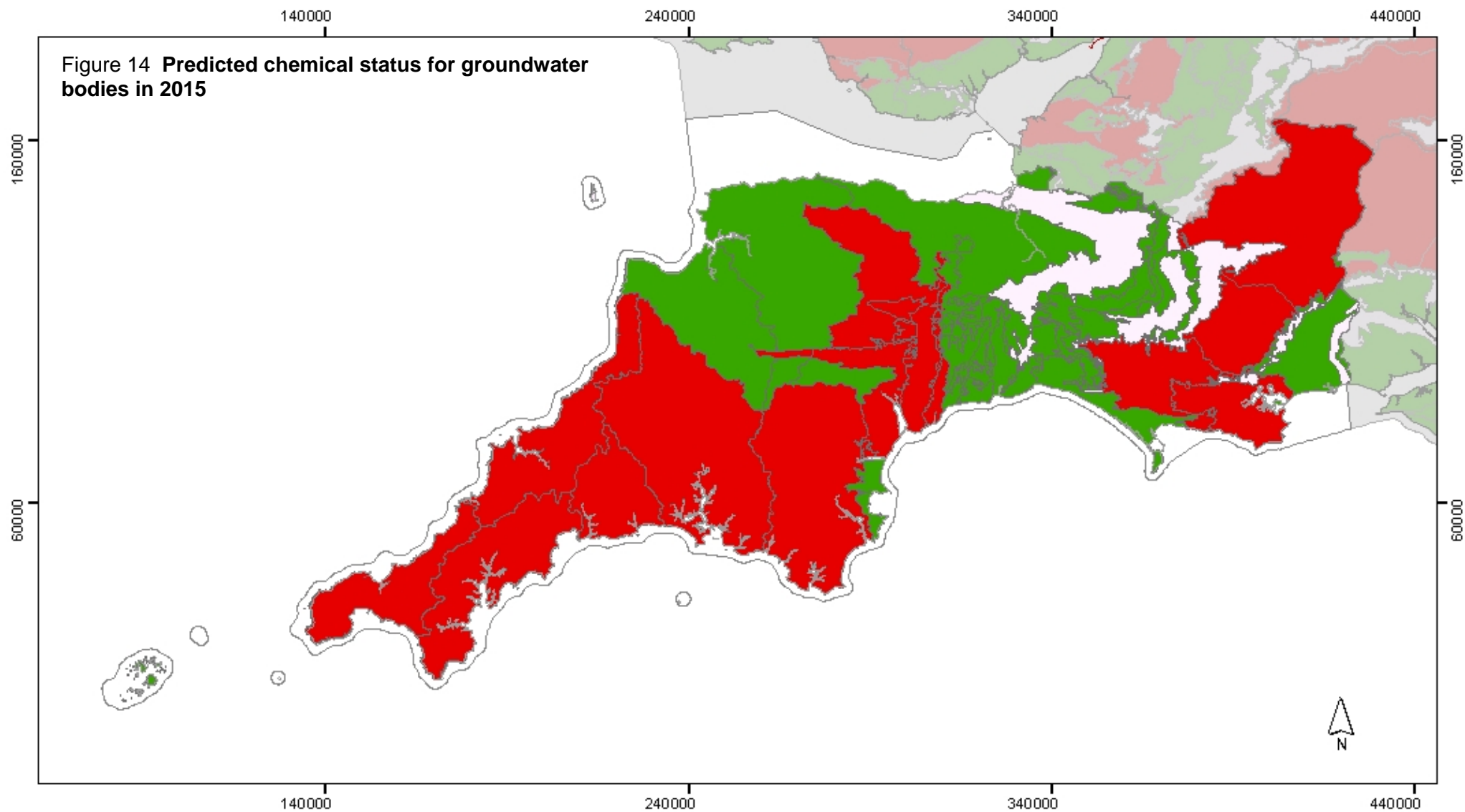
0 10 20 30 40 Kilometres

— River Basin District  
— National border

**Groundwater Quantitative Status**

Good  
Poor  
Not Assessed (Unproductive Strata)

Figure 14 Predicted chemical status for groundwater bodies in 2015



0 10 20 30 40 Kilometres

— River Basin District  
— National border

**Groundwater Chemical Status**

— Good  
— Poor  
— Not Assessed (Unproductive Strata)

## 6. South West River Basin District Catchments in 2015

### 6.1. Background

6.1.1. This section summarises information about the proposed objectives waters in the South West river basin district, based on the measures in the preferred scenario (see scenario B on page 36). This information is presented for each of the nine inland catchments, running from west to east across the river basin district. The catchments are mapped in figure 15, in green.

6.1.2. Estuaries, coastal waters and groundwaters are summarised separately, although many of the impacts on them are obviously linked to activities in the catchments that drain into them.

Figure 15: River basin planning catchments in the South West river basin district



## Progress towards achieving good ecological status and good ecological potential

### 6.2. West Cornwall and the Fal

This catchment is essentially rural in character and is influenced by the china clay industry, farming and historic mining. The catchment makes an important contribution to the rural economy through agriculture, china clay extraction and tourism, and contains internationally important habitats and species.

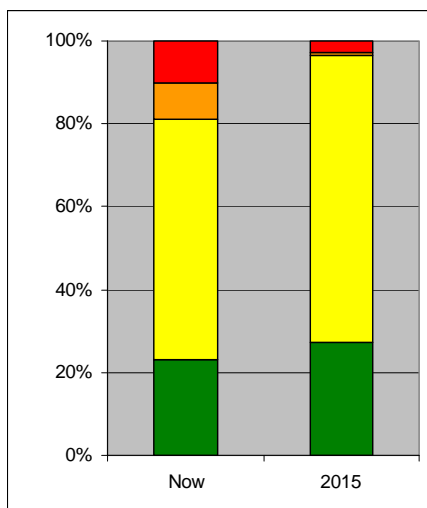
The major urban areas are St Austell, Truro, Falmouth, Redruth and Camborne. Carrick Roads forms a large deep-water harbour for the major port of Falmouth. Truro is the administrative centre of Cornwall. The whole of the catchment is very heavily visited and tourism is important to the local economy. Agricultural land covers a significant proportion of the catchment and is a major influence on the water environment

In the east of the catchment river flows have been significantly impacted by the china clay industry in the River Fal, Par River and St Austell River catchments. Cornwall's last working tin mine, South Crofty, is located in the catchment, and the impacts of historic mining activity are widespread. The catchment has some of the most metal-contaminated rivers and estuaries in Europe, and in these waters it may not be possible to achieve good status by 2027.

The settlement pattern in Cornwall is based on many small to medium sized centres with similar functions. In this catchment, the urban areas of St Austell, Truro, Falmouth and Camborne, Pool and Redruth are dominant. Camborne, Pool and Redruth are the focus of major regeneration projects and urban extensions have been proposed at Truro. The only proposed Ecotown in the whole River Basin District is sited in this catchment on former china clay works near St Austell.

There are just under 750km of river in the West Cornwall and the Fal catchment. Currently, over 130km achieve good status, and just under 160km remain unassessed. The main elements driving less than good status in the catchment are, in order, copper, zinc, invertebrates, fish and phosphate.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, for example the West Cornwall Wetlands Project which aims to improve riparian habitat and limit land use impacts on water quality, or the Catchment Sensitive Farming Programme which is already operating targeting the West Cornwall catchments to deliver advice to farmers to encourage good practice and reduce diffuse pollution. Phosphate will reduce in nearly 50km of rivers, and mercury levels in over 10km. Fish will improve in class in almost 60km of river and the invertebrate community to in nearly 3km of river. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 16** – Progress towards achieving good status and potential in surface water bodies in the West Cornwall and the Fal catchment (percentage of assessed river length)



## Progress towards achieving good ecological status and good ecological potential

### 6.3. North Cornwall, Seaton, Looe and Fowey

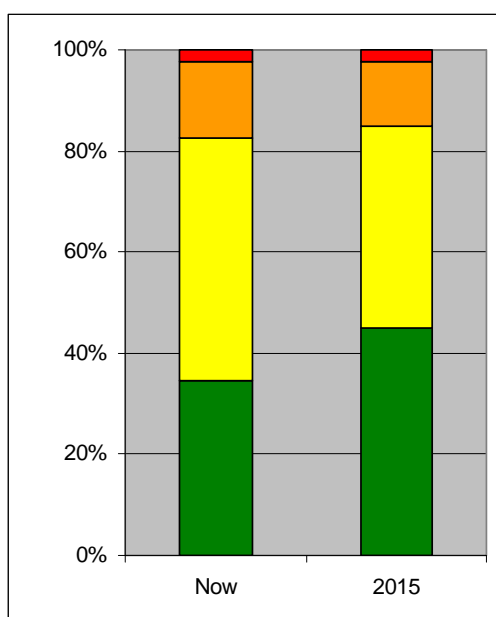
This catchment is characterised by its spectacular rocky coastline and rural character, ranging from open moorland to intensive horticultural use. Major towns include Bodmin and Newquay, Wadebridge, Camelford and Bude. None are earmarked for substantial growth beyond local needs.

This area is the focus for much of Cornwall's tourist industry. A number of fishing ports still exist here, but the pleasure boat industry has become more significant in recent years. The River Camel is located within this catchment, an ecologically important river designated as a Special Area of Conservation under the Habitats Directive. There is no heavy industry in the catchment, but the impacts of the legacy of historic mining activity are felt.

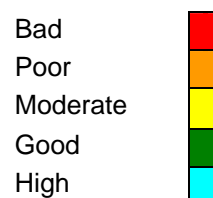
There are significant abstractions in the area for hydroelectric generation, aquaculture and agriculture. The Colliford Reservoir is located in this catchment and is a source of abstraction for public drinking water.

There are nearly 600km of river in the North Cornwall, Seaton Looe and Fowey catchment. Currently, nearly 170km achieve good status, and just over 110km remain unassessed. The main elements driving less than good status in the catchment are, in order, fish, diatoms, phosphate, copper and zinc.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, for example South West Water improvements to manage growth in the populations served by their sewage treatment works and reduction of phosphate levels in discharges, the Catchment Sensitive Farming Programme which is already operating around the River Camel. Investigations to understand what controls and remediation are appropriate at abandoned metal mines will help manage the copper and zinc failures in the catchment in the future. Phosphate will reduce in just over 10km of river, and diatom populations will improve in almost 65km. There will be a reduction in ammonia in around 4km of river, and invertebrates will improve in nearly 30km. fish will improve in class in just over 40km of river as a result of the recently installed fish pass at Kenningstock Weir. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 17** – Progress towards achieving good status and potential in surface water bodies in the North Cornwall, Seaton, Looe and Fowey catchment (percentage of assessed river length)



## Progress towards achieving good ecological status and good ecological potential

### 6.4. Tamar

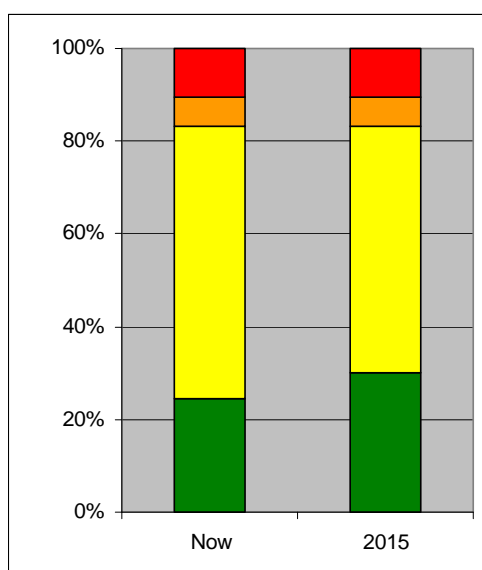
The catchment is essentially rural in character with the River Tamar forming the natural boundary between the counties of Devon and Cornwall. The urban area of Plymouth dominates the lower Tamar estuary. There are few major settlements upstream and none are identified for major development other than to meet local needs. After many decades of decline Plymouth is promoting a high profile waterfront regeneration vision to attract inward investment and economic development of the city. Dealing with tidal flood risk is an important consideration. The new settlement of Sherford lies to the east of Plymouth. The Tamar catchment is also popular with tourists holding parts of both Dartmoor National Park and Bodmin Moor.

Plymouth has a long maritime history with naval and defence industries continuing to be important to the local economy. Historic mining and industrial activity has significantly affected land, water quality and estuary sediments over many years.

Throughout the catchment there is an important and diverse agricultural and horticultural base, with a lot of managed grassland for livestock. This industry dominates employment in much of the catchment. Ministry of Defence industries in Plymouth and china clay industries in the Lee Moor area are also important employers. Roadford Reservoir is located in this catchment and is a source of abstraction for public drinking water.

There are just over 800km of river in the Tamar catchment. Currently, almost 180km achieve good status, and just over 80km remain unassessed. The main elements driving less than good status in the catchment are, in order, fish, phosphate, copper, zinc and tributyltin.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, for instance river habitat restoration work and dealing with obstructions to fish passage. Important wetland habitat will be restored through the Working Wetlands Project and Mires Project to help to protect public water supplies, and work to reduce the impact of agriculture in the catchment is planned through the Catchment Sensitive Farming Programme, targeting the Tamar and Tavy Estuary and the Upper Tamar Lakes Project. As a result, phosphate will reduce in over 110km of river, and diatom populations will improve in almost 40km. Fish will also improve in class in just over 50km of river as a result of recent improvements to the Blatchford on the Yealm, and Ash Mill on the River Carey. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 18** – Progress towards achieving good status and potential in surface water bodies in the Tamar catchment (percentage of assessed river length)



## Progress towards achieving good ecological status and good ecological potential

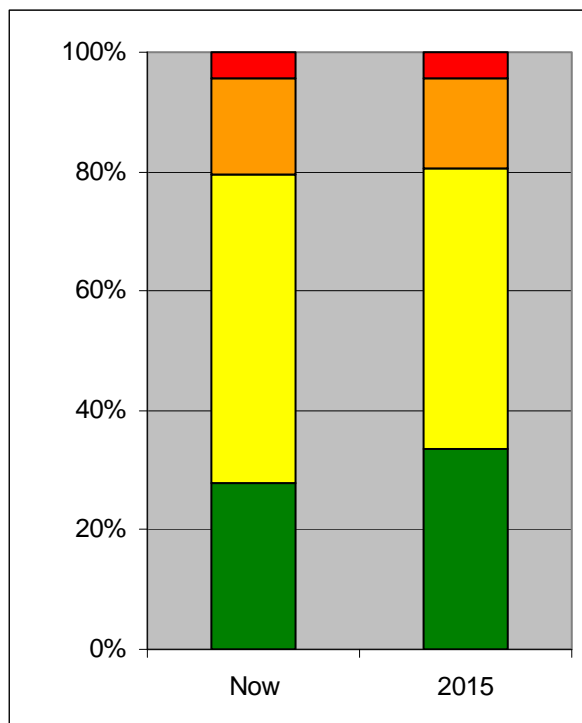
### 6.5. North Devon

This catchment is characterised primarily by agricultural land. The principal settlements are all situated on or near the coast, generally in the confined river valleys and include Barnstable, Bideford, Braunton, Ilfracombe, and Lynton. All the major settlements within the area cater for many visitors' during the summer months. No major development is planned other than to meet local need.

The catchment includes sections of Dartmoor and Exmoor National Park. The coastline is recognised for its natural beauty, and is designated as part of the Heritage Coast. Grassland in one form or another is by far the greatest land use in the area with the principal industries comprising of tourism and farming.

There are just under 1,000km of river in the North Devon catchment. Currently, over 250km achieve good status and just under 90km remain unassessed. The main elements driving less than good status in the catchment are, in order, phosphate, fish, copper, diatoms and tributyltin.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, for instance the restoration of important wetland habitat through the Mires Project which will help protect public water supplies. River habitat restoration work and the investigations into how best to resolve obstructions to fish passage and to identify sources of copper which are causing problems in the catchment. The Taw and Torridge have recently been designated as a Strategic Partnership Catchment which is working to the same objectives as the Catchment Sensitive Farming Programme, to help deliver targeted advice to farmers, encouraging improvements in rural land management and reducing agricultural pollution. Phosphate will reduce in nearly 60km of river, and diatom populations will improve in just over 70km. Fish will also improve in class in just over 140km of river. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 19** – Progress towards achieving good status and potential in surface water bodies in the North Devon catchment (percentage of assessed river length)



## Progress towards achieving good ecological status and good ecological potential

### 6.6. South Devon

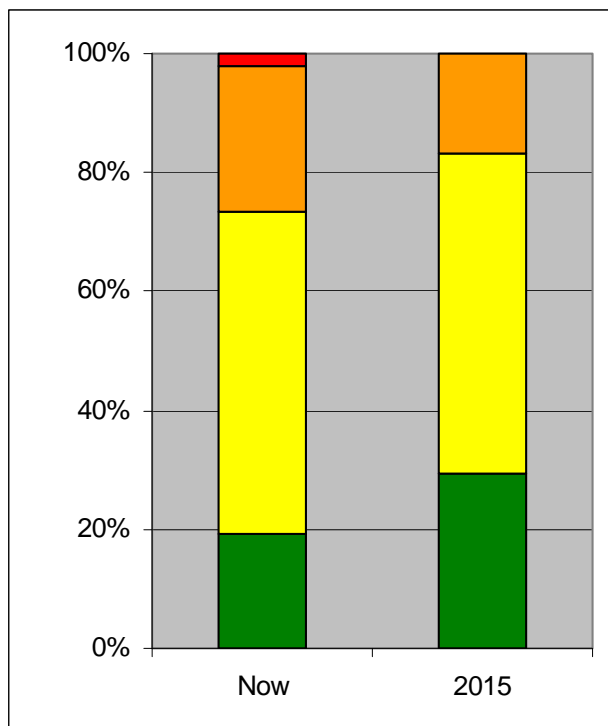
This catchment is a predominantly rural area of high conservation value and includes a section of Dartmoor National Park.

Future development in this catchment will be concentrated around the 'Growth Point' of Torbay. Development at Newton Abbot is being managed carefully to keep housing and job provision as balanced as possible against the strong economic 'pull' of Exeter. Managing surface run-off is a priority consideration around Torbay.

The catchment supports abstractions primarily for public water supply and agriculture. Venford Reservoir and the Avon Reservoir provide water for public supply.

There are almost 700km of river in the South Devon catchment. Currently, just 110km achieve good status, and just over 115km remain unassessed. The main elements driving less than good status in the catchment are, in order, fish, pH, diatoms, zinc and phosphate.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, for instance the Catchment Sensitive Farming Programme which is already operating in the catchment targeting Kingsbridge Estuary, Slapton Ley, and the Rivers Yealm and Erme. Investigations to improve understanding of the pressures on shellfish and bathing water quality will take place in the Torbay and Erme bathing waters and the Dart and Yealm Shellfish Waters, and a programme of river habitat restoration work and removal of barriers to fish passage will help improve fish populations. The Mires Project will also help protect public water supplies. Phosphate levels will reduce and diatom populations improve in nearly 25km of river. Fish will improve in class in just over 100km of river, and invertebrate communities in nearly 5km. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 20** – Progress towards achieving good status and potential in surface water bodies in the South Devon catchment (percentage of assessed river length)



## Progress towards achieving good ecological status and good ecological potential

### 6.7. East Devon

This catchment is characterised by diverse habitats ranging from the moorland of Exmoor National Park at the headwaters of the River Exe, to the Exe Estuary at Exmouth. The area is predominately agricultural, whilst the main urban areas include Honiton, Axminster and Sidmouth. There is a vibrant tourist industry and some light industry is associated with the area.

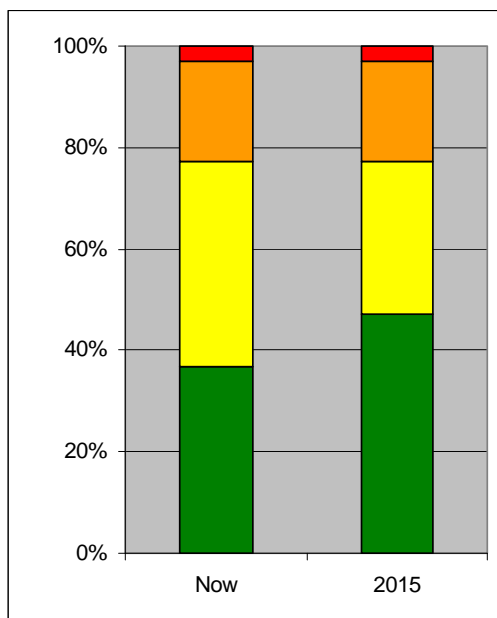
Exeter lies on the tidal river Exe and is the focus of considerable economic and housing development with a major extension (Cranbrook) planned to the east draining to the river Clyst. Separate sewage treatment facilities will be provided for Cranbrook.

There are a number of internationally and nationally important conservation sites in the catchment. These include dry lowland heaths, wet grasslands and the River Axe which is designated as a Special Area of Conservation under the Habitats Directive. A large part of the area is also designated as an Area of Outstanding Natural Beauty.

Water is abstracted throughout the catchment and is mainly used in public water supply, agriculture and industry.

There are just over 1040km of river in the East Devon catchment. Currently, over 370km achieve good status, and just 35km remain unassessed. The main elements driving less than good status in the catchment are, in order, phosphate, diatoms, fish, freshwater plants and tributyltin.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, for instance South West Water are planning improvements to water company assets which will reduce the concentrations of phosphate in sewage effluent. The Catchment Sensitive Farming Programme is also operating in the catchment targeting the Rivers Exe, Axe and Otter to deliver advice to farmers to encourage good practice and reduce diffuse pollution. We will also undertake river habitat restoration work and deal with barriers to fish passage to help improve fish



populations, whilst maintaining already existing fish passes. Important wetland habitat will be restored through both the Working Wetlands project and the Mires Project to help protect public water supplies. water company investment, agricultural advice and regulatory work and habitat management. Phosphate will reduce in nearly 400km of river, and diatom populations will improve in almost 230km. There will be reductions in ammonia in almost 40km of river and improved levels of dissolved oxygen in almost 25km of river. Fish will improve in class in almost 90km of river and invertebrates in over 20. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 21**– Progress towards achieving good status and potential in surface water bodies in the East Devon catchment (percentage of assessed river length)

## Progress towards achieving good ecological status and good ecological potential

### 6.8. South and West Somerset

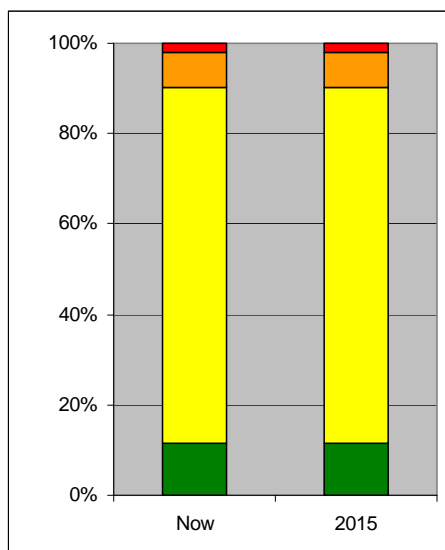
This catchment is very rural with few urban areas, the main centres of population being Taunton and Wellington. The main land use is agriculture with land mainly being used for pasture with some arable farming. Rivers in the catchment vary significantly, from the steep and fast-flowing coastal streams of Exmoor to the lower Tone which is a typical lowland river. Over half the rivers in this catchment have been identified as candidate heavily modified or artificial waterbodies – the highest proportion in any catchment in the South West.

The larger settlements in this catchment lie away from the immediate coastal zone. Taunton is identified as a growth point and has an ambitious development agenda centred in part on renewal of the urban river Tone frontage. Development at Bridgwater is constrained by significant flood risk and there are substantial regeneration challenges to overcome there.

There are just over 1,100km of river in the South and West Somerset catchment. Currently, just over 80km achieve good status, and over 400km remain unassessed, almost all as a result of outstanding work to be done as a result of their designation as artificial or heavily modified. The main elements driving less than good status in the catchment are, in order, phosphate, fish, dissolved oxygen, diatoms and invertebrates.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, including water company investment, agricultural advice and regulatory work and river and wetland habitat management. Wessex Water is planning improvements to which will reduce phosphate levels and make other improvements to discharges from sewage treatment works. Eel and elver passes will be installed on tilting weirs and the effectiveness of these and existing passes monitored. The Catchment Sensitive Farming Programme is already operating in the catchment targeting the Somerset Levels, delivering advice to farmers and encouraging good practice to reduce agricultural pollution. The Blue Anchor catchment has also recently been designated as a Strategic Partnership Catchment working to the same objectives as the Catchment Sensitive Farming Programme.

Phosphate will reduce in just over 120km of rivers, and diatom populations will improve in just over 30km. There will be improved levels of dissolved oxygen in almost 30km of river, reduced ammonia in just over 15km of river and fish will improve in class in just over 40km of river. However, these improvements will not lead to any improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 22**– Progress towards achieving good status and potential in surface water bodies in the South and West Somerset catchment (percentage of assessed river length)



## Progress towards achieving good ecological status and good ecological potential

### 6.9. Dorset

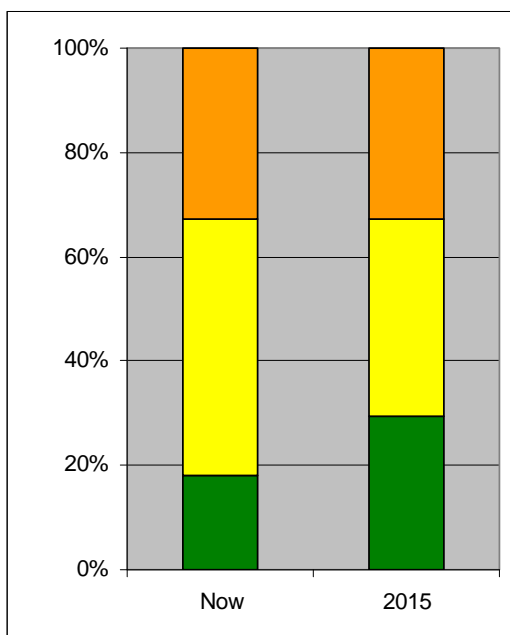
The catchment lies predominantly within the County of Dorset. The coastal fringe is heavily populated with the main centres of Bournemouth, Poole, Weymouth and Christchurch. The rest of the catchment is primarily rural in nature. The coastal area, with its bathing beaches and potential for recreational activities, is popular with tourists during the summer season. Poole is a major port, and Weymouth and Portland are also strategically significant.

The catchment supports abstractions primarily for public water supply, aquaculture and hydropower. The principal aquifer in this area is the unconfined Chalk in the middle of the catchment and it supplies the majority of the groundwater abstractions. Chalk strongly influences the drainage of part of the catchment area and represents a significant proportion of the groundwater licensed for public water supply.

The major coastal conurbation of Poole and Bournemouth is under substantial pressure from development. The area is tightly constrained by Natura 2000 heathland sites. Detailed safeguards are in place to protect these areas. Inland, the settlement of Dorchester which drains to the River Frome SSSI is earmarked for significant housing development.

There are just under 900km of river in the Dorset catchment. Currently, just over 140km already achieve good ecological status, and just over 110km remain unassessed. The main elements driving less than good status in the catchment are, in order, phosphate, diatoms, fish, dissolved oxygen and mercury and its compounds.

By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, for instance the Catchment Sensitive Farming Programme which is already operating in the catchment targeting the Dorset Stour, the rivers Piddle, Fleet and Frome, and parts of Poole Harbour. Fish populations are expected to improve in at least 30km of river as a result of the recently constructed Louds Mill fish pass, and further habitat restoration work is planned. Phosphate will reduce in almost 145km of rivers, and diatom populations will improve in almost 95km. There will also be reductions in ammonia in over 40km of river and improved levels of dissolved oxygen in almost 9km of river. Invertebrates will improve in class in just over 30km of river. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.



**Figure 23**– Progress towards achieving good status and potential in surface water bodies in the Dorset catchment (percentage of assessed river length)



## Progress towards achieving good ecological status and good ecological potential

### 6.10. Hampshire Avon

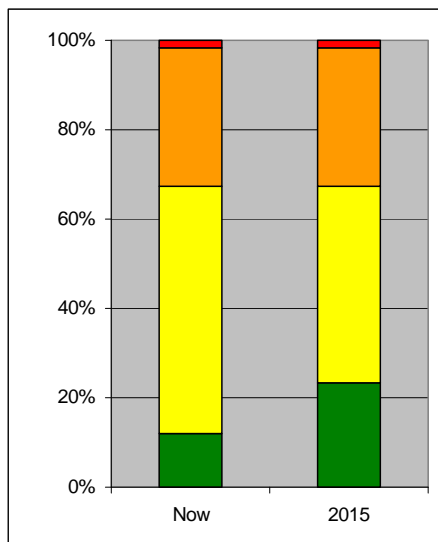
This catchment comprises of the River Avon and its tributaries and lies within the counties of Wiltshire, Dorset and Hampshire. The main industry is agriculture, alongside significant military activity on and around Salisbury Plain.

The catchment area is dominated by Chalk. The River Avon is considered to be one of the most biologically diverse Chalk rivers in Britain which is reflected by its designation as a Special Area of Conservation under the Habitats Directive. Salisbury Plain, which contains the important Stonehenge World Heritage Site, covers a large part of the upper Avon catchment.

The catchment supports abstractions primarily for fish farming, and public water supply. Mineral washing and watercress beds are also locally significant water uses, but ones which return the water they use close to the point of abstraction, meaning overall impacts are low but local impacts can be a problem. This catchment contains chalk aquifers which are highly productive and of regional importance for large public water supply abstractions, and cross the border between the South West and South East River Basin Districts. These include the Chalk and upper Greensand aquifers and surface water intakes including the Knapp Mill, Matchams, and Ibsley intakes and the associated Blashford Lakes abstraction.

The historic city of Salisbury lies on the River Avon. Its future development is constrained by flood risk. Work is underway at a number of sewage treatment works in the Hampshire Avon catchment including Salisbury, to reduce levels of phosphorus to protect the Hampshire Avon Natura 2000 site. Growth must be planned carefully at these places to ensure that standards are not breached in to the future.

There are nearly 600km of river in the Hampshire Avon catchment. Currently, nearly 60km achieve good status and just over 80km remain to be assessed. The main elements driving less than good status in the catchment are, in order, phosphate, fish, diatoms, freshwater plants and zinc.



By 2015, there will be improvements in class for a range of indicators of ecological health as a result of the measures laid out in this plan, including extensive improvements to sewage works by Wessex Water will significantly reduce phosphate levels in the river, and the catchment sensitive farming is already operating in large parts of the catchment delivering advice to farmers to encourage good practice and reduce agricultural pollution. Work to address barriers to fish migration will help improve fish populations. Phosphate will reduce in over 360km of rivers and diatom populations will improve in just over 100km. Fish will improve in class in almost 175km kilometres of river and dissolved oxygen levels in nearly 10km. Significant reductions in the levels of abstraction will also deliver significant ecological benefits to the catchment. Not all of these improvements will lead to an improvement in the overall status because of the way waterbodies are classified under the Water Framework Directive.

**Figure 24** – Progress towards achieving good status and potential in surface water bodies in the Hampshire Avon catchment (percentage of assessed river length)

Bad  
Poor  
Moderate  
Good  
High



## Progress towards achieving good ecological status and good ecological potential

### 6.11. Estuarine and Coastal Waters

The South West has over one thousand kilometres of coastline, five hundred square kilometres of estuaries, one hundred and eighty seven designated bathing waters (almost forty per cent of the total for England and Wales), and thirty three designated shellfish waters as well as many important marine species and habitats. The South West's estuaries and coasts are vital to the region's economy, particularly their contribution to the tourism and leisure industry and the ports, harbours, shipping and associated industries they support.

Important estuaries in the South West include the Fal, Helford, Looe, Fowey, Camel, Tamar, Exe, Salcombe-Kingsbridge, Yealm, Dart, Taw-Torridge, Poole Harbour and the Portland Harbours.

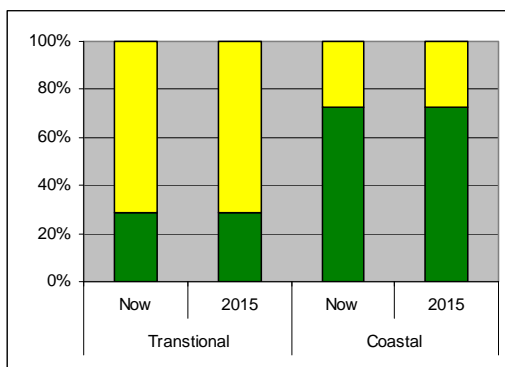
The main pressures on South West estuaries and coasts are pollution from industrial discharges, nutrient and microbiological contamination from run-off and sewage, sea level rise leading to coastal squeeze and potential over-exploitation of fisheries.

Draft classifications show that nine estuaries and two coastal waterbodies are falling short of good status because of the levels of Nitrogen in the water, which in most cases is the most important nutrient in estuarine and coastal waters and can lead to algal blooms and other ecological impacts. Three of the estuaries in Cornwall and a related stretch of coast also fail as a result of levels of Tributyl Tin (TBT), an anti-fouling compound used on boat hulls. Although this chemical is now banned for most uses, we are still picking it up in our monitoring because of the long history of boat building and maintenance in these areas. Sediments in many of the Cornish estuaries are also contaminated with metals because of the legacy of mining.

Bideford Bay and the coast around the Fal estuary seem to have problems reflected in the plankton community and changes in the seaweed monitoring is showing that there may be other ecological problems in Bridgwater Bay and Poole Harbour, although we have only collected a limited amount of information on this so far.

Bathing water quality dropped slightly in the South West in 2008 after a very wet summer. The high summer rainfall caused an increase in storm overflows from sewers, a rise in diffuse pollution and run-off from farmland, which impacted on bathing waters. Shellfish waters were less affected. Delivering compliance with the revised bathing waters directive is a high priority for this plan.

By 2015, there will be significant progress in understanding what needs to be done to resolve these issues as a result of the measures laid out in this plan. Seventeen bathing waters and thirty shellfish waters will be investigated, and water quality improvements delivered at two and nine of these respectively as a result of water company improvements to sewage treatment works, storm and emergency sewer overflows. We are also working with partners to develop and deliver a habitat creation programme to safeguard the diverse coastal habitats.



**Figure 25**– Progress towards achieving good status and potential in estuarine and coastal water bodies in the South West River Basin District (percentage of assessed waterbodies)



## Progress towards achieving good status

### 6.12. Groundwaters

Groundwaters are an important resource in the South West River Basin District. Over the chalk geology in the east of the district, the majority of drinking water comes from groundwater, and it is vital that the quality of these sources is maintained for the future. The main pressures on groundwaters are abstraction for drinking water supply and contamination with nitrates and pesticides. In the West, historic mining has a significant influence on groundwater quality.

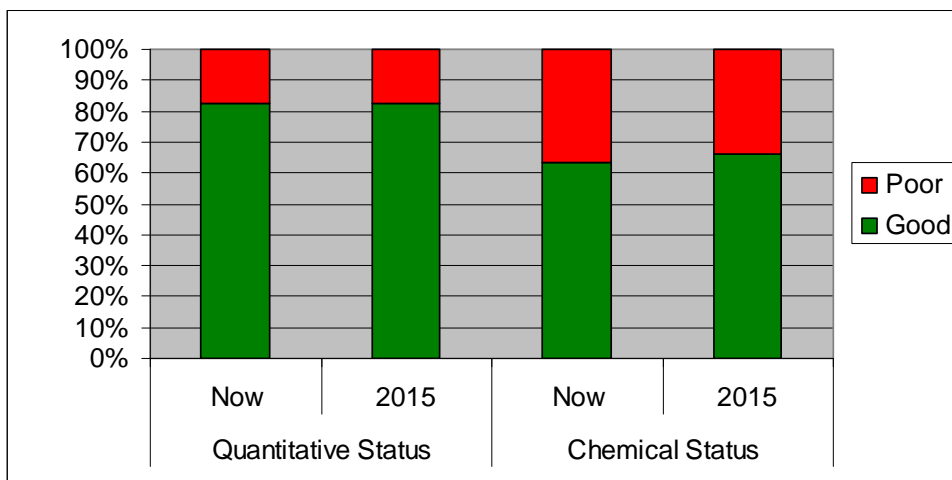
Unsustainable abstraction from groundwater can lower groundwater levels and affect dependent river flows or wetlands, or can induce the intrusion of poorer quality water from the sea or from deeper aquifers.

Draft classifications show that fifteen of the groundwaters in the South West River Basin District are at less than good status as a result the surface water flows they support being affected by lowered groundwater levels. Eight waterbodies are failing the tests we apply in drinking water protected areas. The general chemical test is failed in four waterbodies, and three fail the water balance test. Six waterbodies fail for more than one of these reasons, and the Otter Valley is the only groundwater body that fails for all four of them.

Ten groundwaters are seeing upward trends in pollution, for instance Nitrates in the Western Cridton Trough and the upper Dorset Stour. Work is already underway in many of these areas. However, it takes a long time for surface water to make its way down into major aquifers. Because of this, some groundwaters will take many years to recover from the effects of pollution, and concentrations of pollutants can continue to rise for years after the sources of the problem have been brought under control.

Water Company investigations are ongoing to better understand the impact of the major groundwater abstractions on the quantity of groundwater in the South West River Basin District. This will improve understanding of what further action is required in groundwaters. By 2015 we are confident that the impact of abstraction from the Lower Dorset Stour and Lower Hampshire Avon groundwater body on surface water flows will be resolved as a result of reductions in the amount of water taken for public supply.

**Figure 26**– Progress towards achieving good status in groundwater bodies in the South West River Basin District (percentage of assessed waterbodies)



## 7. Summary sector action plan

### 7.1. Background

- 7.1.1. This section summarises the impact assessment and, with the following tables, highlights the key contributions from those who we will work with to deliver the actions in this plan.
- 7.1.2. In assessing the actions that contribute to this plan, we have been through a consistent process to assess the costs and benefits, their effectiveness and their impact. We believe that some of the actions considered for this plan are not suitable because it is not technically feasible to implement them, or it is not possible to be certain of the benefits they would bring or that the costs would significantly exceed the benefits. In some cases we have not yet been able to identify a partner to take the lead in investing and managing the action.

» Information about the planning assumptions used when assessing actions is in annex E

### 7.2. Impact assessment

- 7.2.1. A separate draft impact assessment shows the costs and benefits of implementing this plan. It sets out the impacts of different actions, as well as an analysis of the impacts on different sectors. It examines scenario A and the preferred scenario B as laid out in this draft plan, along with scenario C, which is more ambitious and more costly. The results of the impact assessment are briefly noted in this section.
- 7.2.2. The impact assessment is limited by both assumptions on improvements in class, and the availability of data, both environmental and economic. However, they are a good basis for discussion during the consultation period.
- 7.2.3. We will produce a final impact assessment and this will accompany the river basin management plan when we submit this to Ministers for their approval. Ministers will use the impact assessment to help them decide whether or not to approve the river basin management plan, or whether to request us to modify it.

» We have published a draft impact assessment for consultation at the same time as the consultation on this draft river basin management plan. Copies are available through our website at [www.environment-agency.gov.uk/wfd](http://www.environment-agency.gov.uk/wfd) or from the contact given at the end of this document.

#### 7.2.4. What is already happening and what will happen - Scenario A

Some of the actions in the plan are already happening or about to happen. Scenario A reflects the actions required by other EU water directives, for example the Nitrates Directive, that the Water Framework Directive describes as basic measures. It also includes some additional measures already put in place to implement the Water Framework Directive, for example the Catchment Sensitive Farming Delivery Initiative, which is currently operating in 40 catchments across England. These actions form a significant programme of work which provides the foundation to the draft river basin management plan. We have already consulted on these measures when they were introduced and so are listing them here for information only.

The Scenario A costs presented below are an estimate. Whilst costs were not easily available for all Scenario A measures, we do have data for the most costly measures. In the South West river basin district almost all of the Scenario A costs are met by the water industry, with approximately 70% of these costs arising from PR04 and 30% from PR09. A small percentage of costs are also met by the agricultural and rural land management sectors, as a result of complying with the NVZ action plan.

This expenditure is also delivering significant benefits. Our best estimate puts this at £15.1 million per year. These monetised benefits only value the public's willingness to pay for surface water improvements. There are many other benefits which have not been monetised, some of which are listed below.

The main reason why the Scenario A costs are greater than the benefits is because these other non-monetised benefits have not been included.

### Costs

Average Annual Undiscounted Costs (£m)	Total PV <sup>3</sup> (£m)	% of PV
23.4	1,393.1	<ul style="list-style-type: none"> <li>○ Water Industry (95.7%)</li> <li>○ Agricultural and Rural Land Management (3.5%)</li> <li>○ Environment Agency (0.8%)</li> </ul>

### Benefits

Average Annual Undiscounted Benefits (£m)	Total PV (£m)	Other benefits not expressed in monetary terms include:
15.1	292.4	<ol style="list-style-type: none"> <li>1. Reduced operation costs to water companies due to improved water quality, in particular reduced concentrations of nitrate and pesticides;</li> <li>2. Protection and enhancement of material assets due to reduced alien species pressures, for example zebra mussels which attach to infrastructure in large numbers;</li> <li>3. Human health benefits due to improvements in water quality of recreational water bodies;</li> <li>4. Reduced quantities of waste sent to landfill due to revised dredging techniques; and</li> <li>5. Reduced long-term costs of coastal defence due to measures which encourage natural coastal erosion.</li> </ol>

#### 7.2.5. Additional actions that will happen if this plan is approved - Scenario B

In addition to the actions in scenario A, scenario B includes actions that we believe should happen and which we believe will bring about important environmental improvements. These actions fall into two categories: new actions that rely on national decisions and legislation but can be implemented according to priorities identified at the river basin

<sup>3</sup> PV, or present value, is the equivalent value assigned now to future costs or benefits, with an appropriate adjustment to take account of the time when they actually occur.

district level, and new actions that are local and rely on initiatives that have been proposed in the South West river basin district.

The scope of the new actions that rely on national decisions and legislation was determined through a series of public consultations on new measures and mechanisms, and the preliminary cost effective analysis exercise undertaken by the Department for Environment Food and Rural Affairs (Defra) and the Welsh Assembly Government. These new actions were identified in statutory guidance to the Environment Agency, and included in Defra's overall impact assessment for the Water Framework Directive. The way in which these new actions have been applied is described in Annex E.

Delivering Scenario B implies additional costs, over Scenario A, for a variety of sectors. The four main sectors bearing these additional costs are the water industry, the Environment Agency, central government, and industry, manufacturing and other business. This expenditure is also delivering significant benefits. Our best estimate puts this at £7.3 million per year, of which 72% relates to cost savings from investigations and 28% relates to the public's willingness to pay for surface water improvements.

The monetised benefits for Scenario B are also less than the costs. Again, this is because we have not been able to monetise all of the benefits that Scenario B provides.

#### Costs

Average Annual Undiscounted Costs (£m)	Total PV (£m)	% of PV
6.0	60.2	<ul style="list-style-type: none"> <li>○ Water Industry (32.4%)</li> <li>○ Environment Agency (26.1%)</li> <li>○ Central Government (26.0%)</li> <li>○ Industry, Manufacturing and other Business (10.3%)</li> </ul>

#### Benefits

Average Annual Undiscounted Benefits (£m)	Total PV (£m)	Other benefits not expressed in monetary terms include:
7.3	69.0	The other benefits will include all of the benefits expressed under Scenario A. These benefits will be greater in magnitude and will occur in more places.

#### 7.2.6. Actions that could happen if we had more certainty they would be proportionate and feasible - Scenario C

There are further actions which, if implemented, could lead to even greater environmental protection and improvement. However, a better understanding of how to implement these actions, or how effective they will be, is needed to be sure that they are feasible and not disproportionately costly. Implementing these actions may have wider impacts on the environment or society. We would like to know if there is any additional information you can supply that will help us justify including scenario C actions in the river basin management plan.

Delivering Scenario C implies additional costs over Scenarios A and B. These additional costs mainly fall on the Environment Agency. This expenditure is also delivering benefits. Our best estimate puts this at £0.2 million per year, all of which is through cost savings from investigations.

#### Costs

Average Annual Undiscounted Costs (£m)	Total PV (£m)	% of PV
0.8	11.7	<ul style="list-style-type: none"> <li>○ Environment Agency (97.3%)</li> <li>○ Local Government (0.6%)</li> </ul>

#### Benefits

Average Annual Undiscounted Benefits (£m)	Total PV (£m)	Other benefits not expressed in monetary terms include:
0.2	0.9	The other benefits will include all of the benefits expressed in Scenario A above. Compared to Scenario B, these benefits will be greater in magnitude and will occur in more places.

In addition to the specific scenario C measures mentioned in this plan further work will take place during the consultation period to identify additional actions that are worthwhile, including water protection zones, and actions to: improve morphological condition (specifically barriers to fish movements); control the spread of invasive non-native species; investigate ways to deal with pollution from non-coal mines; address pollution from forestry activities; and manage diffuse pollution.

**Q4** We have followed a process to assess (appraise) the actions. This process is described in detail in annex E. Do you agree with how we have done this?

- » Information about the principles for each scenario can be found in annex E.
- » Information about the actions under each of the scenarios, grouped according to the sectors that will be responsible for delivering them is in annex C, and annex D for Natura 2000.
- » Information about the actions under scenario A and B, grouped by catchments, is included in annex B.
- » Information about the actions associated with hydromorphology can be found in Annex C.

### 7.3. Key contributions from different sectors

The tables below set out the key actions that the sectors will be expected to lead on, or where they will be the main partner.

- » Information about all the actions under each of the scenarios, grouped according to the sectors that will be responsible for delivering them is available in annex C

### 7.3.1. Agriculture and rural land management

Action	What this does	where	by
<b>What is already happening and what will happen - scenario A</b>			
Maintain a nationally funded advice-led partnership under the Catchment Sensitive Farming (CSF) Programme	Reduce the risk of diffuse water pollution from agriculture in CSF catchments	In CSF Catchments	2009
Establish and enforce Nitrate Vulnerable Zones (NVZs) in river catchments at a high risk from nitrate pollution	Reduce the amount of nitrate entering water from farmland	In NVZs	2009
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Co-ordinate all the efforts to deliver environmental benefits under a strong regional partnership focussed on farm pollution prevention	Reduced agricultural pollution through a better integrated and more efficient programme of economic incentives, education programmes and enforcement.	Across the River Basin District	2012
Extend existing CSF programme to include river catchments currently at risk from diffuse water pollution from agriculture	Enable these at risk catchments to benefit from the nationally funded advice-led partnership under the catchment sensitive farming programme.	South Hams, Axe, and West Cornwall	2009
Establish Strategic Partnership Catchments in river catchments at risk from agricultural diffuse water pollution that are not currently covered by CSF programme	The Strategic Partnership Areas are to benefit from further funding in order to reduce diffuse water pollution from agriculture.	River Taw and Torridge and Blue Anchor catchments.	2009
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Where appropriate, and subject to local consultation, designate a limited number of Water Protection Zones from 2009 and apply appropriate actions within them to control high risk activities. Further WPZs may be designated, subject to evidence and local consultation, from 2012	Regulatory tool to control diffuse pollution in high risk areas where other mechanisms are not working or unlikely to work	Initially around 8 WPZs in locations to be decided across England	from 2009 with possibility of further WPZs from 2012
<b>Uncertain if cost of measure is proportionate - further work needed to improve confidence in expected benefits</b>			
Identify sites where afforestation will help protect or enhance the water environment, and review Forestry Commission grant schemes to encourage tree planting	Deliver protection of the water environment in a more sustainable way, with wider public benefits	Sites to be identified	2012
<b>Technical feasibility uncertain - further work needed to demonstrate that the measure is technically feasible</b>			

### 7.3.2. Central Government

Action	What this does	where	by
<b>What is already happening and what will happen - scenario A</b>			
Maintain a nationally funded advice-led partnership under the Catchment Sensitive Farming (CSF) Programme	Reduce the risk of diffuse water pollution from agriculture in CSF catchments	In CSF Catchments	2009
Establish and enforce Nitrate Vulnerable Zones (NVZs) in river catchments at a high risk from nitrate pollution	Reduce the amount of nitrate entering water from farmland	In NVZs	2009
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Implement the action plan to support the "Invasive non-native species framework strategy for Great Britain" (see Annex F)	Prevents the spread of invasive species leading to the deterioration of the quality of waters.	Nationally	2009
Designate Marine Protected Areas, Extended Bass Nursery Areas, and Area exclusion of fishing methods such as dredging / trawling ground / fixed engine.	Improves the security and ecological quality of inshore fisheries	Sites to be identified	2021

Actions that could happen if we had more certainty they would be proportionate & feasible - Scenario C			
Where appropriate, and subject to local consultation, designate a limited number of Water Protection Zones from 2009 and apply appropriate actions within them to control high risk activities. Further WPZs may be designated, subject to evidence and local consultation, from 2012	Regulatory tool to control diffuse pollution in high risk areas where other mechanisms are not working or unlikely to work	Initially around 8 WPZs in locations to be decided across England	from 2009 with possibility of further WPZs from 2012
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			
Continue the Catchment Sensitive Farming Programme after the current programme expires in 2010 to include river catchments currently at risk from diffuse water pollution from agriculture.	This will enable at risk catchments to continue to benefit from the nationally funded advice-led partnership under the catchment sensitive farming programme.	In river catchments identified as still at risk within the River Basin District in 2010	2010
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			
Defra is considering the need to take action on phosphates in the water environment and the contribution that controls on domestic laundry cleaning products might make to that process.	Would help to control the amount of phosphorus in waste waters and in sewage effluent, and help to reduce the risk of eutrophication	Nationally	2015
<b>Uncertain if cost of measure is proportionate</b> – further work needed to improve confidence in expected benefits			
Defra is considering a range of options to reduce the impacts from sewer misconnections. These include voluntary (public awareness raising and training for plumbers) and regulatory (transfer of powers – power currently with local authorities but could be passed to sewerage undertakers) options.	Helps to prevent and limit inputs of pollutants to surface waters	Nationally	2015
<b>Uncertain if cost of measure is proportionate</b> – further work needed to improve confidence in expected benefits			
Defra is considering regulation based on best practice, which will cover the abuse of the drainage system, commercial washing activities, surface water control plans on construction sites and site management for industrial, institutional and commercial sites.	Reduce emissions of priority substances, priority hazardous substances or specific pollutants as well as organic pollution from urban and industrial activity	Nationally	2015
<b>Uncertain if cost of measure is proportionate</b> – further work needed to improve confidence in expected benefits			

### 7.3.3. Environment Agency

Action	What this does	where	by
What is already happening and what will happen - scenario A			
Environment Agency environmental monitoring programme	Continue to develop our understanding of the state of the water environment	Across South West River Basin District	2015
Establish and implement a project on the Tidal Clyst targeting physical modification	Deliver biodiversity and other benefits	Tidal Clyst, Devon	2015
Additional actions that will happen if this plan is approved - scenario B			
Programme of investigations to understand why water bodies are not achieving good status	Reduce uncertainty about causes of failure and develop solutions	In water bodies where reasons for not achieving good status are unclear	2015
Continue programme of Soil Structural Survey work.	Improved understanding to support agricultural advisory work and to target resources	Build on existing dataset by surveying on Dartmoor and Exmoor initially, then a rolling programme	2012
Actions that could happen if we had more certainty they would be proportionate & feasible - Scenario C			
Local pollution prevention campaigns targeting businesses and industry.	Raise awareness of the need for responsible handling and disposal of	In water bodies identified as being at risk or not achieving	2012

	chemicals and other pollutants	good status	
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			
Form partnerships to deliver a programme to resolve barriers to fish migration	Open up previously inaccessible areas to fish movement	At weirs where improvements are identified as feasible	2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			

### 7.3.4. Angling, Fisheries and Conservation

Action	What this does	where	by
<b>What is already happening and what will happen - scenario A</b>			
Work with the Environment Agency to identify barriers to fish migration, and explore feasibility of solutions	Provide a programme of feasible improvements	In rivers where barriers present a problem	2012
Develop and deliver programme of habitat management work to improve fish habitats	Improve river habitat quality	In rivers with poor habitat quality	2015
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Designate Marine Protected Areas, Extended Bass Nursery Areas, and Area exclusion of fishing methods such as dredging / trawling ground / fixed engine.	Improves the security and ecological quality of inshore fisheries	Sites to be identified	2021
Restore wetlands through the 'Working Wetlands' project, which will investigate and implement wetland restoration	Deliver ecological and water resource benefits from re-establishing wetland function	Mid and East Devon, Tamar	2015
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Extend the Exmoor MIREs project to include Dartmoor.	Investigation and implementation of wetland restoration	Exmoor and Dartmoor	2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			
Establish a SW non-native invasive species Forum	ensure efforts are coordinated and make more efficient use of existing staff and resources	Across South West River Basin District	2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			

### 7.3.5. Industry, Manufacturing & other Business

Action	What this does	where	by
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Industry support for programme of investigations where required	Reduce uncertainty and provide additional information	In water bodies not achieving good status	2015
Implement Watercress growers voluntary code of practice	Help reduce the risks to the water environment this industry presents	Hampshire Avon, Dorset	2012
Cooperation with local pollution prevention campaigns and pollution prevention work	Improves the outcomes of this activity	In water bodies not achieving good status, or identified as being at risk	2015
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Contribute to the implementation of habitat improvement works	Improves the outcomes of this activity	In rivers with poor habitat quality	2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			

### 7.3.6. Local and Regional Government

Action	What this does	where	by
<b>What is already happening and what will happen - scenario A</b>			
Ensure strong water efficiency policies are included in Spatial Strategies and Local Development Plans / Frameworks	Embeds the need for water efficiency in the planning framework	Across South West River Basin District	2015
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Review applicability of national legislation to the Isles of Scilly and identify how measures will be delivered.	Provides clarity on how water framework directive will be delivered in the Isles of Scilly	Isles of Scilly	2012
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Move toward water neutrality through	Manages some of the	Across South West River	2015

Action	What this does	where	by
Local Development Frameworks by balancing any increased demand for water in areas with a growing population with water efficiency measures in the same area.	consequences of population growth on the water environment	Basin District, focussing on growth areas particularly	
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			
Include Sustainable Drainage Systems in new development, and retrofit where possible	Manages many of the impacts of surface water drainage on the environment and in many cases provides additional amenity benefits	Across South West River Basin District, focussing on growth areas particularly	2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			

### 7.3.7. Mining and Quarrying

Action	What this does	where	by
<b>What is already happening and what will happen - scenario A</b>			
Environment Agency Science project on sustainable management of minewater pollution in the Tamar catchment	Identifies the most sustainable way of dealing with minewater pollution	Tamar catchment	2012
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Investigate discharges from Abandoned Metal Mines and prioritise sites for inclusion in National agreement with metal mine partner organisations.	Identifies where resources are best used to maximise environmental outcomes	In catchments affected by minewaters	2015
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Implementation of best practice controls and remediation at Abandoned Metal Mines	Reduces minewater pollution	Metal Mines identified in 72 water bodies	2027
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			
Develop agreements to manage any impacts arising from the withdrawal of the China Clay Industry	Reduces risk of china clay impacts where activity ceases	West Cornwall and the Fal	2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			

### 7.3.8. Navigation

Action	What this does	where	by
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Help prevent illegal use of old Tributyltin containing products	Reduces the risk of pollution by tributyltin	Around ports and harbours	2012
Defra to develop national guidance framework on disposal of dredgings to inform Programme of Measures to meet WFD objectives.	Ensures all appropriate steps are taken to minimise contamination being released during dredge and disposal operations	Around ports and harbours	2015
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Measures to deliver Good Ecological Potential on water bodies designated as artificial or heavily modified.	Ensures all reasonable mitigation measures are in place on heavily modified waterbodies	Where good ecological potential is not being achieved	2027
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits <b>and Technical feasibility uncertain</b> - further work needed to demonstrate that the measure is technically feasible			

### 7.3.9. Urban & Transport

Action	What this does	where	by
<b>What is already happening and what will happen - scenario A</b>			
Modify abstraction licences for amenity purposes to ensure no adverse impact on Natura 2000 Protected Areas	Reduces the impact of abstractions on the water environment	Around Natura 2000 protected areas	2015
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Ensure that non-native invasive species do not spread as a result of weed cutting activity by establishing a weed removal Code of Practice	Reduces risks from non-native invasive species	South and West Somerset	2012

Action	What this does	where	by
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Investigate solutions to reduce impacts of road runoff on fish populations	Identify how these impacts can be best managed	Problem areas identified in South Devon and North Cornwall	2012
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			
Manage impact of urban and highway runoff by encouraging the use and retrofitting of Sustainable Drainage Systems (SuDS)	Provide more sustainable way of treating this source of diffuse pollution, and deliver wider public benefits	Problem areas identified in East Devon, South and West Somerset	2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			

### 7.3.10. Water Industry

Action	What this does	where	by
<b>What is already happening and what will happen - scenario A</b>			
Complete the current round of water company asset investment	Deliver water quality improvements and investigate the impact of abstraction across the River Basin District	Rivers, coasts and estuaries across the River Basin District	By 2009
Coordinated education and awareness campaigns on water efficiency and re-use	Help reduce demand through promoting the value of water	Across the River Basin District	2015
Improvements to water company assets under the next round of company investment (PR09).	Deliver further water quality improvements across the River Basin District and reduce the impact of abstraction in natura 2000 protected areas	Rivers, coasts and estuaries across the River Basin District	By 2015
<b>Additional actions that will happen if this plan is approved - scenario B</b>			
Pilot variable tariffs to manage demand	Reduce water demand while ensuring water needs are met for all	Rivers, coasts and estuaries across the River Basin District	By 2015
Funding of catchment advisors to deliver land management advice	Secure more sustainable water resource protection	Around strategic water supplies	By 2015
<b>Actions that could happen if we had more certainty they would be proportionate &amp; feasible - Scenario C</b>			
Use of afforestation to protect water resources in a more sustainable way	Deliver sustainable water resource protection	Around strategic water supplies	By 2015
<b>Uncertain if cost of measure is proportionate</b> - further work needed to improve confidence in expected benefits			

Finalisation of the water industry periodic review process is running in parallel to this consultation. Measures to be delivered by the water industry, and their predicted outcomes can change from those used to develop the draft plan. Any additions, deletions or alterations and any subsequent changes of predicted outcomes will be made available to inform the consultation as they become available.

- » This is a **summary** of all the actions that will be taken. Full tables of actions are in annex C and for actions relating to Natura 2000 protected areas, annex D.
- » Local actions acting on a particular water body can be found through the 'whats in your backyard' tool on the Environment Agency website

**Q5** What comments do you have on these actions? Are there any actions that we have missed, or any changes you'd propose?

**Q6** What comments on Scenario C actions do you have, including any additional information you can supply about specific actions?

**Q7** What support can you offer, such as undertaking any actions or providing resources, to help deliver more for your environment?

## 8. Planning for changing conditions

### 8.1. Background

- 8.1.1. River basin management gives an opportunity to work on a long-term programme of environmental improvement. Through this, we will all be better equipped to adapt to changing conditions caused by climate change and development, and extremes such as drought and floods.

### 8.2. Climate change

- 8.2.1. Climate change is likely to have a significant effect on underlying environmental conditions, the impact of human activity on the water environment and the effectiveness of the actions that are put in place to manage these impacts. Actions that are implemented need to be as effective in a future climate as they are now, and not add to the climate change burden.
- 8.2.2. The UK Climate Impacts Programme predicts that we will experience hotter drier summers, warmer wetter winters and rising sea levels. We need to take account of these changes in assessing the scale of the pressures on the water environment. This will help ensure that the actions proposed in this draft river basin management plan will continue to meet their objectives and that investment decisions are effective.

Table 2 **Qualitative description of how climate change may change the risk of pressures**

Pressure	Increased risk
Abstraction and other artificial flow pressures	High
Biological pressures (fisheries management)	High
Biological pressures (invasive non-native species)	Medium
Microbiological pressures (including faecal indicator organisms)	Medium - High
Organic pollution pressure	Medium
Nutrients pressure (nitrogen and phosphorus)	Medium
Hazardous substances pressure	Medium - Low
Acidification pressure	Low
Salinity pressure	Medium
Temperature pressure (from point source discharges)	Low
Physical modification pressure	High
Sediment pressure	High

- 8.2.3. Our screening analysis of the proposed actions shows that would be effective under a range of climatic conditions so they will help us tackle pressures both now and under the future climate. Most actions can also be adapted so climate change should not rule out implementing them now.
- 8.2.4. No single body is responsible for ensuring climate change adaptation in the water environment. Delivery will best be achieved through partnerships and integration of activities. Working together on river basin management is a great opportunity to achieve this.

## **Q8** Do you agree with our assessment of how climate change will affect pressures on the water environment? What would you change?

» Information about our assessment of the impact of climate change is in annex H.

### **8.3. Development**

- 8.3.1. Current and emerging spatial plans will set out future growth up to 2021. In addition Ecotowns may be developed in the South West river basin district, with only one currently proposed near to St Austell. The catchment profiles indicate the areas where most growth will take place. In turn the spatial plans are an opportunity for us to improve the water environment by influencing the planning policy framework, and planning decisions, to direct resources that can assist in achieving appropriate environmental outcomes.
- 8.3.2. The environmental report under the Strategic Environmental Assessment reviews the effect of the actions proposed in this plan, including any impacts on climate change and from development.

### **8.4. Flooding and coastal erosion**

- 8.4.1. Flooding and coastal erosion are very important issues, and have a separate planning process alongside the new European Floods Directive. Because defences and control structures impact on ecology, the river basin management plan and all actions proposed need to take account of the need for and the impact of flood and coastal erosion risk management. Catchment Flood Management Plans and Shoreline Management Plans will take into account the objectives of the Water Framework Directive.
- 8.4.2. The Environment Agency plans its flood and coastal risk management capital investment through the Medium Term Plan, which is a rolling 5 Year investment plan that lists proposed projects. Using this, we will identify flood and coastal risk management activities that are relevant to the water body specific objectives in the river basin management plan. These activities will be implemented with the goal of enhancing the ecology of water bodies where possible and so as not to cause deterioration of Ecological Status, nor impede the delivery of water body objectives unless fully justified under Article 4.7 of the Directive.

## 9. Further Information

### 9.1. Strategic environmental assessment

- 9.1.1. Strategic environmental assessment reviews the effects of the actions proposed in this consultation on the environment, including any impacts on climate change. Through this assessment, as well as the impact assessment, we will be able to make sure that the final plan represents the most sustainable way of managing the water environment.

» We will publish an environmental report at the same time as this consultation. Copies are available through our website at [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk) or from the contact given at the end of this document.

### 9.2. Habitats Directive assessments

- 9.2.1. River basin management plans also fall within the scope of the Habitats Directive. This means that each river basin management plan will require an assessment of its likely effects on any Natura 2000 sites within, or hydrologically linked to, the river basin district. Whilst it is unlikely that any parts of the plan will have a significant adverse effect, an initial assessment by us will determine if the objectives and actions contained within the river basin management plans pass a number of tests.
- 9.2.2. These tests will look at whether the river basin management plans contain actions to support the achievement of objectives for Natura 2000 sites in the time required; that the objectives within the river basin management plan are not less stringent than those already used to determine consents and licences as part of previous Habitats Directive assessments; and that the plans contain no exemptions, derogations or less stringent objectives for Natura 2000 sites other than those that are compatible with the Habitats and Birds Directives.
- 9.2.3. If the river basin management plans do not pass these tests and do not appear to be meeting their obligations for Natura 2000 sites, then a fuller assessment may be required.

## Give us your views

We encourage you to respond by using our online consultation on our website at [www.environment-agency.gov.uk/wfd](http://www.environment-agency.gov.uk/wfd). From here, you will be able to download the draft river basin management plan consultation document and annexes and find out more information about river basin management planning and the Water Framework Directive.

Alternatively you can return a copy of the question form, request additional information, or contact us in any of these ways:

- email at [southwestrbd@environment-agency.gov.uk](mailto:southwestrbd@environment-agency.gov.uk)
- phone on 01392 352264
- post to Ben Bunting, Environment Agency (South West Region), Manley House, Kestrel Way, Exeter EX2 7LQ.

We will use your comments to help us revise the proposals, and will publish a response document to show how we will do this on our website by 22 September 2009. We will then publish the first river basin management plan for the South West river basin district in December 2009.

**This consultation closes on 22 June 2009.**

### Data Protection Notice

The Environment Agency will use the information you provide to produce the first South West river basin management plan in 2009. We may need to use your personal information to contact you during this consultation period to clarify any comments. We may make your information available to members of the South West river basin district Liaison Panel, or our agents/representatives to do these things on our behalf. If you do not want us to contact you, please let us know.

Under the Freedom of Information Act 2000 and Environmental Information Regulations 2004 we have to disclose information that we hold if people ask for it. This is subject to the exemptions/exceptions and the 'public interest test' set out in the legislation.

### Compliance with the Government's Code of Practice on Consultation

This consultation is being run in accordance with the criteria set out in the Government's Code of Practice on Consultation. If you have any queries or complaints about how the consultation has been carried out, please contact:

- post to Cath Beaver, Consultation Co-ordinator, Environment Agency, Rio House, Aztec West, Bristol BS32 4UD.
- email: [cath.beaver@environment-agency.gov.uk](mailto:cath.beaver@environment-agency.gov.uk)

## Consultation questions

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**This plan sets out objectives for the water environment for the next six years and beyond. To what extent do you agree with what the plan aims to achieve?**

- 1** Do you agree with the assessment of problems in water bodies? What would you change?
  - 2** Do you agree with the proposed objectives? What would you change?
  - 3** For some water bodies we have proposed objectives with deadlines after 2015 or a lower overall target. Do you agree with these changes we have proposed? What would you change?
- 

**This plan sets out the actions required to meet the objectives. To what extent do you agree that the right actions have been identified (actions that are proportionate and feasible)?**

- 4** We have followed a process to assess (appraise) the actions. This process is described in detail in annex E. Do you agree with how we have done this?
  - 5** What comments do you have on these actions? Are there any actions that have been missed, or any changes you'd propose?
- 

**There are some extra actions that could be put in place if there were more certainty that they would be effective. These are listed under scenario C, and we would like to know if you can help to make these actions happen.**

- 6** What comments on Scenario C actions do you have, including any additional information you can supply about specific actions?
  - 7** What support can you offer, such as undertaking any actions or providing resources, to help deliver more for your environment?
- 

**Any other comments you may have on this plan**

- 8** Do you agree with our assessment of how climate change will affect pressures on the water environment? What would you change?
  - 9** Do you have any other comments on this draft plan that you haven't already given?
-

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(Calls from mobile phones are not free and will be charged at normal network operator's call rates)

floodline 0845 988 1188 (24 hour)