

# Water for life and livelihoods



**River basin management planning:**

**Challenges and choices consultation**

**Response document**

We are the Environment Agency. We protect and improve the environment and make it **a better place** for people and wildlife.

We operate at the place where environmental change has its greatest impact on people's lives. We reduce the risks to people and properties from flooding; make sure there is enough water for people and wildlife; protect and improve air, land and water quality and apply the environmental standards within which industry can operate.

Acting to reduce climate change and helping people and wildlife adapt to its consequences are at the heart of all that we do.

We cannot do this alone. We work closely with a wide range of partners including government, business, local authorities, other agencies, civil society groups and the communities we serve.

**Published by:**

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[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

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# Foreword

Good water quality – in rivers, lakes, estuaries, coasts and groundwater – is essential to the natural environment and for people's health and wellbeing. It is also important for economic prosperity. The framework which describes how England will get to good water quality is explained through the Environment Agency river basin management planning consultations.

The 'Challenges and choices' consultation was the second of three consultations within this framework, which will inform the update to the river basin management plans in 2015. These plans will describe what businesses, water users and organisations will need to do to protect and improve the water environment up to 2027.

In Challenges and choices, the Environment Agency described what we think the biggest challenges affecting the water environment are and outlined ideas on how to address them. We asked for your views on the issues, what you thought should be done and how you or organisations you represent could help protect and improve the water environment.

The consultation started on 22 June 2013. It was conducted in two parts; a national consultation which looked at the issues relevant to all of England's waters and regionally specific consultations for each river basin district. The national consultation ended on 22 September 2013 and the river basin district consultation on 22 December 2013.

Throughout the consultation we were very encouraged by the level of involvement and response from organisations and individuals. Many more people were actively involved in the consultation than in 2007. We value all the comments and feedback we have received; all the responses are being carefully considered and will help inform how the water environment is managed, protected and improved.

This document provides a summary of the comments we have received, our response to those comments and how we will take them forward in our proposals for the updated river basin management plans.

I'd like to thank everyone who has taken part in the 'Challenges and choices' consultation. If we continue to work with each other, the health of the water across the country will improve faster and in the places that matter most to people and communities. I look forward to exploring what more we can achieve together in the future.

**David Baxter**

Deputy Director, Water Framework Directive  
Environment Agency

## Executive summary

We received nearly 800 responses to the national and river basin district consultations. These came from a diverse range of groups, organisations and individuals, including water, energy and industrial companies, charities, non-governmental organisations and wildlife groups. Across the responses, there was general agreement that the water management issues highlighted in the consultation documents were the right ones to focus on. Particular priorities were:

- A greater need to look for multiple benefits when considering rural land management decisions
- Managing current and future abstraction of water
- Pollution from towns and cities
- The use of pesticides and the impact of these chemicals on drinking water supplies

Many of you also highlighted the challenge of sustaining England's water environment, in light of predicted population growth and climate change, and the need to manage flood risk while protecting and improving the environment.

You also highlighted some of the challenges around the way improvements to the water environment are planned and delivered.

- You want action planning to be better joined up, for instance between flooding, environment, and agriculture, and for this to be supported by good evidence
- You support the catchment based approach to river basin planning and delivery and the proposal to take a 'benefits-led' approach to this with local delivery informed by an overarching strategy
- You want delivery to happen through partnerships and closer links to communities
- You want more clarity on how possible solutions could be funded and how decisions on allocating funding will be made

Many responses focused on the benefits of more integrated land-use planning. This is an area where the Environment Agency has limited remit. However, Defra's policy is to support the catchment based approach to provide opportunities for greater local engagement and more integrated land use planning. We shall continue to promote this with all organisations who make decisions that affect the quality of catchments.<sup>1</sup>

We've already made a number of changes as a result of what you have told us during the consultations, such as strengthening the links between important planning processes, improving and sharing work to understand the costs and benefits of delivering improvements and changing the scope and

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<sup>1</sup> <https://www.gov.uk/government/publications/catchment-based-approach-improving-the-quality-of-our-water-environment>

timing of the next consultation. We value your ongoing involvement, the conversations and dialogue with you will continue, and you will see responses to the consultation, reflected in the way we work and considered in the proposed updates to the river basin management plan.

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# 1 Introduction

In December 2009 the Environment Agency published the current river basin management plans. With our partners, we are now reviewing and updating them.

We are leading on 8 of the plans in England; a further 3 plans are cross-border and we are working with Natural Resources Wales and the Scottish Environmental Protection Agency on these. See the [annex](#) for a map of the river basin districts.

The updated plans will be published in December 2015, following government approval and sign-off by the Secretary of State.

Understanding the benefits to people and communities from a healthy water environment is at the heart of river basin management planning. It also helps us target investment where it will bring most benefit.

In the first public consultation, 'Working Together', which ran until December 2012, we asked for views on how we can best work together to protect and improve the water environment. The summary, response and progress documents are now on our website. These provide details of the responses we received, the actions we planned and progress with those actions. [You can read the 'Working Together' consultation documents on our website.](http://www.environment-agency.gov.uk/research/planning/33254.aspx) (www.environment-agency.gov.uk/research/planning/33254.aspx).

The 'Challenges and choices' consultation was the second consultation and gave communities and our partners the opportunity to tell us what they think are the most significant issues for the water environment and how they should be addressed.

We have also sought views from the general public on water management issues and the benefits of a healthy water environment, through a project funded by Sciencewise.

This document now summarises the number and type of responses received during the 'Challenges and choices' consultation, the key points raised and how we will take account of them as the river basin management plans are developed.

In this consultation we asked for views on:

- the significant issues affecting waters and limit the benefits available to people and communities from their local water environment
- the best way to address these issues and what should be done first

The Sciencewise project asked for views on:

- water management issues
- the benefits of a healthy water environment

The 'Challenges and choices' consultation documents were published via our e-consultation tool and hard copies were available in our main offices. [They are also available on our website](http://www.environment-agency.gov.uk/research/planning/33252.aspx) (www.environment-agency.gov.uk/research/planning/33252.aspx).

This response document is a snapshot of the information we have available at the present time. We have drawn out the key themes and summarised the responses, indicating where respondents have broadly agreed or disagreed with our views on the significant issues at a national and/or river basin district scale. More detail on the main national issues can be seen in the tables in the [annex](#).

### **1.1 Objectives for this response document**

- To summarise the consultation and engagement process
- To present summary information on:
  - the number of responses submitted
  - the types of organisation that responded
  - how people responded
- To present summaries of points made in the responses we received
- To explain how we are going to use this information in the next cycle of river basin management planning

## **2 England's waters – national consultation**

### **2.1 Numbers informed and responding**

In total, 56 people and organisations responded to the England's Waters: Challenges and Choices consultation.

We informed over 700 national organisations and individuals about the consultation via email, and more than a further 500 organisations and individuals at meetings and events.

Across England, we contacted a wide range of groups about river basin management planning and this consultation from a broad range of sectors, including: academia; agriculture and rural land management; angling and fisheries; charities; community groups; NGOs (such as national parks, rivers trusts and local records centres); central government; marine; industry; manufacturing and other business; local government (including MPs, highways, transport); navigation; recreation (including boating); tourism and utility companies.



## 2.2 Key findings and actions

The national consultation asked four questions:

**Q1.** What do you consider to be the significant issues facing waters in England?

**Q2.** Do you agree with our description of the issues affecting the water environment and society?

**Q3.** How do you think these issues should be tackled?

**Q4.** What could you, or the organisation you represent, do to better protect and improve England's waters?

This section provides information on the main points from the responses, discusses the different opinions offered and how we will use them to shape the next phase of consultation. More detail on the consultation responses and how we are taking them into account can be found in the [annex](#). The graphic below is a summary of the issues raised.



It was generally agreed that the issues highlighted in the consultation were the right ones, with a wide range of views on what could be done to address them. Other issues and views raised included:

**A lack of appropriate river management** - a research framework is being established to consider how to work more with natural processes whilst reducing flood risk. Environmental impact assessment will also explore opportunities on a project-by-project basis. Catchment partnerships also provide an opportunity for stakeholders to develop a shared understanding of the catchment. Where this thinking is already well developed, it will be included in the river basin planning process.

**The impact of invasive non-native species (INNS)** - a small number of responses suggested that the case for the impact of these species was not made clearly enough. We have assessed the impact on wildlife and on sustainability and recognise that they pose a significant risk to the integrity /health of the water environment. This is well described in the Article 5 risk assessments. The next consultation will explore what steps are necessary to address this problem, based on a thorough cost benefit analysis of proposed measures.

**The challenge of sustaining our water environment in the face of climate change, and the carbon impacts of more intensive treatment technologies** were raised as additional issues. We will set out how current thinking has shaped decisions so far, in the next phase of consultation. This thinking has been incorporated into the assessment of costs and benefits, has shaped the choice of proposed measures included and has driven greater consideration of the contribution the water environment makes to climate regulation and resilience.

We have been involved in research looking at how achieving good ecological status under the Water Framework Directive might affect overall carbon emissions. We are carrying out trials (for example with Severn Trent Water on variable permits) to assess what environmental benefits would be gained from lower carbon approaches to wastewater treatment. We will work with water companies to apply these where possible.

**Concerns over ensuring a sustainable water supply** in the face of aging infrastructure and population growth.

We agree that current and future pressures on water availability for people and the environment come from a combination of the need for increased abstraction, resulting from population growth, along with the potential impacts of climate change. We are working with Defra to reform the abstraction licensing system to allow us greater flexibility to manage these challenges and will support key sectors in planning for these pressures.

**The need for better integrated planning**, with a view to providing multiple benefits to water users.

Possible measures will be explored in the next phase of consultation, with a focus on integrated actions to deliver environmental and other benefits. We will also continue to coordinate closely with **flood risk management planning**, explaining how the river basin and flood risk management plans relate to each other and, as far as possible, join up our engagement activities with stakeholders who have interests in both areas of work.

**The renewed focus on the Catchment Based Approach** was supported. The catchment-based approach will provide a clear understanding of the issues in the catchment. It will involve local communities in decision-making by sharing evidence, listening to their ideas and assessing priorities. Local

issues will be addressed in a cost effective way and protect local resources. Several responses identified the need to ensure that this more local focus does not undermine the ability to act strategically; delivery needs to be coordinated and prioritised across many catchments to address common issues.

The **benefits of water use** (for instance in recreation, power generation, food production and the historic environment) - these were thought to be inadequately championed or discussed as a possible driver for setting alternative objectives. They will be explored in more detail in the next phase of consultation.

The need to **take an evidence-led approach** in particular around nutrient and abstraction management - we have identified phosphorus and freshwater eutrophication as a significant water management issue nationally. We have made significant progress with assessing the extent of eutrophication in rivers and lakes with elevated nutrient levels through a programme of investigations. We also recognise the complexity of the relationship between flow and ecology. We use 'Environmental Flow Indicators' (EFIs) as a screening test to identify where more detailed investigations into the ecological impact of reduced flows are needed. The outputs of these pieces of work form the basis of the nutrient control and flow measures that will be included in the next phase of consultation.

Responses highlighted the need for **an integrated approach to addressing the impact of land management** across a range of pressures, including sediment, pesticides, nutrients and faecal contaminants.

Others highlighted **a lack of financial incentives** and long term funding to encourage action by the agricultural industry. Work is underway through the Defra Water Quality and Agriculture project, work on the new environmental land management scheme and other initiatives, all of which continue to improve the measures and mechanisms for tackling diffuse pollution from agriculture. We are closely involved in this work, and will reflect the outputs of this work in the next phase of consultation.

Lastly, several stakeholders felt that **more effort on awareness-raising** with the general public was needed. To improve our understanding in this area, we have sought people's views and opinions on what really matters to them with regard to water management issues and pressures. The results are being used to shape the next phase of consultation. More information can be found in [section 3](#).

### **2.3 Engagement on the consultation**

To help prepare for the 'Challenges and choices' consultation, we held a series of workshops with people from many different sectors. These took place between December 2012 and March 2013. In total over 250 stakeholders from a range of organisations attended the workshops.

The workshops also identified the need for further engagement on specific topics. A follow-up workshop on food and phosphorus was held in early 2013, and workshops on abstraction in July 2013.

The consultation was on the agenda at a number of national meetings. For example: the National Liaison Panel for England; the Cleaner Seas Forum in July 2013; the IWEM/CWS hydromorphology and hydropower conference in November 2013; the Food & Drink Industry (10 trade associations); the Confederation of Paper Industries and the UKFT (textiles industry) throughout the summer and in November 2013.

We held breakfast seminars as an additional way of reaching more people. In the Humber and Severn River Basin Districts, breakfast seminars held jointly with the British Land Reclamation Society to discuss land and water issues attracted nearly 40 delegates from the private sector, local authorities and the Canal and River Trust.

We made external briefing packs available on the website, and promoted the consultation through social media.

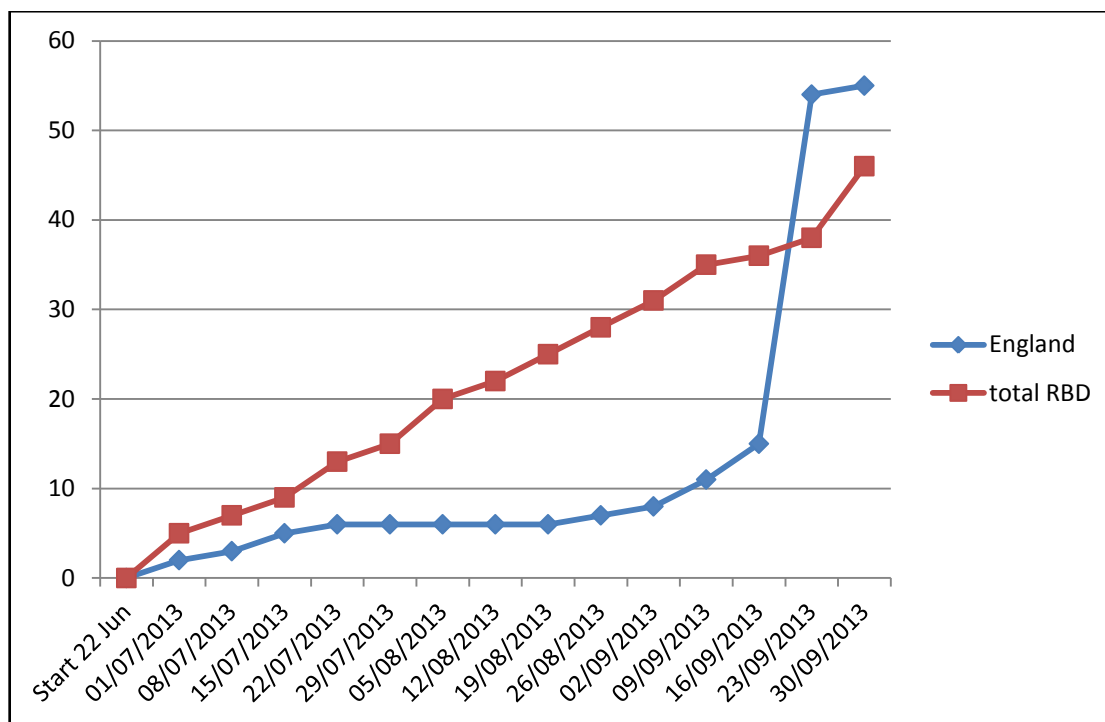
We made it possible for individuals and organisations to respond more easily to the consultation in a format that suited them; on-line, at meetings, or by written correspondence.

## **2.4 Summary statistics**

A total of 56 responses were received for the England's waters (national) consultation.

A graph showing the numbers of responses received from 22 June 2013 until the end of the consultation period (for both the national and RBD consultations) is shown below.

For the England's waters consultation, 71% of the responses were received in the last week. Only 11% were received in the first month, and 6 responses were received after the closing date.



A similar response pattern was seen in the 'Working Together' consultation, where 80% of responses were received in the last month of the 6-month consultation.

### How were responses submitted?

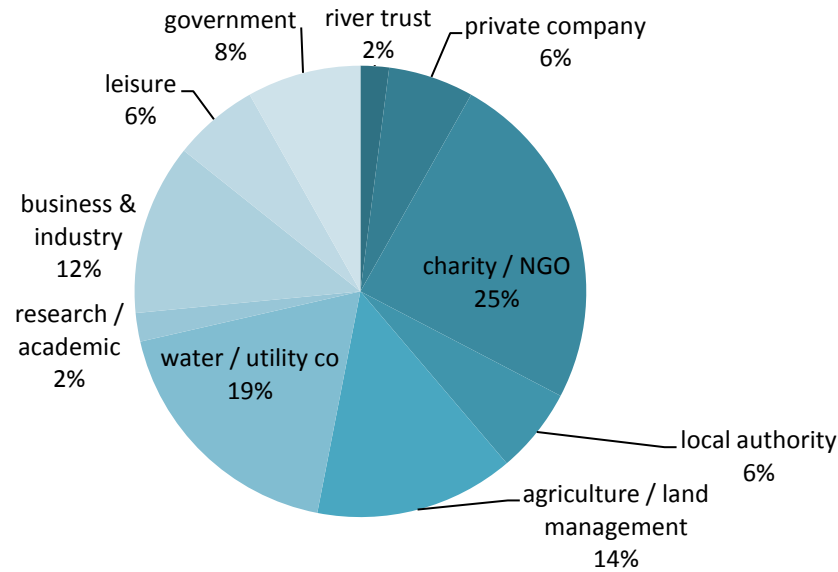
The majority of consultation responses (64%) were submitted via the on-line e-consultation tool and 35% by email. Most email submissions arrived towards the end of the consultation period and made up a third of the responses. Responses via meetings were also recorded by Environment Agency staff and uploaded onto the e-consultation tool.

### Who were responses from?

The majority (85%) of responses were received from groups or organisations and 13% from individuals.

The highest numbers of responses were submitted by charities, Non Governmental Organisations (NGOs) and water / utility companies.

## Groups and organisations responding - Englands waters



Charities and NGOs included: Wildlife Trusts; RSPB; Canal Trust; Wildfowl and Wetland Trust, Buglife and the Woodland Trust.

Business and industry organisations included the Non-ferrous Alliance, Chemical Industries Association and the Food and Drink Federation.

Agriculture and land management groups included the Agriculture Industry Group and drainage boards.

Water and utility company replies made up 19% of all responses. These included companies across many different areas of the country.

Responses from councils and government bodies made up 14% of the total submissions.

### How did those who responded hear about the consultation?

The majority (69%) heard about the consultation from the Environment Agency. Others heard about it at meetings or from another organisation, and 20% didn't say how they heard about the consultation.

### **3 Public consultation - Sciencewise project**

In order to gather views from the public, the Environment Agency held 7 workshops (to cover each of the river basins, with Humber and Northumbria combined) each with 20 members of the public. The workshops took place between September and October 2013, in different locations across England. They were facilitated by experts in public engagement and were designed to prompt discussion and seek views around some of the key issues in water management. The local river basin programme manager (or a deputy) attended their local workshop to respond to questions.

An eighth re-convened workshop was held in November 2013 to build on the issues and questions raised during the river basin workshops. It was attended by a cross section of members drawn from the previous workshops (20 individuals in total).

[You can see details and reports from the workshops on our website](http://www.environment-agency.gov.uk/research/planning/150057.aspx) (www.environment-agency.gov.uk/research/planning/150057.aspx).

#### **Key findings from the workshops**

In all the workshops, participants expressed genuine surprise at their individual and collective lack of awareness about the issues, especially since discussions touched on everyday issues such as waste disposal or water use in the home. The overwhelming message from the discussions was that communications and awareness-raising is central to addressing the issues at all levels.

Participants identified some issues as being of greater importance to them than others, notably chemicals, bacteria and sanitary pollutants, and also phosphates and nitrates. Participants were most conscious about protecting the quality of water for everyday household use.

During the workshops, participants expressed confidence in the Environment Agency staff and other bodies to make decisions about what actions were best suited to different situations. Despite the overall complexity, participants supported the idea of people taking more responsibility in order to reduce some of the problems.

#### **Omnibus online survey**

In January 2014 we carried out an online survey (via Ipsos MORI i:Omnibus) which captured the views and priorities of 867 members of the public. This provided a quantitative assessment of priorities across England using a limited number of questions. Some initial general questions were designed to provide context such as finding out how often respondents visited the water environment, and asking what respondents felt about the current quality of the water environment in England.

The survey found that the almost 7 in 10 people (69%) visit England's waters at least a few times a year. Just over 1 in 10 (11%) said they never visited the water environment. Of those who have visited England's water environment, over 4 in 10 (46%) people consider the quality of the water environment across England to be about right. Additional questions covered people's attitudes to protecting the water environment, levels of protection for different waters and the willingness to change personal behaviour to protect the water environment.

**We will use the results** of both the workshops and the online survey to help us decide how best to manage the water environment, and in particular, to help influence the priorities for the updated river basin management plans. We will also use the results of this project to help us plan our future communication on water management issues with the public.

The Sciencewise project reports, from both the workshops and the online survey, are due to be published by the end of April 2014. You can see [this report on our website](http://www.environment-agency.gov.uk/research/planning/150057.aspx) (www.environment-agency.gov.uk/research/planning/150057.aspx).

## 4 River Basin District – consultation on Challenges and choices

This section provides information on the river basin district (RBD) consultations; the engagement carried out, the numbers of responses received and the key points from the responses for each river basin district.

We are now assessing the information we have received, so that it can be taken into account when we update the river basin management plans. More details will be available in the updated RBMP (due to be launched on 22 September 2014), showing how these responses are being used.

We will also use these responses in our communications and discussions with partnerships, groups, organisations and others, to share these views more widely, and encourage more informed debate.

Information on the Strategic Environmental Assessment (SEA) consultation is in [section 5](#). Details on the main national issues can be seen in the tables in the [annex](#).

### **We asked five questions in the river basin district consultations:**

**Q1** What do you consider to be the biggest challenges facing waters in the River Basin District (RBD)?



**Q2** Do you agree with our description of how the significant issues are affecting the water environment and society?

**Q3** How do you think these issues should be tackled, and what would you choose to do first?

**The catchments:**

**Q4** How are the significant issues in a catchment affecting the water environment and society?

**Q5** How do you think the challenges affecting each catchment should be tackled and what would you choose to do first?

The total numbers of responses received for each RBD are as shown below:

<b>River Basin District (RBD)</b>	<b>Number of responses</b>
<b>Anglian</b>	71
<b>Humber</b>	85
<b>Northumbria</b>	68
<b>North West</b>	167
<b>Severn</b>	91
<b>South East</b>	75
<b>South West</b>	114
<b>Thames</b>	83

The totals for each RBD include all responses relevant for that RBD. (A small number of responses received were applicable to more than one RBD, therefore there is some double counting).

We will also use these responses in our communications and discussions with partners, groups, organisations and others, to share these views more widely, and encourage more informed debate.

## 4.1 Anglian River Basin District

We had a good response to the consultation and received many detailed comments and a lot of information. This is a snapshot of the information we have available at present. We have drawn out the key themes, stated where there is general agreement or disagreement with the significant issues we identified for this RBD, shown where new measures or priorities were raised, and indicated how these responses will be used. Details of the main national issues can be seen in the tables in the [annex](#). The graphic below is a summary of the issues raised.



### 4.1.1 Numbers informed and responding

The consultation document was particularly aimed at those who are likely to be affected by or have an interest in the process for developing the Anglian River Basin Management Plan.

In total, 71 people and organisations responded to the Anglian River Basin District 'Challenges and choices' consultation. This was a significant increase from the 39 responses received for the previous consultation (Anglian River Basin District Summary of Significant Water Management Issues) which ran from 24 July 2007 to 24 January 2008.

We informed over 520 organisations and individuals about the Challenges and choices consultation via email, and a further 350 organisations and individuals at meetings and events.

Groups and organisations who responded include: parish councils, river trusts, water companies, drainage boards, angling clubs, canoe clubs, industry groups, energy industry, conservation charities and local businesses.

#### 4.1.2 Key findings and actions

We asked 5 questions in this consultation. This section provides information on the main points from the responses and discusses the different opinions provided.

A more detailed response as to how the Environment Agency and our partners will address the points raised in the consultation will be covered in the updated river basin management plans. We will address responses at a catchment level in the updated plan including listing the actions we will adopt and how we will go about prioritising our efforts to address our significant water management issues.

**River Basin District questions:** we asked what you considered to be the biggest challenges facing waters in the Anglian River Basin District, if you agreed with our descriptions on the significant issues, how you thought these issues should be addressed and what should be done first.

#### Q1 What do you consider to be the biggest challenges facing waters in the Anglian River Basin/individual catchments?

We identified the following as the most significant issues in the Anglian River Basin District: **physical modifications; pollution from waste water; pollution from towns, cities and transport; changes to natural level and flow of water; invasive non-native species and pollution from rural areas.**

The majority of respondents broadly agreed that these are the most significant issues and that they are all relevant to varying degrees across the river basin district.

The impacts of **physical modification and high levels of pollution from all sources (both point and diffuse)**, were widely recognised in responses as the two main challenges facing the water environment in the Anglian River Basin District.

**Physical modifications:** A significant proportion of the comments received cited the need to address current perceptions concerning the artificial and heavily modified water environment within the river basin. The landscape scale of modifications, especially in the Fens, was thought not to have been properly captured or appropriately addressed in the consultation.

It was suggested that **greater recognition** should be given to the positive contributions that artificial and heavily modified water bodies make in reducing flood risk and to the wider water environment. More specific comments called for the maintenance regime of water bodies to be reviewed, adopting an

approach that reduced the need for regular maintenance and dredging, encouraging re-naturalisation without increasing flood risk. Other comments also centred around the need to deliver a cost effective, yet environmentally beneficial, fish passage programme for the river basin, which is based on a strong evidence base.

**Pollution from waste water**- there was general agreement that continued investment by water companies is needed at their respective sewage treatment works, to help reduce discharges impacting on the water environment. However, a wider focus is also needed on other actions which are not solely 'end of pipe' solutions, such as reducing polluting substances from source for both home and industry and promoting behavioural change.

**Pollution from rural areas** - many responses referred to rural pollution issues, particularly from agriculture, and the need for effective management, incentives and controls. Generally, respondents agreed that utilising and supporting current initiatives such as Catchment Sensitive Farming, CAP reform and other voluntary/regulatory approaches was important. Addressing land use management practices in rural areas was seen as effective in reducing the negative impacts of nitrates, phosphates and pesticides on both surface and ground water bodies. Confusion between what is considered to be diffuse pollution and point source pollution was also mentioned. Others mentioned that some activities or sources of rural diffuse pollution were not adequately covered, such as outdoor pig farming and the risk posed by rural septic tanks/soak ways.

**Pollution from towns, cities and transport** - the need to work with local planning authorities and the Highways Agency was identified as being important in addressing this particular issue. Other comments included the need to address other sources of pollution such as petrol stations, landfills and contaminated land.

**Abstraction and changes to flow** - comments mostly focused on the need to reduce water consumption in the river basin district through demand management and by reviewing current and future abstraction licences. Respondents called for greater flexibility and resilience in the water supply network so that abstraction from over-licensed water bodies can cease during dry periods. Greater alignment between river basin management plans and water resource management plans was encouraged.

**Invasive non-native species** - A collaborative approach to dealing with invasive non-native species was generally seen as the best way of successfully addressing this issue. Comments included a call for a consultation on this issue for and subsequent river basin management plans to cover a broader range of invasive non-native species.

Unsurprisingly, many respondents cited **flood risk management** as being a significant issue in the river basin, calling for the need for a more strategic, joined- up approach with river basin planning. Suggestions on how best to address flood risk in the river basin included encouraging landowners to store more water on their land, creating more natural habitats, promoting the

adoption of both rural and urban sustainable drainage systems and refocusing existing grant aided schemes towards those that both reduce flood risk and improve the water environment.

Other issues raised included **pesticides** and **nitrates**, both being cited as having significant impacts on the water environment and drinking water supplies (surface and groundwater). The issue of pesticides, notably metaldehyde, was considered to be significant enough to warrant special mention in the consultation report. There was a call for subsequent consultation documents to show current and future risks from pesticides, especially with regards to public water supplies. Levels of nitrates in sources of drinking water were also mentioned as a significant issue that was not sufficiently covered in the consultation document.

The **Catchment Based Approach** was widely supported and there was a suggestion that catchment partnership hosts need to be well resourced. Several respondents identified failing to act strategically as a risk, therefore missing out on opportunities to work more efficiently by applying a 'national once' approach to common issues.

Other issues identified as not being fully covered by the consultation include:

- incomplete or poor data sets, especially for transitional and coastal water bodies
- general lack of funding
- overall absence of co-ordination and strategic planning for project delivery going beyond the statutory bodies

## **Q2 Do you agree with our description of how the significant issues are affecting the water environment and society?**

In general, respondents agreed with our commentary on how the significant issues affect the water environment. However, some felt that the descriptions of the significant water management issues were too broad or took too narrow an approach.

The benefits of water use (for instance in recreation, power generation, food production and the historic environment) were thought to be inadequately championed or discussed as a possible driver for setting alternative objectives. It was suggested that these additional benefits need to be fairly represented in the cost benefit assessment.

Some respondents cited a need for further clarity on the cost benefit analysis process and how it will be used to assess the relative merit of options and measures needed to update the river basin management plans.

Lastly, some comments highlighted the ongoing debate on how best to manage artificial and heavily modified water bodies in the Anglian river basin district, especially in the Fens. Some comments concerned the need to review

how water bodies are designated under the Water Framework Directive, for example the North Walsham and Dilham Canal, and the stretch between Market Harborough and Stamford.

### **Q3 How do you think these issues should be tackled, and what would you choose to do first?**

**The catchments:** We asked how you thought the significant issues in a catchment are affecting the water environment and communities; how the challenges affecting each catchment should be tackled and what should be done first.

Most comments were received for the **Broadland, Old Bedford including the Middle Level** and the **Cam and Ely Ouse** catchments, with the **Nene, Welland, Combined Essex, Witham** and **Upper and Bedford Ouse** catchments also receiving a broad range of comments.

Comments on specific issues and options to tackle them are now with our catchment coordinators, so that they can be addressed through the river basin planning process and catchment partnership groups.

The importance of working at a **catchment scale** was highlighted, although some respondents commented that the current catchment boundaries were in some cases too big, namely Cam and Ely Ouse, with more local ways of working being identified as a possible solution.

A number of respondents commented that catchment- specific issues cannot be addressed in isolation, but a **strategic approach** needs to be taken which looks at ways of tackling issues holistically. Actions that deliver multiple benefits, for example tackling invasive non-native species, addressing low flows and tackling diffuse rural pollution, also need to be identified.

Some respondents went as far as stating that managing strategic project delivery needs to go beyond statutory bodies and that the newly formed **catchment partnerships** would go a long way in filling this void. Good examples of where this is already happening are through the Welland Valley Partnership and the Chelmer and Blackwater Catchment Partnership.

A number of responses also emphasised the need to recognise **existing mechanisms** that are working well in addressing some of the significant water management issues such as Catchment Sensitive Farming, the Common Agriculture Policy and Nature Improvement Areas, to name a few.

Some stakeholders felt that priorities and **funding** should be allocated based on the severity of the problem, including whether there were any regulatory drivers and based on sound cost benefit assessment work.

There was an increasing call to address negative impacts on **designated sites** and **protected areas** in the river basin district, with special reference to The Broads, chalk stream habitats in Lincolnshire and in the Cam and Ely Ouse, The Ouse and Nene Washes. Protecting public water supply from diffuse rural pollution, especially from pesticides, was also of particular concern, for example in the Chelmer and Blackwater catchment and in the Witham.

**Population growth** and the implications for water supply and waste water treatment were raised as areas of concern, particularly in the growth 'hot spots' in the Nene, Broadland and East Suffolk catchments.

Lastly, the need to **educate and engage** with the public, businesses and communities was also raised in a number of responses.

- Specific solutions that were proposed include:
  - Better enforcement and regulation of existing activities.
  - Integrate measures to address Water Framework Directive with flood risk management.
  - Ensure planning authorities give adequate consideration of the Water Framework Directive in development plans.
  - Changes in land management, for example appropriate tree planting and water storage options which deliver multiple benefits.
  - Provide better and more effective incentives to land managers and farmers to reduce diffuse rural pollution.
  - The need for greater government action to reduce/remove polluting substances from source to help tackle the problem of phosphates, nitrates and pesticides. This could involve removing phosphate from detergents and industrial processes and considering the extension of 'Safeguard' and Nitrate Vulnerable Zones.
  - Continued investment from water companies on improving water quality at their treatment works.
  - An emphasis on a collaborative and catchment-wide approach to addressing significant water management issues is seen as essential. For example in eliminating and managing invasive non-native species.
  - Need to establish a closer link between water resource management plans and river basin management plans, engaging early with water companies to promote resilient water supply across the river basin district.
  - The Environment Agency to continue to work closely with local authorities to ensure that sustainable growth is delivered across

the district, which does not negatively impact on the water environment nor increase the risk of current and future flooding.

#### 4.1.3 Engagement for the consultation

All Environment Agency staff with a water management role were actively involved in promoting and sharing information on the consultation with their respective stakeholders. The consultation was on the agenda at a number of meetings and events. For example: the Anglian River Basin Liaison Panel, Conservation Grade, East of England Anglers Forum, East of England Environment Forum, Anglian Regional Flood and Coastal Committee. We made external briefing packs available on our website and promoted the consultation through social media via Twitter and YouTube. We also produced a 'Valuing Water' video which we shared with our partners and the general public.

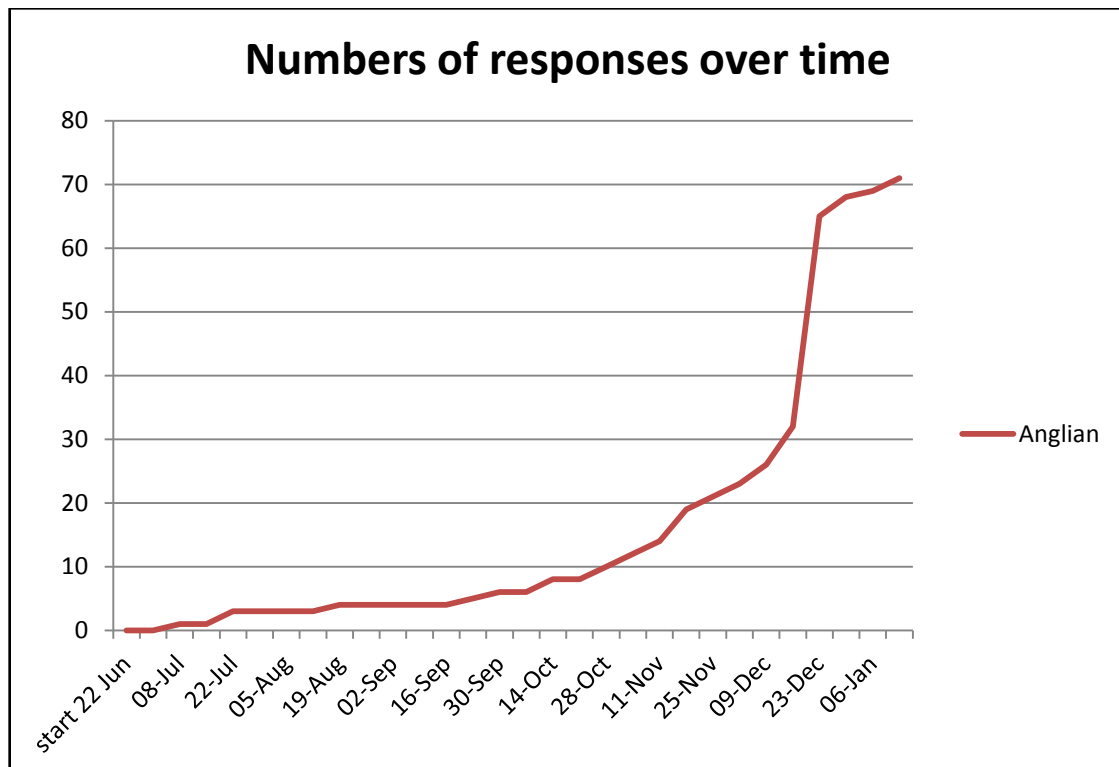
#### 4.1.4 Summary statistics

##### Numbers of responses:

The river basin district Challenges and choices consultation closed on 22 December 2013. The total number of responses for Anglian was 71.

##### Accumulation of responses:

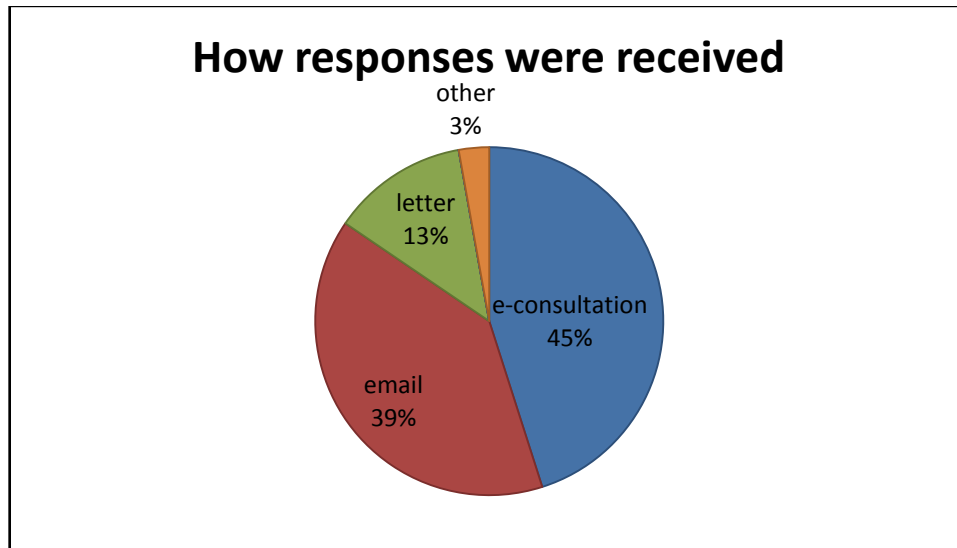
There was a similar pattern to other consultations – with the majority of the responses received in the last few weeks. In total, 80% of responses arrived in the last month of the 6-month consultation.





### How were responses submitted?

The most frequently used method for responding to the consultation was via the on-line e-consultation tool. Email and written responses arrived mainly in the last month of the consultation. 'Other' includes responses that were received at events, shows and face-to-face meetings.



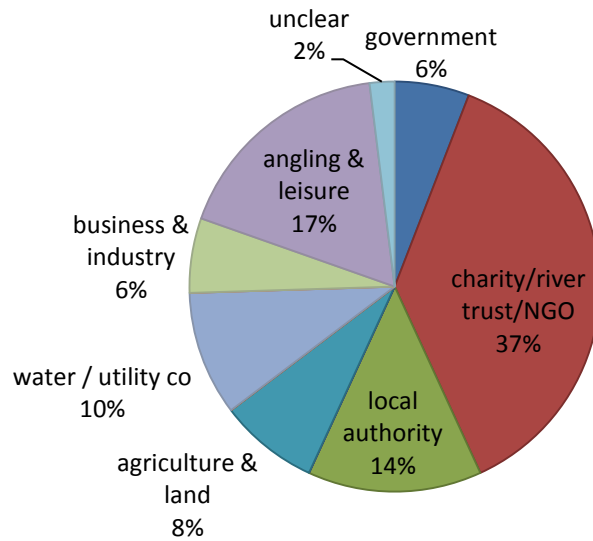
### Were responses from individuals or organisations?

Almost three-quarters (72%) of responses came from groups and organisations. Approximately 27% were received from individuals, and for 1% of responses, this was unknown.

### Which types of organisations / groups provided responses to the Challenges and choices consultation?

The highest numbers of responses were submitted by charities /Non-Governmental Organisations (NGOs)/river trusts. Angling / leisure groups and local authorities also submitted a large number of responses.

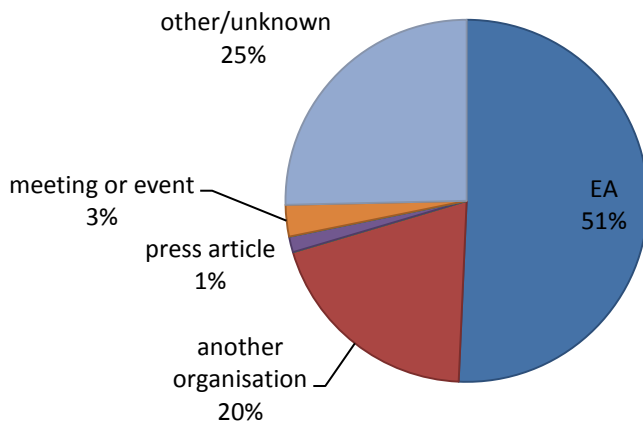
## Groups and organisations responding



## How did those who responded hear about the consultation?

Around half of those who responded heard about it from the Environment Agency.

## How those who responded heard about the consultation



## 4.2 Humber River Basin District

The Humber Challenges and choices consultation document was particularly aimed at those who are likely to be affected by or have an interest in the process for developing the Humber River Basin Management Plan.

We had a very good response to the consultation from our partners and the public, and received many detailed comments and supporting information.

In this chapter, we have provided a high level summary of the comments received, which gives a snapshot of the information at the present time. We have drawn out the key themes and highlighted where there is general agreement or disagreement with the significant issues we identified for this River Basin District (RBD). The graphic below is a summary of the issues raised.



### 4.2.1 Numbers informed and responding

In total, 85 people and organisations responded to the Humber RBD 'Challenges and choices' consultation. This is a significant increase on the 34 responses we received to the first Humber RBD consultation which ran from July 2007 to January 2008.

We informed over 400 organisations and individuals about the consultation via email, through our partners and at meetings and events. We also published articles, used social media such as Twitter and sent targeted mailings, briefings and emails. As a result, over 4,525 people visited our website to find out more, and over 26,000 people heard about the consultation on Twitter.

Groups and organisations who responded include: parish councils, river trusts, water companies, drainage boards, angling clubs, canoe clubs, industry groups, energy industry, conservation charities and local businesses.

#### 4.2.2 Key findings and actions

We asked 5 questions in the consultation and this section provides information on the main points from the responses.

**River Basin District questions:** we asked what you considered to be the biggest challenges facing waters in the Humber River Basin District; if you agreed with our descriptions on the significant issues, how you thought these issues should be tackled, and what should be done first.

The issues which raised the most comments and views were:

**Physical modifications** - most comments related specifically to weirs. There were opposing views from those advocating their removal for fish migration and those advocating hydropower as an opportunity to create renewable energy. Others highlighted the benefits of removing weirs, such as the opportunity to re-establish healthy ecosystems, and suggested many weirs are now redundant, whilst others remind us of the valuable purpose they serve in regulating flow.

**Pollution from rural areas** - many responses referred to the issue of rural pollution, particularly from agriculture, and the need for effective management, incentives and controls. However, there was also a strong response on the need to acknowledge that agriculture and rural land management are separate practices and that we need a robust evidence-base for decisions. The view was that whilst land drainage was well covered in the consultation, burning and overgrazing in upland areas was not, and each have significant effects on the water quality and sediments.

**Abstraction and flow** - comments focussed on the need to manage the demands for water, in particular the impact of new developments, and new industries (for example fracking). Other comments referred to the value that society places on water and the need to balance the long-term needs of the environment against the desire to keep bills down.

**Invasive non-native species** – a number of responses highlighted the need for co-ordinated action, with the catchment-based approach supported as a way of providing leadership and direction.

**Pollution from waste water** – there were many comments about combined sewer overflows and the need for water company improvements. However, these were balanced by comments on the need for other sectors to recognise their responsibility, as well as the need for effective public engagement.

Most respondents **broadly agreed** with the significant issues outlined in the consultation, and the issues were generally well understood. The comments

presented views on the challenges facing the Humber RBD, adding value and depth to the analysis presented. There were also varied opinions on the relative priority of issues and the competing, sometimes conflicting, demands of those with an interest in the water environment.

There were a number of common threads in the responses from many stakeholders.

- Perhaps not surprisingly, the issue of **flooding** was raised a number of times, in particular the question “*how will flood risk be integrated with the river basin plan in future?*” Several responses highlighted the need for a better connection between river basin management planning and the Floods Directive. It would be useful to explain why flooding is not highlighted as a key issue for the plan and how flood risk will be integrated with the river basin management plan in future.
- The impact of **climate change** and **extreme weather** events were clearly of concern, bringing the increasing likelihood of drought or flooding, and the potential impact on public health.
- **Population growth** and the implications for water supply and waste water treatment were raised as areas of concern.
- The **affordability** of solutions, and **cost benefit** assessment (CBA) also featured. Concern was expressed over the potential for focus on short term solutions, at the expense of longer term gains. Some support was expressed for CBA as “*the driver to deliver outcomes to an affordable timetable*”.
- The need to **educate** and **engage** with the public, businesses and communities was consistently raised in order to encourage more ownership so people understand the impacts on the water environment.
- There were many comments on the need for a **strategic and co-ordinated approach**, and strong support for partnership working, with specific comments supporting the **catchment-based approach**. In addition the work and progress being made by existing partnerships and projects needs to be recognised and built upon.

In addition a number of **challenges** were presented:

- i. Areas which respondents said were not well represented or were under-played in the consultation:
  - A number of stakeholders made the point that **reservoirs** were presented negatively, as physical modifications affecting the natural flow of rivers, with no acknowledgment of the benefits they clearly provide in safeguarding public water supplies and reducing flooding risk, as well as their recreational and ecological benefits.
  - There was concern that **transitional and coastal water bodies** (TraC) were not receiving the same amount of attention as rivers; that improvements to **coastal** and **estuarine** waterbodies are lagging behind those for freshwaters, and less effort seems to be put into protecting and restoring coastal habitats.

- Some of the comments suggested that our data /evidence on **invasive non-native species** wasn't showing the full scale of the issue, that it was under-represented and also that there were species missing.
  - **Pollution from towns and cities:** concern was expressed that the consultation said little about actions on urban/transport.
- ii. A lack of evidence or understanding in the consultation:
- **Impact on society:** while most respondents felt we had clearly described the effects these significant issues were having on the water environment, some respondents felt they could not say the same about our descriptions of how the issues were affecting people and communities.
  - **Agriculture and diffuse pollution:** robust, agriculture-related data is needed to provide evidence for the development of informed, science-led policy. Some concern was raised about the evidence over-stating farming's contribution to rural diffuse pollution which did not fit with experience on the ground.
- iii. Pressures and issues missing:
- The **Humber Estuary:** several responses questioned why the Humber Estuary itself appeared not to be given specific attention, given its importance. The ecological and economic importance of the estuary area to the region is significant and it is critical that the issues and measures required to sustain and improve the estuary are considered. The estuary needs to be formally designated as a discrete catchment. The Humber is already managed under a range of UK and European habitat and biodiversity legislation and coordination of this work and WFD requirements will deliver huge local benefits.
  - **Water acidity** is significant in some upland catchments within the river basin district, but is not featured as an issue.
  - **Hydropower** and **fracking** have both featured in stakeholders' responses, and there are clear opportunities for exploiting both within the Humber RBD. Each technology has the potential to impact upon the environment in different ways, as well as bring benefits to society.

Some of your priorities were:

- *“**Flooding** is probably the number one issue to the general public, and as such should be one of the priorities”.*
- *“The main priority to tackle is that there is no deterioration in the water environment in the future as a result of **mine water**”.*
- *“Priorities should be based on individual catchment/sub-catchments and sometimes a **catchment level** may be too coarse scale. Sometimes communication for agriculture is likely to work better at sub-catchment scale, and as local catchment plans develop, priorities may need to be rebuilt. Where there is commonality between catchments, efficiencies for delivery should be considered”.*

Here are just some of your suggested actions/measures/solutions.

### **Agriculture and rural land management**

- Support for catchment-sensitive farming through New Environmental Land Management Scheme.
- Improve evidence gathering and regulatory actions for agricultural impacts.
- Current agri-environment schemes should be scrapped, re-worked and then administered by the Environment Agency and properly resourced, regulated and monitored.
- Better incentives and enforcement of regulation to tackle pollution from intensive farming.
- A clear policy regarding heather burning ought to figure in any catchment-scale planning.

### **Funding**

- Strong links to regeneration and Local Enterprise Partnerships (LEPs) to align funding and ensure the greatest benefit to our rivers and water bodies.
- Planning gain on new developments to ensure improved drainage capacity.

### **Water Demand Management**

- Agricultural land owners need to recognise that to maintain future value of land, they need to establish retention ponds on their land to prevent excessive run-off that causes flooding, providing an adequate reserve of water for irrigation.
- The installation of water efficiency systems should be incentivised by the government and more focus needs to be given to improving supplies, as a way of reducing demands on the natural environment.
- Water storage measures that benefit people and wildlife at a landscape scale.
- The Environment Agency and others could do more within the existing regulations to scale back unused licence amounts and deal with the cumulative effects of multiple small abstractions, without having to wait for the abstraction reforms being considered by the government.

### **Invasive non-native species (INNS)**

- Strategic approach to tackling invasive species.
- Engaging voluntary/community groups to tackle invasive species.

### **Catchment planning/partnerships**

- Detailed catchment plans to identify interventions and the issues.
- Developing partnerships with public, private and voluntary sectors as well as waterways/catchment partnerships. Using the principle of the 'single conversation' to ensure that the water environment is championed.
- Partnership working/utilising the catchment based approach/further development of catchment- based integrated approaches.

- Implementing Cost Benefit Analysis as a driver to deliver measurable outcomes.

We will use all these comments to help shape the updated Humber River Basin Management Plan.

**The catchments:** we asked how you thought the significant issues in a catchment are affecting the water environment and society, how these challenges affecting each catchment should be tackled and what should be done first.

In the Humber River Basin District there are 15 management catchments. We felt it was important to try and summarise any general themes raised by the responses across all catchments, as well as indicating locally specific points raised for catchments in the **Yorkshire, Trent** and **Ancholme** areas of the river basin.

Specific points made about catchments in the **Yorkshire** area of the Humber River Basin included:

In the **Esk** and **Coast** catchment we received comments largely relating to the predominantly rural nature of the catchment. Issues raised included the effects of herbicide and pesticide use on water quality and protection of drinking water sources and designated bathing waters.

Challenges posed by the intensive upland management practices in the catchment included moorland run-off, affecting colour, siltation and surface water acidification. The challenges around development of hydropower on a number of weirs on the River Esk were also raised. Further clarification is needed to explain the way natural conditions are represented in this catchment. Habitat degradation and water quality problems were highlighted as affecting people and communities and UK BAP Species in particular, resulting in pressures on anglers, tourism and the local economy.

For the **Swale, Ure, Nidd** and **Upper Ouse** catchment, your comments identified issues associated with upland management practices and the impacts of this on protected areas - particularly parts of the North Pennine Moors Special Area of Conservation (SAC) and Special Protection Area (SPA)- from burning and drinking water colouration. The impact of abandoned mines remains a severe and long-standing issue, which still needs to be addressed in this catchment. In terms of addressing physical modifications, sensitive adaptation rather than removal was suggested, recognising that some historic river adaptations, engineering and channel obstructions may be heritage assets which contribute to the local character and distinctiveness of a place, and which are valued by people and communities.

Consultation responses received for the **Yorkshire Derwent** catchment reflected the significance of protected habitats in this catchment. The main challenges identified include: redressing physical modifications; developing a better understanding of how moorland management practices, including



burning, drainage and herbicide/pesticide use, impact on ecologically significant sites in the catchment and drinking water sources.

Connectivity of the Lower Derwent with the surrounding floodplain was an important theme, providing huge value to wildlife and people. The Ings of the Lower Derwent Valley are not only of international wildlife importance, but also have significant value for flood water storage, maintenance of water quality and water supply. However, resilience to climate change will place pressure on this environment.

One specific concern raised was the effect on local communities from flooding, due to the vulnerability of existing drainage infrastructure in the Norton, Malton and Old Malton areas. The benefits arising from the '[Slowing the Flow](http://www.forestry.gov.uk/fr/INFD-7ZUCL6)' project (www.forestry.gov.uk/fr/INFD-7ZUCL6) in the catchment were recognised, specifically managing impacts from diffuse pollution and drainage from grouse moors and forestry land. The presence of Signal Crayfish and invasive non-native plant species such as Himalayan Balsam and Giant Hogweed were also a concern.

In the **Wharfe** and **Lower Ouse** catchment, issues raised included the risks and impacts associated with abandoned mines and historic mining structures. Regarding abstraction pressures in this catchment, respondents suggested that increasing the public's awareness of water efficiency issues will be essential in helping to reduce demand. It was also mentioned that careful consideration is needed when trying to address issues with pollution in rural areas associated with historic farming complexes, in order to avoid adverse impact on the integrity, character and heritage value of such places.

A number of consultation responses in the **Hull** and **East Riding** catchment related to flooding and physically modified watercourses, which dominate the landscape; for example heavily modified and artificial watercourses, drains and pumped ditches. While recognising the limiting effects for wildlife, a strong message was that any improvements should not reduce the effectiveness of existing flood defences, increase the cost of maintaining defences, or jeopardise the financial viability or implementation of any future flood defences protecting lives, homes, businesses and large areas of productive farmland.

Interventions to manage pollution from rural areas in terms of nitrates, pesticides and phosphates, in both watercourses and the chalk aquifer on the Wolds, need to be balanced with the needs of the rural economy. Continued investment to tackle flood risk and the impacts of climatic change, as well as developing an effective drainage strategy, are seen as essential in Hull, with partners working together to find solutions.

In the **Aire** and **Calder** catchment, responses covered all the significant water management issues in detail. Specific points raised include: understanding and managing the impacts of upland moorland management in the headwaters of this catchment, including burning practices; impacts on upland hydrology and flash-flooding, and impacts on drinking water sources.

The ongoing legacy of abandoned mines remains a challenge, as well as the conflicting requirements of water supply infrastructure; maintaining industrial heritage; fish passage; hydropower; habitat preservation; inland navigation and flood protection to residential/industrial areas.

Upgrades on combined sewer overflows, to cope with modern trends of storm water run-off and ensure sustainability for the future, was suggested as a response to climate change. One of the key challenges identified for the catchment was ensuring no further deterioration. Also, continuing to deliver improvements in the face of significant urban growth and development, flood risk management issues and addressing the impact of poor water quality on ecological features of national importance.

In the **Don** and **Rother** catchment, comments covered all the significant water management issues identified. Specific comments confirmed the importance of managing rising mine water levels in the area to protect the water environment. Impacts from land drainage on internationally designated habitats require further work by various parties to meet required conservation objectives. The significance of existing partnerships, initiatives and projects was a recurring theme in this catchment, in terms of all these combined efforts contributing to the achievement of environmental and WFD improvements.

In the Upper Don, challenges remain with the effects of abstraction and impoundment on aquatic wildlife and in reducing pollution. In the Dearne, restoring fish passage and ecological connectivity to allow eels and other migratory fish to bypass Houghton Weir and addressing remaining wastewater impacts are considered important. An additional (and widespread) issue is invasive non-native species.

In terms of resolving issues and setting priorities in these river catchments, key themes were:

- Partnership working will be necessary between landowners, NGOs, local authorities and others to maximise gains from reaching WFD targets. The Environment Agency will be in a unique position to guide and lead this process.
- The catchment- based approach is the way forward; building strong partnerships, is the only way we can maximise results for all.
- Develop existing partnerships rather than developing new groups. Organisations from different sectors (public/private) should be brought together to lead on local water management based on the 'single conversation' principle. This will ensure that the water environment is championed effectively by groups such as local enterprise partnerships and competing priorities are balanced effectively. The local catchment partnerships could hinder progress, as membership is largely single-sector and focuses on a single issue, making implementation of partnership plans extremely difficult and challenging.
- Formal recognition that some catchments are unlikely to get to good status under WFD, as many physical modifications are unlikely to be removed and are closely linked with changes to natural level/flow.

- Need a properly funded education programme to address issues of diffuse pollution, including from agriculture and surface water. Encourage best practice on industrial sites and support funding for cross-industry action when pollution occurs.
- A joined-up approach with partners, including the Environment Agency, could help to deliver sustainable development measures such as SuDS, green roofs, green infrastructure, local planning tools and policies. This would help to ensure that widespread development and urbanisation does not result in further deterioration of waterbodies, and that development is undertaken in a way that helps achieve progress towards good ecological status/potential (GES/GEP) and meeting WFD objectives.
- It is essential all land managers (land owners, tenant farmers, developers, local authorities, etc.) work together to ensure their priorities are reflected in the local plans of each authority and that the identification of sites for development are aligned where possible to help address reasons for failure.
- The only effective long-term solution to tackle Metaldehyde is at source, either through restrictions on its use, or replacement with a less toxic, or more treatable, alternative. The reform of the Common Agricultural Policy, and working closely with farmers, will also be extremely important.

Specific points made about catchments in the **Trent** area of the Humber River Basin District:

In the **Idle** and **Torne** catchment, we received comments covering all the significant water management issues. Views covered the effects of pesticide residues on drinking water sources, maintenance of the low-lying network of rivers, drains, dykes and associated pumping stations, and concerns over the reduction in funding to manage the water levels to reduce flooding.

The effects of small sewage treatment works on phosphate levels; increasing impacts of run-off from urban areas due to the pressure of development; artificial management of mine waters; impacts from Himalayan Balsam and the impact of mink on water vole populations were all mentioned. Managing over- abstraction and flooding in this catchment was also seen as a major challenge, as well as changes to natural flow; sediment build-up resulting in loss of fish spawning habitat; poor aquatic biodiversity; increased flooding of farmland and substantial loss of wildlife habitat, due to physical modifications of rivers.

In the **Tame**, **Anker** and **Mease** catchments, comments included:

Recognising the importance of archaeological features; impact of pesticide residues on drinking water sources; pressures on the sewerage network due to an increasing population; the need to consider the extensive canal network that forms a significant part of the Black Country's natural environment (for example green and wildlife corridors) and heritage.

Given the largely urban nature of some of the catchments, pressures from combined sewer overflows, diffuse urban run-off and point source contamination/leaching were considered important issues. Himalayan Balsam, mink, non-native crayfish and 'killer shrimp' were examples of non-native invasive species where action within the catchment was considered to be needed.

In the largely rural areas, issues identified included agricultural run-off, siltation and sewage discharges into the watercourses. There was a general sense that more effort is needed on reconnecting rivers with their floodplains and all water bodies with the wildlife around them. Action to increase public access and awareness is needed.

In the **Derbyshire Derwent** the effects of moorland management and threats to drinking water sources from pesticide residues were raised as important issues.

In the **Dove** catchment, specific issues raised included increased potential for impact on archaeological remains from improved land management practices, effects of Himalayan Balsam and balancing the views of various stakeholders on naturalising flows versus removing obstacles in the river.

In the **Lower Trent and Erewash** catchment comments recognised the diverse nature of conflicting pressures. For example, the limiting effects of numerous physical modifications to the river system, needed for both flood alleviation and to allow for navigation/urban development. This level of modification limits the degree to which the ecological status can be improved, because of the barriers to fish migration, for example Cromwell Weir.

In addition, phosphate levels and industrial/sewage discharges are a major cause of failure, often exacerbated by storm-water overflows. Surrounding rural land uses contribute to increased levels of silt and many of the watercourses are heavily modified for land drainage purposes. Groundwater sources are important to public water supply in this area and should be protected from further deterioration by nitrates and pesticides.

In the **Staffordshire Trent Valley** catchment comments highlighted the importance of protecting groundwater drinking water sources from nitrates and pesticide contamination and co-ordinating resources to tackle invasive non-native species. They recognised that funding by delivery partners may be limited to undertaking work to reduce urban diffuse pollution, and that where improvements are needed to address physical modifications, including de-culverting and naturalising watercourses, funding from a variety of sources will need to be secured. In some cases man-made modifications may well be designated heritage assets.

In the **Soar** catchment comments mostly concentrated on the impacts of pollution from arable land use in the upper catchment, introducing silt and resulting in increased flood risk downstream, as well as channel restrictions within the urban environment. Barriers to fish migration over weirs on the

lower Soar, and impacts of pesticide residues on drinking water sources were also identified.

In terms of resolving issues and setting priorities in these river catchments, key themes were:

- Recognising issues are interrelated and need to be considered alongside each other.
- Using the catchment-based approach to encourage awareness, engagement, partnership and joint working. Involving a range of sectors, organisations and local groups to promote action and develop projects to benefit the water environment and society.
- Tackling sources of phosphate pollution from headwaters to estuary, including wastewater discharges from private wastewater treatment facilities.
- Controlling the impacts of metaldehyde, as this is a difficult substance to remove from potable water, and prioritising groundwater sources from deterioration by nitrates and pesticides.
- Separating storm water from sewage, promoting SuDS and addressing misconceptions in urban environments.
- Seizing opportunities for river re-connection where this would either create or benefit high value habitats, such as SSSIs.
- Reductions in diffuse pollution from agriculture could be in part achieved by supporting and funding farmers to introduce buffer strips and margins, which would also yield biodiversity benefits.
- Identifying and remediating sources of point source pollution resulting from land contamination, by increasing engagement and raising awareness; enforcement; partnership working; known techniques; technological innovation and training.
- Ensuring that the water environment makes a full contribution to the economic, health and social well-being of the population by providing opportunities for economic development, health improvements, formal and informal recreation, tourism and community engagement and involvement.
- Using the planning system to maximise benefits to the water environment and catchment, by ensuring its needs and requirements are built into plans and policies.

In the **Louth, Grimsby** and **Ancholme** area of the Humber River Basin District, specific points included:

- Managing the impacts of pollution from rural areas on tourism and drinking water sources.
- Recognising and raising awareness of the international significance and importance of chalk streams, and the issues affecting them, amongst the wider community.
- Targeting phosphate across the wider catchment through a partnership approach between key stakeholders.

- Alignment of actions in the river basin management plan with the National Environment Programme (NEP), to take account of investment which is being planned by the water industry.
- Taking 'willingness to pay' into account.
- People need to see on-the-ground action from organisations 'leading by example'.

Key themes on setting priorities in the **Louth, Grimsby and Ancholme** catchments were:

- Protecting drinking water from the impacts of nitrates and pesticides by targeting land management advice and providing funding.
- Developing partnership working, particularly where organisations have the ability to make a difference through decisions and funding.
- Encouraging stronger links to development and economic growth strategies and local involvement in the catchment based approach.
- Recognising flood management projects create opportunities for habitat improvement
- Recognition and support for the Humberhead Levels Partnership to secure benefits for habitats, the water environment and communities

We will use all these comments to help shape the updated Humber River Basin Management Plan.

#### 4.2.3 Engagement for the consultation

We made external briefing packs available on the website, and promoted the consultation locally through:

- public notices in national and local press
- sector briefings (650 emailed)
- MP briefings (127 emailed)
- social media (over 65 tweets to over 26,000 followers)
- leaflets at Great Yorkshire Show and Riverside Festival in Leeds

Staff involved in meetings with stakeholder groups and partners shared information on Challenges and choices at their meetings and workshops during the consultation period. They attended over 400 meetings to highlight and discuss the consultation. Examples include:

Organisations:	Networks/Partnerships:	Local groups
Local Authorities	Humber Conference	Friends of Bradford Beck
eNGOs (RSPB, wildlife and river trusts and Groundworks)	Upland Hydrology Partnership	Bottesford Beck Improvement Group
Water Companies	IUCN Peatlands Conference	Black Country Environment Forum
National Parks/AONBs	CIWEM	
Canal & River Trust	Environment Advisory Panels	

Natural England	Local Nature Partnerships
Forestry Commission	Local Enterprise Partnerships
NFU	Catchment Partnerships

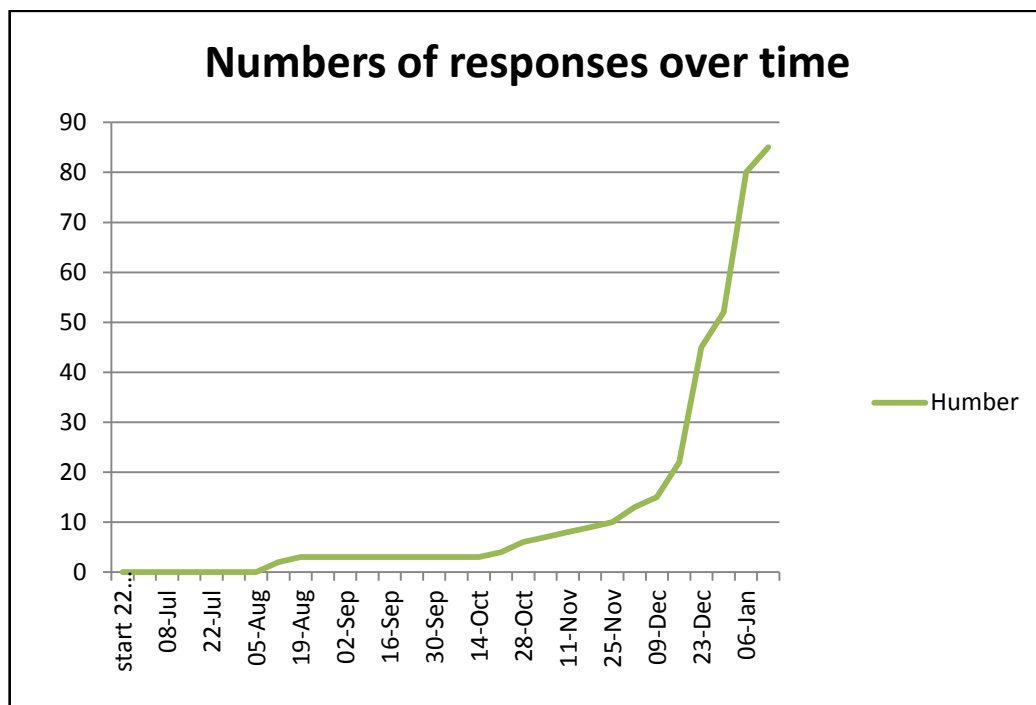
#### 4.2.4 Summary statistics

##### Numbers of responses:

In total 85 people and organisations responded to the Humber RBD Challenges and choices consultation.

##### Accumulation of responses:

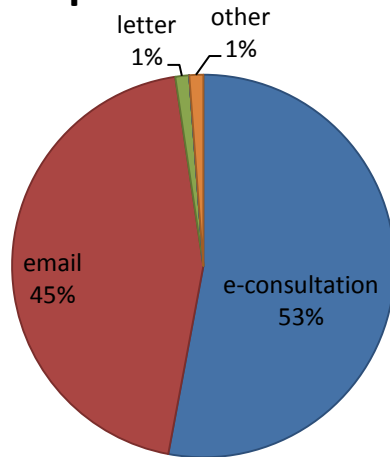
There was a similar pattern to other consultations, with the majority of the responses received in the last few weeks. In total 80% of responses arrived in the last month of the 6-month consultation.



##### How were responses submitted?

The most frequently used method for responding to the consultation was via the on-line e-consultation tool. Email responses arrived mainly in the last month of the consultation. 'Other' methods include responses that were received at events and shows, and face-to-face meetings.

## How responses were received



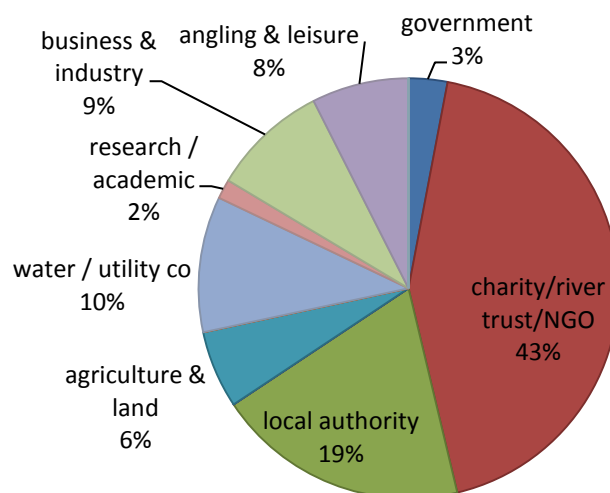
### Were responses from individuals or organisations?

Over two-thirds (79%) of responses came from groups and organisations, and 18% from individuals.

### Which types of organisation / groups provided responses to the Challenges and choices consultation?

The highest numbers of responses were submitted by charities /Non Governmental Organisations (NGOs)/river trusts. Local authorities also provided many responses.

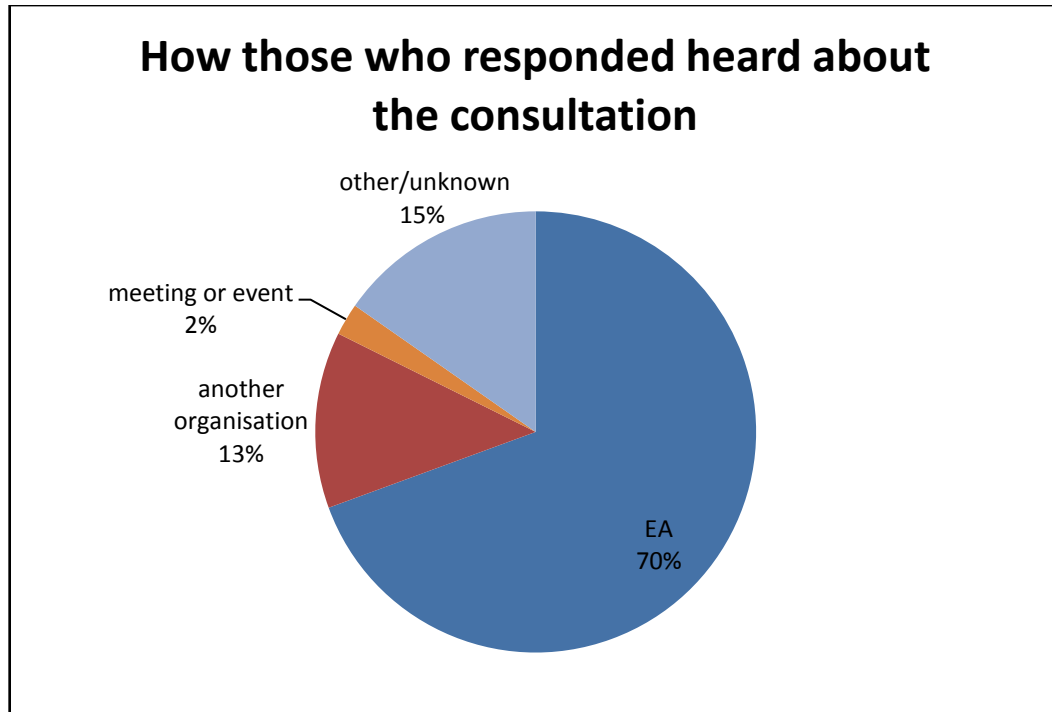
## Groups and organisations responding





### How did those who responded hear about the consultation?

Over two-thirds of those who responded heard about it from the Environment Agency.



## 4.3 Northumbria River Basin District

The Northumbria Challenges and choices document was particularly aimed at those who are likely to be affected by or have an interest in the process for developing the Northumbria River Basin Management Plan.

We had a very good level of response to the consultation from our partners and the public, including many detailed comments and a lot of supporting information

In this chapter, we have provided a high level summary of the comments received, which gives a snapshot of the information at the present time. We have drawn out the key themes and highlighted where there is general agreement or disagreement with the significant issues we identified for this river basin district (RBD).

### 4.3.1 Numbers informed and responding

In total, 68 people and organisations responded to the Northumbria RBD Challenges and choices consultation. This is a significant increase on the 30 responses we received to the previous Northumbria RBD consultation which ran from 24 July 2007 to 24 January 2008.

We informed over 250 organisations and individuals about the Challenges and choices consultation via email, through our partners and at meetings and events. In addition we published articles, used social media such as Twitter and sent targeted mailings, briefings and emails. As a result, over 26,000 people heard about the consultation on Twitter.

Groups and organisations who responded included: parish councils, river trusts, water companies, angling clubs, canoe clubs, industry groups, the energy industry, conservation charities and local businesses.

### 4.3.2 Key findings and actions

We asked 5 questions in this consultation. This section provides information on the main points from the responses.

**River basin district questions:** we asked what you considered to be the biggest challenges facing waters in the Northumbria River Basin District; if you agreed with our descriptions on the significant issues; how you thought these issues should be tackled and what should be done first.

We have looked in detail at all the responses. We are now in the process of sharing this information with technical specialists and catchment co-ordinators, with the aim of using it to help shape the updated river basin management plan, which will be consulted on during 2014. The following sections provide an overview of the responses received to the questions we asked in the consultation.

The graphic below is a summary of the issues raised.



**Q1 What do you consider to be the biggest challenges facing waters in the Northumbria River Basin District?**

For the **Northumbria River Basin District** the majority of respondents agreed with the 7 significant issues identified in the Challenges and choices consultation. The issues that gave rise to the most comments were **physical modifications, invasive non-native species, pollution from waste water and pollution from rural areas.**

A number of additional issues were identified, including the impact of **climate change** increasing the likelihood of drought or severe storms. The point was made that surface water flooding places pressure on existing infrastructure, often resulting in pollution, impacts on bathing waters and sediment erosion in rural areas. Pressures from **population growth** resulting in the demand for more water, but also resulting in increased wastewater discharges, was also a common theme. Many people wanted **floodings** to be a separate significant issue as this is impacting on people’s lives.

Other issues identified by people, which they felt were not given due consideration in the consultation, included the impacts associated with hydropower developments, impacts on the water environment from landfills and quarrying activities, issues affecting transitional and coastal waters (TraC), access to rivers, effects of anti-social behaviour and litter.

## **Q2 Do you agree with our description of how the significant issues are affecting the water environment and society?**

While most respondents felt we had clearly described the effects these significant issues were having on the water environment, some respondents felt they could not say the same about our descriptions of how the issues were affecting society. One organisation's view was that limited consideration had been given to the potential for water to influence human health and well-being, despite research indicating that proximity to the coast and other water bodies has a beneficial effect on human health and wellbeing. The link between a healthy water environment, sustainable economic growth and the well-being of communities should be more embedded.

There was a clear message about urban pollution issues; various organisations and individuals felt this was under-represented. Urban watercourses, which affect large numbers of people, are often 'unloved' and therefore improving these has clear social benefits, and getting communities involved helps promote a sense of responsibility.

In terms of physical modifications, a number of organisations felt that the positive effects of some structures were overlooked. For example, reservoirs are criticised for being physical modifications, altering the natural flow of rivers and interrupting sediment movement. Their role in safeguarding public water supplies, helping to avoid flooding and providing supplementary flows in dry conditions, as well as recreational opportunities, is not properly acknowledged. It was also felt that there should be greater opportunities for hydropower developments on weirs with fish passage, rather than removal.

One view was that the current system of separating responsibilities for water management between local authorities (surface water), the water companies (for foul water and drainage) and the Environment Agency (for rivers and streams) causes significant issues for the water environment and society. There needs to be a consistent and coordinated approach to managing the full water cycle in order to tackle the challenges described above. This would also enable greater community engagement in identifying and tackling problems and finding cost-effective, locally-owned solutions.

## **Q3 How do you think these issues should be tackled, and what would you choose to do first?**

The following is a short summary of the main points raised:

- The principle of 'the polluter pays' should be used in implementing solutions.
- Consider people's willingness to pay, affordability and sectors contributing to their share of the problem.
- Use existing funding routes to tackle the issues, for example agri-environment schemes, PR14.
- Make use of existing partnerships.
- Greater co-ordination of key strategies and plans.

- Make people part of the solution by working closely with them.
- Wastewater issues should be fed into the PR14 periodic review.
- Urban water issues, such as sediments or sewage, should be addressed by multi-agency projects with public engagement.
- Local authorities should be considered as potential delivery partners, but funding to do WFD related projects would need to be identified.
- The role of sustainable drainage systems (SuDS) is likely to increase through the plan period. This will alter the water environment, some of which could be negative, for example, accidental releases to the environment. The plan should look at ways of reducing this risk.
- Concentrating on preventing the introduction of invasive non-native species and developing a strategy encompassing a co-ordinated strategic catchment-wide approach to tackle them?
- Planting more woodlands and forests would reduce rural diffuse pollution by creating buffer zones to filter run-off and help regulate river flow and water temperature to more natural conditions, as well as sequestering carbon, (and thereby mitigating climate change which will have an effect on rivers), and creating a renewable natural resource of economic value.

In terms of identifying priorities, the responses suggested consideration of the following points:

- Flooding should be a priority as it affects people, and drinking water, on the Durham coastline.
- We should prioritise those waterbodies/operational catchments where actions target more than one cause of failure and result in achievement of good ecological status, rather than prioritising one generic issue over another.
- Preventing future deterioration from mine waters, and continuing preventative action to stop mine water levels rising.
- Prioritising the river basin in terms of the percentage of the failures is slightly misleading, in that some may have much more difficult solutions (or much wider benefits) than others.
- Tackle lowest cost/most beneficial actions first.
- Engage key stakeholders to resolve more complex/longer term issues.
- What issues to tackle and in what order will be decided at a local level by consensus, and will differ for each watercourse.
- Restocking of fish such as Brown Trout and monitor netting of salmon/trout and include checking of boats on a no-warning basis.
- Re-naturalising river channels and removing artificial banks, barriers and structures in urban areas.
- Some culling of fish-eating birds like goosanders and cormorants.
- Priorities should be based on individual catchment/sub-catchment. Sometimes a catchment level may be too coarse scale; sometimes communication for agriculture is likely to work better at sub-catchment scale, and as local catchment plans develop, priorities may need to be rebuilt. Where there is commonality between catchments, efficiencies for delivery should be considered.

- Some priority needs to be given to the water body failures where there is 'no relevant sector', to better develop potential effective mechanism/s, particularly to address waste water and physical modification.
- Not to remove weirs until full consideration has been given to viability as sites for hydropower, and corresponding installation of fish passes.
- Implement Cost Benefit Analysis as a driver to deliver measurable results.
- Ensure that environmental improvements do not compromise existing use/users.
- Consider the timescales of all the proposed improvements in the area, and then programme for a combination of longer-term / more challenging projects, together with some of the shorter-term "quick wins", ensuring also a good geographical spread.
- Pointless to tackle issues in isolation. For example, removing physical modifications will have limited benefit if the water quality is still poor and flooding issues are unresolved.

**The catchments:** we asked how you thought the significant issues in a catchment are affecting the water environment and society, how these challenges should be tackled and what should be done first.

Consultation responses which are specific to particular catchments in the Northumbria River Basin have been shared with the relevant Environment Agency catchment co-ordinators and will be used to inform ongoing discussions with catchment hosts and partnerships, as well as a range of professional partners, over the coming months.

Most comments were received for the **Wear catchment**, the majority of which reflected the views of the angling community on the impacts of **physical modifications** on the River Wear are having on fish passage and fish stocks, as well as the impact of natural predators.

All the catchments are affected to some degree by the significant issues identified in the consultation. The following paragraphs present a flavour of the comments received for each of the Northumbria River Basin management catchments.

In the **Northumberland rivers catchment**, comments largely concentrated on the impacts of **pollution from rural areas**. Suggestions on how to tackle this included a focus on improving understanding of the causes of pollution and working closely with land managers to bring about the improvements required. It was recommended that the level of **evidence** for some of the identified failures should be improved to help reduce areas of uncertainty and increase acceptance by those affected or expected to take action to resolve issues. Gathering further information on the impacts of upland management practices on the water environment was also recommended.

Other comments suggested a need for more targeted action to prevent the expansion of non-native species. Improvements to trout fishing stocks and fish passage would help encourage uptake by young anglers. It was recognised there were challenges in relieving the **impacts of flooding** on communities and limiting the effects of measures taken on the management of water, and striking a balance between protecting areas of nature conservation while encouraging economic development in the area.

In the **Tyne** catchment, many of the comments referred to the effects of historical metal **mining** and the practical difficulties posed in managing contaminated river sediments. Reference to the impact of **physical modifications** mainly related to flooding; reversing such modifications to restore more natural flood regimes would bring multiple benefits, reducing flood risk whilst benefitting wildlife.

Other comments suggested greater emphasis should be given to the effects of **urban pollution** in the Tyne catchment. Whilst recognising that urban issues are complex and difficult to solve, it was felt that raising awareness and working closely with the community would be beneficial in tackling these issues. Declining trout stocks is not helping increase participation by young anglers. The existing Tyne catchment plan was seen as a valuable tool in helping prioritise future projects in the catchment. One view expressed was that the lack of European protection of habitats and species in the Tyne catchment makes it harder to protect them from damaging future development. It was also suggested greater attention should be paid to the important contribution that the coast plays to the water environment within the catchment and the wider economy of the region.

In the **Wear** catchment, the majority of responses received from the angling community related to issues with **physical modifications, water quality and predators**. The view of respondents was that we should remove weirs to allow fish passage, improve the sewerage system, monitor invasive species and develop a strategy to deal with them. Individual responses identified a number of structures including Chester-le-Street weir which would benefit from removal or modification.

Responses suggested using the catchment-based approach to help with strategic co-ordination and community engagement. In order to continue protecting **drinking water** quality in the Wear catchment from **mine waters**, funding needs to be secured to maintain existing schemes at Horden and Dawdon.

In the **Tees** catchment respondents told us how **physical modifications** have resulted in the failure of the natural systems which would maintain water quality, regulate flows, reduce the detrimental effects of flooding and support wildlife. Disconnection of rivers from wider floodplains and riparian habitats results in rural diffuse pollution, high sediment input, habitat fragmentation and flooding downstream and in urban areas.

Streams and their riparian habitats are multi-purpose green corridors that provide routes for sustainable travel, areas for recreation and sanctuaries for

wildlife. Achieving and maintaining a healthy water environment is also essential to achieving wider social objectives for health, well-being and quality of life.

It was also suggested greater emphasis be given in this catchment to the issues around nutrients in the estuary, the importance of groundwater and its protection, and expressed surprise that urban pollution does not feature as one of the main challenges. Along the Saltburn coast, continued funding for the Saltburn Gill mine water treatment scheme was identified as a priority.

### 4.3.3 Engagement for the consultation

We made external briefing packs available on the website, and promoted the consultation locally through:

- public notices in national and local press
- sector briefings (250 emailed)
- MP briefings (30 emailed)
- social media (over 40 tweets to more than 15,000 followers)
- workshops involving over 150 of our stakeholders. held on 24 June, 18 July and 17 October 2013

Staff whose role involves meeting with stakeholder groups and partners, shared information on Challenges and choices at their meetings and workshops during the consultation period. Examples include:

Organisations:	Networks/Partnerships	Local groups
Local Authorities	Durham Heritage Coastal Partnership	Greening Newcastle Gateshead Group
eNGOs (RSPB, wildlife and & river trusts, Goundworks)	Limestone Landscapes Partnership	Yorkshire & Cleveland Coastal Forum
Water companies	IUCN Peatlands Conference	Hetton Greenwatch
National Parks/AONBs	CIWEM	NE Fisheries Forum (Angling clubs)
Natural England	Environment Advisory panels	
Forestry Commission	Local Nature Partnerships	
	Catchment Partnerships	

### 4.3.4 Summary statistics

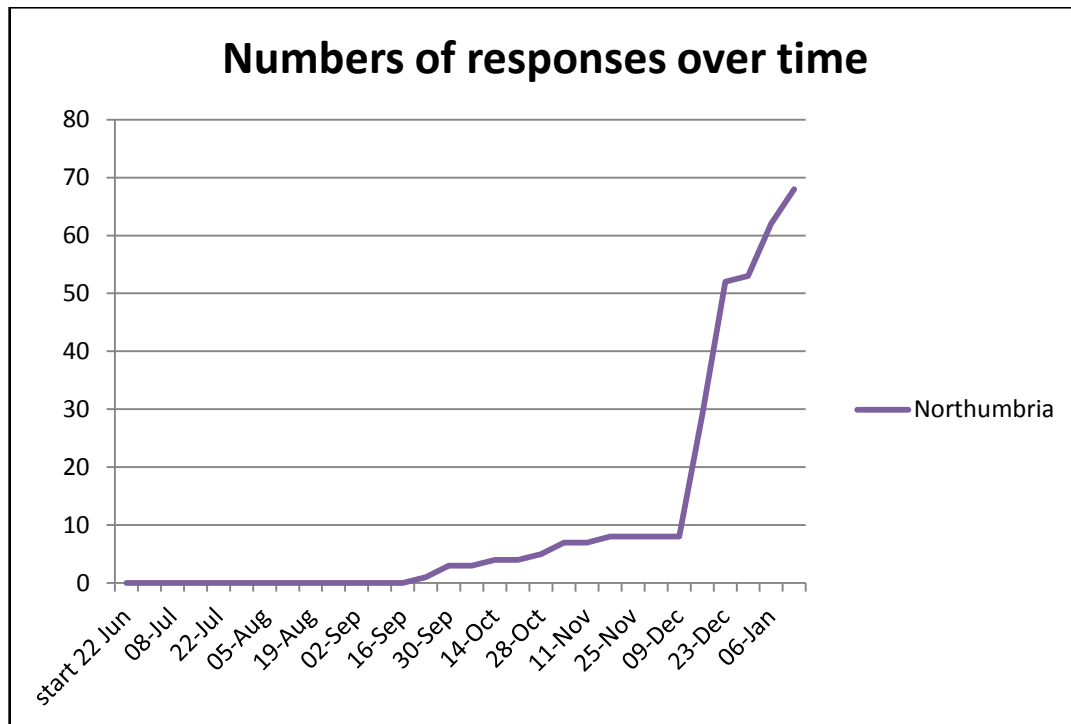
#### Numbers of responses:

In total 68 people and organisations responded to the Northumbria 'Challenges and choices' consultation.



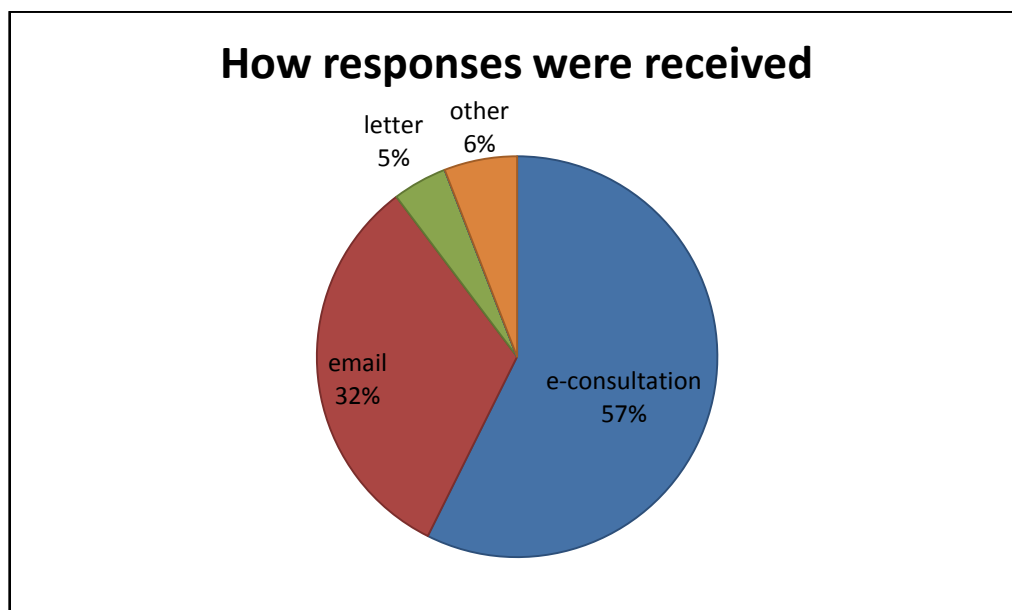
### Accumulation of responses:

There was a similar pattern to other consultations with the majority of the responses received in the last few weeks. In total 80% of responses arrived in the last month of the 6-month consultation.



### How were responses provided?

Most responses were received via the on-line e-consultation tool. Email responses arrived mainly in the last month of the consultation. 'Other' includes responses that were received at events and shows, and face-to-face at meetings.

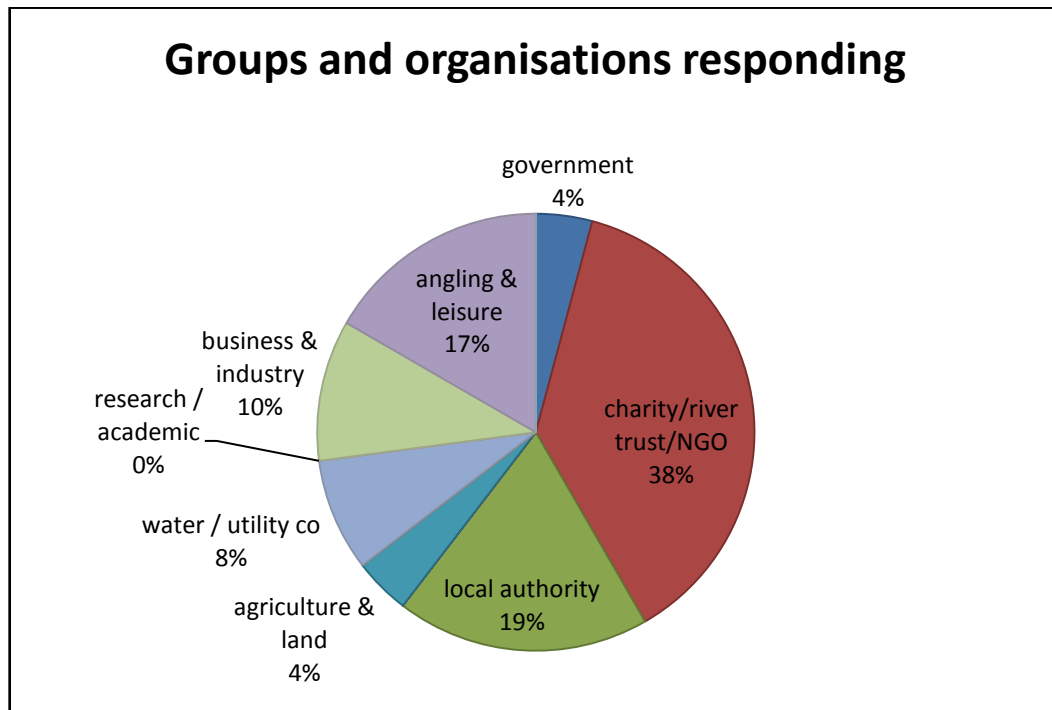


**Were responses from individuals or organisations?**

Nearly three-quarters (71%) of responses came from groups and organisations, and 28% from individuals.

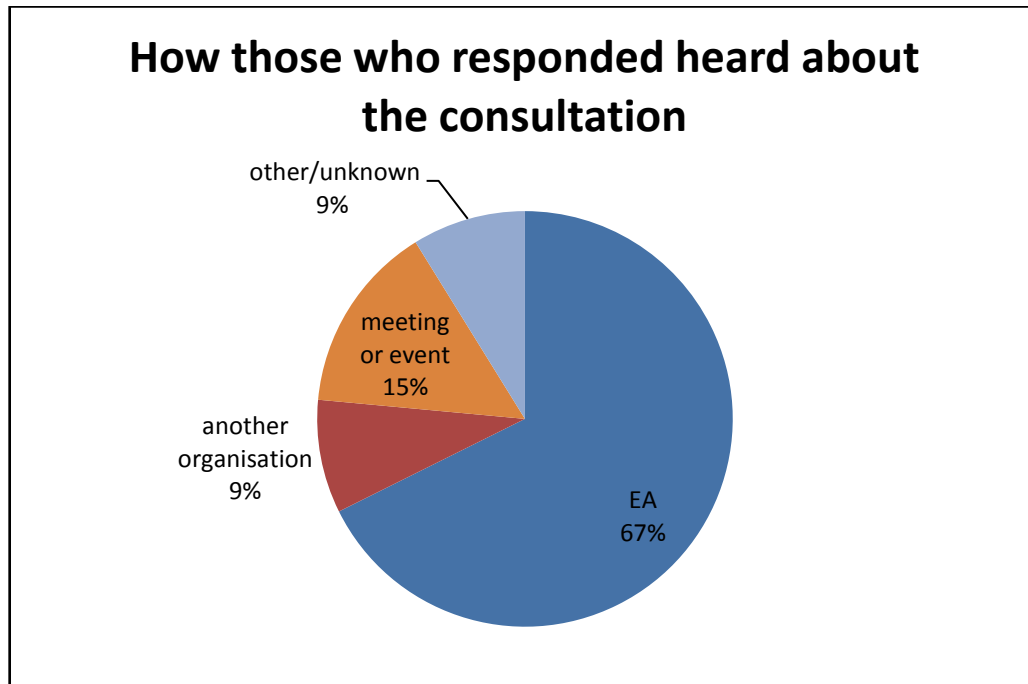
**Which type of organisation / groups submitted responses to the Challenges and choices consultation?**

The highest numbers of responses were submitted by charities /Non Governmental Organisations (NGOs)/river trusts. Local authorities and angling/leisure clubs /groups also submitted many responses.



**How did those who responded hear about the consultation?**

Two-thirds of those who responded heard about it from the Environment Agency.



# 4.4 North West River Basin District

## 4.4.1 Numbers informed and responding

There has been an excellent response to the consultation in the North West. We received 167 replies, many with detailed and highly informative comments. These responses will help us to shape the updated North West River Basin Management Plan to be published in September 2014.

This response document provides an initial 'snapshot' interpretation of the consultation responses. We have drawn out the key themes and stated where there is general agreement, or disagreement, with the significant issues that we identified for the North West. We show where new issues or priorities were raised and have identified some key actions.

## 4.4.2 Key findings and actions

We asked what you considered to be the biggest challenges facing waters in both the North West River Basin District and its individual management catchments; if you agreed with our descriptions on the significant issues, how you thought these issues should be tackled, and what should be done first.

Below we summarise the main points from the responses, discuss some of the different opinions provided and give an indication of priorities for those who responded. Where actions are already planned or we know how some of the responses are being taken forward, this is also provided (*in italic text*).

The graphic below is a summary of the issues raised.



## **Q1 What do you consider to be the biggest challenges facing waters in the North West River Basin / individual catchments?**

**Physical modifications:** You generally agreed that physical modifications are a significant issue. Some people felt that their value (for example to habitat, heritage, flood defence, navigation, recreation or water supply) had not been adequately acknowledged. Conversely, some felt that the additional benefits from mitigating impacts of physical modification (for example reducing flood risk or improving fisheries) had not been properly accounted for. Some stated that adverse impacts on fish and the natural functioning of rivers needed more emphasis. Others thought that there was a need to balance both positive, (for example mitigation of climate change impacts) and negative impacts from hydropower.

*We will work with catchment partnerships and communities to consider both the benefits and drawbacks of measures on artificial and heavily modified waters. The updated river basin management plan and strategic environmental assessment (SEA) will reflect this and will favour solutions that work with natural processes to maximise environmental and economic benefits. We support the development of sustainable hydropower schemes to increase power generation from renewable sources. Where schemes would not comply with environmental or other legislation by, for example, preventing the achievement of WFD targets and objectives, we will not support their development.*

**Pollution from waste water:** You generally acknowledged that as a result of investment, pollution from waste water has reduced; however it was still seen as a major problem. Concern was expressed about future expenditure on phosphorus reduction schemes where there was no evidence of eutrophication. The impact of phosphorus during the summer months, as a result of tourism, was identified as an issue in the Lake District. You stated that responsibility for this should not just be the water company's but that other sectors and the public should play a role and that 'willingness to pay' for any improvements should be considered.

*Ecological monitoring was expanded in 2013 and expensive actions will only be proposed where we are very certain of eutrophication. We are proposing measures to reduce pollution in the most cost effective and proportionate way considering all sectors. United Utilities, the voluntary sector and the Environment Agency will continue to work together in order to influence public behaviour through a range of initiatives. Government will consider the affordability of proposed measures and may take willingness to pay surveys into account.*

**Pollution from rural areas** - There was general agreement that pollution from rural areas was a major issue. Some responses said that the consultation placed too much emphasis on agriculture as being responsible and that not enough credit had been given to environmental benefits from reduced agro-chemical use. The need to improve national food security was stressed.

*Current evidence from environmental modelling allows us to estimate the polluting contributions from different sources and this is being used to identify measures in the updated river basin management plan in a proportionate way. We agree that the agricultural sector has made significant improvements for nature conservation and has reduced pollution. Through schemes such as Environmental Stewardship and Earned Recognition, we hope to work more closely with rural land managers and target advice and enforcement where it is needed. This will reduce the burden on those farmers who are compliant with regulations.*

**Pollution from towns, cities and transport:** It was noted that pollution from towns, cities and transport is a complex issue and not fully understood. The need to consider the impacts of future development, mitigate against pollution from roads and promote sustainable drainage systems (SuDS) was stressed. Responding promptly to incidents and increasing the public's awareness and responsibility for drainage were proposed as solutions.

*The updated river basin management plans will propose the use of green infrastructure and SuDS to improve the water environment and deliver wider socio-economic benefits. We will work closely with local authorities, developers, highways authorities and United Utilities to encourage this. In collaboration with universities and the Highways Agency, we are researching and trialling new methods for treating polluted run-off. We are working with the manufacturers of stormwater treatment products so that we can use the best treatment devices for each outfall, taking out the pollutants that are causing the problem in a cost-effective way. We will continue to respond to incidents and target advice according to environmental risk.*

**Changes to the natural level and flow of water** were identified as significant issues in the Alt Crossens, Derwent and south west lakes areas. It was emphasised that water management needs to consider both agricultural uses and opportunities for habitat creation. Pressures on water resources due to development and climate were seen as risks and the scarcity of water in West Cumbria as a significant local issue. It was suggested that the Environment Agency's reduced rural maintenance programme, in the Alt Crossens catchment in particular, has increased sedimentation and flooding issues with, for example, reduced dredging leading to the build-up of silt.

*We take a risk based approach to managing flooding and maintaining flood defences. It is not possible to remove all risk of flooding. We have reviewed our maintenance programme to make sure it continues to spend taxpayers' money where it delivers the greatest flood risk benefit. We compare investment in dredging, weed control, maintaining defences, clearing blockages, or pumping water from flooded land to find the most effective use of the funds that are available. Through flood risk management plans, which take the catchment based approach, we aim to maximise the benefits of flood risk management by working more with natural processes and changing the way we use land in order to reduce risk. We continue to work closely with the communities and partners.*

Abstractions for public water supply in West Cumbria are having a damaging effect on the local environment, particularly at Ennerdale and Overwater. *We are working with United Utilities, Natural England, West Cumbria Rivers Trust and other key partners to fix this over the next 5 to 10 years. In the longer term, United Utilities plans to stop abstraction from all its existing sources in West Cumbria and instead pipe water across from Thirlmere Reservoir. Local communities will have the opportunity to influence these plans through planning consultation.*

**Pollution from mines:** There was general agreement that pollution from mines was not a widespread issue across the region but greatly affected parts of the Derwent, Douglas, Kent Leven and Mersey Estuary catchments. For example, it was pointed out that 10% of the waterbodies within the Derwent catchment are suffering due to mine water pollution.

*We will continue to work with partners, such as the Coal Authority, National Trust and universities, to reduce mine water pollution. For example, specific schemes in the Derwent catchment are being investigated, at Force Crag and Gategill, which will reduce mine water pollution to Coledale Beck and Glenderamakin.*

**Invasive non-native species:** There was widespread disagreement with our statement in the consultation that invasive non-native species were not a major issue. Many respondents stated that this was one of the biggest challenges faced, particularly in areas of non-agricultural open land and heavily modified watercourses. It was stated that invasive species restricted access to watercourses, increased erosion and flood risk and led to significant costs, for example in the construction industry.

*We will take steps to avoid deterioration caused by invasive species, taking account of the costs and benefits of these actions.. Many environmental partner organisations are very keen and able to tackle these problems, and we look forward to working in partnership with them through the catchment-based approach.*

*Respondents who use waters for recreation recognised their responsibilities for ensuring that invasive species were not introduced and spread. We will work with such users by promoting the use of technology, such as the 'plant tracker' app to show the location and spread of invasive species.*

A number of you told us that current and historic issues were well documented but that future risks had not been adequately considered. Other important issues identified include **climate change, degradation of upland catchments, fracking, litter, access to watercourses, decline of some species, fish stocks and fish predation**. It was felt that more frequent extreme weather events could exacerbate problems and care was needed to ensure that WFD measures, such as riverine improvements, did not have unintended consequences, for example by increasing flood risk. Waste water pollution and high water consumption were seen as risks from fracking.

For many people, litter was the issue that most affected their enjoyment of the water environment. Limited public access to watercourses was also raised as an issue, as was the long term decline in Atlantic salmon, Arctic char and sea trout in the Kent Leven and Derwent catchments. Poor fish stocks and impacts on fisheries due to predators were seen as important issues that limited the use of waters in several catchments.

*We recognise the need to better understand likely climate change impacts in the North West and will present our view for consultation in the updated river basin management plan (RBMP). Where our upland landscapes are damaged we will propose measures that encourage peat formation and look forward to working closely with partners who are already experienced in this area of work. We are satisfied that current regulations should protect the environment during shale gas exploration and are currently refining technical guidance covering related waste water issues.*

*Though litter is mainly the remit of the local authorities, we are involved in a number of initiatives with United Utilities, Keep Britain Tidy and the Marine Conservation Society.*

We understand that some physical modifications, such as brick-lined channels, culverts, flood defences and swathes of invasive species make many watercourses impossible or dangerous to access; this was identified as a particular problem in the Irwell, Upper Mersey and Mersey Estuary catchments. *Where we can, we want to remove barriers that restrict access to both disabled and able-bodied people and hope to do this by working with partners, including local authorities, Natural England, Forestry Commission and Centre for Accessible Environments.*

*Although the Environment Agency is responsible for protecting and improving fisheries, we recognise that we need to work closely with angling clubs, local river trusts and the wider fisheries community, who are often well, or better placed, to deliver much of this work. The evidence does not show that predation is a widespread cause of poor fish stocks, though locally it can be an issue. In such cases predator control can be used to protect fisheries, but often simple changes to site management – such as fencing or fish refuges - can be very effective. Where predator damage can be proven, the Wildlife and Countryside Act provides a system of licensing to allow otherwise protected species to be controlled, including to be killed as a last resort. The licensing system is operated by Natural England and fishery managers must make an application for such a licence. In 2014 there will be a trial involving Angling Trust, Defra, Natural England and the Environment Agency to see what can be done to improve the all-round performance of this advisory and licensing system.*

## **Q2 Do you agree with our description of how the significant issues are affecting the water environment and society?**

Many of you agreed with the commentary on how the significant issues affect the water environment. You stated that balancing costs and benefits must be central to developing the updated RBMP. Concerns were expressed about



applying this approach to prioritise affordable programmes appropriately. Greater clarity on what cost benefit analysis processes will be used to assess the relative merit of options and measures was requested.

The benefits of water use (for instance in recreation, power generation, food production and heritage) were thought to be inadequately championed or discussed as a possible driver for setting alternative objectives, and needed to be represented in the cost-benefit assessment. Some of you highlighted that coastal and estuarine water bodies were not given enough consideration in the consultation. Concern was expressed that in the North West the WFD classification appears to have shown a slight deterioration in water quality since 2009.

*We will use cost benefit analysis to identify groups of measures with the highest net benefit to society and will share this work during the consultation of the updated RBMP. We want your input to this process and look forward to including your knowledge on the costs and benefits of measures to improve this work. The balance of costs and benefits is only one part of the analysis that government will use to determine objectives; other factors, such as which sectors or parts of society are impacted, and what costs they can afford to bear must also be considered.*

*We agree that coastal waters and estuaries are an area where we need to increase our understanding. Locally we are looking into developing further expertise through, for example, collaborative working with university specialists. A sub group of the national liaison panel executive has just been established to look at this issue.*

*The WFD classification doesn't distinguish between 'real' changes and changes as a result of different monitoring. Where there has been like-for-like monitoring, there have been more improvements than deteriorations. Most of the declines in status are due to a wider monitoring programme that has identified elements that we previously did not know were failing. As a result this has improved our understanding of the environment and we are keen to share this with you to develop effective cost beneficial measures that you have told us are concerns. Such measures are central to the consultation of the updated RBMP.*

### **Q3 How do you think these issues should be tackled, and what would you choose to do first?**

There was strong support for the catchment-based approach and the catchment partnerships that have formed as a result. The groups want the best for the water environment. Adequate funding of these partnerships was considered to be fundamental to this. Responses highlighted the need for a strategic approach that identifies actions that will deliver multiple benefits, for example, through integrated WFD and flood risk management solutions. Greater emphasis on extensive tree planting, green infrastructure and sustainable drainage systems were all proposed.

The need to educate and engage more with the public, businesses and communities was highlighted in a number of responses. Some organisations

said that they can carry out improvements for significantly reduced cost. Responses also noted that planning authorities should give adequate consideration of WFD in development plans. Some novel water quality solutions were suggested, for example the possibility of using the ochre collected from the north west mine water schemes for the removal of phosphates and the use of forestry to deliver wider benefits including flood risk, habitat, recreation and carbon capture.

*The catchment-based approach will provide a better understanding of catchment issues. It will involve local communities in decision-making by sharing evidence, listening to their ideas, and working out priorities. Furthermore, it will support these local communities in delivering improvements. Each catchment in the North West river Basin District now has a catchment coordinator and we encourage you to use them to help develop catchment based work. Key to this is looking at integrated solutions that address a number of pressures at once, to maximise benefits and get better value for money. We support the use of green infrastructure and Sustainable Drainage Systems as measures to improve water management and deliver wider socio-economic benefits. We support tackling diffuse pollution and achieving other benefits through targeted woodland creation. We will work closely with partners, such as the Forestry Commission, on these issues.*

*River basin management plans will favourably consider local measures involving these approaches. We will welcome cost and benefit information and, for example, urge you to share your costs for delivering environmental improvements with us. The Environment Agency is a statutory consultee in the planning process and provides advice and guidance to Local Planning Authorities (LPAs). We will continue to do this so that planning policies reflect WFD objectives. LPAs must consider a wide range of issues in the preparation of strategic plans and determination of applications. As part of this they have a duty to take account of the aims of the WFD and the North West RBMP is important to help them plan positively to achieve this. We will explore some of your suggestions for improvement measures and look forward to doing this with you.*

#### **4.4.3 Engagement for the consultation**

We informed over 400 organisations and individuals about the consultation via email and over 100 organisations and individuals at more than 70 meetings and events. Nearly two-thirds of all the responses came from individuals.

The consultation was on the agenda at various meetings covering a wide range of stakeholders and sectors, including:

- Association of Greater Manchester Authorities
- Forestry Commission
- Greater Manchester Wetlands Partnership
- Healthy Waterways Trust
- Lake District Still Waters Partnership

- NW Bathing Water controllers
- NW Inshore Fisheries and Conservation Authority
- Ribble Life Stakeholder Exchange
- South Cumbria Rivers Trust and
- Turning Tides Partnership.

Workshops and public events were held to get views, explore some of the issues raised and identify potential solutions, including at:

- Heaton Park Summer of Wildlife event (Manchester)
- Merefest (Meres & Mosses Landscape Partnership, Cheshire)
- University of Central Lancashire
- University of Lancaster Environment Centre
- Westmorland Country Show (Cumbria)

We made external briefing packs available on the website, and promoted the consultation through social media. Almost half of those who responded heard about it from the Environment Agency.

### **Which types of organisation / groups provided responses to the Challenges and choices consultation?**

Some of the organisations that specifically responded included: Agricultural Industries Confederation; Agri Environmental Advice Ltd; Association of Greater Manchester Authorities; Bollin Environmental Action & Conservation; Campaign to Protect Rural England (Lancashire Branch); Canal & River Trust; Canoe England; CEFAS - Food Safety Group; Coal Authority; Community Hydro Forum; Coniston & Crake Catchment Partnership; Consumer Council for Water; Country Land & Business Association; Crop Protection Association; Derwent Owners' Association; Douglas Catchment Partnership; English Heritage; Forestry Commission; Friends of Clayton Vale; Friends of the Earth, Goostrey Parish Council; Groundwork Cheshire; Groundwork Oldham & Rochdale; Lake District National Park Authority; Lancashire County Council; Marine Management Organisation; Mersey Docks & Harbour Limited; Micro Hydro Association; Natural Resources Wales; Healthy Waterways Trust; Lune Rivers Trust; NW NFU; NW Regional Flood & Coastal Committee; Oldham Council; Peel Utilities Ltd.; Residents Action on Fylde Fracking; Ribble Estuary Against Fracking; Ribble Life; Rivers Return Partnership (Irwell group); River Ribble Consultative Association; Rossall Beach Residents & Community Group; Rossendale Council; RSPB (Northern England Region); Salford Friendly Anglers; Sefton Green Party; South Cumbria Rivers Trust; Spatial Planning at Cheshire West & Chester; Staffordshire Wildlife Trust; UK Rainwater Harvesting Association; United Utilities; Wild Trout Trust; Wildfowl & Wetlands Trust; Wirral Wildlife (part of Cheshire Wildlife Trust); Wyre Rivers Trust and Wyre Catchment Partnership.

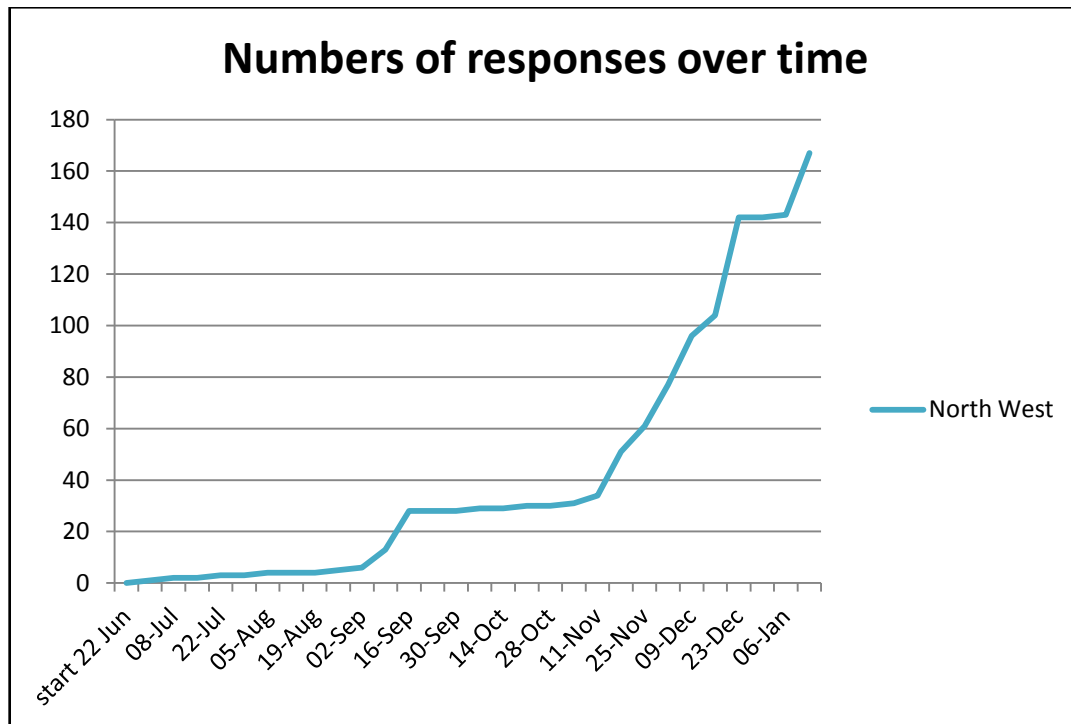
#### **4.4.4 Summary statistics**

##### **Numbers of responses:**

The consultation closed on 22 December 2013 and in total, 167 people and organisations responded.

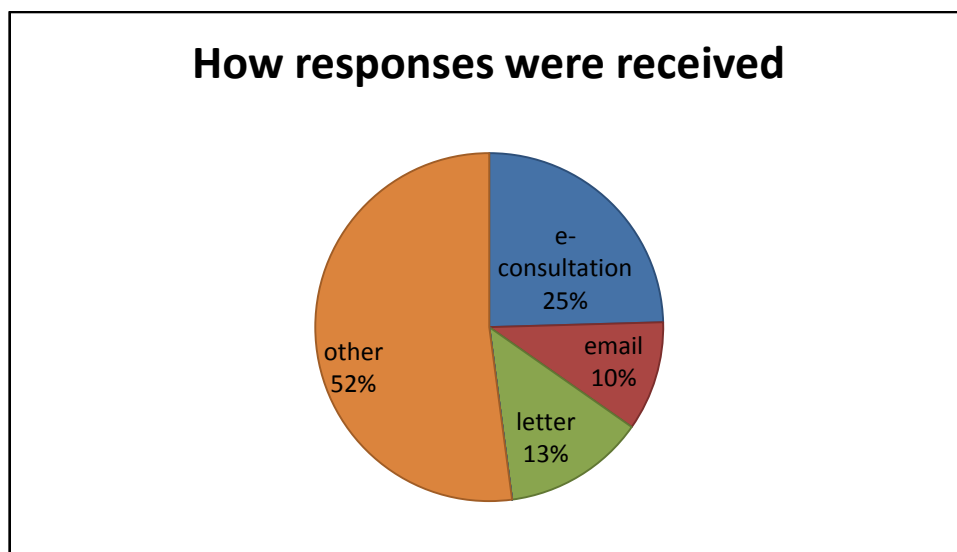
### Accumulation of responses:

There was a similar pattern to other consultations, with the majority of the responses received in the last few weeks. In total 80% of responses arrived in the last month of the 6-month consultation.



### How were responses submitted?

The majority of responses were submitted at events and shows, and face-to-face meetings. Many responses were also provided via the on-line e-consultation tool.

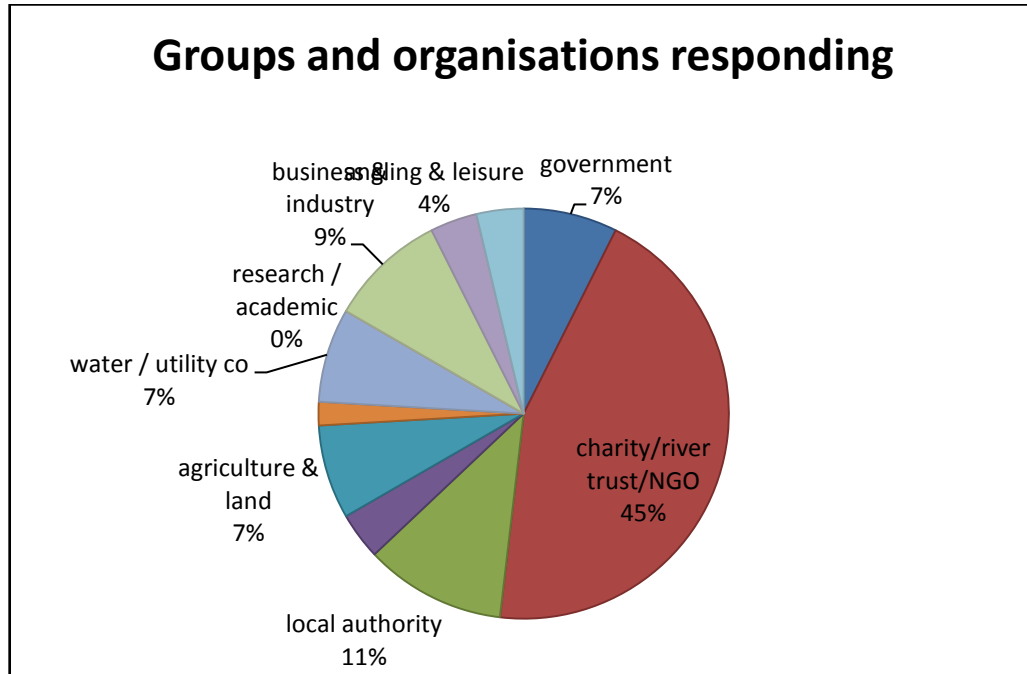


### Were responses from individuals or organisations?

Nearly two-thirds (60%) of responses came from individuals and 32% from organisations or groups.

### Which types of organisations / groups submitted responses to the Challenges and choices consultation?

The highest numbers of responses were submitted by charities /Non Governmental Organisations (NGOs)/river trusts. Local authorities also submitted many responses.



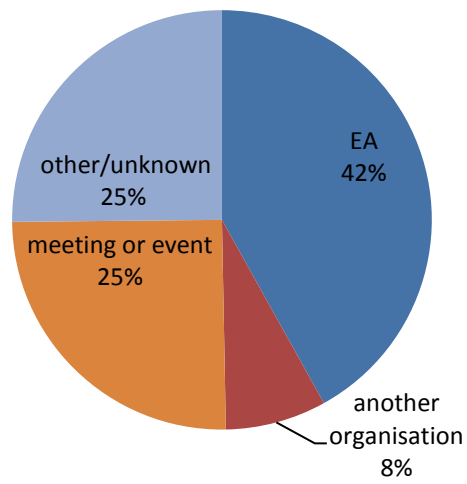
Groups and organisations include:

- parish councils
- river trusts
- water companies
- drainage boards
- angling clubs
- canoe clubs
- industry groups
- energy industry
- conservation charities
- local business

### How did those who responded hear about the consultation?

Almost half of those who responded heard about it from the Environment Agency.

## How those who responded heard about the consultation



## 4.5 Severn River Basin District

The Environment Agency and Natural Resources Wales had an excellent level of response from key partners and the public in the Severn River Basin District (RBD). Responses to the Challenges and choices consultation were the third highest out of the eight river basin districts. The response represented a 160% increase in participation from the equivalent consultation for the first river basin plan (which received 35 responses). We also worked closely with the Severn River Basin District Liaison Panel to develop the consultation document. This level of response has given us a strong steer about our partners' priorities for the second river basin management plan which will cover 2015-2021.

This chapter gives a high level summary of the comments we received. Consultees broadly agreed that the top issues in the Severn RBD are:

- rural pollution
- changes to the flow and level of rivers
- pollution from towns cities and transport
- physical modification to watercourses and water bodies
- pollutions from waste water
- invasive non-native species (INNS)

Detail on the main national issues can be seen in the tables in the [annex](#).

The graphic below is a summary of the issues raised.



Note that there is a separate response to the Challenges and choices consultation for the whole of Wales, including part of the Severn RBD, produced by Natural Resources Wales. Please also refer to this document on the [Natural Resources Wales website](#) ([naturalresourceswales.gov.uk/our-work/consultations/our-own-consultations/challenges-and-choices-consultation/?lang=en](http://naturalresourceswales.gov.uk/our-work/consultations/our-own-consultations/challenges-and-choices-consultation/?lang=en))

#### **4.5.1 Numbers informed and responding**

The Severn Challenges and choices document was particularly aimed at those who are likely to be affected by or who have an interest in the process for developing the updated River Basin Management Plan.

The Environment Agency and Natural Resources Wales informed at least 124 organisations and groups about the consultation at meetings and events in the Severn River Basin between 22 June and 22 December 2013. In addition we published articles, used social media such as Twitter and sent targeted mailings, briefings and emails. As a result, over 4,080 people visited our website to find out more and over 10,000 people heard about the consultation on Twitter.

Examples of the sectors, groups and organisations we consulted in the Severn River Basin District included: agriculture and rural land management; angling and fisheries; charities such as wildlife trusts and rivers trusts; government bodies; marine; industry; manufacturing and other businesses; industry bodies; councils; councillors; members of Parliament and members of the European Parliament; navigation and recreation bodies; the tourism industry; water and power companies.

Groups and organisations who responded included parish councils, river trusts, water companies, drainage boards, angling clubs, canoe clubs, industry groups, energy industry, conservation charities, and local business.

#### **4.5.2 Key findings and actions**

We asked 5 questions in this consultation. This section provides information on the main points from the responses, discusses the different opinions provided, and gives an indication of priorities for those who responded. Where actions are already planned, or we know how some of the responses are being taken forward, this is also provided. Many of the Environment Agency's actions at a local or catchment level will be part of a national plan tailored to local needs. We are working with our partners to develop these actions. Information about the responses is organised by river basin-wide comments and then by catchment. Strategic environment assessment (SEA) comments are in [section 5](#).

#### **River Basin District questions**

We asked what you considered to be the biggest challenges facing waters in the Severn River Basin District; if you agreed with our descriptions on the significant issues, how you thought these issues should be tackled, and what should be done first.

We identified the following as the most significant issues in the Severn RBD:

- rural pollution
- changes to the flow and level of rivers
- pollution from towns cities and transport
- physical modification to watercourses and water bodies
- pollution from waste water



- invasive non-native species (INNS).

The majority of respondents agreed that these are the most significant issues and that they are all relevant to varying degrees across the Severn RBD.

A number of river basin-wide issues were identified as having an impact on the water environment. Many responses highlighted **flooding**. They commented on the frequency, severity and environmental impacts of flood events and the environment's ability to diffuse flood waters. Many referred to increasing pressure from climate **change**, **population growth** and **development** and **unconventional fossil fuels**. The impact of climate change was frequently cited as it will increase pressure on water supply, flooding, water quality and water use.

Arguments were made for and against **hydropower** schemes, some promoting it as a means of low carbon energy production but recognition from other groups of adverse impacts on fisheries and flood defence schemes.

There was a general consensus that **point source pollution** from sewage treatment works plays a major role in the failure to achieve required targets and highly influences water quality. There are concerns, however, that actions do not go far enough on other sewage-related sources such as combined sewer overflows, septic tanks, private treatment plants and misconnections.

There was widespread acceptance that **rural and urban diffuse pollution** are major issues. Regarding urban pollution, many respondents suggested development could offer some solutions to historic issues such as misconnections and contaminated land. Silt loss, pesticides, chemicals and nutrients were consistently cited as key concerns in rural areas.

Most respondents are in agreement that **abstraction** is a key issue affecting natural flows and levels in the Severn River Basin. There is some concern that further abstraction in areas already water stressed could worsen the issue, but that limiting abstraction could have negative impacts on the local economy. This highlights the challenge in balancing the needs of the population with the needs of the environment.

Many consultees suggested the biggest issue was the **physical modification** of existing river channels from a variety of artificial sources. This included flood defences, activities of internal drainage boards, development and other economic and agricultural activity. A number commented that culverted and urban rivers (in particular heavily modified water bodies) tend to collect trash and litter. This gives an appearance of neglect and reduces their ability to support fish and biodiversity. Suggestions included de-culverting and naturalising rivers through the planning process.

Feedback suggested **robust evidence** is needed to drive policy. In addition, some respondents identified a **lack of local data** as a gap which, if filled, can allow more local understanding and ownership of issues. We are preparing

evidence packs for catchment groups which help identify local issues and actions. This will ensure that information is made available in a variety of ways both at a catchment and water body scale to meet the needs of different parties. Where catchments cut across the England/Wales border we are working with Natural Resource Wales to ensure we take a **whole catchment approach**.

Many people referred to the need to **engage with and educate communities and businesses** as another way to address this. Current work on the River Sowe in Warwickshire was highlighted as a positive example of partnership activity. In addition, the Environment Agency supports [WatersideCare](http://www2.keepbritaintidy.org/Programmes/RiversAndCanals/WatersideCare/Default.aspx) (www2.keepbritaintidy.org/Programmes/RiversAndCanals/WatersideCare/Default.aspx), a community-based initiative which empowers groups such as the Riverside Conservation Group in Stourport on Severn. They do regular conservation work, litter clean-up, water quality improvement and awareness-raising. In total there are 6 WatersideCare projects in the Severn RBD.

Many respondents from the voluntary sector in particular, pointed to **ecosystem services** as a means of providing win-win outcomes. Some suggested that those who benefit from ecosystem services could make payments to encourage changes in land management. Comments were made around reflecting the true costs and benefits to society, food production, health and recreation of taking, or not taking, action.

Specific points were made about how significant issues should be tackled, including:

- Using more green **infrastructure and sustainable drainage** (SuDS) schemes. These would improve quality of surface water run-off and help with flood alleviation. Others called for an industry standard on highway drainage maintenance and pollution control
- Encouraging more **efficient water use by all** and in particular in new developments. This could be influenced through planning applications and building regulations. Respondents also suggested promoting storage of water during high flow periods.
- Increased / better **enforcement and regulation of land management activities**. This should include a review of which regulations effectively deliver change. The land management sector supported voluntary initiatives as a mechanism and there is broad support for Catchment Sensitive Farming.
- Use all **relevant measures within New Environmental Land Management Scheme** (NELMS), especially the facility for targeted 'group' applications to address issues, including targeted planting of trees as a means of achieving multiple benefits.
- **Actively working to tackle invasive non-native species** (INNS) now, to stop them becoming a bigger, more expensive problem to tackle in future. Integrated strategies are needed at a variety of geographical scales.
- **Assessing and prioritising barriers to fish migration**, with effort being proportional to the benefit gained.

Several organisations pointed out that the consultation document did not put enough emphasis on achieving **no deterioration** and a disappointing **lack of action on Habitats Directive sites** (including the Severn Estuary, Clun and Wye) and **Drinking Water Protected Areas**.

In response, a review of outstanding actions for Habitats Directive sites across the Severn RBD is currently underway. This is part of the 'Improvement Programme for England's Natura 2000 Sites' led by Natural England and known as the IPENS programme. In Wales the environmental objective for all water bodies within a freshwater Habitats Directive site will be to achieve favourable condition by 2021.

We are also working with local partners to put into place specific local actions to protect drinking water, identified in the Drinking Water Action Plans.

Consultees highlighted the many challenges of managing a number of linked pressures and why taking a **whole catchment approach** to delivery is important. Respondents suggested that river basin management plans need to link better with other plans and policies, for example flood risk management plans and the Common Agricultural Policy.

### **The catchments**

We asked how you thought the significant issues in a catchment are affecting the water environment and society. We also asked how these challenges affecting each catchment should be tackled and what should be done first.

Many of those participating in the Challenges and choices consultation recognised the **unique nature of the Severn River Basin District**, sitting across the England / Wales border, with different regulators, internal drainage boards and stewardship schemes.

The Environment Agency and Natural Resources Wales have recognised that ongoing cross-border working is crucial to achieving environmental improvements by developing a Memorandum of Understanding, which states: *The Environment Agency and Natural Resources Wales plan collaboratively at a catchment level to ensure the environment is managed in an integrated and transparent manner that delivers a good service to customers. This includes collaboration on the delivery of the range of catchment-based activities and plans in cross border catchments.*

There was widespread support for the **Catchment Based Approach**, and there was a suggestion that hosts need to be well resourced to deliver successfully. Funding is important, along with developing strong multi-objective collaborations.

Catchment groups are now established across the whole of the English Severn, with the rivers trusts, wildlife trusts and Wye and Usk Foundation in the host role. Natural Resources Wales have been holding catchment workshops to encourage participation and joint planning.

Respondents made both general and location-specific points in response to the consultation questions on catchments. However, there were mixed views on the priorities for delivery.

A number suggested taking **upstream actions** on land use as a way to reduce more costly measures to remove phosphorous and other nutrients. The catchment approach to tackling **pesticides** was advocated by the water companies – *'the biggest single impact upon our customers relates to the costs that we incur in providing potable water'*.

While some respondents stated that it is appropriate to start at the top of a catchment and work downstream, others suggested investment should be targeted where the returns are greatest, for example the poorest quality rivers. Other suggestions were to realise quick wins first. There was general agreement that all action should be evidence driven, proportionate across sectors and cost effective.

Strategic catchment issues were raised, including:

- Warwickshire Avon: taking local or strategic actions such as tackling water quality in the headwaters which benefits downstream abstractors. Longer term actions would include removing or modifying fish barriers lower down in the catchment to help migratory fish species spawn upstream.
- Vyrnwy and Wye: the effects of silt, pesticides and acidification from forestry could be under represented in the upper catchments.
- Severn Uplands and South East Valleys: mine waters were raised as an issue in these catchments. A programme for remediating metal mine water issues was suggested.
- Teme and Severn Vale: the need to tackle poor management of septic tanks and private sewage treatments works at source in these catchments.

The next stage is to discuss how we can address these issues in conjunction with our partners. The outcome of this joint working will inform the update to the river basin management plan. This will be published for consultation later in 2014.

#### **4.5.3 Engagement for the consultation**

All Environment Agency staff whose role involves meeting with stakeholder groups and partners shared Challenges and choices information at their meetings, events and workshops during the consultation period.

Examples of meetings where we discussed the consultation included:

- Worcestershire Environment Funding workshop
- Worcestershire Council
- Herefordshire Local Nature Partnership
- Magnificent Severn
- Shropshire Wildlife Trust
- Gloucestershire local authorities

- The River Worfe Catchment Restoration Fund Project steering group
- National Farmers Union
- Dairy Crest
- Wye Navigation Advisory Committee
- The Montgomery Canal Partnership Group.

We also gave presentations to students, the strategic Severn River Basin District Liaison Panel, Severn Trent Water, Dwr Cymru (Welsh Water) and the Wild Trout Trust among others.

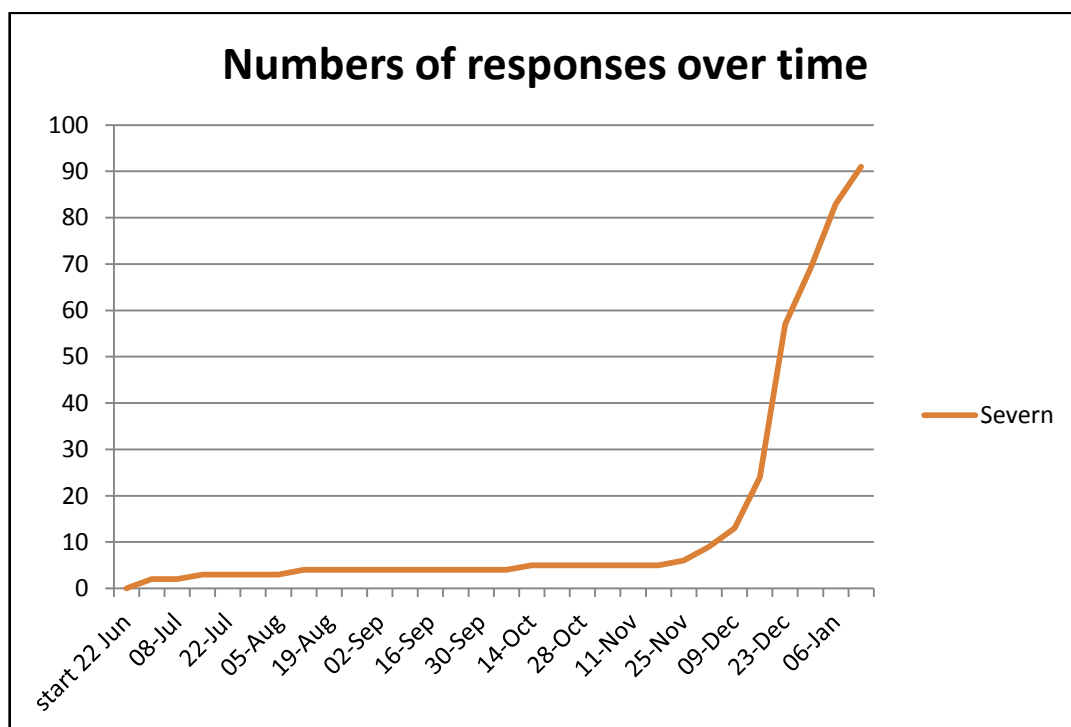
#### 4.5.4 Summary statistics

##### Numbers of responses:

The River Basin District Challenges and Choices consultation began on 22 June 2013 and closed on 22 December 2013. The total number of responses from the Severn RBD was 91.

##### Accumulation of responses:

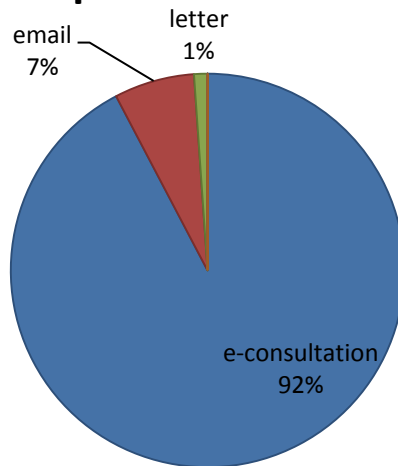
There was a similar pattern to other consultations, with the majority of the responses received in the last few weeks. In total 80% of responses arrived in the last week of the 6-month consultation.



##### How were responses submitted?

The most frequently used method for responding to the consultation was via the on-line e-consultation tool.

## How responses were received



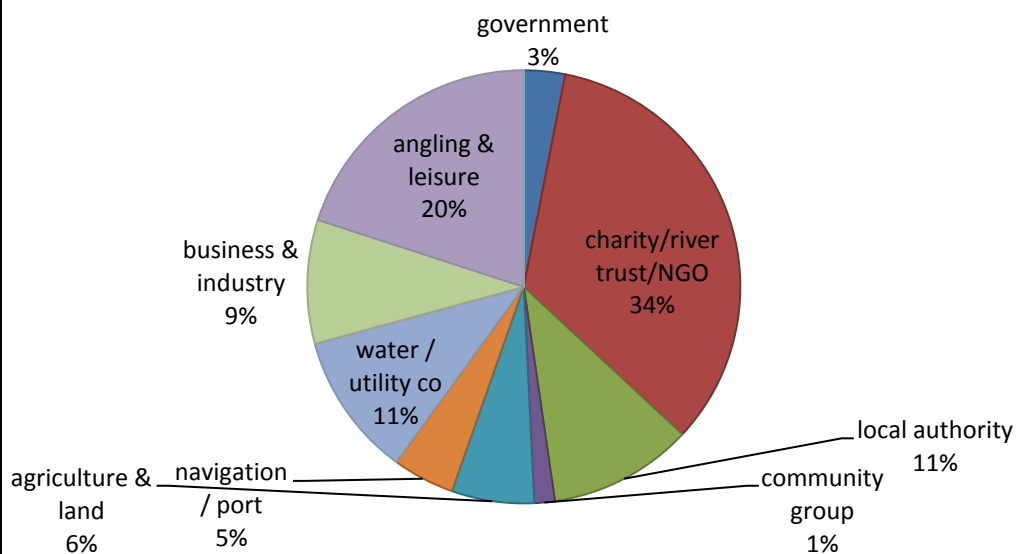
### Were responses from individuals or organisations?

Nearly three-quarters (72%) of responses came from groups and organisations, and a quarter (26%) from individuals. 2% were unknown.

### Which types of organisations / groups provided responses to the Challenges and choices consultation?

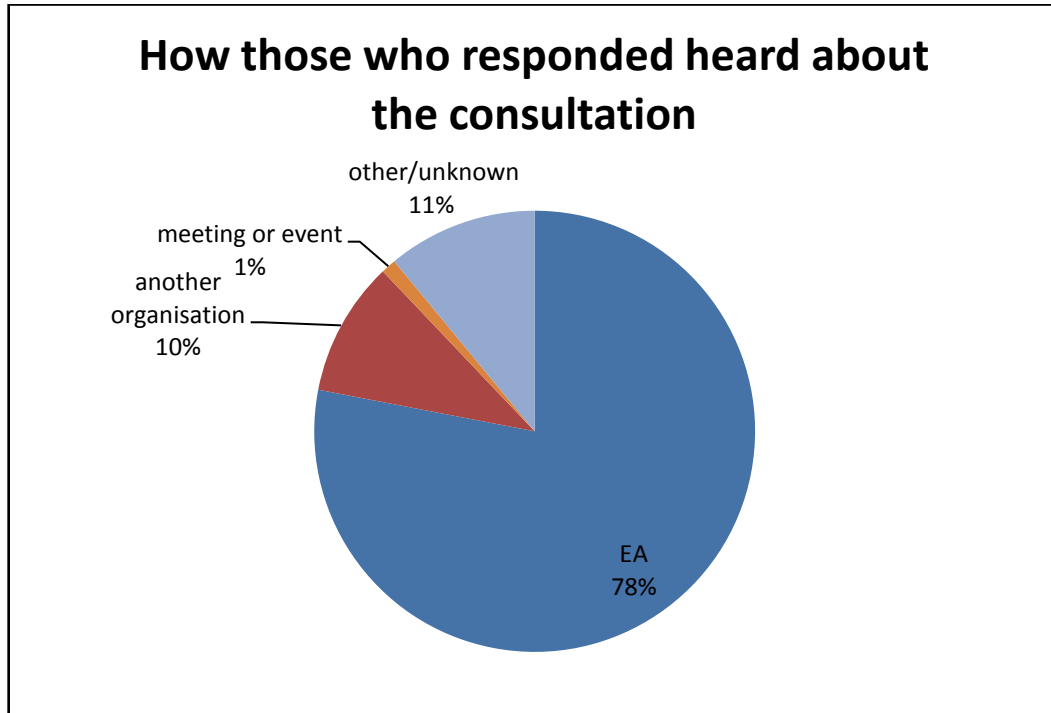
The highest numbers of responses were submitted by charities / Non Governmental Organisations (NGOs) / river trusts. Angling / leisure and local authorities also provided many responses.

## Groups and organisations responding



**How did those who responded hear about the consultation?**

Over three-quarters of those who responded heard about it from the Environment Agency.



## 4.6 South West River Basin District

We had a good response to the consultation and received many detailed comments and a lot of information. This is a snapshot of the information we have available at the present time. We have drawn out the key themes, stated where there is general agreement or disagreement with the significant issues we identified for this river basin district (RBD), shown where new measures or priorities were raised, and indicated how these responses will be used.

Details of the main national issues can be seen in the tables in the [annex](#).

### 4.6.1 Numbers informed and responding

We had 115 responses to the South West River Basin District Challenges and Choices consultation, from a mixture of individuals and organisations.

We informed over 550 organisations and individuals about the consultation via email, and attended over 120 meetings and events with organisations and individuals.

Groups and organisations who responded include: parish councils, river trusts, water companies, drainage boards, angling clubs, canoe clubs, industry groups, energy industry, conservation charities, local businesses.

### 4.6.2 Key findings and actions

We asked 5 questions in the consultation. This section provides information on the main points from the responses.

**River Basin District questions:** we asked what you considered to be the biggest challenges facing waters in the South West River Basin District (RBD); if you agreed with our descriptions on the significant issues, how you thought these issues should be tackled, and what should be done first.

Most people who responded to the South West RBD Challenges and choices consultation broadly agreed with the significant water management issues outlined, but highlighted others issues that were not included. We have looked in detail at all the responses and we will be replying directly to everyone who included their contact details. Our aim is to use these responses to inform the development of the 2015-2021 River Basin Management Plan. Below is a high level summary of the key points raised under each consultation question.

#### **Q1 What do you consider to be the biggest challenges facing waters in the South West River Basin District?**

Most people broadly agreed with the significant water management issues which the Environment Agency outlined in the consultation but highlighted



other issues that were not included. The graphic below is a summary of the issues raised, with those mentioned the most in larger font.



**You commented that one of the biggest issues in the South West is the pressure from increasing population growth and the large pressure that seasonal variations in population put on the water environment. We agree that increasing population is a pressure and we are considering this on many levels. At a national level we are using risk assessments to look at different scenarios of population change. At a local level it is a statutory requirement that all water companies must consider population changes in the water resource management plans.**

These plans look at the demand for water and abstraction from homes and businesses over a 25 year period. Population pressure on water quality is managed through a combination of the local authority planning process and the water company business plans. Water companies must plan in a 5-year cycle, for the impact of population changes and ensure that there is no deterioration in water quality.

**You identified that effective engagement and integrated plans across all parties and communities is key to getting results and you supported the catchment-based approach.** We agree; effective engagement with all relevant stakeholders is vital to take new approaches to long-standing issues, which is why we are promoting both the catchment-based approach and collaborative working. In the South West Region, we have catchment coordinators who help facilitate this approach at a management catchment scale. We also recognise that smaller groupings may be more effective to address some geographical or issue-based projects.

**You requested that the effects of climate change on weather patterns, for example more intensive rainfall or drought, and river ecology, be recognised.** We recognise that more is needed to understand how climate change will affect a number of pressures on the water environment. We have been working with others to look at scenarios and climate projections through modelling. Climate change is a cross-cutting issue and the options to address this will be built into the assessment of WFD measures proposed in the update to the river basin management plan.

**You were concerned about barriers to fish movements.** We have identified around 600 barriers to migrating fish in the South West. We try to remove barriers where possible, or we build a pass to allow all species to move freely within the river. Often these barriers are owned by private individuals so we have to negotiate the action we wish to take. This work can be very expensive with a large fish pass often costing over £400k. We have an ongoing capital programme to build fish passes where water bodies are failing as a result of a barrier.

**You commented that we focus too much on water bodies and not on the wider water catchment.** We consider the water body unit to be one part of the catchment based approach. Main water bodies have been identified so that there is a consistent unit to monitor and measure the quality of the water environment over the next 6 year planning cycle.

**You identified that there was a lack of information on transitional and coastal waters.** We have noted this and are working on how to make more information available in the draft river basin management plan.

**You suggested that we work more closely with local authorities on sustainable urban drainage systems (SuDS).** We agree that we need to do this. The Government is in the process of establishing SABs (SuDS Approval Bodies) with secondary legislation expected to be laid in Parliament by April 2014. We expect to play a strategic overview role through engagement, rather than commenting on a case-by-case basis.

**You said that there was a need for more data and evidence gathering and sharing between organisations.** We are always open to using and sharing data that we can, within data protection laws. We are currently developing a web-based 'catchment data explorer' tool that will give a public, interactive view of key river basin planning information. The development of the catchment-based approach will also help to facilitate the sharing of local knowledge to inform actions.

## **Q2 Do you agree with our description of how the significant issues are affecting the water environment and society?**

There was broad agreement from most respondents on our description of how the significant issues are affecting the water environment and society. In addition, respondents said:

- Ensure we look at the wider catchment and not just focus on water bodies and main rivers.
- Cumulative effect of smaller tributaries on the main rivers and water dependant protected areas is as important.
- Avoid treating protected areas in isolation as they are part of the whole ecosystem and integrate measures to manage them favourably.
- Educate consumers so buying choices are changed to support better land management for agriculture.
- Consider the wider socio-economic and health benefits of the water environment, including amenity value and access to water.
- Trees are part of the solution to water management; consider green infrastructure.
- The potentially adverse effect of forestry operations on water quality and stream connectivity.
- There is no mention of climate change and the effect on flows.
- The loss of native deciduous trees, to disease, near the rivers could increase the flow of water into the streams feeding the main rivers.
- The loss of flood plain from property development.
- The narrowing of flood plains through flood defence schemes and straightening of channels to divert water have introduced miles of physically altered flow regimes.
- Sustainable drainage schemes should be seen as part of a wider need to maintain and increase green infrastructure in urban areas.
- Spread of invasive species and bio-security need more action now.
- Recognise the services and benefits of the historic environment as part of the final management plan as well as in the strategic environmental assessment.
- No reference is made to lower reaches which suffer tidal inundation.
- There needs to be a clearer understanding and method of measuring the impacts of invasive non-native species on waterways.
- Lack reference to the impact of, and demand for, recreation on the water environment.
- The pollution impact of intensive fish farming.

We will consider these points in the development of the updated South West River Basin Management Plan

### **Q3 How do you think these issues should be tackled, and what would you choose to do first?**

We had a wide range of responses to this question, demonstrating the difficulty gaining consensus on what to do and what to do first.

In summary there was:

- lots of support for the catchment-based approach and closer partnerships
- a steer to start at the upper catchment first

- a desire to see the use of a mixture of long and short-term measures
- general support of Catchment Sensitive Farming but needs more funding for measures to be implemented

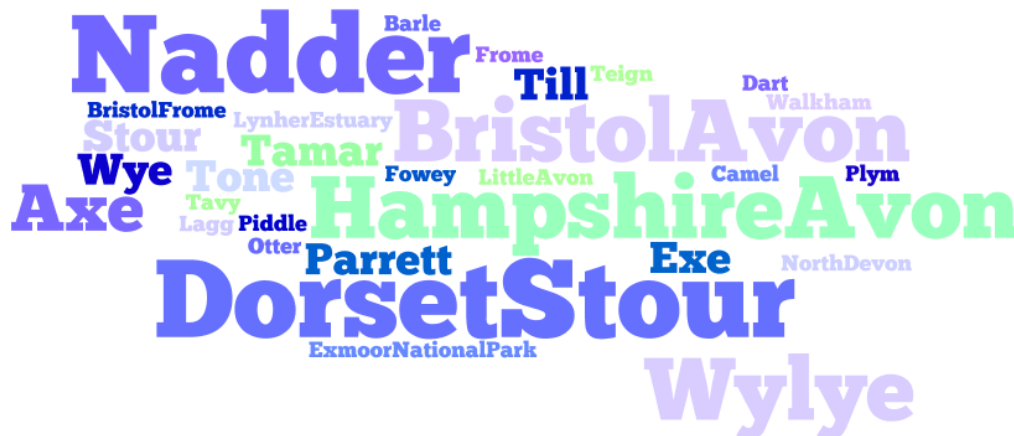
There were suggestions to:

- take a holistic approach to planning and funding across all sectors
- use bottom up development of local measures
- develop a payment scheme for ecosystem services
- develop a visitor payback scheme to help fund issues with the seasonal population pressures from tourism
- promote more best practice advice to consumers and businesses
- improve communication for urban pollution issues, for example, misconnections
- use more volunteers like the 'River Fly' project to do local monitoring
- encourage landowners to enhance ecology where possible
- increase tree cover as part of water management planning
- promote 'upstream thinking' project as a good example of ways of working
- find a way to incentivise change
- do more local engagement
- have more data and evidence sharing
- involve highways authorities and local authorities more in the catchment- based approach
- improve drainage systems and link to the SuDS approving bodies (SAB)
- plant well-sited trees and woods to help prevent silts and nutrients from entering watercourses, slow down flood flows, and provide shade to reduce the temperature of water during summer months

We will consider these points in the development of the updated South West River Basin Management Plan.

#### Q4 How are the significant issues in a catchment affecting the water environment and society?

Due to the wide range and detailed responses we have had to this question, our catchment coordinators will be working with the local catchment partnerships to look at all the issues raised over the coming months. Below is a summary of the most common issues and the graphic shows which catchments were commented on the most.

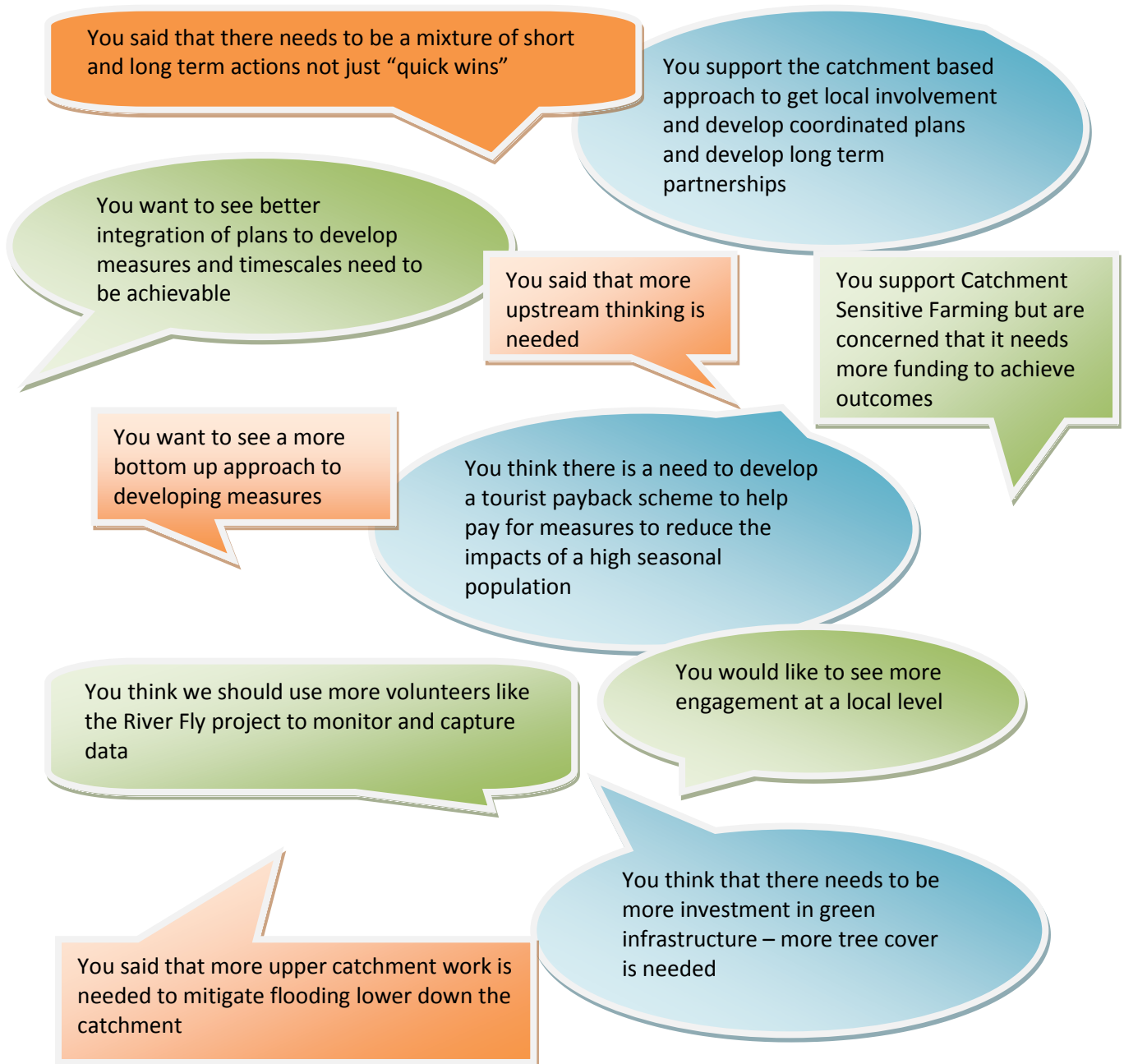


- Low flows affecting fish stocks.
- Over- abstraction causing low flows.
- Water quality issues – oxygen levels effecting fish stocks.
- Increased housing demand increasing demand for water.
- Population growth increasing demands for water.
- Weed management – over cutting or not enough cutting.
- Bank collapse and poor management of vegetation.
- Increase in non-native species like Himalayan Balsam destabilising banks.
- Declining fish stocks.
- Physical barriers for fish movement, predominately weirs.
- Forestry increasing sediment in rivers.
- Economic value of rivers, especially for tourism, is important.
- Overwhelmed sewage treatment works in storms causing pollution out to sea.
- Pollution from agricultural run-off; more advice and funding needed for farmers.
- Fish farming pressures on the water environment.
- Hydro electric schemes disrupting flows and fish passage.
- Livestock defecating in streams reducing water quality.
- Mining legacy leaves poor water quality which is a long term issue.
- Poor water quality affecting shellfish.

## Q5 How do you think the challenges affecting each catchment should be tackled, and what would you choose to do first?

Due to the wide range and detailed responses we have had to this question, our catchment coordinators will be working with the local catchment partnerships to look at all the issues raised over the coming months.

Below is a summary of the most common responses.



We will use these comments to help shape the updated South West River Basin Management Plan.

### 4.6.3 Engagement

We used a variety of channels to promote and engage the public during the consultation. External briefing packs were available on the website; we supplied handouts with the consultation questions at meetings and events, and held group discussion sessions at workshops. We promoted the consultation through social media and sent out reminder newsletters about how to respond during the consultation.

The consultation was also on the agenda at a range of meetings. For example: the South West Agricultural Pollution Prevention Group; the Non-Native Invasive species workshop; a range of bathing waters events, and the 'Upstream Thinking' conference.

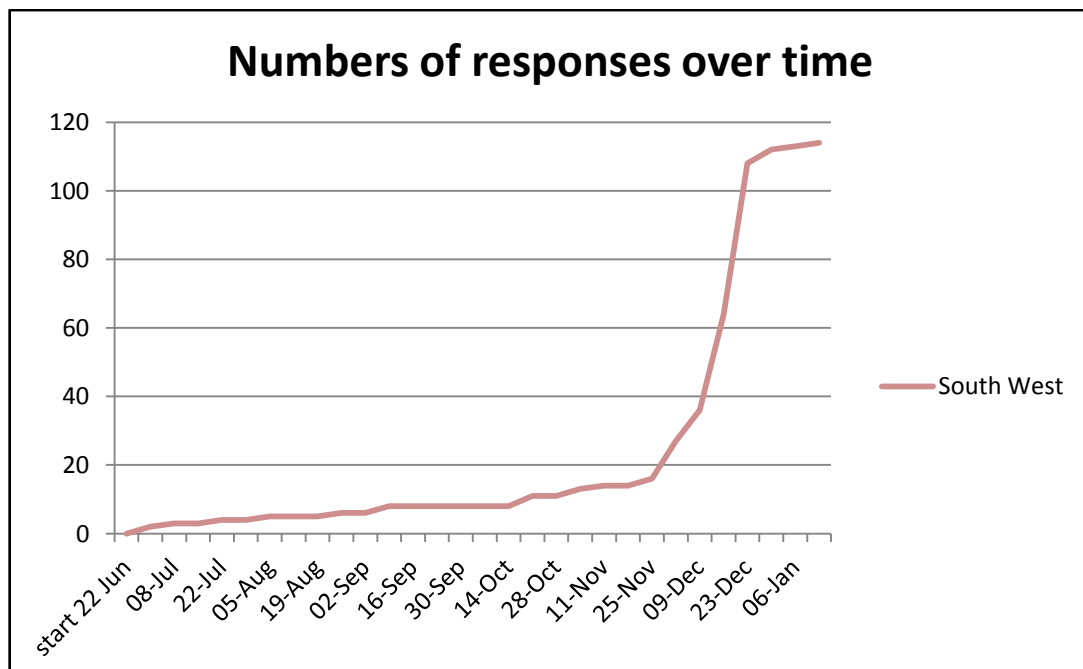
### 4.6.4 Summary statistics

#### Numbers of responses:

The South West River Basin District Challenges and Choices consultation closed on 22 December 2013. The total number of responses received was 115.

#### Accumulation of responses:

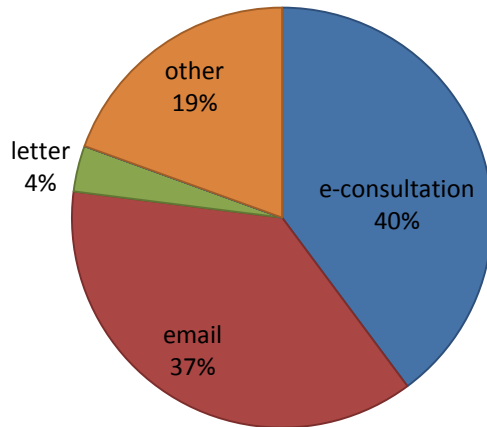
Most of the consultation responses were received in the last 2 weeks. In total 80% of responses arrived in the last month of the 6-month consultation.



#### How were responses submitted?

The most frequently used method for responding to the consultation was via the on-line e-consultation tool. Email responses were also high in number.

## How responses were received



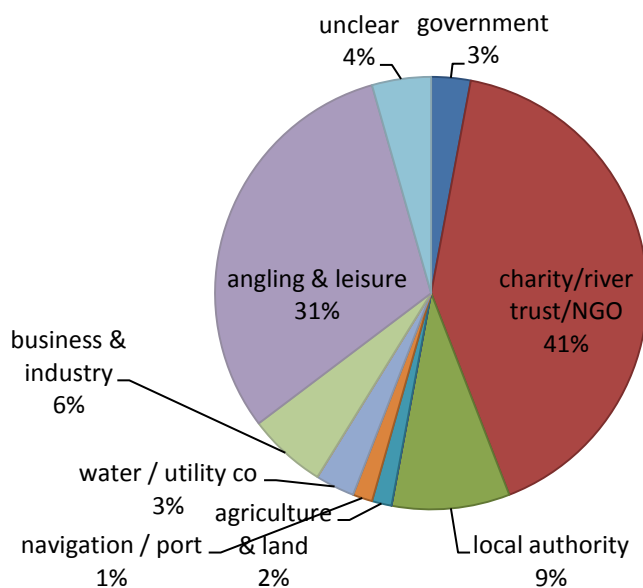
### Were responses from individuals or organisations?

Over half of the responses (59%) came from groups and organisations; just under a third (31%) came from individuals and 10% had an unknown origin.

### Which types of organisations / groups submitted responses to the Challenges and choices consultation?

The highest numbers of responses were provided by charities /Non Governmental Organisations (NGOs, river trusts and angling /leisure clubs.

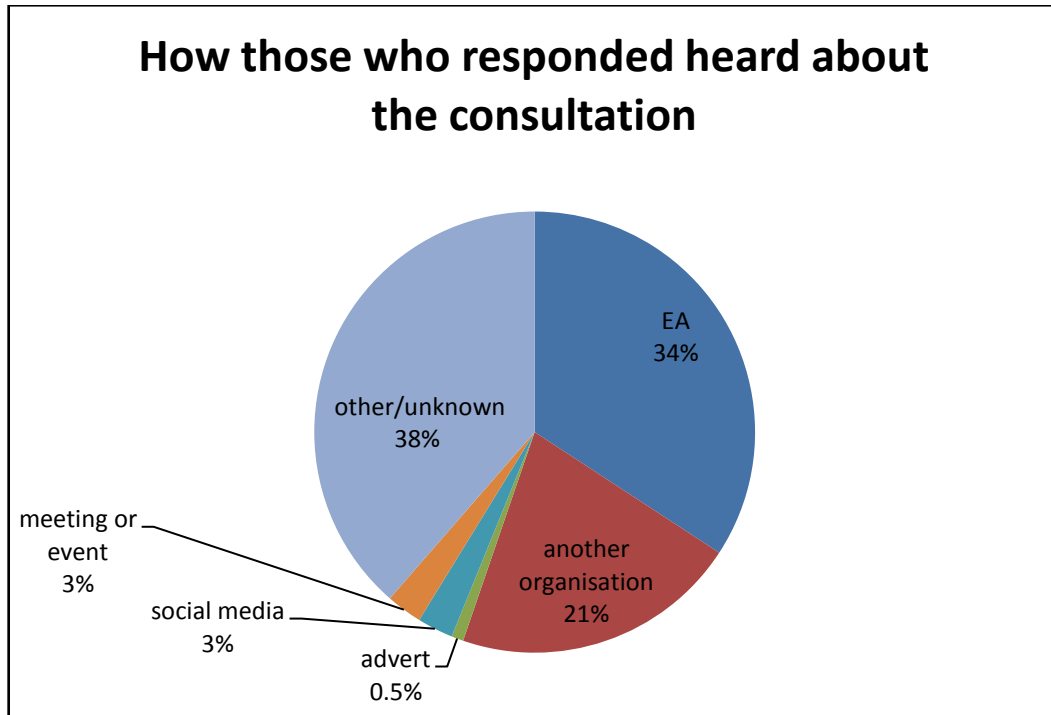
## Groups and organisations responding





**How did those who responded hear about the consultation?**

Around a third of those who responded heard about it from the Environment Agency.



## 4.7 South East River Basin District

We had a good response to the consultation and received many detailed comments and information. This is a snapshot of the information we have available at this point in time. We have drawn out the key themes, stated where there is general agreement or disagreement with the significant issues we identified for this RBD, shown where new measures or priorities were raised, and indicated how these responses will be used.

Details of the main national issues can be seen in the tables in the [annex](#).

The graphic below is a summary of the issues raised.



### 4.7.1 Numbers informed and responding

In total 75 people or organisations responded to the South East River Basin District (RBD) 'Challenges and choices' consultation.

We informed over 500 organisations and individuals about the consultation via email, and a further 490 organisations and individuals at meetings and events.

Groups and organisations who responded include: parish councils, river trusts, water companies, drainage boards, angling clubs, canoe clubs, industry groups, energy industry, conservation charities, local businesses.

### 4.7.2 Key findings and actions

We asked 5 questions in this consultation. This section provides information on the main points from the responses, discusses the different opinions provided, and gives an indication of priorities for those who responded.

Where actions are already planned or we know how some of the responses are being taken forward, this is also provided.

**We asked you what you considered to be the biggest challenges facing waters in the South East River Basin District; if you agreed with our descriptions on the significant issues, how you thought these issues should be tackled, and what should be done first.**

Most of the respondents to the consultation agreed with the issues identified but some important omissions were highlighted. Many stressed the need to consider the combined effects of the issues, stating that they are all interrelated. In this regard, the need to take a holistic approach to catchment management was a common thread throughout the responses.

### **Q1 What do you consider the biggest challenges facing waters in the South East River Basin District/individual catchments?**

The issues that gave rise to the most comments were:

- Physical modification (60%)
- Pollution from rural areas (64%).
- Changes to natural level and flow of water (60%).

The most common concerns about the challenge of **physical modifications** included:

- managing flood risk while avoiding damage to river function
- preventing and dealing with erosion and sedimentation
- ensuring that the benefits of high quality green space are realised
- re-instating fish passage
- the pros and cons of hydropower schemes.

Although the majority of comments related to the effects of **pollution from rural areas** and the unintended consequences of intensive land use, **pollution in general** was widely raised as a key challenge:

- High levels of the plant nutrients - phosphate and nitrate
- Additional pressures on rural land use and waste water treatment created by population growth in the South East River Basin District;
- Contaminated run-off from urban and rural areas, particularly where this impacts on shellfisheries and recreational activities
- The need to improve public awareness of misconnections and waste disposal down drains
- The need to plan and construct urban and rural sustainable drainage systems (SuDS).

The challenges around **changes to the natural level and flow of water** raised in the responses clearly focused on concerns about over-abstraction, with 73% of respondents who expressed concern referring to this:

- Over-abstraction, particularly combined with the additional pressure of population growth in the South East Region;
- Extreme weather and the predicted effects of climate change
- The importance of groundwater in the South East River Basin District, which many thought had been underplayed.

Although there were not as many comments (43%) about the **issue of invasive non native species (INNS)**, there was clear consensus that the issue was important. Concern was expressed that many species, both plant and animal, were costing a lot of money to control and that the effectiveness of this action was limited, unless a strategic approach was taken.

### **Q2 Do you agree with our description of how the significant issues are affecting the water environment and society?**

- In general the responses agreed with the commentary on how the significant issues affect the water environment.
- However, some felt that the issues were too broad and had an immediate to short-term horizon that didn't address the issues adequately.
- Some responses considered that cross-cutting challenges such as climate change, population growth and green infrastructure had not been fully considered, along with the need to plan ahead over a longer timeframe.
- Other issues that were considered important were cultural attitudes, lack of public awareness of the issues, the potential impact on significant water-dependent heritage assets and the value society places on a natural environment.
- Some areas of importance in the South East River Basin District were not given due prominence in the consultation document. These were the importance of groundwater, the impact of nitrate pollution, the issues regarding transitional and coastal waters (TraC), and the impacts on water-dependent wildlife in general.

### **Q3 How do you think these issues should be tackled, and what would you choose first?**

- Effective prioritisation is seen as critical by many respondents, along with recognition that *"hundreds of years of changes can't be rectified in 6, 12 or 18 years"*.
- More joined-up working and thinking to identify and deliver actions was seen as important, along with robust cost benefit analysis.
- Some comments suggested that the time taken to implement solutions was a problem.
- There was support for a combined strategic and partnership approach.

Actions to address the unintended consequences of **physically modified river systems** and **current land-management practices** featured strongly in responses:

- Taking a holistic approach, encompassing the principles of '*up-stream thinking*' and raising the profile of how woodland can benefit rivers and associated habitat.

- Integrating agri-environment schemes and river basin actions to achieve catchment scale improvement.
- Providing strong financial and regulatory support for the catchment sensitive farming initiative and other farm advisory projects, alongside the catchment based approach, and providing incentives for using less fertilisers and pesticides.
- There was support for removing culverts, weirs and other structures, providing this didn't impact on structures of importance for our national heritage or recreational activities such as canoeing.

Some responses suggested that **water quality issues** should be addressed before action was taken to restore physically modified rivers. However, the use of reliable and robust evidence to determine priorities and measure effectiveness was seen as critical.

- Taking a strategic or catchment-wide approach to prioritising actions.
- Ensuring actions include multiple benefits for people and wildlife.
- An emphasis on preventing pollution in the river basin district is seen as the most cost effective way to manage the issue, coupled with a strong regulatory approach.
- Action to address the impact from waste water treatment works should be considered alongside tackling diffuse pollution.
- Working in partnership with a combination of stakeholders was suggested as a means to secure improvements in water quality in urban areas.
- Addressing pollution attributable to misconnections needs to be prioritised.

Actions to address the challenge of **changes to the natural level and flow of water** were multi-faceted and linked in with land-use and reducing water wastage by individuals and business. Some actions to reduce the severity of low flows could also reduce the severity of floods:

- Changes to the patterns of land use, such as the installation of SuDS in urban areas, or the restoration of wetlands and woodland in rural areas, was seen as a long-term option. However, with the global rise in the demand for food and increased pressure on resources, the need to allocate a proportion of water for agricultural use was seen as being essential.
- In the shorter term, finding better ways of reducing water use, such as compulsory metering; pricing mechanisms aimed at reducing demand such as banded tariffs and seasonal pricing.
- Fixing leaks and reducing waste in the water distribution network was seen as important along with finding better ways of storing water.
- The planning system was considered to have a critical role to play in reducing water use and ensuring the availability of water for people and wildlife. Identifying areas of 'water stress' and ensuring the availability of water should be a factor in determining housing allocations and was considered essential to guide future decision making. Waste water re-use and other water efficiency measures should be a condition of any future planning permissions.

- Continuing the Restoring Sustainable Abstraction (RSA) programme, funded through the National Environment Programme (NEP), was acknowledged as being a well-defined mechanism through which abstraction pressures caused by public water abstraction can be dealt with. However, concern was expressed about the amount of time it can take for actions to be implemented.

There was a clear consensus that taking a co-ordinated, strategic and/or catchment-wide approach to tackling **invasive non-native species (INNS)** was key if we are to be effective;

- Any decision making needs to incorporate the cost implications of controlling named species.
- Some felt that tackling invasive species that were already well established should be low priority and that the priority should be preventing their introduction in the first place.
- Those who use our waters for recreational purposes recognised and embraced their responsibilities for ensuring INNS were not introduced and spread through the catchments by recreational users.
- Identifying mechanisms by which INNS enter the UK was identified as a priority in some responses. The use of technology to track the location and spread of INNS was promoted, such as the ['plant tracker'](http://planttracker.naturelocator.org/) app (planttracker.naturelocator.org/)

### **The catchments:**

**We asked how you thought the significant issues in a catchment are affecting the water environment and society; how these challenges affecting each catchment should be tackled and what should be done first.**

Specific issues and options to tackle them raised through this consultation are now with our catchment coordinators, so that they can be addressed through the river basin planning process and catchment partnership groups.

Most comments were received for the **Rother** catchment, with the **Arun and Western Streams, Adur and Ouse, Stour, Test and Itchen** and **New Forest** catchments close contenders.

All the catchments are affected by the issues identified to varying degrees. Local issues that the respondents considered merited further information are:

**Groundwater:** The quality and quantity of groundwater, and its links to the surface water systems are of particular importance for the **Adur and Ouse, Arun and Western Streams, East Hampshire, the Isle of Wight, New Forest** and **Test and Itchen** catchments. For example, around 50% of the public water supply in Hampshire is taken directly from groundwater sources and the rest is taken from rivers, which receive the majority of their flow from groundwater. The importance of this resource for people and wildlife was thought to be lacking in the consultation.

**Population growth** and the implications for water supply and waste water treatment were raised as areas of concern, particularly in the Sussex catchments: **Arun and Western Streams**, the **Rother**, the **Adur and Ouse** and the **Cuckmere and Pevensy Levels**. The **Rother, Arun and Western Streams, Medway** and **Stour** catchments are considered to be 'hotspots' for high value agricultural crops that require irrigation.

**Funding catchment groups, projects and education:** There was a lot of support for the **Catchment Based Approach** and catchment partnerships that have formed as a result. The groups feel very strongly about their rivers and want to see them in the best possible condition. Funding these partnerships is considered to be fundamental to delivering projects and other actions 'on the ground'. The provision of a central coordinator, with links to the Environment Agency, was seen as key.

Coastal areas and those that attract a lot of tourists, such as the **New Forest** and **Isle of Wight** raised issues relating to the impact that increased waste water from seasonal venues, like campsites, has on the local watercourses. And chalk streams, such as the **Test and Itchen**, with their historic uses for milling and water meadows, have many remnant structures that require operating protocols to ensure river flows are balanced to mitigate their impact.

#### 4.7.3 Engagement for the consultation

##### Social Media

We used social media to help engage the wider public.

Through our regional Twitter account, we sent tweets out, encouraging people to engage in the conversation. We used the national #valuingwater. We also put up photos to engage people with river basin management planning separately. A few example tweets:



Four films were made (and put up on YouTube), about different parts of river basin management planning and about how we work with our partners and demonstrate some of our achievements and challenges we face. These were:

- The consultation
- Agriculture
- Walkovers
- Stream improvement – work we have already done in river basin planning

#### **Examples of events and meetings:**

- A meeting was held with the Newport Rivers Group (sub-catchment on Isle of Wight to be expanded into Island Rivers). The group included representatives for: Wildlife Trust, Natural Enterprise, Isle of Wight council officer and councillor, Environment Agency, Southern Water. One of our catchment coordinators attended. Catchment concerns were discussed. It was agreed that Natural Enterprise would submit an entry on behalf of the group.
- A public drop-in session was held in the Arun and Western Streams catchment. We worked in partnership with local authorities and the community flood action group to inform the local community of how we are working together to manage the risk of flooding. The Challenges and choices poster was on display and leaflets handed out.
- A partnership meeting was hosted by the New Forest catchment coordinator. The audience comprised New Forest National Park Authority, Pond Conservation, NFU, Solent Forum, Natural England, New Forest Association, Commoners Defence Association, Verderers, National Park Consultative Panel, New Forest District Council, Hampshire & Isle of Wight Wildlife Trust, New Forest Land Advice Service, Beaulieu Estate, Forestry Commission and Southern Water Services. There was a presentation and discussion. They were asked if they would promote the consultation through their website and forums and if they could think of any groups that we could focus on.
- At the Cuckmere and Pevensey Levels Steering Group, the catchment coordinator briefed the steering group on the Challenges and choices consultation. It was agreed that the response should highlight priorities agreed through steering group and sub-groups and highlight challenges of funding and sustaining the partnership. The group agreed that the hosts would send their comments (on behalf of the steering group and the partnership) to the catchment coordinator to collate and submit the response on behalf of the catchment partnership and circulate to the other members of the steering group.

#### **4.7.3 Summary statistics**

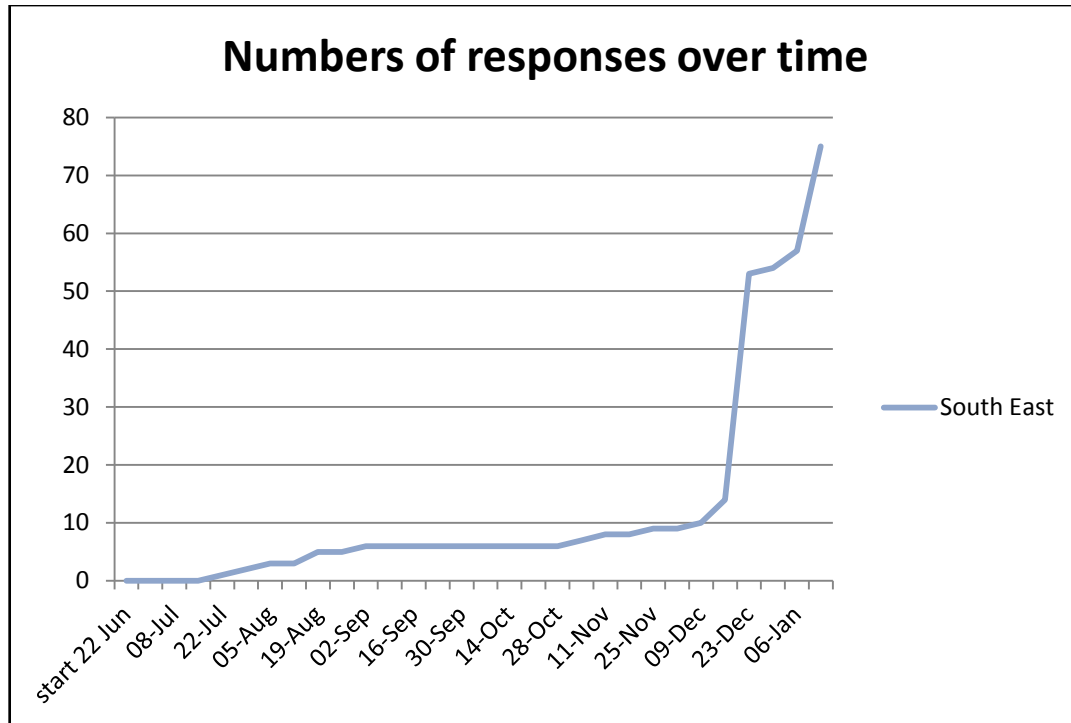
##### **Numbers of responses:**

The river basin district (RBD) Challenges and choices consultation closed on 22 December 2013. The total number of responses for South East RBD was 75.



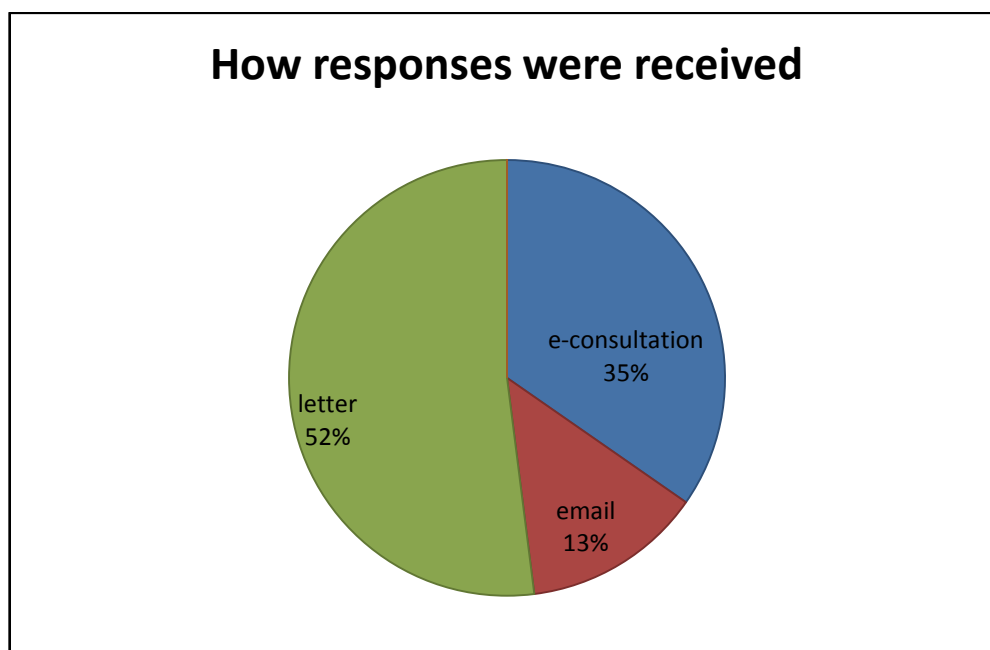
### Accumulation of responses:

In common with other consultations, the majority of the responses to the Challenges and choices consultation were either received during the last week or after the consultation had closed. In total 80% of responses arrived in the last month of the 6-month consultation.



### How were responses submitted?

The method most frequently used for responding to the consultation was letter. Around a third arrived via the on-line e-consultation tool. Email responses arrived mainly in the last month of the consultation.

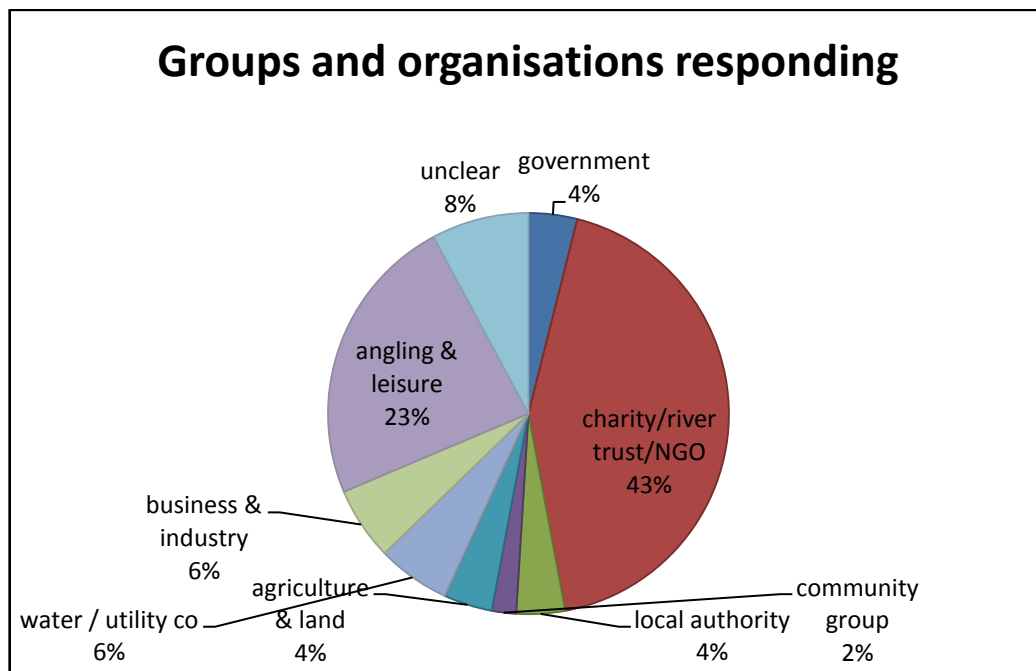


### Were responses from individuals or organisations?

Around two-thirds (68%) of responses came from groups and organisations and just over a quarter (28%) from individuals. 4% were unknown.

### Which types of organisations / groups provided responses to the Challenges and choices consultation?

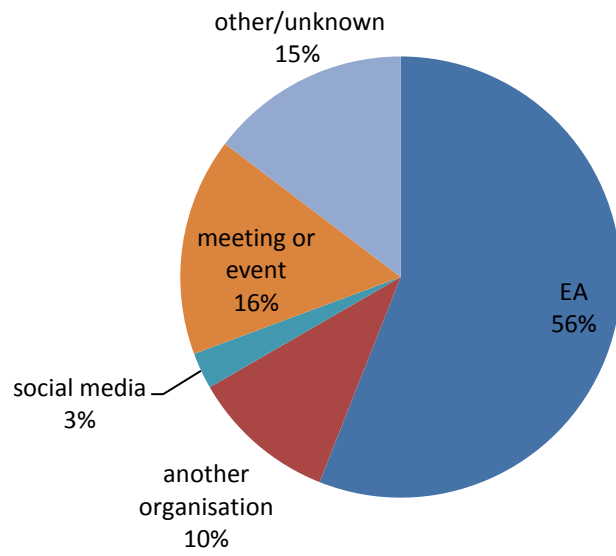
The highest numbers of responses were submitted by charities, Non Governmental Organisations (NGOs) and river trusts. Angling and leisure organisations also submitted many responses.



### How did those who responded hear about the consultation?

Over half of those who responded heard about it from the Environment Agency.

## How those who responded heard about the consultation





Where actions are already planned or we know how some of the responses are being taken forward, this is also reported.

**River Basin District questions:** we asked what you considered to be the biggest challenges facing waters in the Thames River Basin District; if you agreed with our descriptions on the significant issues, how you thought these issues should be tackled, and what should be done first.

### **Q1 What do you consider the biggest challenges facing waters in the Thames River Basin/individual catchments?**

The challenges that gave rise to the most responses were

- Changes to natural level and flow of water (71%)
- Physical modification (66%)
- Pollution from towns, cities and transport (66%).

The majority of concerns were about changes **to the natural level and flow of water** related to over-abstraction (45%).

- Many respondents identified this as an issue, particularly when combined with population growth (29%) and climate change.
- Over-abstraction was of most concern in the rivers Kennet and Loddon, with particular concern about abstraction of the groundwater in the Kennet, where the water is used to supply Swindon and is effectively 'lost' from the catchment. And the Loddon where future planned new housing is likely to place further stress on a groundwater supply already impacted by abstraction.

The vast majority of responses (94%) about **physical modifications** to our waters raised the issues of:

- Culverting, dredging, concrete channels, weirs, sluices, pressures from new development and rivers that have lost their connection with their floodplain, along with views on the pros and cons of hydropower.
- The effects of physical modifications; notably damaged, lost and fragmented habitat and a decline in natural wetlands, fish stocks and biodiversity. The **loss of fish stocks** in the rivers Kennet, Cherwell, Evenlode and Loddon was highlighted.
- Links between **physical modifications** and **erosion and siltation** were raised for the River Kennet (12% of responses) where, in places along its length, the river is connected to the Kennet and Avon canal.

**Pollution from any source** gave rise to the most comments, with 96% of responses raising pollution as a significant issue:

- Overall, **pollution from towns, cities and transport** generated most comments (66%), with half of these concerned that **plans to build more houses and roads** in the Thames River Basin District will cause water quality to decline further.

- Pollution from **transport**, particularly the **motorway** network, with the M40 affecting the River Thames and Heathrow **airport** affecting the London rivers.
- High levels of plant nutrients and siltation: One challenge is to work out whether the source of nutrients is from **waste water** (point source) or from **urban or rural run-off** (diffuse).
- **Faecal contamination** causing health concerns for recreational activities, and contamination of shellfish.
- **Pollution from rural areas** and challenges surrounding land management and agricultural practices, with 38% of responses raising this as an issue. Concerns about **pesticides** and other **chemicals** in drinking water supplies leading to increased cost of water treatment were also raised.

Although the issue of **invasive non-native species (INNS)** led to fewer comments than other issues (44%), there was clear consensus that the issue is important. Many species, both plant and animal, cost a lot of money to control and the effectiveness of this action is limited unless a **strategic approach the prevention and control** of INNS is taken.

## Q2 Do you agree with our description of how the significant issues are affecting the water environment and society?

- In general the responses agreed with our views on how the significant issues affect the water environment.
- However, some commented that proper reference was not made to good ecological potential, mitigation measures and the significant habitat values that heavily modified and artificial water bodies can provide.
- Groundwater and transitional and coastal waters (TraC) were not given sufficient prominence in the Thames Challenges and choices consultation document and some felt that this needed to be addressed.
- The positive impact that ancient woodland can have on the water environment should be highlighted. Some catchments, notably the Vale of White Horse catchment, Cotswolds, Cherwell, Kennet and Pang, Thame and South Chilterns and Wey have a large amount of ancient woodland that is not described.
- The impacts of physically modified rivers were considered to be increased risk of flooding, combined with the loss of a 'natural' means of removing silt, nutrients and chemical pollutants from the rivers.
- The impact that the loss of natural river systems and wetlands may have on the health and wellbeing of the general population, combined with loss of access to the natural environment, was considered important, and should be fully accounted for in any cost benefit

analysis. Concern was raised for rivers, such as the Mardyke in the South Essex catchment, which are often neglected and attract antisocial behaviour where they pass through urban areas.

Many respondents regarded the issues affecting the water environment and society from a different perspective. They tended to raise 'cross-cutting' issues that many regarded as essential factors that must underpin decision making:

- The need for **collaboration, education** and for decisions to be made based on **evidence** was raised most often with 80% of responses emphasising this.

Other 'cross-cutting' issues included:

- **Climate change, population growth, flooding** and the need for **river restoration** to enable our watercourses to become more resilient in the face of these uncertainties (37%).
- **Multiple benefits, landscapes and landscape-scale restoration**, wider **biodiversity** issues, **recreation** and access, issues of **predation** (33%)
- Aspects of **policy, process, politics, lack of funding, regulation** and **fracking** (23%).

### Q3 How do you think these should be tackled and what would you choose to do first?

- There was support for a combined strategic and partnership approach, with effective prioritisation and continued funding by government seen as critical.
- Decisions on action should be based on evidence and there should be a more detailed insight into the effectiveness of river management and policy options.
- The various functions of the Environment Agency must be better integrated in order to be able to address the competing priorities for effective river basin management.
- Wherever possible, damage to freshwaters and coasts should be fixed at source in the catchment rather than trying to mitigate its impact, as this is more cost-effective in the long-term.
- Greater emphasis should be given to the role that wetland restoration could play as a means of addressing the pressures on failing water bodies.

Actions to address **changes to the natural level and flow of water** focussed on **water efficiency, abstraction licensing and reform**, and measures to address the **increased pressure on water resources from development** in the Thames River Basin District:

- A third of all the responses identified raising awareness of water use and educating the public about the pressures on water supply as an important action, particularly in the south east of England where there is higher water consumption per person compared to other areas of the country. Options suggested were compulsory water metering and pricing mechanisms aimed at reducing demand.
- Fixing leaks and reducing waste in the water distribution network, and greater coordination between water companies to move water between regions, and finding better ways of storing water were all mentioned.
- Continuing the Restoring Sustainable Abstraction (RSA) programme, funded through the National Environment Programme (NEP), was acknowledged as being a well-defined mechanism. However, concern was expressed about the amount of time it can take for actions to be implemented.
- There was general support for the new abstraction authorisation system, but any new licensing system should be based on an in-depth knowledge of the link between flows and good ecological condition and status.
- The planning system was considered to have a critical role to play in reducing water use. Identifying areas of 'water stress' and ensuring the availability of water should be a factor in determining housing allocations, and was considered essential to guide future decision making. Re-using wastewater and other water efficiency measures should be a condition of any future planning permissions.
- Changes to the patterns of land use, such as the installation of SuDS in urban areas, or the restoration of wetlands and woodland in rural areas, was seen as a long-term option.

Actions to address the challenge of **physical modification** focussed on achieving multiple benefits through appropriate **restoration of river channels**, ensuring **best-practice river management** and **reconnecting the river to its floodplain**. Actions should be supported by a **robust cost benefit assessment**:

- Targeted river restoration projects which deliver multiple benefits should be a priority and will become increasingly important under climate change scenarios.
- Flood defence work should be based on an assessment of flood risk, and flood storage schemes should be promoted rather than river channel engineering solutions.
- Removing weirs wherever practical (and not to the detriment of other users) and where upstream waters are able to sustain fish populations.



Weirs should be considered for their potential for hydropower with corresponding fish passes.

- Removing culverts will have the added benefit of making it easier to detect pollution and deter fly-tipping.
- Expanded habitat creation programmes are needed along the coast.

Some responses suggested that **water quality** issues should be addressed before action was taken to restore physically modified rivers. Options discussed included **robust regulation, evidence-based prioritisation**, the use of **SuDS, raising awareness of misconnected drains** and support for **farm advisory projects**:

- More effort needs to be directed at smaller rural sewage treatment works to improve the quality of the effluent.
- Identifying the relative contribution of pollutants from different sources (source apportionment) is essential to assess the efficacy and cost effectiveness of proposed measures.
- Continued support for Catchment Sensitive Farming and other farm advisory projects is crucial. Payment for ecosystem services schemes like the *Upstream Thinking Project* should be applied to developing local projects.
- Tackling pollution from septic tanks and cess pits using measures such as: surveys to identify poorly managed and leaking septic tanks; increasing awareness of the problem amongst the owners of the septic tanks; taking enforcement action against persistent and deliberate offenders.
- Removing phosphorus from food and domestic products and education to inform customers' choice of products in supermarkets.
- Sustainable Drainage Systems (SuDS) designed into the developments and retrofitted into existing urban areas.
- Work with the highways authority to implement drainage solutions for roads. Take a long-term view about how trees, woodlands and wetlands can provide a way to reduce pollution such as nutrients, chemicals and sediments from agricultural land and reduce flood risks.

Actions to address the challenge of **invasive non-native species (INNS)** focussed on achieving **coordinated catchment-wide action, awareness raising and education** and **species-specific action**.

- Identifying mechanisms by which INNS enter the UK and preventing their introduction at source should be a priority.

- Tackling invasive species that were already well established should be lower priority than preventing their introduction in the first place.
- Develop action plans for species of highest risk which cause the most environmental damage.
- Decision making needs to incorporate the cost implications of controlling named species.
- Education and awareness-raising to prevent release by the general public is also required; building upon the messages used in campaigns that target water body users, such as 'Check, clean, dry' and promoting the use of technology to track the location and spread of INNS, such as the ['plant tracker'](https://plantracker.naturelocator.org/) app (plantracker.naturelocator.org/).

### **The Catchments:**

**We asked how you thought the significant issues in a catchment are affecting the water environment and society; how these challenges affecting each catchment should be tackled and what should be done first.**

Feedback on specific issues and options to tackle them received through this consultation is now with our technical specialists and catchment coordinators so that they can be addressed through the river basin planning process and catchment partnership groups.

Most comments were received for **London** and the **Kennet and Pang** catchments, with the **Thame and South Chilterns**, **Cotswolds**, **Loddon**, **Wey**, **Cherwell** and **Upper Lee** catchments also receiving many comments.

All the catchments are affected by the issues raised to varying degrees, and the particular impact of issues on some of the catchments have already been mentioned above.

There was a lot of support for the **catchment based approach** and the catchment partnerships that have formed as a result. The groups feel very strongly about their rivers and want to see them in the best possible condition. Funding these partnerships is considered to be fundamental to delivering projects and other actions 'on the ground'. The provision of a central coordinator, with strong links to the Environment Agency, was seen as key.

### **4.8.3 Engagement for the consultation**

#### **Social Media**

We used social media to help engage the wider public.

Through our regional Twitter account, we sent tweets out, encouraging people to engage in the conversation. We used the national #valuingwater. We also used photos to engage people with river basin planning separately. A few example tweets:



Four films were made (and put up on YouTube), about different aspects of river basin planning; the challenges we face, how we work with our partners and demonstrating some of our achievements.. The themes were:

- The consultation
- Agriculture
- Walkovers
- Stream improvement – work we have already done in river basin planning

### Examples of newsletters and events

- Kent Downs Orchid newsletter included an article about partnership working and using water wisely. This was a good example of a partner promoting our work and raising awareness.
- In May 2013, we worked in partnership with Thames Estuary Partnership (TEP) to produce a special WFD edition of their magazine, 'Talk of the Thames'. There was a double page spread on the Challenges and choices consultation, as well as other articles on WFD including case studies of projects we are working on. It has a reach of nearly 3,000 people including MPs, county councils, local authorities, local communities and river users. In June, TEP also sent out a follow-up email to all its readers highlighting the consultation launch and encouraging people to respond.
- Water Quality Awareness Day in September was the first of its kind in north east Thames. Four sessions ran over the course of the day and a Challenges and choices briefing pack was handed out to attendees and hard copies of the questions and catchment summary were included in gift bags.

- Catchment coordinators handed out a postcard flyer at the Living Wandle celebration in September (timed to coincide with World Rivers Day). It was a community event, a celebration of the River Wandle, and the launch of the Heritage Lottery Fund. We also tweeted about it.
- In a catchment without a Catchment Implementation Group (CIG) posters were put up in bird hides in wetland areas, on National Trust notice boards and at canoe hire firms. In areas where they have a CIG for example London boroughs, they used it as a mechanism to start a dialogue with local councils. Even where we haven't got those partnerships, people in those areas have thought about what to do and used initiative even without resources.
- At farmer workshops for pollution prevention we included a short presentation about Challenges and choices and gave a flyer about the consultation to each farmer in their workshop packs.

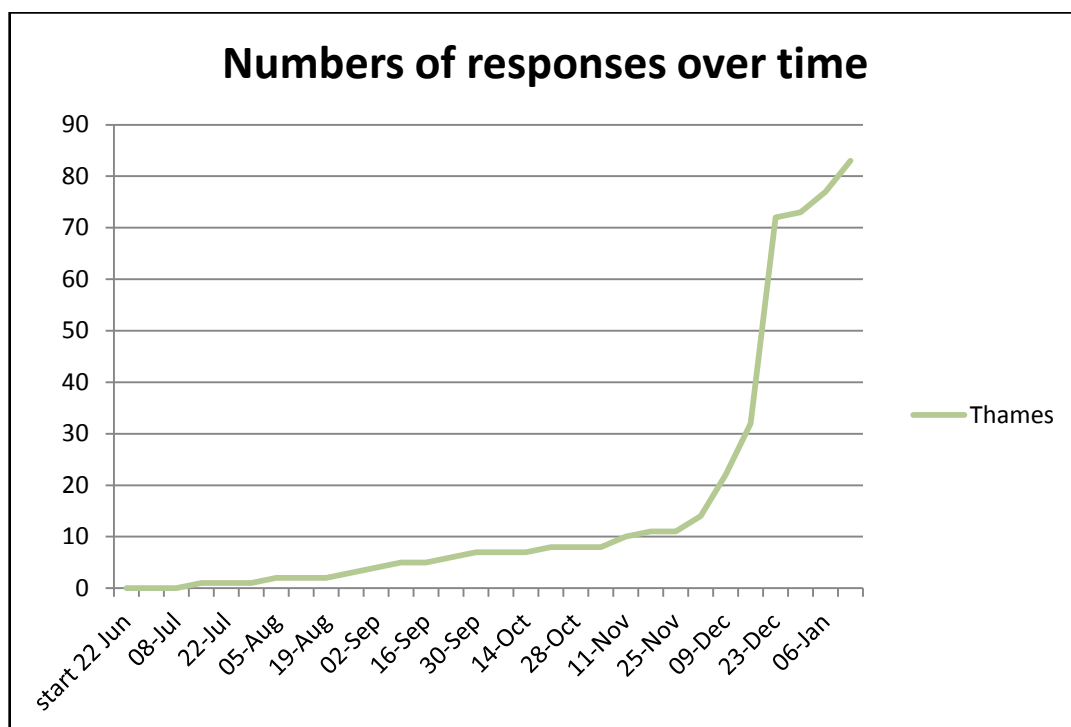
#### 4.8.4 Summary statistics

##### Numbers of responses:

The river basin district Challenges and choices consultation closed on 22 December 2013. The total number of responses for Thames RBD was 83.

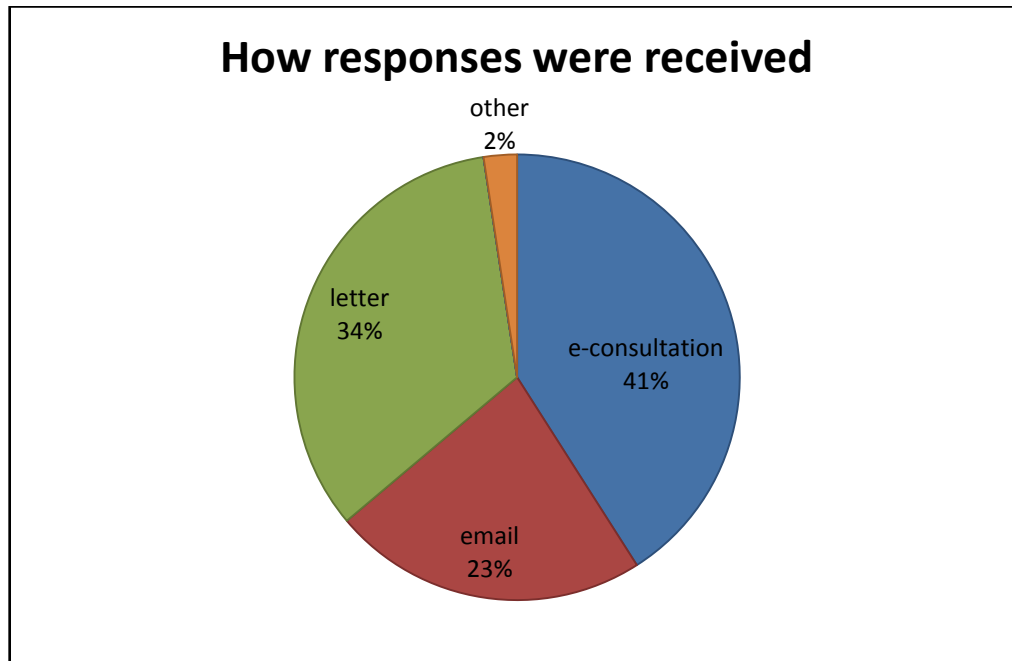
##### Accumulation of responses:

There was a similar pattern to other consultations with the majority of the responses received in the last few weeks. In total 80% of responses arrived in the last month of the 6-month consultation.



### How were responses submitted?

The most frequently used method for responding to the consultation was via the on-line e-consultation tool.



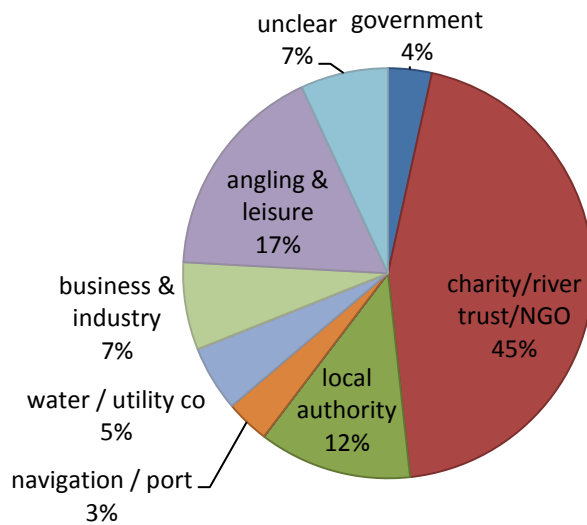
### Were responses from individuals or organisations?

Over two-thirds (70%) of responses came from groups and organisations, and 23% from individuals. For 7% this was unknown.

### Which types of organisations / groups provided responses to the Challenges and choices consultation?

The highest numbers of responses were submitted by charities /Non Governmental Organisations (NGOs)/river trusts. Angling /leisure and local authorities also submitted many responses.

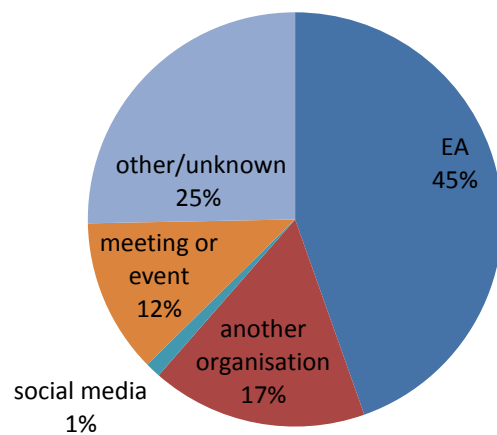
## Groups and organisations responding



## How did those who responded hear about the consultation?

Nearly half of those who responded heard about it from the Environment Agency.

## How those who responded heard about the consultation



## 5 Consultation on Strategic Environmental Assessment scoping document

This section provides results from the river basin district Strategic Environmental Assessment (SEA) scoping document consultations; showing the numbers of responses received, the key points from the responses and how these responses will be used.

### 5.1 Numbers of responses

The total numbers of responses received for the SEA scoping document consultation for each RBD are as shown below:

River Basin District	Number of responses on SEA	Percentage of total RBD consultation responses that also provided an SEA response
Anglian	41	58%
Humber	53	62%
Northumbria	39	57%
North west	48	29%
Severn	39	43%
South East	35	47%
South West	52	46%
Thames	50	60%

Responses on the scope of the SEA will be used to influence the updates to the river basin management plans to maximise environmental benefits and to understand and mitigate for any negative effects.

### 5.2 SEA consultation questions

We asked two questions in the SEA consultations:

Q6 Do you agree that we are focused on the key environmental effects?

Q7 Is there any other information that we should be taking into account as part of the assessment?

### 5.3 Main points from SEA consultation responses

The key points from the responses that were common to all or the majority of river basin districts are summarised below.

**You requested further detail on how the SEA will be undertaken, at what scale, how we will consider alternatives and how it will influence the plan. You also felt that short term impacts and voluntary/behavioural changes should be considered in the assessment.**

We have divided river basin districts (RBDs) into management catchments and sub-catchments that we call 'operational catchments'. These are made up of a number of water bodies. The RBD planning process develops actions or 'measures' to improve the status of water bodies within these operational catchments. We recognise that implementing these measures can result in intended or unintended changes to other aspects of the environment and that these changes can be positive or negative, short or longer term and occur at different scales.

The role of the SEA will be to determine what the wider environmental impacts of these changes are and what actions are necessary to address them. Whilst the change to the environment will be measured at an operational catchment level, the SEA will determine the combined significance of these changes and conclude the significant effects at a river basin district level. Each plan will contain hundreds of measures. In undertaking the assessment, we will need to make some assumptions about how measures are implemented and aggregate significant effects together.

Part of the SEA and plan-making process is to consider alternative ways of approaching river basin management planning. We will look at 'strategic' alternatives to the plan. We will also examine alternative measures and their associated benefits and costs. We will use economic analysis and the SEA to refine the various measures into a plan that is cost beneficial and achieves the most for the environment.

The SEA will help to determine which aspects of the environment are most likely to change and what these changes are. Where negative impacts are predicted, these will be clearly identified and action proposed to mitigate them. This mitigation will be incorporated as actions into the updated plan. We will target our effort on the significant impacts arising from the updated plan and this will include those which are longer term and impact on the most highly-valued.

**In general, you thought that we were focusing on the key environmental issues in the scoping document. However you identified a number of additional issues which we will take into consideration in the SEA and updated plan.**

- The impact on health and recreation and in particular how the plan could affect opportunities for people to access and enjoy rivers, lakes, coastal and transitional waters.
- The impact on coastal and transitional waters and their use by people, for example the shellfish industry.
- The impact of greenhouse gas emissions arising from river basin management plan actions on climate change, such as additional wastewater treatment or carbon sequestration from land management changes.



- The impact on future development and growth (for example house building).
- The impacts of land use management and food production.

**You also suggested additional plans and policies for us to take into consideration in the SEA process.** These included the Chalk Stream Charter, the IPCC 5<sup>th</sup> Assessment Report and a number of heritage plans, landscape plans, biodiversity plans and flood risk management documents. We will pursue this work where it adds value to the SEA process.

**You wanted us to determine the effects on heritage features that are not designated or are unrecorded.** It would be impossible for us to determine the impacts of implementing the plan on every aspect of the historic environment. Instead we will identify the types of measures which could have potential adverse impacts and will devise mitigation to address these.

**You commented that our assessment should be widened to consider the impact on locally-designated wildlife sites and species outside of nationally and internationally-designated sites.** We will record the likely impact on the operational catchment from implementing the proposed measures. When this is scaled up to river basin district level, we will mainly focus on the impacts on protected habitats and species.

**You were concerned that potential impacts on coastal and transitional waters did not receive sufficient focus in the scoping report.** The scoping document makes reference to potential impacts on the coastal environment. These include mention of European nature conservation sites, Marine Conservation Zones, other aquatic species and habitats, ports, harbours, impacts on coastal waters, relationship to flood risk management and impacts on the historic environment associated with water bodies.

**You challenged our decision to omit impacts to air from the environmental assessment.** We feel it is very unlikely that any actions in the river basin management plan will impact on air quality. Local impacts on air quality will be considered at a project level.

**You wanted us to assess environmental impacts against the needs of society, economy and growth.** We consider that this is implicit in the approach to SEA, which includes human health and population as environmental 'receptors' and these incorporate economic factors.

**Some key points from the responses received were specific to a single or a small number of river basin districts only:**

### **Anglian River Basin District**

In general you thought that we were focusing on the key environmental issues in the scoping document. You identified an additional aspect which we will

take into consideration in the SEA and updated plan about the **man made nature of some of the water bodies** in the Anglian River Basin District.

### **North West River Basin District**

We recognise that implementing measures can result in both positive and negative changes. The role of the SEA is to assess these and identify what further actions may be necessary. **Where you have other suggested actions** for improving waters in the North West River Basin District (RBD), **we want to hear about them**. During the consultation on the updated river basin management plan (RBMP) will be actively seeking your ideas with a view to incorporating them into the next plan.

You asked that additional consideration be given to **the 'import' of water from adjacent RBD areas**, including the movement of water from North Wales to Merseyside. The plan will focus on improvements to the existing baseline situation. Where there are obvious and practical opportunities to restore good status through reversal of existing abstraction regimes, these will be considered through the development of appropriate measures.

### **Severn River Basin District**

Many commented that the possible adoption of **hydraulic fracturing or 'fracking'** in the Severn RBD, and the resulting need for large volumes of water has not been covered. Our SEA addresses only the measures proposed under the river basin management plan. A [country-wide SEA](http://www.gov.uk/government/consultations/environmental-report-for-further-onshore-oil-and-gas-licensing) (www.gov.uk/government/consultations/environmental-report-for-further-onshore-oil-and-gas-licensing) on hydraulic fracturing was commissioned by DECC and is available on government websites. Further details on fracking can be seen in the [annex](#) and [briefing note](#) (www.gov.uk/government/publications/shale-gas-and-hydraulic-fracturing-briefing-note).

It was requested that we consider the **impacts of hydropower** on the water environment. The SEA addresses only the measures proposed under the river basin management plan and any hydropower installation would be considered on a project- by-project basis. All hydropower installations are governed by strict licence requirements. Further details on hydropower can be seen in the [annex](#).

A number of responses stated that more attention needs to be paid to the **impacts on fish and fish passage**. We consider that this will not be necessary, as measures to combat barriers to fish passage are already being considered.

Those who responded commented on **water environment pollution through sewage or other pollutants entering water bodies and groundwater systems**. While the plan only considers the environmental impacts of the measures described, the impacts of pollution are addressed by measures that have been put forward.

Many commented that more attention needs to be paid to **the impact on landscapes and the visual amenity of the water environment**. We consider that this will be part of the SEA assessment and will also be considered in more detail at the project level.

### **South West River Basin District**

You raised concern over the **weighting given to growth** and recognition over the locations in which it is planned to occur. Key growth areas will be identified and where growth is considered to cause specific issues or conflict with the plan at the river basin level, this will be taken into consideration.

### **South East River Basin District**

You commented that more attention needs to be paid to **the impact of work to improve fish passage due to invasive species proliferation**. We consider that this will not be necessary as measures to combat invasive species are already envisaged.

You commented that inevitable adoption of '**fracking**' and the resulting need for large volumes of water has not been covered. (Refer to fracking information under [Severn River Basin District](#) above and in the [annex](#)).

You requested **that the impact on riparian trees** be considered in the SEA. The SEA will focus on impacts to nationally and internationally protected sites and the species which rely on these sites.

### **Thames River Basin District**

You commented on the **impact of light pollution from urbanised areas** on local biodiversity and water quality. We feel it is very unlikely that any actions in the river basin management plan will increase light pollution. Local impacts of light pollution will be considered at a project level and this issue overall is governed by planning policy and local government.

You commented that more attention needs to be paid to **the impact on landscapes and the visual amenity of the water environment**. We consider that this will be part of the SEA assessment and will also be considered in more detail at the project level.

You commented that 'inevitable adoption' of **fracking** in the Thames RBD, and resulting need for large volumes of water, has not been covered. (Refer to fracking information under [Severn River Basin District](#) above and in the [annex](#)).

You requested that the impact on **trees close to the river** be considered in the SEA. The SEA will focus on impacts to nationally and internationally protected sites and the species which rely on these sites.

Consideration of the impacts of **hydropower** on the water environment was requested. (Refer to Hydropower in [Severn River Basin District](#) above and in the [annex](#)).

Comments were made regarding the **pollution of the water environment through sewage or other pollutants entering water bodies and groundwater systems**. While the plan only considers the environmental impacts of the measures described in the plan, the impacts of pollution are addressed by measures that have been put forward.

## 6 Next steps

We will use the responses to the 'Challenges and choices' consultation to review and update the river basin management plans.

We will hold a further consultation to help raise awareness of the challenges facing our water environment and the ways in which we and our partners will tackle them.

### **The proposed update to the river basin management plan consultations (September 2014 to March 2015)**

This consultation will seek views on the proposed update to the river basin management plans and how we will work together to improve the water environment to 2021 and beyond.

The updated river basin management plans will be published September - December 2015.

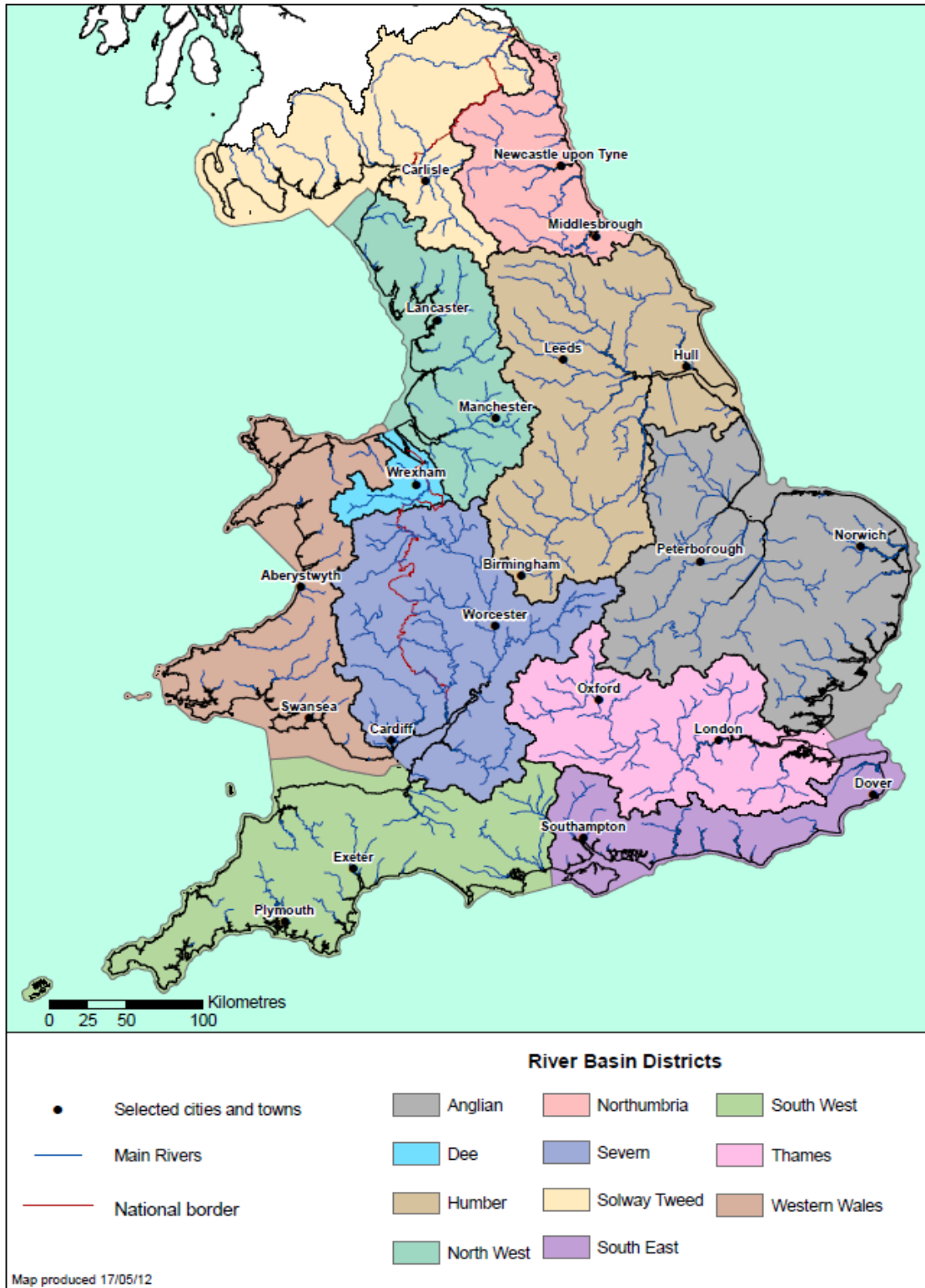
To find out how you can get involved or get more information on our consultations, [visit our website](http://www.environment-agency.gov.uk/research/planning/33248.aspx) (www.environment-agency.gov.uk/research/planning/33248.aspx).

We will update the web page above as each consultation begins and when it is complete. We will produce summary statistics and a response document shortly after the closing date of all consultations.

Responses on the scope of the Strategic Environmental Assessments (SEA) will be used to influence the plan and mitigate for unintended negative consequences where possible. When the final plan itself is published, a statement will explain how the SEA, and consultation responses on it, was taken into account when finalising the plan.

# 7 Annex

## 7.1 River Basin District Map for England and Wales



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## 7.2 Tables with key points and replies on national issues and pressures

Phosphorus (P)	
Key points from responses	Our action / response
<p>1 The scale of problems with excessive plant growth and toxic and nuisance blue-green algae is greater than indicated in C&amp;C.</p> <p>There needs to be more consistency across England in the management of toxic/nuisance algal incidents, together with more scrutiny and research of this issue via WFD.</p>	<p>We have national procedures in place for managing toxic/nuisance algal incidents, but there is inevitably some local variability. The UK Technical Advisory Group for the Water Framework Directive has developed a new metric relating to blue-green algae, and we are using this to refine our approach to classifying the ecological status of water bodies.</p> <p>We recognise and have identified phosphorus and freshwater eutrophication as one of the significant national water management issues. The risks and impacts of excessive plant growth and toxic/nuisance algal blooms are an important aspect of this.</p>
<p>2 We agree there is extensive evidence that river P (phosphorus) standards are exceeded in a significant portion of the river system, but the evidence that this is actually leading to eutrophication is limited. Care should therefore be taken in promoting the need for investment: proposed measures must be based on sound science and be proportionate.</p>	<p>Through our major programme of WFD investigations, we are assessing the extent of eutrophication in river and lake water bodies with elevated P (phosphorus) levels. This work will be completed and taken into account in the draft river basin management plans.</p> <p>We intend to issue an assessment of the extent of eutrophication when we publish the draft plans. This will affect where expensive measures are targeted in river basin management planning.</p>
<p>3 We would like to see the development of more flexible approaches to permitting for P.</p>	<p>We are considering flexible permitting – there is more in the water industry section <a href="#">here</a>.</p>
<p>4 Organic farming can reduce the risk of runoff of phosphorus by adoption of certain management practices. Organic certification creates a market incentive for farmers to adopt good soil and nutrient management and systems that also promote biodiversity and other benefits.</p>	<p>Good soil and nutrient management is essential for sustainable agriculture, whether using conventional or organic farming systems. We recognise that some farmers are more successful at safeguarding and improving the basic resources needed for sustainable production. We strongly support any industry certification schemes that recognise the importance of resource protection; these ensure that food production does not have an adverse impact on biodiversity or water.</p>
<p>5 The NFU Watercress Association sets out a series of detailed points in relation to phosphorus standards, how phosphorus is measured by the Environment Agency and others, sources of P, monitoring of rivers and effluents, presentation of data.</p>	<p>The points raised are part of ongoing discussions between the cress growers and the Environment Agency at present. They are in the context of permitting in relation to the Habitats Directive review of consents. We are responding to the issues as part of that process.</p>

<p>6 It is suggested that the Forests and Water Guidelines provide a good basis for managing forests in a way that protects the water environment and includes requirements expected in managing risks from nutrient enrichment. Targeted woodland creation can be very effective for reducing diffuse pollution from nitrates and phosphorus. There is a strong case for woodland creation to be included in the Programme of Measures in the River Basin Management Plans.</p>	<p>We agree that the Forests and Water Guidelines provide a good basis for managing forests in a way that protects the water environment.</p> <p>We support statements about tackling diffuse pollution from nitrates and phosphorus through targeted woodland creation.</p> <p>We support the continued use of the UK Forestry Standard. This will guide decision-making within the forestry sector and implement the Government's recent 'Forestry and Woodlands Policy Statement' to support the delivery of the aims and objectives of the WFD. We work closely with the Forestry Commission on these issues.</p>
<p>7 There is still a significant task ahead to further reduce inputs from agriculture. Measures to control diffuse water pollution from agriculture will be crucial.</p> <p>There is a need for well-resourced advice services to help farmers make the necessary improvements. Additional measures, beyond the basic ones, are needed to deliver the improvements necessary for WFD and these should be taken forward through targeted projects. A combination of regulation and incentives will be important in tackling the contribution of diffuse water pollution from agriculture, with enforcement underpinning voluntary efforts to tackle issues in areas or situations where voluntary schemes are not available or are not taken up.</p>	<p>We are closely involved in ongoing work to improve the measures and mechanisms for tackling diffuse pollution from agriculture, through the Defra Water Quality &amp; Agriculture project, the New Environmental Land Management Scheme (NELMS) and other initiatives.</p> <p>We are supporting Defra to develop 'Earned Recognition'. We are building on our existing risk-based approach by improving how we share data with other Defra agencies. This will improve our approach to targeting advice and enforcement where it is needed most, and reduce the regulatory burden on farmers who are compliant.</p> <p>We are advising Defra on future options to improve the environmental sustainability of farms, such as revising the Soil Protection Review within cross compliance, to ensure it delivers the right practical actions.</p>
<p>8 There is still a significant task ahead to tackle legacies including P (phosphorus) in groundwater and lake sediments, which could act as sources long into the future.</p>	<p>We recognise the issues of P (phosphorus) in lake sediments and groundwater. P from these sources may delay ecological recovery times in lakes and rivers. The WFD allows for such situations through the potential to set extended deadlines where necessary, allowing recovery.</p> <p>The Environment Agency currently has a WFD project, funded by Defra, to assess the potential of an innovative approach to controlling P contributions from lake sediments by sealing the sediment with clay-based material. This could speed up ecological recovery in places where external P inputs have been brought under control.</p>

<p>9 The contribution of all sectors to this issue, must be taken into account, including measures for STWs beyond those caught by Urban Wastewater Treatment Directive, such as smaller treatment works, cesspits and septic tanks.</p>	<p>Tackling sewage effluent sources of P is the focus of our joint working with the water industry. This includes trials of methods of P reduction at wastewater treatment works and developing cost-beneficial measures for the updated river basin management plans.</p> <p>Source control measures for P are also being looked at through the new EU measures on detergents and discussions with the water industry, food sector and other stakeholders on P in food additives and drinking water dosing. We are exploring potential solutions in our 'Accelerating Catchment Techniques and Technologies' project.</p>
<p>10 Need to look at local and novel P controls too. Promotion of awareness raising is needed amongst communities where private domestic sewage systems are prominent (management and maintenance, promotion of no- or low-Phosphorus detergents, etc.).</p> <p>More use of wetland treatment systems could significantly reduce phosphates and pollutants from entering water bodies, bringing benefits to biodiversity and the delivery of objectives. It's suggested that wetland treatment systems can be used by water companies to treat waste water before it is released into the rivers and, if well sited, such systems can be used on farms to treat diffuse water pollution from agriculture.</p>	<p>We are working together with the water industry to tackle sewage effluent sources of P. We are developing a new approach to controlling septic tanks as well as cost-beneficial measures for the river basin management plans.</p> <p>Thames Water has a trial successfully underway removing P from sewage sludge in the form of struvite at one waste water treatment works. We welcome the offer of further information about the P recovery trials.</p> <p>We will consider suggestions that wetland treatment systems deserve more attention in terms of measures for reducing pollution from waste water and agriculture sources.</p> <p>We will use this response when considering measures for waste water, diffuse agricultural and non agricultural pollution.</p> <p>Some examples of local measures and/or partnerships at various scales relevant to tackling P are:</p> <ul style="list-style-type: none"> <li>• Current joint working between the Environment Agency and the water industry to trial more ambitious and innovative methods of P reduction at wastewater treatment works, in order to achieve stringent effluent P levels.</li> <li>• Project on P from agriculture, between the NFU and Environment Agency, to look at the contribution of agriculture to river P loadings, in particular sub-catchments. It will also promote and assess the benefits of voluntary measures to reduce P losses to water from farming.</li> <li>• We are trialling an innovative technique for capping lake sediments to prevent P release. This is a joint project with Centre of Ecology &amp; Hydrology (CEH) and Natural England.</li> <li>• Various partnership projects that involve promoting local measures to reduce P from detergents, septic tanks and agricultural sources (e.g. Welland Valley Partnership, Lake District Standing Waters Partnership and Love Your Lakes initiatives, Norfolk Broads projects.) Some of these are associated with the Catchment-Based Approach.</li> <li>• Joint working between Natural England and Environment Agency to develop diffuse water pollution plans and nutrient management plans for SAC/SSSI waters.</li> <li>• Demonstration test catchments work to assess the effectiveness of measures to reduce diffuse water pollution from agriculture. This involves collaborative</li> </ul>



	<p>research and fostering links to key stakeholders in the 3 catchments – the Eden, Wensum and Avon.</p>
<p>11 Septic tank effluent is a rich source of phosphorus, which currently is not stringently regulated. Little known about the status of septic tanks; the P load to water bodies from properly located and efficiently functioning septic tanks should be very small, but evidence suggests over 80% of UK septic tank systems are not working effectively.</p> <p>Need a commitment to register all private septic tanks, together with the production of good practice guidance for maintenance and improved public awareness regarding appropriate maintenance. Campaigns to improve management of private sewerage treatment facilities could be supported by a review of General Binding Rules.</p>	<p>We are focussing on tackling sewage effluent sources of P at present, through developing a new approach to controlling septic tanks.</p> <p>Defra is about to consult on a new approach, based on general binding rules together with the use of permits in sensitive locations.</p>
<p>12 The relationship between phosphorus/eutrophication and water level management requires further acknowledgement. Effective water level management, in which water is allowed to move and replenish, will improve water quality.</p>	<p>We acknowledge that there is a close link between P/eutrophication and water level management.</p> <p>These links between pressures are being considered at a local level, as we develop proposed measures for the river basin management plans.</p>
<p>13 I do not believe that the current application of the permitting regulations is adequately protecting water bodies (especially Heavily Modified and Artificial) from multiple small but cumulative phosphorus discharges.</p> <p>More consideration should be given to the cost effectiveness of engineering the discharge impact down or increasing the capability of the water body to cope rather than simply diverting flows to new and bigger treatment works (education of dischargers; end of pipe solutions and in channel</p>	<p>Treatment at larger works, instead of using septic tanks, can produce a better quality effluent. We set the water quality standards that must be met. For water company discharges, it is the water company's responsibility to meet these in the most effective manner. We encourage the water companies to think innovatively about the solutions they use to meet water quality standards.</p> <p>Following feedback from stakeholders, Defra is consulting on a new approach to controlling small sewage discharges, through the use of general binding rules, with permits required in sensitive locations. Through the communication and education campaigns which will accompany the introduction of the new regulations, we may in time be able to reduce the number of septic tanks discharging to watercourses.</p>

<p>management) and that these can be incentivised and funded through the permitting system.</p>	
<p>14 Cost effectiveness is critical to assessing options, and believe that often the most cost-effective solution does not adhere to the polluter pays principle, which needs to be acknowledged in planning for the 'possible further options in the future' presented.</p>	<p>The most cost-effective solution under WFD may not adhere to the polluter pays principle. This needs to be acknowledged in planning for the 'possible further options in the future'</p> <p>We will use this when we are considering measures including how they are targeted across sectors.</p>
<p>15 We support dealing with issues at source where possible, as in principle this is considered to provide the most sustainable outcomes.</p>	<p>We welcome support for source control.</p> <p>We suggest that the potential for further source control measures for P should be explored in relation to P in food and drink additives, P dosing of drinking waters, P in animal feed and fertilisers. This would complement the existing and planned measures for P in detergents.</p> <p>We have recently produced our National Environment Programme (NEP). The NEP is a key delivery mechanism for the water industry measures required for WFD. The NEP outlines environmental obligations that the water companies are required to meet. In the guidance we produced for developing the NEP, we encouraged water companies to think innovatively about the solutions they put in place. For example, a water company could use a catchment-wide land use scheme to achieve changes in land use/land management practices, instead of installing treatment at a sewage treatment works. We have also asked the water companies to think innovatively about solutions to meet WFD good status, such as using catchment measures.</p>
<p>16 It's important to ensure the strategic link is made between reducing water supply volumes, and a resultant reduction in volumes of sewerage, thus helping to counter risk of deterioration due to growth by minimising the net increase in volumes of foul water influent.</p>	<p>We will take onboard comments that network/infrastructure condition and/or capacity are contributing factors (outside of sewage treatment works) and that reducing water supply and thus sewage volumes could help to counter the risk of deterioration due to growth.</p>
<p>17 The consultation fails to satisfactorily reflect the long-term trends in P fertiliser, feed use and manure production. Surprised at the suggestion to "maximise use of sewage sludge application to land within detailed nutrient management plans to reduce reliance on artificial fertilisers in agriculture". Consultation</p>	<p>We issued a briefing note on freshwater eutrophication, and circulated information for the national workshops on eutrophication and agricultural nutrient management. In these documents we make it clear that using P fertiliser, livestock numbers and manure P inputs to land have all reduced nationally in recent years. Our evidence slide packs include graphics showing these downward trends, so that the downwards trends are recognised.</p> <p>On the issue of sewage sludge, source control and "closing the loop" in terms of P sustainability, there is a suggestion that we should consider increased recycling of P and less reliance</p>

<p>does not recognise that it is not in farmers' best interests to waste expensive nutrient fertiliser inputs; they highlight the good work done through the Tried &amp; Tested initiative and by FACTS Qualified Advisers.</p>	<p>on artificial P fertiliser produced from non-renewable resources. More information can be found in the recent EU <a href="https://ec.europa.eu/environment/consultations/pdf/phosphorus/EN.pdf">'Communication on Sustainable Use of Phosphorus'</a> (ec.europa.eu/environment/consultations/pdf/phosphorus/EN.pdf)</p> <p>We fully recognise that it is not in farmers' interests to waste money on fertiliser. We continue to work with the industry to promote messages and actions which help to protect the water environment and also benefit farm businesses. On nutrients, we promote nutrient management planning, to make the most of manures alongside artificial fertilisers. We support the good work done by advisers through Tried &amp; Tested and the Campaign for the Farmed Environment, as well as nutrient tools such as MANNER-NPK and PLANET.</p>
<p>18 Agree with recommendations to tackle misconnections. Advocate greater use of Sustainable Drainage Systems (SuDS) as a low impact, natural way of reducing surface water run-off which provides additional benefits such as silting out fine sediment and treating low levels of pollution, as well as reducing the amount of surface water entering the sewers which reduces the number of CSOs and CSO events.</p>	<p>In terms of misconnections and SuDS, work is ongoing on the 'Non Agricultural Diffuse Pollution strategy. It will identify actions and responsibilities to address a variety of key issues. The use of SuDS will also be a requirement of new development, and form part of Flood and Water Management Strategies.</p> <p>We will use this response when we consider measures for waste water, diffuse agricultural and non-agricultural pollution.</p>
<p>19 Supportive of partnership working and the catchment-based approach</p>	<p>We support and have an ongoing role in the catchment-based approach.</p>
<p>20 Consider the introduction of phosphate vulnerable zones</p>	<p>We are considering all options for reducing P.</p>

## Nitrates

Key points from responses	Our action / response
<p>1 The scale of problems with excessive plant growth and particularly with toxic and nuisance blue-green algae is greater than indicated in consultation. It's believed that high levels of nitrates are a causal factor.</p>	<p>The role of nitrates in freshwater eutrophication is being assessed in the next <a href="#">UKTAG</a> work programme. Phosphorus is considered the main nutrient causing freshwater eutrophication and the UK has standards for P in rivers and lakes. UKTAG will consider the role of nitrogen, alongside P, by reviewing the science and the data, and deciding whether there is a need to also set standards for N in some types of freshwaters. Government would then need to consider any recommendations from UKTAG.</p>
<p>2 NVZs do not seem to have delivered a significant reduction in nitrates in drinking water.</p>	<p>The requirements of the NVZ Regulations were strengthened in 2009, and further enhanced in 2013. For a number of reasons, it will take some time for the benefit of these changes to be seen.</p> <p>We have improved our local evidence of agricultural impacts</p>

	<p>through catchment walkovers and our monitoring network. We look to the agricultural industry and advisory bodies to help farmers be aware of legislation designed to protect the water environment and make improvements where necessary.</p>
<p>3 Scope for catchment management schemes and the range of organisations who may be able to help fund them (e.g. Navigation, Port Authorities, the Shellfish Industry) should be further considered.</p>	<p>We agree. We believe implementation of the catchment based approach provides better opportunities to develop partnership actions.</p>
<p>4 Nitrates - we believe that this issue should be renamed "Nitrogen" to capture the full nitrogen cycle, including Ammonia.</p>	<p>We recognise the need to consider relevant forms of nitrogen as a water pollutant in managing the nitrate issue. Ammonia is dealt with under the sanitary pollutants pressure. With regard to the potential role of nitrates alongside phosphorus (as in the main nutrient controlling freshwater eutrophication), this is something planned for assessment in the next <a href="#">UKTAG</a> work programme. The UK currently has standards for P in rivers and lakes. The role of nitrogen, alongside P, is something UKTAG will consider by reviewing the science and the data, and decide whether there is a need to also set standards for N in some types of freshwaters.</p>
<p>5 There are a number of measures we feel have been overlooked and we believe would be particularly beneficial - wetland treatment systems on farmland to treat Drinking Water Protected Areas (DWPA) and farmyard runoff and also to treat wastewater at water treatment works.</p>	<p>We welcome new techniques to manage pollutants where these are shown to be effective and reliable. Wetlands have an important role to play in the control of diffuse water pollution. Emerging evidence on their ability to trap sediments and reduce nutrients is very encouraging.</p> <p>Rural SuDS and larger wetlands are already part of Higher Level Stewardship. If sufficient funding is available under agri-environment, we would encourage their use. We would also welcome the uptake of voluntary actions by land managers where appropriate.</p>
<p>6 In the introductory description of the nitrates issue, it could be made clearer which issue is most important to tackle - whether historic nitrogen in groundwater which does remain an issue, or whether current nitrate practice and risk to surface waters. The water industry is not listed against those currently managing NVZs – this must be rectified as sewage sludge spreading to agriculture activity covers 25,000 hectares of NVZs in the Thames Region alone. Equally, the Water Industry employs specialist agronomists who work with farmers in crop nutrient planning to optimise nitrate and phosphorus application to land from sewage sludge spreading.</p>	<p>There are many good examples of how the water industry has been working with farmers to manage the potential impacts of agriculture, on drinking water abstractions, particularly from groundwater. This can be particularly effective and beneficial, both technically and in terms of costs, for both the water company and farmers. It is highly desirable that these and similar initiatives should continue. This will help ensure that current farming practices do not lead to problems in the future and also that, in time, the impact of historical activities becomes less significant.</p>

<p>7 We are concerned that where Catchment Sensitive Farming (CSF) initiatives are no longer financially supported, the results of monitoring from long-running initiatives will be lost, and the consistency and momentum provided by expert advisors is at risk.</p>	<p>CSF is jointly managed by Natural England (NE) and the Environment Agency. We are working with NE and Defra to develop a long term approach to advice delivery that makes most effective use of the industry and initiatives like CSF. The approach to monitoring adopted by CSF is being built on in the new evaluation scheme for Rural Development Programme for England (<a href="#">RDPE</a>). The future proposal for CSF includes a continued monitoring and evaluation scheme.</p> <p>We will align future funds with priorities set by Defra. We are working to develop all relevant mechanisms with a range of organisations and the industry, To enable this to happen, we will be working with Defra and its delivery bodies, water companies and the voluntary sector to harness joint working through the catchment-based approach</p>
<p>8 Consider a review of the adequacy of the existing regulatory framework for control of nitrates, and how to improve levels of compliance.</p> <p>Where there are mandatory measures in place to control agricultural activities, (such as Cross Compliance) we are not confident that regulation is being enforced effectively in this sector</p>	<p>Regulations require that we review the extent of NVZs and the associated action plans every four years. This ensures that the adequacy of these controls is reviewed on a regular basis.</p> <p>Defra's Water and Agriculture Project is looking to reinforce basic measures to provide a level playing field of good practice across all holdings in England. Nitrate is one of the pressures that is being considered as part of this.</p>
<p>9 The consultation does not satisfactorily reflect the long-term trends in nitrogen fertiliser and feed use, manure production, and overall crop and livestock nitrogen use efficiency, which will be contributing to reducing the nitrogen load at risk of loss as nitrate to rivers. Use of nitrogen in grassland has declined by 59% since 1990 and nitrogen from manures has reduced by 22% between 1990 and 2012. Over this same period, the agriculture sector has made significant improvements and reduced the amount of nitrogen at risk of loss through leaching.</p>	<p>It is accepted that the nitrogen loading from agriculture has declined and that improved farming practice has helped to bring about significant improvements in water quality. Nonetheless, nitrate still makes a significant contribution to water pollution and is the major cause of failure to achieve good status in groundwater. Much of this failure for groundwater stems from historical activities; there can be a significant time-lag between change in farming practice and resulting improvements.</p> <p>The improvements in farming practice made to date, and continued initiatives, will help ensure both that this historical legacy becomes less important over time, and that future risks are managed.</p>
<p>10 Statement in the Evidence Summary is questioned: "modelling has suggested that in rural areas in the UK more than 80% of nitrate in groundwater may come from agriculture". Should be properly</p>	<p>The evidence for this is in the report "Cumulative impacts on groundwater from phosphorus and nitrogen loadings, EA, 2010, Entec". The modelling is taken to be a good indication of the cause and impact in regard to nitrate presence. In regard to the 80% quoted, this was for a rural area, where it was shown that other sources of nitrate could not be significant.</p>

<p>evidenced as the reality rarely reflects the modelling.</p>	
<p>11 The consultation doesn't make it clear enough that the lowest WFD failures are a result of nitrates. The number of "extra measures", including land-use change and regulatory options are therefore a concern as they don't take into account the improvements that have taken place recently. Industry initiatives such as Tried &amp; Tested and the Greenhouse Gas Action Plan can help to improve nutrient management both directly and indirectly.</p>	<p>Changes already made to farming practice have led to welcome improvements in water quality. Nitrate contributes to a relatively low proportion of failures for surface waters, although it is a major cause of failure in estuaries and coastal waters. There is also, at present, no specific nitrate standard that needs to be achieved for surface fresh waters. However, nitrate is by far the major cause of poor status for groundwater. It remains a significant cause of concern for water companies that use groundwater as the source of drinking water, with the associated treatment costs.</p>
<p>12 Strongly question any proposals for more prescriptive regulation around nitrates, especially as this appears driven by the threat of European Commission infraction proceedings rather than any evidence for cost effective and targeted measures that deliver reductions in agricultural nitrate.</p>	<p>We will continue to work with Defra to supply them with evidence of the issues that arise from Land Management activities and the effectiveness of approaches to tackle these. When new or revised legislative mechanisms are proposed, we will look for these to be effective and efficient.</p>
<p>13 Concern that technical summary states that combustion of fossil fuels alongside agriculture and sewage treatment works effluent as the 'sources' of nitrate pollution of water bodies. There are modest discharges of nitrate to water in coal-fired power plant; we do not believe these can be interpreted as significant contributors. Nitrogen Dioxide (NO<sub>x</sub>) is emitted to the atmosphere from fossil-fired power plant and other sources. National Atmospheric Emissions Inventory 2012 data shows that power stations contribute less than a third of total UK NO<sub>x</sub> emissions. From other sectors transport is the primary contributor. We feel that if fossil-fuel combustion is deemed relevant to issues associated with nitrate in</p>	<p>We accept that power stations are responsible for only a proportion of the nitrogen from energy, where this is produced by fossil fuel combustion. Transport is a significant contributor.</p>

water it would be appropriate to give further information on the contribution of various sectors.

## Faecal indicator organisms (FIO)

### Key points from responses

### Our action / response

1 Would like proactive work to see more freshwater bathing waters designated.

Bathing waters are designated by Defra, often on the recommendation of the local authority. They are normally where large numbers of bathers use publically accessible bathing waters. We are not funded to actively promote bathing in places where it does not traditionally take place.  
[Read more on our website](#)  
 (www.gov.uk/government/uploads/system/uploads/attachment\_data/file/183367/bathing-designation-process.pdf).

2 Would like real time bathing water data provided during the season - difficulty accessing data on bathing waters.

[Read real-time bathing water data on our website](#) (<http://environment.data.gov.uk/bwq/explorer/index.html>), [or on the Surfers Against Sewage website](#) ([www.sa.org.uk/map/](http://www.sa.org.uk/map/)).  
[You can also download an app](#) ([www.beachselecta.co.uk/](http://www.beachselecta.co.uk/)).

3 Concerned over the effect of Combined Sewer Overflows (CSOs) on sailing activities and clubs. Wish to see a reduction in the frequency of discharges.

We are working with water companies to improve CSO systems. We communicated our ambition for the majority of storm discharges to be monitored by 2020 to water companies during the price review of water company business plans. The National Environment Programme already includes CSO event duration monitoring at shellfish waters, bathing waters and other high amenity sites. Richard Benyon, (the previous Parliamentary Under Secretary of State) wrote to companies to reinforce the need for them to understand how all their CSO assets are performing.

Measures in river basin management plans should include the work done on CSOs. We believe that the integrated approach to drainage planning, as set out in the Drainage Strategy Framework, will help water and sewerage companies develop a more resilient sewerage system. This will address future pressures, including climate change and growth. [Read more about the Drainage Strategy Framework](#) ([www.environment-agency.gov.uk/research/library/publications/147922.aspx](http://www.environment-agency.gov.uk/research/library/publications/147922.aspx)).

4 Water quality is recognised as an important issue. There is concern about the emphasis and portrayal of farming as a significant contributor of FIO pollution.

We are closely involved in work already in progress to improve the measures and mechanisms for tackling diffuse pollution from agriculture. This includes the Defra Water Quality & Agriculture project, work on New Environmental Land Management Scheme (NELMS) and other initiatives.

Reducing faecal contamination is managed through removal at sewage treatment works, sewerage management and reducing pollution from agriculture. This covers a range of different measures and includes the water industry and agricultural industry, as well as other organisations.

5 Need to strongly encourage organisations to work together

Partnerships are already in place for some bathing waters and should be encouraged for others. Plans could promote

to improve the environment and express their willingness to do so.	partnership working for specific issues.
6 There is a lack of consideration of wetlands in Environment Agency plans. Suggest that public awareness on wetland issues need to be raised. Recommend raise the issue of the effects of sanitary and FIO pollution on wetlands.	The update to the river basin management plans will consider WFD objectives at wetlands. We are encouraging public involvement in commenting on and shaping the required measures.
7 Concern that shellfish are not valued highly enough. Commend the catchment approach but recommend holistic models of the issues.	We are already assessing a method for cost benefit analysis of shellfish waters. The key gap is the information, not the method. We will welcome stakeholder involvement during the next consultation on the update to the river basin management plans to fill this gap.
8 Concerns that pathogenic organisms are not covered; reduction of pathogens should be the aim.	We cannot resource work on pathogens as we have no standards on these and they are not easily measurable, which is why Faecal Indicator Organisms (bacteria) are used.
9 There is a recommendation to develop a strategic drainage planning approach (akin to Water Resource Management Plans) which links together the issues of surface water management with management of foul drainage.  Recommend that faecal contamination should be dealt with through improved techniques: watercourse fencing, wetland treatment systems, urban SuDS, bag it and bin it (Water UK campaign).	We are already modelling and using a catchment approach. There are many current initiatives (e.g. work on NELMS, Defra Agriculture & Water Quality project) around measures and mechanisms to reduce agricultural pollution which are looking at the range of pressures/pollutants, aiming to tackle these in the most effective way.
10 Encouraging use of short term pollution discounting in England.	Short-term pollution prediction is already being applied in England at selected bathing waters, where rainfall is likely to affect the water quality. During the 2014 bathing water season, the short term pollution prediction system will be available at approximately 150 sites.
11 Advise use of third party data.	Analysis of FIO data is difficult and the data itself is very variable, so third party information is not always easy to add to our data. There are cases where we do use third party data, such as information from the Food Standards Agency for shellfish information, but it is rare to get third party data that we can use. But we will always consider third party data if we can use it.
12 Only the water industry is being targeted to reduce faecal contamination. Why is this?	The Challenges and choices consultation document outlines that faecal contamination is currently managed through removal at sewage treatment works, sewerage management and reducing pollution from agriculture. This covers a range



	<p>of different measures and includes the water industry and agricultural industry, as well as other organisations. In the future, we plan to explore reducing urban sources of faecal contamination with a range of stakeholders. One of the key principles of our approach to river basin management planning is a catchment-based approach to look at integrated solutions. These will address a number of pressures at once, to maximise benefits and get better value for money.</p>
<p>13 Want more action on monitoring CSOs, more use of SuDS and wetland treatment</p> <p>Biggest problem is combined sewer overflows and more needs to be done.</p> <p>Should be more on sewer overflows and how SuDS can reduce them.</p> <p>Application of permitting regulations does not adequately protect water bodies. More should be done from multiple small but cumulative discharges. Why are extensions to STWs granted when they already discharge to polluted water bodies.</p>	<p>CSO monitoring is a high profile issue in the National Environment Programme (NEP). Any appropriate measure that can be used will be proposed to reduce pollution. The National Environment Programme sets out the measures that water companies will need to complete to meet their environmental obligations.</p> <p>We communicated our ambition for the majority of storm discharges to be monitored by 2020 to water companies during the price review of water company business plans. The National Environment Programme already includes event duration monitoring at shellfish waters, bathing waters and other high amenity sites.</p> <p>We are currently working with Defra on their consultation on a revised regulatory framework for small sewage discharges (SSDs) from septic tanks and package treatment plants. As part of the proposals, the current registration system would be replaced with general binding rules but permits would still be required in the most sensitive areas. Any new regulatory framework will be accompanied by relevant communications to tell SSD owners what they need to do to comply and how to maintain their sewage treatment systems to minimise the risk of pollution.</p> <p>Once installed and secured through the permit to discharge, the water and sewerage companies will provide us with an annual performance report. This will provide valuable information and will help us prioritise overflows, based on the number and duration of spills throughout the year. These prioritisation and performance details will be used to help inform our reasons for failure work and identify improvement works. Performance information will also be used to benchmark future overflow performance, as a measure of combined sewerage system performance. This will be indicative of how well a WaSC is tackling future pressures such as climate change, growth and urban creep. <a href="http://www.environment-agency.gov.uk/research/library/publications/147922.aspx">Read more about this issue on our website</a> (www.environment-agency.gov.uk/research/library/publications/147922.aspx).</p>

### Sanitary pollutants (SP)

Key points from responses	Our action / response
<p>1 If urban transport and industry contributes 20% of ammonia pollution, we think there should be more</p>	<p>Our operational teams will use 'reasons for failure' data to determine any local measures which may be applicable to industry.</p>

<p>investigations / measures into tackling from this source.</p>	<p>We have been investigating the reasons why water bodies are failing to meet standards. Pollution from urban drainage can be varied, with multiple inputs having cumulative effects. In some catchments, especially those with larger surface water sewerage networks, understanding the causes can be complex. We will develop plans that set out actions to address pollution..</p>
<p>2 Would like to see Ammonia, BOD and DO dealt with under nitrates, as part of the nitrogen cycle. Would like to see this SWMI focus on faecal contamination and sanitary wastes</p>	<p>We have focused on ammonia, BOD and dissolved oxygen (DO) with faecal indicators. They are largely from the same source and there is overlap in the most suitable measures.</p>
<p>3 Suggest a strategic draining planning approach similar to Water resources management plans (WRMP) linking surface water management and foul drainage</p>	<p>We have acknowledged the need for more joined-up drainage planning. Over the past 2 years, we have worked with Ofwat to develop the Drainage Strategy Framework (DSF).</p> <p>The Drainage Strategy Framework was developed by the Environment Agency and Ofwat, with input from the water and sewerage companies, Defra and local authorities and published in May 2013. It provides the framework for water and sewerage companies to follow in developing Catchment Drainage Strategies. <a href="http://www.environment-agency.gov.uk/research/library/publications/147922.aspx#">You can read more about the Draiaage Strategy Framework on our website</a> (www.environment-agency.gov.uk/research/library/publications/147922.aspx#).</p> <p>Most water and sewerage companies are proposing to use the Drainage Strategy Framework (or aligned processes) to introduce integrated catchment-based drainage planning during the current planning round.</p>
<p>4 Should include measures to reduce the need of CSOs e.g. SuDS. More action is needed in the monitoring of CSOs.</p> <p>Would like to see clarity on the role of SuDS retrofitting.</p>	<p>We are working on the assumption that there will be no increase in the current number of CSOs. In addition, we are taking actions to improve understanding of CSOs. Through the PR14 National Environment Programme, we are putting in place Event Duration Monitoring at the majority of CSOs. We are still working out the detail with the water companies but this will result in thousands of new event duration monitors. We are working with companies to improve CSOs where required to reduce their impact on protected areas, such as bathing waters.</p> <p>The Drainage Strategy Framework (DSF) was published in 2013 and provides the framework for water and sewerage companies to follow in developing catchment Drainage Strategies.</p> <p>Each Drainage Strategy will describe how the water and sewerage company intends to deliver its statutory functions and customer outcomes within a particular catchment, in a sustainable and economic manner. These will focus on the water and sewerage companies' sewerage assets, whilst being aligned with stakeholders plans for other elements of the drainage system. There are huge opportunities and efficiencies for water and sewerage companies to work with</p>

	<p>other partners who are carrying out similar planning - for example, through Local Flood Risk Strategies, Surface Water Management Plans and River Basin Management Plans.</p> <p>By considering the links within the drainage system as a whole, organisations' plans will be more integrated with one another. Solutions to deficiencies and opportunities can be explored outside the sewerage system itself (e.g. retrofitting green infrastructure). Water and sewerage companies will be able to communicate through their Drainage Strategies how challenges such as climate change, growth, urban creep and Water Framework Directive are to be tackled in a particular catchment.</p> <p>Developing Drainage Strategies will become an integral part of a water and sewerage company's business plan. Most companies are proposing to use the Drainage Strategy Framework (or aligned processes) to introduce integrated catchment based drainage planning.</p> <p>Some companies have also provided good practice examples of strategic planning to reduce flood risk.</p>
<p>5 It's stated that wildlife is adversely affected but under 'who is affected' we don't state wildlife</p>	<p>In the update to the river basin management plans, we will say that sanitary pollutants affect wildlife.</p>
<p>6 Suggestion of use of wide shelter belts around pollutant sources and livestock rearing.</p> <p>Research commission by Defra into use of targeted woodland creation to reduce impact of ammonia on conservation sites in Rural Development Programme. Woodland creation expected to be in second RBMP for dealing with ammonia. Want to continue working with the EA.</p>	<p>We are interested in the concept of shelter belts around pollutant sources, such as livestock rearing. We already promote catchment management techniques as part of this work.</p> <p>The 'shelter belts of woodland' measure is currently in the proposed mix for the New Environmental Land Management Scheme (NELMS) and is being considered by Defra</p> <p>We will be interested to see the outcomes of the recent research commissioned by Defra, to see if we should be including this as a measure. It would be useful to understand the results from the Defra research on how targeted woodland might help to reduce the impact of ammonia and understand the situations in which this would be most effective. Depending on the timing of this, measures could be included in the second or third cycle river basin management plan, if a funding mechanism could be found.</p>
<p>7 Want more low cost measures such as rectifying misconnections and awareness-raising around maintenance of private sewer systems.</p> <p>Would support further collaboration of EA, local authorities and water companies in tackling</p>	<p>We work with water companies, Defra and the Chartered Institute of Plumbing and Heating Engineering on the National Misconnections Strategy Group. The aim of this group is to reduce the number of misconnections by developing best practice and through communicating with, and influencing, key stakeholders within the community. These include householders, educational bodies, white-good manufacturers and distributors.</p> <p>We have worked with partners to produce guidance for householders. This explains what a misconnection is and</p>

<p>misconnections.</p>	<p>their responsibilities to put it right. This includes the <a href="http://www.connectright.org.uk/">Connect Right website</a> (www.connectright.org.uk/), that has information for:</p> <ul style="list-style-type: none"> <li>• Householders to check if they have any wrong connections</li> <li>• Answers to some frequently asked questions, including who is responsible for making any corrections</li> <li>• People plumbing in new appliances to make sure they get it right to start with</li> </ul>
<p>8 Suggested a more holistic approach to water pollution on a catchment scale with better support from regulators and water companies.</p> <p>Want greater consideration given to the issue of Septic tanks and direct unregulated discharges of sewage.</p> <p>Greater clarification between slurry and manure. Concern that animals are allowed to defecate directly into water courses.</p>	<p>Catchment measures have been included in the National Environment Programme (NEP). This programme is a key component of PR14 and sets out the actions that companies will need to complete, to meet their environmental obligations under Ofwat's five yearly price reviews.</p> <p>The Environment Agency, Drinking Water Inspectorate, and Natural England have a joint position statement on a catchment-based approach for Periodic Review 2014. It aligns with the government's direction on catchment management.</p> <p>The catchment-based approach acknowledges that water systems are interconnected with the land around them. Water companies are including a greater number of catchment schemes and adopting a wider catchment-based approach in PR14 than previous periodic reviews. We support the use of catchment-based approaches, where these mechanisms can deliver the required results. <a href="http://www.environment-agency.gov.uk/business/sectors/33065.aspx">You can read more about PR14 on our website</a> (www.environment-agency.gov.uk/business/sectors/33065.aspx).</p> <p>We are currently working with Defra who is preparing to consult on a revised regulatory framework for small sewage discharges (SSDs) from septic tanks and package treatment plants. As part of the proposals, the current registration system would be replaced with general binding rules but permits would still be required in the most sensitive areas. Any new regulatory framework will be accompanied by relevant communications to tell SSD owners what they need to do to comply and how to maintain their sewage treatment systems to minimise the risk of pollution.</p> <p>There are many current initiatives (e.g. work on New Environmental Land Management Scheme, Defra Agriculture &amp; Water Quality project) around measures and mechanisms for reducing agricultural pollution which are looking at the range of pressures/pollutants, aiming to tackle these in the most effective way</p>

## Sediments

### Key points from responses

### Our action / response

1. Organic farming can reduce the risk of runoff of sediment by adoption of certain

Good soil and nutrient management is essential for sustainable agriculture, whether using conventional or organic farming systems. We recognise that some farmers

<p>management practices. Organic certification should be highlighted as having the potential to help address these issues cost effectively. Could be expanded through further partnership working.</p>	<p>are more successful at safeguarding and improving basic resources needed for sustainable production. We strongly support any industry certification schemes that recognise the importance of protecting resources to ensure that food production does not cause an adverse impact on biodiversity or water.</p>
<p>2. An issue is that run-off from roads bringing debris and sediments into watercourses; a reduction in maintenance will exacerbate this</p>	<p>We are already working with the Highways Agency and a number of local authorities to pilot a risk-based approach under existing regulatory frameworks that aims to identify problem outfalls and prioritise them for action.</p>
<p>3 There is a clear need for action around soil management, including best practice advice, which could be delivered through CSF and NELMS.</p>	<p>We endorse the need for clear action to improve soil management and welcome other's involvement in promoting best practice. Our 'Think Soils' booklet is being used widely and provides clear advice and links to the guidance for the soil protection review. <a href="http://www.environment-agency.gov.uk/business/sectors/soils.aspx">You can download the 'Think Soils' leaflet from our website.</a> (www.environment-agency.gov.uk/business/sectors/soils.aspx). CSF has developed standards for the work delivered through contractors and by their own officers. Soil management remains a core element of CSF's work.</p> <p>We have worked closely with Natural England and Defra to develop suitable options for soils in the New Environmental Land Management Scheme; these will be targeted to high priority sites. CSF will work with the Environment Agency and advisers locally, to help build capacity and consistency in advice provision on soils.</p>
<p>4 Fine Sediment also has a major impact on "resilience, inter-generational legacy and sustainability" as fine sediment being deposited in water bodies is predominantly caused by run-off from agricultural practices and continued run-off will result in decreased fertility in soils and therefore is a risk to food security.</p>	<p>We agree.</p>
<p>5 It is vitally important that the issue of fine sediment is tackled through improved farm management practices. Fine sediment can also be removed through sediment traps, either on their own or as part of a treatment wetland system. We feel that habitat improvements (detailed earlier) are an important part of tackling this issue and need to be continued.</p>	<p>We agree, and hope that the programmes of measures that are developed include this.</p>
<p>6 Recommend that highway maintenance regimes also adopt sustainable drainage systems to tackle run-off.</p>	<p>We are working with the Highways Agency and a number of local authorities to pilot a risk-based approach under existing regulatory frameworks that aims to identify problem outfalls and prioritise them for action.</p>

<p>7 It is acknowledged that utility companies are affected by fine sediment leading to increased costs of abstraction and treatment. However, fine sediment is not listed against the water industry in the guide for sectors</p>	<p>The water industry is not listed here because we don't see the water industry as a major cause of fine sediment.</p>
<p>8 The consultation identifies the soil protection review. Future approaches should include greater scrutiny of the quality of soil protection reviews, and their implementation, to ensure they are delivering the best outcomes possible. In particular inclusion of farm drainage practice, to help identify on-farm risks and mitigation could be usefully incorporated into these in these reviews.</p>	<p>We agree and are working with Defra to revise the soil protection review (Good Agricultural Environmental Conditions).</p>
<p>9 We disagree with the low scale of impact that fine sediment has on risk of flooding according to the consultation, especially when seen in comparison with other impacts e.g. impacts on wildlife. It is important to assess the longer term (+10 year) impacts on WFD objectives of ceasing maintenance activity by the Environment Agency (e.g. the removal of silt), previously undertaken to facilitate the conveyance of water in order to reduce flood risk. The evidence and data behind the identification of fine sediment as a SWMI is not as robust as it should be when regulatory approaches are being suggested to manage the problem.</p>	<p>The way we manage land in a catchment can have a significant impact on the scale and extent of floods. Our Catchment Flood Management Plans help us to understand the complex relationship between land use and flood risk. We recognise the key role that landowners play in working with us to reduce flood risk by managing and maintaining the watercourses on their land sustainably. The river maintenance pilots are investigating how to engage landowners in discussions about maintenance across the pilot area to allow them to be more involved in decisions. These discussions will consider all aspects of catchment management and we are working to raise awareness of the importance of good soil management within the catchment. We have developed the regulatory position statement "<i>Undertaking desilting work on main river watercourses in pilot locations</i>" to pilot an approach to make it easier to carry out certain low risk de-silting activities, while protecting the environment.</p>
<p>10 Evidence Summary notes there is "no in-river WFD sediment standard; sediment pressures are assessed by a link to biological element failures; and we do not routinely monitor sediment run-off or in-river siltation". The methodology for identifying sediment pressures and attributing water body failures to sectors seems to be based on assumptions and</p>	<p>Our local officers use their expert judgement to identify sediment pressure, along with investigations data (e.g. invertebrate data, fish surveys) rather than by routine water quality monitoring – there is no sediment standard.</p>

perceptions rather than good quality data. We need better information in order to target efforts in the right places both in field and in channel. Without this unbiased information on the source-pathway-receptor linkages there is no clear understanding of "background" sedimentation, agriculture's contribution to the problem, so no way to ensure that agriculture's contribution to the solution is proportionate to achieve the results.

## Chemicals

### Key points from responses

### Our action / response

1 Better soil and land management is the key to many of these water issues. Organic farming can reduce the risk of runoff of pesticides by adoption of certain management practices. Organic certification creates a market incentive for farmers to adopt good soil and nutrient management within systems that also promote biodiversity and other benefits. Could be expanded through further partnership working.

Good soil and nutrient management is essential for sustainable agriculture. We recognise that some farmers are more successful at safeguarding and improving the basic resources needed for sustainable production. We strongly support industry certification schemes that recognise the importance of resource protection. This ensures that food production does not have an adverse impact on biodiversity or water

2 Pesticide is an important issue not sufficiently covered - need separate chapter.

Consultation should support Article 7 of WFD and Drinking Water Protected Areas.

There should be an emphasis on pathway control

The update to the river basin management plans will include more information on Drinking Water Protected Areas and pesticides.

A very small proportion of surface water bodies across England fail WFD good status objectives because of pesticides. The more significant issue we face in relation to pesticides is contamination in drinking water catchments and our ability to meet associated WFD objectives for Drinking Water Protected Areas (Article 7 objectives). The WFD also requires that pesticide levels in tap water must not breach quality standards, set out in the Drinking Water Directive.

River basin management plans will set out the requirements for Drinking Water Protected Areas and the measures needed in catchments currently at risk because of pesticides or other contaminants. Understanding the pathways via which pesticides get into water is key to identifying the right mitigation measures. There is a sufficient body of monitoring and modelling work indicating that contaminated drainflow, surface run-off from fields, and point source discharges from yards can all have a role to play in agricultural settings. In farming catchments with heavy clay or cracking clay soils and under drained

	<p>fields, contaminated drainflow has been shown to be a particularly significant pathway.</p> <p>Ultimately the right choice of measures will be guided both by the current body of research and by evidence collected at a more local level.</p>
<p>3 Drinking water protected areas no deterioration is gold-plating as pesticides below EQS generally</p> <p>Concern whether river monitoring of pesticides is done at the level concerned for human risk. Needs to be further consideration of appropriate levels of pesticides etc.</p>	<p>Hazard-based assessment criteria form part of the assessment process required by European pesticide approval legislation. This legislation is overseen in the UK by the Chemicals Regulation Directorate (CRD). <a href="http://www.pesticides.gov.uk/guidance/industries/pesticides/topics/About-The-Chemicals-Regulation-Directorate">You can read more about CRD on the HSE website</a> (www.pesticides.gov.uk/guidance/industries/pesticides/topics/About-The-Chemicals-Regulation-Directorate).</p> <p>The 0.1ug/l standard for any pesticide in tap water is a requirement under the Drinking Water Directive. This legislation is overseen in the UK by the Drinking Water Inspectorate (DWI). Defra and DWI both confirm there is no intention within Europe to relax this standard.</p>
<p>4 Integrated approach is vital - ensures consideration of unintended consequences e.g. less pesticide=more weeds</p>	<p>The Sustainable Use Directive for pesticides, overseen by the Chemicals Regulation Directorate, places emphasis on Integrated Pest Management (IPM). Under this legislation, from 2014, farmers must demonstrate they are following IPM practices. The National Farmers Union and Voluntary Initiative are encouraging all farmers to complete an IPM plan, setting out how they are considering different ways of controlling weeds, pests and diseases.</p>
<p>5 Controls at source for chemicals required before effluent removal.</p> <p>Should use catchment approach to target a pressure across all sectors at the same time.</p>	<p>We follow a 'reduce first' approach to chemical management. We look at source control measures nationally before considering treatment.</p> <p>For example, one of the new specific pollutants identified in the UKTAG 2013 review is for a biocide called triclosan. Many manufacturers have already ceased use of this pollutant in their products. We are working with the relevant stakeholders to quantify and determine the possibility of accelerating this reduction in use in toothpaste, handwash and other cosmetic products. We believe that it may be possible to manage the levels of triclosan entering the environment from sewage treatment works by voluntarily reducing the use of this substance. This could reduce – or even negate - the need for investing in sewage treatment processes to remove this substance.</p> <p>Some chemicals are already controlled at source and we work to enforce such source controls as best we can. New source controls are ongoing. We are factoring the forecast impacts of these controls into our calculations, to ensure that we do not demand investment for treatment which may not be required in the future due to source control.</p>
<p>6 Concern re permitting policy for metals given time issues and bioavailable complexity.</p> <p>There are questions around EQS values; cease and phase out; biota monitoring and data availability; permitting policy;</p>	<p>Stakeholder consultation on bioavailable metals and permitting is ongoing.</p> <p>We are committed to utilising flexibility within water quality planning and setting permit limits, provided water quality outcomes are met and on the assumption that the polluter pays.</p>



<p>affordability issues; process for objective setting.</p> <p>Integration of legislation is required, and integration with Industrial Emissions Directive and the Best Available Technology Reference Documents.</p>	<p>Those responsible for the discharges are best placed to identify opportunities for a more flexible approach to improving the performance of their assets. They can contribute to delivering water quality outcomes in the most efficient and cost effective way.</p> <p>Our approach is outlined in our position statement on utilising flexibility within water quality permitting.</p>
<p>7 Metals from mining – there is agreement about the risk from mines and ongoing commitment for continued investment</p>	<p>We are working in partnership to develop and deliver a joint programme for abandoned metal mines.</p>
<p>8 Possibility of volunteer action making a difference, importance of awareness campaigns to deliver cultural change like product selection</p>	<p>Measures to raise awareness are being considered in relation to chemicals to inform on product formulation and /or product disposal e.g. metaldehyde in slug pellets and triclosan in toothpaste etc.</p>
<p>9 There should be a robust strategy for dealing with chemicals through a multi-sector approach. Willingness to pay and affordability should be taken into account for all sectors.</p> <p>Need clarity about who pays</p>	<p>Defra have indicated that they intend to establish more strategic discussions around chemicals with stakeholders. This is a very complex area that needs to be managed in the context of other work and we will be supporting Defra to steer this work.</p> <p>For the water industry, Ofwat's Price Review process 2014 (PR14) is its main funding mechanism. The price review is a financial review process governed by Ofwat. It determines the price limits that water companies can charge customers over a period of time, which is currently five years.</p>

## Invasive Non-Native Species

Key points from responses	Our action / response
<p>1. The risks and impact of invasive species was understated from both an economic and WFD perspective. INNS will be a challenge to the 'no deterioration' objective.</p>	<p>While the cost of Invasive Non-Native Species (INNS) in England has been estimated as &gt; £1.3bn, much of this is terrestrial impact. The actual cost for freshwaters has not been well quantified in total or by sector. For that reason we had to make judgments but we are happy to modify those on the basis of evidence received.</p> <p>We have assessed the impact on wildlife and on sustainability and legacy as large, and recognise that INNS pose a significant risk of deterioration. This is well described in the Article 5 Risk Assessments.</p> <p>We'll take all steps necessary aiming to avoid deterioration caused by INNS and will do thorough cost benefit analyses of proposed measures to deal with invasive species, with the intention of proceeding with those which are cost beneficial.</p>
<p>2. The strategy for invasive species need improving or doesn't exist</p>	<p>We are party to the 'Invasive Species Framework Strategy for Great Britain' 2008 and the associated action plan. Our measures for the Water Framework Directive support the action plan. This provides a strategic approach. The strategy is currently the subject of a quinquennial review.</p>

	<p>Defra are leading this review, with the support of the GB non-native species secretariat (NNSS). The review will examine the continuing relevance of the aims, actions and mechanisms contained in the strategy and whether any modifications or additions are merited. A revised strategy document is expected by summer 2014 .</p>
<p>3. Legislation or its application needs improving</p>	<p>There are two current actions that could influence legislation. Firstly, the 'Invasive Species Framework Strategy for Great Britain' is currently the subject of a quinquennial review. Secondly, a proposed EU regulation on Invasive Alien Species has recently been published; if this is adopted in due course, it is likely to lead to changes in domestic legislation.</p> <p>A ban on the sale of 5 invasive non-native aquatic plants will come into force in April 2014.</p>
<p>4. Fuller explanations were needed in the Challenges and Choices document text</p>	<p>To keep the Challenges and choices document short we did not give full details of the issues and the proposed measures. Some of this detail is given in the supporting technical information and will be given in the update to the river basin management plans.</p>
<p>5. There is a need to recognise the risk of INNS posed by water transfer schemes</p>	<p>We recognise this risk and have raised it when commenting on proposed water transfer schemes.</p> <p>Some water companies are demonstrating good awareness of the issue.</p>
<p>6. There is a need to increase promotion / awareness of this issue to help in tackling it</p>	<p>We recognise that many players including NGOs, water companies, private businesses and trade associations have promoted key messages on biosecurity independently and are partners in the government's 'Check, Clean, Dry' and 'Be Plant Wise' campaigns. We agree that there is a great need to ensure that water users and the general public have a good understanding of INNS and good biosecurity practice and we would welcome the help of all stakeholders to achieve this.</p> <p>A number of apps to raise awareness have been produced to help understand the distribution of species and spot new arrivals; aqua invaders, plant tracker and sea tracker. To date, <a href="http://planttracker.naturelocator.org/">plant tracker</a> (http://planttracker.naturelocator.org/) has recorded over 6000 invasive plant records.</p>
<p>7 Need to better recognise other players</p>	<p>To keep the main Challenges and choices document short, we did not mention the specific contributions of many of the key actors in the field of INNS. We apologise for that. We did mention a number of partners in the supporting evidence base document, including the RYA and the Green Blue. We will have the opportunity to mention specific partners in the river basin management plans and catchment summaries.</p>
<p>8 An integrated approach at an appropriate scale is needed (International/GB/catchment) for plans and actions</p>	<p>We are party to the '<a href="#">Invasive Species Framework Strategy for Great Britain</a>', 2008 and the associated action plan. Our measures for the Water Framework Directive support the action plan. This provides a GB-wide approach. An EU regulation on Invasive Alien Species has recently been proposed; if this is adopted in due course, it will support</p>

	European-level action. Invasive species action plans set out national ambitions for species and action at all scales; as more are produced for high impact species we should see better integration. <a href="http://www.nonnativespecies.org/index.cfm?sectionid=92">You can read more on the NNSS website</a> (www.nonnativespecies.org/index.cfm?sectionid=92)
9 Anti-livestock fencing interferes with the control of some invasive species	We are aware that measures might act synergistically or have trade-offs - for example, reducing plant nutrients in water courses might reduce the vigour of INNS; anti-livestock fencing might protect INNS from grazing by livestock.
10 Agricultural mechanisms should be added to the list of existing measures	To keep the Challenges and choices document short, we did not give full details of the issues and the proposed measures. Some of this detail is given in the supporting technical information and should be given in the update to the river basin management plans and catchment summaries.
11 There is a lack of pesticides to control INNS. The current array of measures and tools available are not sufficient to tackle INNS	<p>We accept that there are few pesticides that can be used on or near water. We are supporting the development of other forms of control including biological controls.</p> <p>A biological control for Japanese knotweed is in the field trial stage, and projects to find and test biocontrols for 3 other plant species are underway. <a href="http://www.cabi.org/projects/project/5589">You can read more on the CABI website</a> (www.cabi.org/projects/project/5589).</p>
12 More needs to be done to model the impact of climate change on INNS	We agree that this is an important research issue. We will set out our current thinking for consultation within the update to the river basin management plans. Defra have issued guidance on how climate change and adaptation within the various stages of river basin management planning should be taken account of. The Environment Agency will continue to follow this guidance
13 Resources were raised as a potential issue; more are needed to tackle the problems and there is a need to determine whether it is economic to continue the control of certain species	<p>The allocation of resources to measures for river basin management plans will be based on an analysis of cost and benefits and affordability. We aim to make the best use of resources both internally and externally.</p> <p>There are some species, such as the killer shrimp (<i>Dikerogammarus villosus</i>), for which we are not proposing specific measures but instead propose the general action of 'slowing the spread' most notably by raising awareness of the need for better biosecurity.</p>
14 Many organisations detailed what they do, and could do, to help manage INNS pressure.	We were pleased to note this and welcome any further opportunities to work with others in partnership.

## Abstraction & flows

Key points from responses	Our action / response
1 It is a priority to maintain sufficient supplies of water during prolonged dry spells	Water companies prepare statutory water resources management plans (WRMPs) every five years that set out their forecasts of water demand and supply over the next 25 years; and how they will balance them through either demand management or increasing supplies. We provided advice to the water companies through our representations

	<p>on the current round of draft WRMPs in July/August 2013.</p> <p>Water companies also prepare statutory drought plans that set out the short-term operational steps a company will take before, during and after a drought to maintain public supplies. These plans set out how a company would respond under a range of drought scenarios, including the actions and environmental assessment required.</p> <p>We prepare drought plans that set out how we will respond to a drought including local and national drought management activities, such as fish rescues; how we will reconcile competing interests; what additional monitoring we will undertake; and when we will liaise with water companies on awareness campaigns and determination of drought permits.</p> <p>The joint Defra/Environment Agency/Ofwat/Welsh Government water resources planning guideline sets out government expectations for the water industry (the guiding principles) and technical guidance. Our drought planning guideline sets out technical guidance to the water industry.</p>
<p>2 There should be greater emphasis on demand management and water efficiency by water companies, particularly focused on leakage management, and water efficiency measures. This should look at existing measures and what could be done in the future</p>	<p>Through our review of the current round of draft WRMPs, we analysed each water company's approach to demand management, and provided advice to the water companies.</p> <p>We will also be scrutinising the final WRMPs, to ensure that demand management and water efficiency options are being delivered. The updated River Basin Management Plans (uRBMPs) will reflect outcomes from water company business plans and final WRMPs. We will review efforts by companies on managing leaks, future ambition to reduce leakage and meet government expectations, how demand management options are being considered, and what our expectations are for future delivery. This will vary dependant on company.</p> <p>In the uRBMPs we will reflect the need for the Environment Agency to work with other regulators and water companies. This will ensure companies calculate their sustainable economic level of leakage correctly and continue to reduce leakage and the demand for water.</p> <p>We believe that water companies could do more to reduce leakage. In several cases leakage will fall initially but then remain constant over the rest of the 25 year planning period. A number of water companies could increase their understanding of supply pipe leakage, especially as increased customer metering provides an opportunity to manage it better.</p> <p>It is the water companies' role to set their own leakage targets and metering policies, in accordance with government and Ofwat guidance. Water companies forecast a reduction in per capita consumption (PCC), delivered through increased metering and water efficiency campaigns; and a small reduction in leakage between</p>

	2015 and 2020.
<p>3 The expectations for delivering outcomes may be over ambitious and will not account for how much water company customers are willing to pay for these solutions through their water bills.</p> <p>The benefits of water are not valued sufficiently - the use of a co-ordinated national activity to raise further awareness of the general public, on the state of the environment and the consequences of their actions is needed.</p>	<p>It is important to establish an ambitious programme of work, given the range of environmental issues to be resolved and the statutory timescales in which to complete these. Government ministers will make the final decisions on what is affordable and this will guide the ambition of measures at the catchment scale. Water companies have consulted their customers on willingness to pay for environmental improvement. Ofwat are keen that actions are implemented where there is customer support.</p> <p>Water companies set out their environmental proposals in their business plans which were submitted to Ofwat on 2 December 2013. Government expects water companies to also promote water efficiency. In areas of serious water stress or where per capita consumption is above the national average, government expects the demand trend to be significantly downwards.</p> <p>In 'Water for Life', Defra set out the high-level principles that will underpin reform of the abstraction regime. The new regime will seek to better reflect the availability and value of water and to be flexible and responsive to changes in supply and demand. As part of river basin management planning we carry out an economic appraisal of the costs and benefits of options to restore sustainable abstraction. These include specific monetised benefits based on 'willingness to pay' plus consideration of benefits to the wider environment. <a href="https://ea.sharefile.com/download.aspx?id=s6301ad0ba704e9b9">You can read our guide to assessing the benefits for economic appraisal of measures which affect the water environment on Sharepoint.</a> (https://ea.sharefile.com/download.aspx?id=s6301ad0ba704e9b9)</p> <p>Our initial appraisal of costs and effectiveness has identified demand management as one of the cost effective measures to be included within uRBMPs. We recognise the importance of working with partners and other external organisations, which can help raise awareness and influence water efficiency activities, particularly in catchments impacted by abstraction.</p>
<p>4 The issues relating to abstraction need to be managed through effective planning and investment, perhaps under a multi sector approach.</p> <p>It is important to have integrated delivery through the catchment based approach and a need for synergistic actions to be underpinned by sound evidence.</p>	<p>The issues relating to abstraction are managed through Catchment Abstraction Management Strategies (CAMS), RBMPs, WRMPs and water company business plans.</p> <p>A sector approach is required by the RBMPs, to help identify partnerships and sectors to help deliver outcomes. This will produce a more strategic and integrated approach, with a local delivery link to external partnerships. The catchment approach set out in the RBMPs will apply to all sectors.</p> <p>We believe that there is an opportunity to better integrate measures for water resource pressures within the catchment-based approach. We have a programme of studies in progress to help demonstrate this and improve understanding of effectiveness of such measures.</p>

<p>5 The consultation fails to adequately comment on the severity of the issue in the light of climate change, population growth and environmental pressures.</p> <p>It's suggested that climate change is a more critical pressure than abstraction in summer desiccation.</p>	<p>We agree that future pressures on water availability for people and the environment may come from a combination of increased abstraction, resulting from population growth, along with the potential impacts of climate change.</p> <p>We are working with Defra to reform the abstraction licensing system to allow us greater flexibility to manage these future challenges.</p> <p>The 'Case for Change' for abstraction reform sets out a range of projected future demands for water. It maps these onto a range of potential future flows and different levels of environmental protection. This demonstrates the range of future pressures that we have to consider in planning the management of water resources. <a href="http://www.environment-agency.gov.uk/research/planning/135501.aspx">Read our refreshed 'Case for Change' which was published in December 2013</a> (www.environment-agency.gov.uk/research/planning/135501.aspx)</p> <p>In the RBMPs, we promote the benefits of the catchment approach for increasing resilience. It includes local action to reduce abstraction pressures by reducing reliance on directly abstracted water taken during the summer. Sustainable use of groundwater resources will also be an important consideration. Sectors will need to plan for these future pressures.</p> <p>Water companies already take account of climate change, population growth and environmental pressures in their WRMP. Water companies should take a long term view of resilience in their WRMP to ensure they can respond to future uncertainties.</p> <p>We have worked with the electricity generation sector to better understand the potential future demand for water by the sector, in the context of climate change and population growth. The results demonstrate an overall trend of increasing total demand. Projections for future freshwater demand are more variable and could increase or decrease depending on the electricity generation mix, future location and the cooling technology used.</p> <p>We will continue to work with sectors to help them understand the implications of future pressures on their requirement for water and the need to take appropriate action to ensure the environment is adequately protected. Measures to reduce demand can help to reduce abstraction in locations that are environmentally sensitive. This will help us to be more resilient to climate change, reduce pumping costs and CO2 emissions.</p>
<p>6 The consultation lacks direction on water supply resilience and the need to bank water through storage to mitigate against the supply side risks.</p> <p>Need to increase water storage.</p>	<p>Water supply resilience is very important and is a main driver behind water company WRMPs (which will be referenced in the uRBMPs). Water companies have a statutory duty to supply water. They should assess the need for storage as part of their appraisal of existing systems and future options to ensure secure resilient supplies.</p> <p>The government is keen to promote reservoir storage as</p>

	<p>part of a range of cost-effective options to increase resilience.</p> <p>Consideration of storage needs to be worked into the catchment approach, as well as how stakeholders can take local action to reduce abstraction pressures. This will reduce reliance on directly abstracted water taken during the summer. Storage includes groundwater where suitable aquifers underlie the catchment.</p>
<p>7 Concerns regarding future cost of water supplies from direct abstraction and availability of water - vital for industry sector growth.</p>	<p>Proposals in the Water Bill will help keep bills for public supplies affordable by encouraging existing water companies to be as efficient as they can be. It will encourage new businesses to enter the water supply sector with innovative ideas and approaches.</p> <p>We will endeavour to keep abstraction charges as low as possible. However, charges may change following consultation in future. We believe that all sectors should be aware of the pressures on future water availability and of the impact it may have on their businesses. We ran a project to forecast water demand for the food and drink manufacturing industry. We identified that doing nothing was not an option to managing future demand and so we need to consider sustainable behaviour in the sector and translate this into appropriate actions. We are continuing to work with the Food and Drink Federation to embed water efficiency messages across the sector.</p>
<p>8 It is important to maintain sustainable food production for a fast growing population.</p> <p>There needs to be a fair share of water for agriculture, to ensure national food security.</p> <p>Farmers need to be provided with tools, guidance and help to reduce their water footprint.</p> <p>An integrated catchment management approach is needed to address the issues.</p> <p>Full consideration must be given to the cost and benefits of abstraction and flow measures on food security.</p> <p>Measures should be proportionate to the impact from agriculture and should be at a scale smaller than the catchment level. Decisions should be underpinned by sound evidence at the local scale.</p>	<p>We recognise that water is important for agriculture and food security. We have a duty to have regard to the social and economic wellbeing of rural communities when carrying out our work. Our CAMS set out where water is available for abstraction, but we don't give priority to any particular sector or reserve water for future use. It is the role of the government to decide the balance of access to water across sectors.</p> <p>We are encouraging the agricultural sector to reduce their water footprint. We are reviewing the content of our Water Efficiency Guidance for the farming sector on our website. We are considering updating the information to make it more readily accessible to abstractors and water users, when it moves to GOV.UK.</p> <p>As well as our advice, farmers and other abstractors can also find information on water efficiency measures from other organisations. For example, the UK Irrigation Association website holds a tool to help potato farmers benchmark their water use. We are supporting the Water Advisory Team for Efficient Resource Recovery (WATERR) project. It aims to support South East rural businesses to enhance their profitability and competitiveness by improving their water availability and irrigation use efficiency. It will assess current usage and look at how this can be improved. WATERR is a partnership project with East Malling Research, Kent County Council and the Environment Agency, and is part funded by the European Rural Development Fund (ERDF). East Malling Research manages the project. The project will target small to medium rural businesses who irrigate</p>

	<p>(including agricultural and golf courses).</p> <p>Trading water rights could help the agricultural sector make better use of its existing water allocation and provide access to water to those who need it. We have published guidance to make water rights trading easier where it is environmentally sustainable. Abstraction reform aims to make the abstraction regime more flexible and trading easier.</p> <p>We will make sure that the test for water efficiency is used as appropriate when licences are being renewed. This will help to ensure water is being used efficiently by abstractors.</p> <p>In our approach to economic assessment, we have defined operational catchments at a smaller scale than at WFD catchment level. Our cost-benefit assessment of measures at this scale takes account of the impact on all users of the water environment, as well as how significant the change may be from implementing that measure. We will appraise the costs and benefits of options for each catchment before draft measures are proposed for publication in the uRBMPs. Environmental objectives to be set for water bodies will take into account cost beneficial measures that could be applied. Ministers will decide whether measures are disproportionately costly or not. They will consider the balance of costs and benefits, together with other factors such as which sectors or parts of society are impacted by costs and benefits and whether costs are affordable. Together with Defra, we will present Ministers with evidence and analysis to inform their decisions.</p> <p>Our monitoring programmes are designed to inform our decision making and we are working with other agencies to improve the tools we have available. Through the catchment partnerships, we welcome the opportunity to work with farmers in improving our local evidence.</p> <p>We will look to better engage with the agricultural sector to:</p> <ul style="list-style-type: none"> <li>i) understand what evidence they have about local environmental impacts</li> <li>ii) understand better how they can contribute to achieving RBMP objectives and</li> <li>iii) educate the sector on the impact of their activities.</li> </ul> <p>For example, overall the abstraction may be small but abstraction at times of low flows and peak irrigation can cause demand to locally exceed public water supply. More specifically, we are working with national agricultural stakeholders to offer the sector the opportunity to formalise within their licences, the flexible abstraction arrangements (abstracting high flows and extending seasons) made available during the 2013 drought.</p>
<p>9 Decisions around reducing or stopping abstractions due to environmental damage should be based on quantitative tests established through the RSA process rather than qualitative assessments based on perception.</p>	<p>We recognise the complexity of hydro-ecological relationships. The Environmental Flow Indicator (EFI) is an indicator of where abstraction pressure may start to cause an undesirable effect on river habitats and species.</p> <p>We have used compliance with the EFI as a screening test to identify where more detailed investigations are needed into the ecological impact of abstractions. We will</p>



<p>There is significant uncertainty regarding the links between water flows and ecology, therefore generic flow standards should not be used to determine mitigation measures. We are concerned that national indicators such as EFI are being used as rigid flow standards that must be adhered to at all times</p> <p>It is important to ensure that the right choices are made in setting the long term aims and objectives, with consideration given to circumstances where achieving a less stringent target than “good” is appropriate.</p>	<p>formulate measures on the basis of investigations at the water body scale, taking into account the evidence of ecological impact. We will not need to restore flows back fully to the EFI if other sustainable and cost effective solutions can be delivered.</p> <p>Where a less stringent objective than ‘good’ has been set for a water body, the levels of abstraction allowed must ensure that we are confident they will not cause further deterioration in the biological, and physico-chemical dependent elements, to a lower class.</p> <p><a href="https://brand.environment-agency.gov.uk/mb/BMeWdb">Read our publication, ‘Environmental Flow Indicator (EFI) - what it is and what it does’ which provides further information about its background, development and use.</a> (https://brand.environment-agency.gov.uk/mb/BMeWdb).</p> <p>With groundwater dependent wetlands, we will continue to work with Natural England to understand the hydro-ecology and the relationship between abstraction and impacts on the water environment.</p> <p>We will set environmental objectives that are spread over a realistic timescale. CAMS licensing strategies will need to be reviewed in the light of RBMP objectives.</p>
<p>10 Queries around removal of abstraction exemptions and bringing exempt abstractions into regulation.</p> <p>These abstractors shouldn't be penalised by abstraction reform.</p>	<p>We are working with Defra to remove the current exemptions for activities such as trickle irrigation, dewatering and navigation transfers in 2014. Those currently benefiting from the exemptions will be brought into regulation before abstraction reform takes place. We will take into account the previous assessment of their historic abstraction pattern when we transition to a new system. Bringing exempt abstractions under regulatory control is a measure to support RBMP objectives. Licensing these abstractions will enable us to monitor their sustainability, so we can take action in future if necessary.</p>
<p>11 Quarry dewatering contributes to low loss of water from the system.</p> <p>The minerals sector can contribute to WFD measures. Some mine waters have been used for public water supply and there remains significant opportunity to pump from mines on a seasonal basis to alleviate low flows in rivers.</p>	<p>Where mine waters are of suitable quality and could be pumped without harmful side effects, this is a possible option for catchment management. We would need to understand the catchment flow needs, the problem to be addressed and whether mine water pumping is a cost effective solution for the environment and water abstractors. Some low flows during droughts are natural and can be good for the ecosystem.</p> <p>Water companies set out how they will maintain public water supplies whilst minimising their impact on the environment in their drought plans. Water companies should explore the use of mine and quarry waters where appropriate, for alleviating low flows.</p>
<p>12 We are concerned about the slow pace of delivery of solutions to restore sustainable abstraction</p>	<p>We also want to accelerate the pace of delivery. The process of changing licences is complex and costly. However, we are prioritising the most damaging abstractions for early action. These include actions to protect our most important wildlife sites. We will continue to prioritise measures to address serious damage.</p>

	<p>We are committed to tackling unsustainable abstraction - both surface and groundwater. <a href="http://www.gov.uk/government/publications/water-for-life-market-reform-proposals">Read more about the Water for Life reform proposals</a> (www.gov.uk/government/publications/water-for-life-market-reform-proposals).</p>
<p>13 We support the need to implement measures to ensure overall water efficiency for new homes.</p> <p>We also feel that more must be done to reduce domestic demand, and measures to ensure overall water efficiency for new homes in particular could be more heavily promoted.</p>	<p>We continue to work with local authorities to advise on their strategic development plans. For example, we have been encouraging them to require good standards of water efficiency in areas where there are demand pressures.</p> <p>We have contributed to the Housing Standards Consultation (2013) by the Department for Communities and Local Government (DCLG) on water efficiency standards for new build homes.</p>
<p>14 It needs to be demonstrated that source sites for supporting river flows are not adversely impacted.</p>	<p>We need to retain flow augmentation as a measure to deliver ecological improvement when reducing abstraction is either technically infeasible or not cost effective. Flow augmentation needs to be carried out in a sustainable way.</p>
<p>15 Disappointed that the Water Bill contains little to pave the way for abstraction reform.</p> <p>We are aware that the transition arrangements for moving existing licences to a new abstraction authorisation system are still under discussion, but we would like to state our support for ensuring that the principle of 'no deterioration' is upheld in removing unused portions of licences.</p>	<p>Reforming the abstraction regulation system is difficult in both economic and environmental terms. The government is committed to taking the time to get it right and we are supporting them by working closely with stakeholders to understand the potential impacts of reform. Defra has published more information in its consultation on <a href="http://www.gov.uk/government/policies/reforming-the-water-industry-to-increase-competition-and-protect-the-environment/supporting-pages/protecting-our-water-sources-the-future-of-abstraction-reform">Reforming the Water Abstraction Regulation System</a> (www.gov.uk/government/policies/reforming-the-water-industry-to-increase-competition-and-protect-the-environment/supporting-pages/protecting-our-water-sources-the-future-of-abstraction-reform).</p> <p>The government recognises it is not just the design of a new regime that is difficult; it is how we get there that poses an enormous challenge. The work that Defra has been doing with abstractors, with our support, has shown the complexity of issues we need to address in moving from the current system to a reformed regime. In fact, the one issue that unites virtually all abstractors is concern about how transition will impact on them.</p> <p>The government made a series of commitments in the Water White Paper around transition. In order to ensure these are honoured, the government is committed to taking the time to make sure we understand the impacts of transition, which varies amongst different sectors and different river catchments. The sustainability of an abstraction - in the context of our environmental duties, which include ensuring 'no deterioration' - is one of the tests that we would apply when granting or varying an abstraction licence.</p>
<p>16 The role of physical modification in managing impacts from water abstraction should be considered</p>	<p>We agree that restoring the physical processes in a river can mitigate impacts from water resource pressures and make rivers more resilient to low flows that occur naturally. As part of our approach to developing measures, we consider alternative cost-beneficial solutions. These include morphology changes following the principles in our</p>

	<p>position statement 'Mitigating Water Resource Pressures Through Hydromorphological Improvement'.</p> <p>Hydromorphological measures are solutions designed to help mitigate impacts on river flows. They can, in some circumstances, enable us to address unsustainable abstraction more cost-effectively, more quickly and with less disruption to business activity than licence modification or revocation alone. We need to improve understanding on how measures complementary to abstraction and flow regime changes can help mitigate water resource pressures - e.g. through hydromorphology changes.</p> <p>We have recently consulted on the use of Environmental Improvement Unit Funds for hydromorphological measures to address the issues of unsustainable abstraction. We will consider implementing them further and finalise our position later this year.</p>
<p>17 Use of strategic awareness campaigns and universal water meters are amongst solutions that could make a significant difference.</p>	<p>In 2013, the Secretary of State approved the new classification of water-stressed catchments. This information was used in our representations on water companies draft WRMPs. The government expects water companies in areas of serious water stress to assess the feasibility of universal metering of their household customers as an option in their WRMPs.</p>
<p>18 Relationship between abstraction and water level management and impacts on Groundwater flooding</p>	<p>We understand that the recovery of groundwater abstraction can lead to infrastructure and homes being flooded by groundwater. We will ensure introduced measures consider the management of groundwater rebound and potential flooding.</p> <p>We will not promote measures to recover groundwater resources that will increase incidents of groundwater flooding.</p> <p>As part of the catchment approach, stakeholders need to consider how flood storage and limiting run-off can be used as a water resource, as well as mitigating flood risk.</p>
<p>19 We are not clear as to whether the abstraction pressures are due to existing or future demand</p>	<p>Our water body assessments of flow and groundwater compliance are based on recent actual abstraction rates. However, our assessments of abstraction pressures and risk of deterioration use realistic forecasts of abstraction to 2027 (within current licensed amounts). This does not include modelling of the potential impacts of proposals for abstraction reform.</p>
<p>20 There should be greater collaboration to improve water efficiency.</p> <p>Water companies need to be supported in this aim as customers are often more inclined to make behavioural changes in response to Government, Environment</p>	<p>Water companies are actively involved in trying to shape the behaviour of their customers. We want to see this being adopted more extensively, and flagged in the final WRMPs.</p> <p>We work with NGOs, such as Waterwise, and agencies such as WRAP, to influence people's behaviour. According to government policy it is the water companies' role to influence their customers to use water efficiently. Companies also work collaboratively in building evidence</p>

Agency or NGO initiatives than in response to water company requests	to support behaviour changes. This is shared across the industry.
<p>21 The impact of abstraction on standing waters, wetlands and groundwater dependent ecosystems should be considered in future impact and benefit assessments and more significant risk should be attached to the scale of impact on fisheries.</p> <p>Measures for Protected Areas not delivered in RBMP1 should be continued forward and, where possible, delivered in RBMP2.</p>	<p>Impacts of abstraction on all habitat types including standing waters, wetlands and groundwater dependant ecosystems are considered as part of the river basin management planning (RBMP) classification assessments. We welcome the engagement with Natural England over alignment of Protected Area (Natura 2000/N2K) objectives and WFD objectives. Further discussions are ongoing with Natural England over how best to represent the requirements of non-N2K SSSI within the plans, including the approach to cost benefit assessment.</p> <p>For water resources, the agreed actions for non-N2K SSSI are incorporated within our RSA programme, which will ensure the delivery of agreed outcomes within planned timescales. Aligning N2K Protected Area objectives with WFD objectives in the next RBMP will enable greater clarity around what needs to be delivered at a site and the timescale over which this can be achieved. We are working to ensure that solutions are delivered as soon as reasonably practicable.</p>
22 Would like to see flows available on the internet and this linked to abstraction management.	We are investigating putting real time flow information on the internet that would enable abstractors to better manage their hands-off flow conditions.

<b>Physical modification</b>	
<b>Key points from responses</b>	<b>Our action / response</b>
<p>1 Physical modifications section is overly negative to heavily modified water bodies (HMWBs). Some HMWBs are beneficial to society, and their modifications are important (e.g. water level management, flood defence, cultural heritage). Existing uses are important.</p> <p>Control structures provide other benefits or functions both to agriculture and the water environment (e.g. during a drought situation).</p>	<p>We will ensure the update to River Basin Management Plans (uRBMPs) also reflect the benefits of HMWB, include flood defence, provision of drinking water storage, economic, recreational, tourism and cultural heritage. We are considering these in our evaluation of the existing benefits provided within catchments as well as being taken into account by the Strategic Environmental Assessment (SEA). The HMWB designation itself is recognition of the value to society provided by the modified water body. The HMWB designation recognises that Good Ecological Status cannot be met because of the need to continue to provide a use to society.</p> <p>We are working towards improving understanding of cultural heritage by developing guidance for our own schemes, and holding workshops to help improve understanding of cultural heritage.</p> <p>When considering proposals to remove in-river structures, we will assess the benefits such as ponding water for abstraction, especially at times of low flows. If the removal of a structure reduces an abstractor's ability to take water, the cost of alternatives sources of supply will be considered.</p>
2 Cross-issue working is	We identify where measures have cross-issue benefits.

essential in the Catchment Based approach (CBA). CBA doesn't work for very local stakeholders - need water body involvement. CBA needs to consider holistic integration of conflicting priorities. Local Catchment Partnerships are single sector/issue, and can exclude local authorities (LAs) - big mistake. There are existing waterways partnership groups that could help.

The SEA in particular helps to identify positive and negative impacts and also inter-relationships between measures.

Catchment partnerships exist or will soon be in operation in all English catchments. These partnerships will provide an opportunity for all stakeholders to contribute to a shared understanding of the catchment and help to deliver multiple benefits in an integrated and efficient way.

Catchment summaries link to or refer to partnership catchment plans and relevant measures within them. The formation of Catchment Partnerships and Plans are listed as 'measures' with appropriate caveats, in the River Basin Management Plans (RBMPs).

The recent catchment partnership 'start-up' conference emphasized the need for local authority (LAs) involvement. Defra is working to produce an advice note to help partnerships get LAs involved and to ensure they are clear about the responsibilities and opportunities under the WFD. Defra policy framework makes clear that partnerships should seek benefit beyond WFD. An ongoing Defra project is looking at how existing initiatives such as Local Enterprise Partnerships (LEP) and Local Nature Partnerships (LNP) can integrate. Examples of good integration are available from the catchment pilot project. An independent support group has been established to share good practice and potentially resolve issues where partnerships are not operating in an inclusive way. We identify where measures have cross-issue benefits, and where measures have been identified under the auspices of the CBA.

3 Flood risk is exacerbated by lack of funding and insufficient maintenance.

Working in partnership with land-owners/occupiers and local communities is at the heart of flood risk management. We plan at the catchment scale to help us balance flood management investment. Flood risk management Grant in Aid will continue to increase at least up to 2021. This money is allocated according to specific outcomes set for us by Government. These include the number of properties protected, as well as improving the environment. The programme of work is approved by community representatives on the Regional Flood and Coastal Committees.

We have a protocol for the maintenance of flood and coastal risk management assets that is agreed by government. It sets out how economic and environmental considerations are used to determine whether assets continue to be maintained. Habitat regulations play a big part here, too.

If maintenance is needed to achieve other outcomes (such as WFD) then we take these into account when making a decision. Where we look to physically remove a structure, we complete an environmental assessment to ensure the implications of removal are fully understood. We use this to adapt the design and physical works as necessary. If there is a flood and coastal erosion risk management (FCERM) or other justification for a modification, then the water body

	<p>may be designated as heavily modified. We have carried out over 500 FCERM-related investigations to better understand what is causing water body deterioration and what can be done about it. Research has been carried out looking at the effectiveness of some of the more common responses to deterioration due to physical modifications.</p>
<p>4 Should we focus on adaptation of, rather than removal of structures? Alternatively where appropriate consider removal of a barrier as a default position to expensive improvements (such as fish passes).</p> <p>Ensure targets for improving fish passage are proportional to the benefit gained, and justified.</p>	<p>Our approach to structures is based upon a site-specific understanding of the potential positive or negative impacts of any action taken. We will carefully assess how removing in-channel structures, particularly those that have been in place for many years, will affect flood risk to people and properties, communities and businesses, as well as protected rights, geomorphological processes, fisheries and biodiversity.</p> <p>In deciding actions we ensure that any structures are able to perform their function. We also consider if any actions would have a significant adverse impact on use.</p> <p>Generally, we welcome schemes that aim to return a river to a more natural system. However, all actions are assessed on the strengths of their impacts on local communities, the environment as part of a review of the costs and benefits (financial, economic and non-financial). Alternatives actions are considered where necessary.</p> <p>To improve eel and fish passage, we have to prioritise action as there are over 20,000 obstructions. Cost is an important consideration. We will look for the most cost-effective way of addressing the problem(s), whether these are actions to allow access to, or removal of, the barrier. We first consider removal of structures and to use other measures (fish passes etc) only if this is not feasible because of the detrimental effect to other users, wider public benefit, excessive cost or removal poses unacceptable risk. <a href="http://www.environment-agency.gov.uk/business/topics/water/146448.aspx">Read our guidance on how to identify priority barriers to eel movement and how we will address them</a> (www.environment-agency.gov.uk/business/topics/water/146448.aspx).</p> <p>Our FCERM-integrated environment programme will ensure decisions are joined up so that we look at maximising the outcomes at any one site by designing schemes that deliver multiple objectives.</p> <p>We will continue to make FCERM money available for delivering innovative solutions that also address barriers to eels.</p>
<p>5 Mobilisation of large woody debris in upstream areas as a result of flooding should be removed.</p>	<p>Woody debris is often removed from river channels to reduce the risk of flooding due to blocking bridges and culverts or elevated water levels. There is also a perception that debris dams may prevent fish migration. But woody debris is a natural feature of rivers that encourages in-channel processes and enhances biological diversity. Removing it can result in the undesirable release of silt and leaf litter. Because of its overall benefits, opportunities need to be found to work with or re-introduce woody debris where this will not cause problems.</p> <p>Adding or sympathetically managing woody debris is a</p>

	<p>measure in many river basin management plans, particularly to help restore heavily modified rivers to good ecological potential. Here, we are required to put in place appropriate channel maintenance strategies and techniques for woody debris management. We may also need to retain woody debris where its removal may cause deterioration in fish or invertebrate communities. Research is underway by the Forestry commission about the impacts of large woody debris on flows.</p>
<p>6 Removing the need for consents for dredging by farmers &amp; hydropower may lead to problems. In low head hydro power consented schemes high resolution monitoring should be mandatory</p>	<p>Monitoring conditions are only placed on hydropower licences where we feel that there is a need to ensure the licence is not impacting on other water users or the environment. We do not impose licence monitoring conditions at all sites, to support the Government's drive to reduce the administrative and economic burden on industry.</p> <p>When permitting hydropower schemes, we make sure that measures are put in place to protect the local environment. If the environment is not protected, we will not allow a scheme to go ahead. We also have clear guidance on the mitigation measures that are required to enable fish passage and to prevent entrainment of fish at all schemes.</p> <p>We can require any conditions on abstraction or impoundment licences that we consider appropriate and that could include environmental monitoring conditions. They have to be reasonable, clearly enforceable and necessary in a particular situation. Where there are site-specific risks to rivers and ecology that we believe justify it, we require the licence holder to carry out monitoring. We have also conducted our own monitoring at a number of sites (see also point 20).</p>
<p>7 Ensure FCERM and WFD properly linked.</p>	<p>The river basin management planning and flood risk management planning timescales are aligned so that FCERM and WFD actions will be integrated where possible. Our fully integrated environment programmes in areas will enable us to maximise opportunities to achieve multiple outcomes from each activity. All FCERM plans and projects are screened using SEA (Strategic Environmental Assessment) or EIA (Environmental Impact assessment) and those assessments ensure WFD considerations are integrated into all FCERM projects.</p>
<p>8 We are aware of the impact on the water environment that poor forestry practice can have but believe that the UK Forestry Standard ensures that 'forestry' as a pressure is minimised through good industry practice. We are also aware of the potential opportunities that forestry offers now and in the future to address some of the wider, non-forestry related significant water management</p>	<p>Together with the Forestry Commission (FC), we recently produced a report 'Woodland for Water: woodland measures for meeting Water Framework Directive objectives'. Using the evidence report as a basis, we have carried out an opportunity mapping exercise in the Midlands, in partnership with Forest Research, Forestry Commission, Natural England and the Woodland Trust. The main aim of this exercise was to identify priority areas for creating woodland and improve the management of existing woodlands. This will reduce downstream flood risk and achieve the objectives of the WFD. We are now working with our partners to develop Phase 2 of the Midlands Woodlands for Water project.</p>

<p>issues</p>	<p><a href="http://www.forestry.gov.uk/pdf/MidlandsReport.pdf/\$FILE/MidlandsReport.pdf">Read the Phase 1 report.</a> (<a href="http://www.forestry.gov.uk/pdf/MidlandsReport.pdf/\$FILE/MidlandsReport.pdf">www.forestry.gov.uk/pdf/MidlandsReport.pdf/\$FILE/MidlandsReport.pdf</a>).</p> <p>We also ran a workshop on flood plain planting and flood risk jointly with FC. Our 'Quick Guide to Trees near Rivers' explains that retaining or planting native species of trees and shrubs next to rivers and in the floodplain is one way in which we can help to conserve and enhance biodiversity. Strategically placed woodlands, trees and shrubs in floodplains can reduce flood risk, by slowing down soil erosion and holding back flood flows. Retaining or planting trees along river corridors can also help plants and animals that live in watercourses adapt to the impacts of climate change, providing shade and cooling the water temperature.</p> <p>Our Keeping Rivers Cool (KRC) project is developing maps to identify where planting could be used to reduce water temperature. We are working with a range of partners, such as the Ribble Rivers Trust and the Wye and Usk foundation, on the programme. By creating riparian shade through tree planting and natural regeneration along river banks, we aim to protect salmonid fish on hot sunny days. This activity will also deliver a range of other benefits such as interconnectivity of riparian habitats, reduced diffuse pollution and improved water quality.</p>
<p>9 We need to put a value on water. Low ambition for wetlands as the 'norm' is so low.</p> <p>The impacts that physical modification can have on water flows and water quality parameters (through both reducing and increasing flows) does not seem to have been considered in the assessment.</p> <p>NGOs are often landowners too – this needs reflecting in the Challenges &amp; Choices supporting technical documents.</p>	<p>We will amend the supporting physical modification literature to reflect that NGOs can be landowners.</p> <p>Wetland ecosystems are ecologically and functionally significant elements of the water environment, with potentially an important role to play in helping to achieve sustainable river basin management. The Water Framework Directive does not set environmental objectives for wetlands. However, wetlands that are dependent on groundwater bodies, form part of a surface water body, or are protected areas, will benefit from WFD obligations to protect and restore the status of water.</p> <p>Pressures on wetlands (for example, physical modification or pollution) can impact on the ecological status of water bodies directly or indirectly, by impacting water quality or quantity. Measures to manage such pressures may therefore need to be considered as part of river basin management plans, where they are necessary to meet the environmental objectives of the directive. Wetland creation and enhancement can in appropriate circumstances offer sustainable, cost-effective and socially acceptable mechanisms for helping to achieve the environmental objectives of the directive. In particular, wetlands can help to abate pollution impacts, contribute to mitigating the effects of droughts and floods, help to achieve sustainable coastal management and to promote groundwater re-charge.</p>
<p>10 Ports and harbour activities take place in many transitional water bodies and most</p>	<p>Evidence does not indicate that ports &amp; harbours are a significant cause of failure to achieve good ecological status at a national scale, so national action is not</p>



<p>catchments including a section of coast, so to say they create significant issues but then ignore them is not acceptable. Avoiding the Hydro-Electric Power (HEP) issue is also not acceptable</p>	<p>required. Some port and harbour activity has been identified as a locally significant pressure.</p> <p>We have consulted separately on a review of our guidance for hydropower developments, initially in July 2011 and again in January 2013. Having considered the responses to those consultations, we have revised the guidance published early in 2014. <a href="http://www.environment-agency.gov.uk/business/topics/water/126575.aspx">You can read the revised guidance on our website.</a> (www.environment-agency.gov.uk/business/topics/water/126575.aspx). (see also point 23)</p>
<p>11 Many HMWB designations are wrong. Improve visibility of classification info. If a physical modification is actually a watercourse management activity should we classify the water body as heavily modified rather than simply acting as a trigger for labelling the watercourse as failing to meet GES?</p>	<p>Designations are reviewed regularly, and management actions do contribute to designated uses.</p>
<p>12 There is a need for a national campaign to garner 'ownership' from the public.</p>	<p>We agree that it can be difficult to establish clear lines of responsibility for the channel maintenance and habitat improvements necessary to improve the water environment. It is clear that the scale of the task is very large and a number of individuals, groups and bodies will need to take ownership of issues and work together to deliver the requirements of WFD. As the Competent Authority for WFD, it is our role to ensure that all relevant parties are engaged and aware of their own responsibilities to help us deliver actions identified in the river basin management plans.</p>
<p>13 The implications of stopping FCERM activity must be understood.</p>	<p>Government sets out clear guidance on how we prioritise what we do and how we invest to ensure that risk is managed effectively and for the best value. We have a 'Protocol for the maintenance of flood and coastal risk management assets' that is agreed by government and sets out how economic and environmental considerations are used to determine whether assets continue to be maintained. If maintenance is needed to achieve other outcomes (such as WFD) then we may look to continue FCERM activities to achieve these objectives.</p> <p>Where we look to physically remove a structure, we complete an environmental impact assessment (EIA) to ensure the implications of removal are fully understood. If continuing a modification is justified for FCERM or other reasons, then this may be designated as heavily modified. We have completed over 500 FCERM- related investigations to us improve our understanding of what is causing water body deterioration and what can be done about it. Research has been carried out looking at the effectiveness of some of the more common responses to deterioration due to physical modifications.</p>
<p>14 Our ambition is too low for WFD. Reconnect water bodies and habitats. Restoring natural</p>	<p>Government sets out clear guidance on how we invest to ensure that risk is managed effectively and for the best value. The National FCERM Strategy encourages a</p>

<p>processes should be high priority.</p>	<p>'natural processes' approach and FCERM continues to seek ways in which flood risk can be reduced by working more with natural processes. One of our key priorities is building on current evidence on the benefits of using natural processes and the standard of protection they might provide in reducing flood risk. A research framework is being established to look at how we can work more with natural processes whilst reducing flood risk. The EIAs will also raise this issue on a project- by- project basis.</p>
<p>15 Where are the TraC and commercial fisheries actions, where is the community engagement?</p>	<p>We are considering measures implemented in TraC(transitional and coastal waters) Special Areas of Conservation (SAC) to help inform good practice guidance for fisheries activities in TraC waters in the future.</p> <p>We have also been in communication with Inshore Fisheries and Conservation Authorities (IFCAs) with regard to de-designating some water bodies currently characterised as heavily modified after the next RBMP cycle. This would be based on the assumption that sustainable fisheries practices should allow the achievement of good ecological status. The coming cycle will be spent examining impacts and rationalising the implications of the non-designation.</p> <p>Fundamental to preserving the abundance and diversity of the biological elements in a water body, is consideration of habitat types. A broad habitat structure is being introduced to provide a framework for TraC water body management in a WFD context. We have created an estuarine and coastal subgroup of the WFD National Liaison Panel for England to discuss and focus on TraC specific issues and actions. We will be using this group to help identify national measures and progress indicators in TraC waters. Some river basin districts have also had TraC focused meetings to start the engagement process. Please refer to point 2 above for more information on community engagement.</p>
<p>16 Better amenity value should be of higher importance in environmental assessments.</p>	<p>The strategic environmental assessment (SEA) of the RBMP takes into account the existing amenity value of water environments and how this is likely to change as a result of the implementation of the plan. Character of the landscape, tourism, cultural heritage and recreational uses (including amenity) are scoped into the SEA and EIA of proposed plans and projects that we undertake. These issues are therefore covered directly in assessments of flood defence work.</p>
<p>17 Plans should reflect protected area targets. Impacts on life sustaining process and other benefits ignored</p>	<p>The wider consequences for the environment and sustainability are considered as part of the SEA and integrated river basin management planning.</p>
<p>18 Impact of low-head hydro electric power (HEP).  WFD vs. HEP - government should decide priorities. There is a lack of policy around HEP and monitoring impacts of</p>	<p>We support the development of sustainable hydropower schemes and are committed to helping the UK generate more power from renewable sources. Where schemes would not comply with environmental or other legislation by, for example, preventing the achievement of WFD targets and objectives, we will not support their development.</p>

HEP.	We <a href="http://www.environment-agency.gov.uk/business/topics/water/126575.aspx">published revised guidance</a> (www.environment-agency.gov.uk/business/topics/water/126575.aspx) for hydropower developers in January 2014, highlighting the importance of compliance with WFD and other environmental legislation. We have a programme of evidence projects in progress to evaluate potential impacts of river hydropower on the environment.
19 Statutory bodies have been too complacent, believing that meeting the poorly defined mitigation measures set out in the current RBMPs is 'enough'; they have often overlooked better environmental options and visionary projects.	The mitigation measures have high level definitions by necessity, enabling us to assign a wide range of actions to them, without being restricted to specific techniques or project types. This means that actions and visionary approaches can be considered using local expert knowledge, and understanding of the issues specific to that water body and catchment (for instance using the catchment based approach, catchment partnerships and local stakeholder groups).

Flood risk	
Key points from responses	Our action / response
1 There is a risk of flooding due to lack of watercourse maintenance - more appropriate maintenance and flood alleviation work is needed Without river maintenance there is an increase in flood risk and the environment is compromised. A holistic approach is needed.	<p>We take a risk based approach to managing flooding and maintaining flood defences. It is not possible to remove all risk of flooding. We have reviewed our maintenance programme to make sure it continues to spend taxpayers' money where it delivers the greatest flood risk benefit. We assess all flood risk management activities using a risk based approach and invest in those activities that will contribute most to reducing flood risk per pound of funding. We compare investment in dredging, weed control, maintaining defences, clearing blockages, or pumping water from flooded land to find the most effective use of the funds that are available. For some watercourses dredging would be needed year after year and can have very little effect on reducing the impact of a flood. It can also be expensive, time-consuming and not as effective as other flood risk measures. We need to consider long term benefits and costs and manage our watercourses in a sustainable manner</p> <p>Through flood risk management plans, which take the catchment based approach, we aim to maximise the benefits of flood risk management by working more with natural processes and changing the way we use land in order to reduce risk.</p>
2 Increased funding, or a properly administered grant system should be introduced, for sustainable management of watercourses to conserve carrying capacity and enhance the environment.	Working in partnership with land-owners/occupiers and local communities is at the heart of flood risk management. We plan at the catchment scale to help us balance flood management investment. Flood risk management 'grant in aid' will continue to increase at least up to 2021. This money is allocated according to specific outcomes set for us by government. These include the number of properties protected, as well as improving the environment. The programme of work is approved by community representatives on the regional flood and coastal committees.
3 Measures need to be put in	The Pitt review into the 2007 floods concluded that working

<p>place to deal with more frequent extreme weather events. Given current forecasts of future increases in flood frequency and magnitude, we would have expected this to play a more prominent part in the consultation document rather than being alluded to in the background to many of the issues the Environment Agency have identified. The water storage systems seem to be totally inadequate. There is also a wide range of water quality issues associated with flooding.</p>	<p>with natural processes offers a more sustainable way of managing flood risk. We are committed to managing flood risk through working more with natural processes and by taking full account of how land use affects flood risk. Managing flooding locally in the context of wider catchments can help maximise the ability of the natural environment to absorb flood waters, and increase our resilience to climate change induced floods in a sustainable way.</p> <p>We recognise that more work is needed to understand how climate change will affect a number of pressures, including diffuse pollution (we are currently doing research with Defra to better understand the link between diffuse pollution, water quality and climate change). Defra have issued guidance on how climate change and adaptation within the various stages of river basin management planning should be taken account of. The Environment Agency will continue to follow this guidance.</p>
<p>4 The root cause of many of the problems that we see is land management within the catchment. The recent change to allow farmers to dredge rivers without consent sends all the wrong messages about how sediment issues can be resolved and encourages poor land care practice. Huge savings can be made in flood defence and water resource management if coupled with an integrated approach to land management.</p>	<p>The way we manage land in a catchment can have a significant impact on the scale and extent of floods. Our Catchment Flood Management Plans help us to understand the complex relationship between land use and flood risk. We recognise the key role that landowners play in working with us to reduce flood risk by managing and maintaining the watercourses on their land sustainably. The river maintenance pilots are investigating how to engage landowners in discussions about maintenance across the pilot area to allow them to be more involved in decisions. These discussions will consider all aspects of catchment management and we are working to raise awareness of the importance of good soil management within the catchment. We have developed the regulatory position statement "<i>Undertaking desilting work on main river watercourses in pilot locations</i>" to pilot an approach to make it easier to carry out certain low risk de-silting activities, while protecting the environment.</p> <p>The regulatory position statement says that where carefully defined criteria are met, we will not normally take enforcement action where flood defence consent for de-silting on main river watercourses has not been obtained. Land owners participating in this one year trial must also follow the accompanying environmental good practice guidance.</p>
<p>5 There are a number of competing social, environmental and economic issues relating to water management which must be given careful consideration. There is a need to protect our communities, property and infrastructure from flooding, but also to consider biodiversity, conservation and recreation. We feel that it is possible to balance these potentially competing priorities through more effective partnership</p>	<p>We take a catchment scale approach to planning and work closely with communities, conservation groups, water companies and land-owners/occupiers to help us to balance often competing demands. We are making investments in partnership with communities to secure flood risk management solutions that reduce risk to people and infrastructure, contribute to economic development, whilst at the same time helping to improve the environment.</p> <p>We will take a more integrated approach to our work in catchments and we will engage early with Strategic Spatial Planning and Local Enterprise Partnerships to help enable</p>

<p>working at a local and regional level.</p>	<p>sustainable growth and avoid delays to development.</p>
<p>6 There is a lack of coordinated action between the different elements that undermines the delivery of practical sustainable management for England's Waters. For example, no clear links or working mechanisms are currently in place with and between flood risk management plans, river basin management plans, river restoration plans and more local strategies.</p>	<p>FCRM and WFD planning timescales are aligned and actions will be integrated where possible. One way we will achieve this is by having integrated environment programmes at an area level, which look for opportunities to achieve appropriate management of flood risk at the same time as other benefits such as diffuse pollution control.</p>
<p>7 The relationship between flood risk and water level management (which is affected by water abstraction) requires deeper acknowledgement.</p> <p>We suggest that cohesive planning approaches from local authorities as lead local flood authorities and most likely local planning authorities as they work with any remaining county councils and the strategic planning teams of the Environment Agency or Natural Resources Wales. The other parties that affect water management such as the local highway authorities and inland drainage boards also recognise these overarching principles and are able to adopt them in their work and management of water.</p>	<p>We agree that having a good understanding of a catchment can help mitigate impacts from water resource pressures and make rivers and other water bodies more resilient to low and high flows.</p> <p>In preparing Flood Risk Management Plans we will consider flood and coastal erosion risk across the River Basin District and set out how we, as individual organisations and partner Risk Management Authorities, can work with communities and others to manage flood risk from rivers (main rivers and ordinary watercourses), the sea, reservoirs, surface water and groundwater. The proposals within the FRMP are set out to share with others so that they too can contribute to reducing risk, and help shape a more sustainable future for communities, businesses and the environment.</p> <p>We will also set out how proposed measures can contribute to improving the environment, in particular support the objectives of the River Basin Management Plans being developed in parallel with this FRMP.</p>
<p>8 We strongly hope to see the Flood and Water Management Act(F&amp;WMA) recommendations to be implemented in full and the creation of SuDS Approval Boards (SABs) to be enacted in the near future.</p>	<p>We agree with the consultation response. We are waiting for implementation of schedule 3 of the F&amp;WMA and would like this to happen as soon as possible.</p> <p>No announcement about a SAB implementation date has been made, however, Dan Rogerson MP has committed to more on this before the end of April 2014; an implementation date will be announced at this time.</p>
<p>9 The impacts of WFD related action on flooding of agricultural land needs to be adequately evaluated and accounted for in the RBMP process. Flooding is a significant water management issue for farmers, and putting a price on the agricultural impact is challenging. We are concerned that attempting to move waterbodies to a more "natural" state through the WFD process, for example, by</p>	<p>The WFD allows us to designate water bodies as being heavily modified where the reason for the modification is still justified. A water body may continue to be modified in order to manage flood risk. Where a water body is designated as being heavily modified, then the management object is to achieve good ecological potential. That means we are not trying to return the water body to near natural conditions – rather to achieve the best condition we can whilst still achieving the justified use of the water body (for example for flood risk management).</p>

removing structures and creating meanders, or simply reducing or ceasing maintenance operations, will create further risk of flooding to rural land. Protecting agricultural land use needs to be seen as an appropriate justification for retaining control structures, similar to protecting other land uses.

Climate change	
Key points from responses	Our action / response
1 The consultation fails to adequately comment on the severity of the impact of climate change	<p>We will set out our current thinking on climate change, for consultation, within the updated.BMPs.</p> <p>Climate change is incorporated into the benefits assessment, considering the contribution the water environment makes to climate regulation and resilience, Increase in green house gas emissions, change to carbon sinks and the resilience of the water environment to climate change, will all be considered.</p>
2 The Environment Agency needs to consider climate change fully in relation to water resources and flow management.	<p>We are working towards a reform of the abstraction regime that will be sufficient to manage climate change impacts. We are also learning lessons from extreme weather events and helping customers adapt, for example. formalising flexibility that we give abstractors during drought. We are working with Defra to help ensure that high flow storage reservoirs for farmers are supported through the Common Agricultural Policy. Further information is included within our revised <a href="http://www.environment-agency.gov.uk/research/planning/135501.aspx">Case for Change</a> (www.environment-agency.gov.uk/research/planning/135501.aspx), published in December 2013.</p> <p>The Case for Change sets out a range of projected future demands for water, and maps these onto a range of potential future flows and different levels of environmental protection, to show the range of future pressure that we have to consider in planning the management of water resources.</p>
3 The link needs to be made to the potential carbon implications of introducing additional treatment to reduce chemical, faecal or nutrient inputs, and impacts on climate change. Getting this balance right will be a major challenge for the second cycle RBMPs.	<p>We have carried out research into the likely impacts of achieving WFD good ecological status on carbon emissions. We are carrying out trials (for example. with Severn Trent Water on variable permits) to understand if we can achieve the same environmental outcomes through lower carbon methods of wastewater treatment. We will work with water companies to extend this approach if possible. We do need to take a clearer line on our approach to the balance between water quality improvements and carbon emissions.</p>
4 Climate change is a significant issue and needs to be taken into consideration, particularly in relation to flood risk and	<p>We have provided training through our 'Climate Ready' support service for local nature partnerships and nature improvement areas, and are working to ensure that other strategic partners and key funding mechanisms including</p>

<p>providing an approach that is joined up with other initiatives.</p>	<p>local enterprise partnerships and programmes under the the Common Agricultural Policy recognise the need to respond to changing rainfall patterns and sea-level rise. We will mention some of the broader work we are doing under our climate ready service in the updated RBMP.</p>
<p>5 Climate change is likely to have a significant impact on many of the parameters and needs to be fully considered. The Environment Agency is inconsistent in their approach between different river basin districts. They are not joined up with other policy areas in regard to climate change, and the agricultural sector is suffering from weather variability, and would prefer a flexible (non-regulatory) approach to deal with future climate change pressures</p>	<p>We will present our view on how we are taking account of climate change in our updated RBMPs. We recognise that more is needed to understand how climate change will impact pressures such as diffuse pollution (and are currently doing research with Defra to better understand the link between diffuse pollution and water quality and climate change).</p>

## Development, growth & green infrastructure

Key points from responses	Our action / response
<p>1 New development and industry: The effect of this on the water environment will require consistent monitoring and mitigation. We see the need to balance potentially competing priorities for England's Waters effectively as the main overarching issue currently facing them.</p> <p>A catchment based approach is needed to integrate and balance a range of local priorities effectively, including economic development, community engagement, navigation, recreation, water quality, flood risk management, the natural environment and the historic environment. A more consistent national approach is required.</p>	<p>We continue to work with local authorities to advise on their strategic development plans, for example encouraging them to require good standards of water efficiency in areas where there are demand pressures.</p> <p>We have contributed to the Housing Standards consultation (2013) by the Department for Communities and Local Government (DCLG) on water efficiency standards for new build homes. We are committed to the new catchment based approach of working. We have appointed catchment co-ordinators for most of the 87 operational catchments. The catchment-based approach will provide a clear understanding of the issues in the catchment. It will involve local communities in decision-making by sharing evidence, listening to their ideas, and working out priorities. Local issues will be addressed in a cost effective way and protect local resources.</p> <p>We will take a more integrated approach to our work in catchments and we will continue to engage with local authorities, developers and local enterprise partnerships to help enable sustainable growth and avoid delays to development. Our <a href="http://www.environment-agency.gov.uk/research/planning/138225.aspx">Improvement Plan</a> (www.environment-agency.gov.uk/research/planning/138225.aspx) sets out how we are doing this.</p> <p><a href="http://riverwiki.restorerivers.eu/wiki/index.php?title=Case_study%3AMayesbrook_Climate_Change_Park_restoration_project">Mayesbrook</a> (http://riverwiki.restorerivers.eu/wiki/index.php?title=Case_study%3AMayesbrook_Climate_Change_Park_restoration_project) in Barking, east London is an example where the Environment Agency has worked alongside partners to transform a rundown 45 hectare park into a showcase of</p>

	<p>how public green space can help a community to cope with the risks from climate change; such as increased flooding, as well as providing improved wildlife and recreational value.</p> <p>The Beam Project in London involved turning a 53 hectare functional flood prevention area into an innovative multi-award-winning space that provides significant community benefits and is helping regenerate a deprived area. Other benefits of partnership included sustainable management supported by an endowment invested to provide income in perpetuity. Opportunities for sustainable travel, at least three new gateways and an estimated 8km of pathways, of which 4km will be suitable for cyclists, have been created. More information is available on <a href="http://www.thelandtrust.org.uk/business/sites.html?SID=beamparklands">Land Trust's website</a> (www.thelandtrust.org.uk/business/sites.html?SID=beamparklands).</p>
<p>2 The need to produce enough food for a growing population represents a significant challenge of both national and global importance. There is a major opportunity for the UK food chain to respond to domestic and wider EU/world population growth, but with increased market there also comes increased need to manage our farming systems more carefully and we know that production increase cannot come at cost to the environment, especially water quality.</p> <p>There are also wider impacts of population growth that need to be considered for example more houses in lowland England exerting pressures on infrastructure and demands on the environment, increased pollution pressure and increased competition for scarce water resources. The demands and impacts of a growing population should therefore be carefully considered through the RBMP process.</p>	<p>The SEA includes a review of plans and programmes that will help to identify longer terms socio-economic trends that could affect the water environment and the plan to improve it, including changes in population.</p> <p>Water companies take account of climate change, population growth and environmental pressures in their plans. Water companies should take a long term view of resilience to ensure they can respond to future uncertainties. The Environment Agency recognises that water is important for agriculture and food security and it has a duty to have regard to the social and economic wellbeing of communities when carrying out its functions. Our CAMS set out where water is available for abstraction but we don't give priority to any particular sector or reserve water for future use.</p> <p>To help farmers reduce their water footprint we are reviewing the content of our Water Efficiency Guidance for the farming sector on our website and updating the information to make it more readily accessible to abstractors and water users, when our website moves to .Gov.uk.</p>
<p>3 It is encouraging to see tree and woodland related measures included in possible actions.</p> <p>We feel insufficient emphasis has been given to the role of green infrastructure in supporting water management. This approach is based on</p>	<p>A catchment based approach should lead to a more coherent solution at a landscape, rather than water body scale. Also, the consideration of the wider effects of any proposed changes helps to ensure that the multiple benefits are considered.</p> <p>We agree that the Forests and Water Guidelines provide a good basis for managing forests in a way that protects the water environment, including the risks from nutrient</p>



<p>tackling the issues at source through understanding the drivers for land use and influencing these, rather than addressing the problem once it has arisen. We strongly believe that targeted tree/woodland related interventions should be promoted through cross compliance measure under the CAP and through both agri-environment support and forestry grant schemes. We would also like to see the Defra agencies working more closely together on this agenda (especially the Forestry Commission (FC) and Environment Agency). We would like to see trees and woodland incorporated in Environment Agency staff's recommendations to farmers in areas where they are likely to contribute.</p>	<p>enrichment. We support tackling diffuse pollution through targeted woodland creation. We support the continued use of the UK Forestry Standard to guide decision-making within the forestry sector, and to implement the Government's recent 'Forestry and Woodlands Policy Statement' to support the delivery of the aims and objective of the WFD. We work closely with the Forestry Commission on these issues.</p>
<p>4. We feel insufficient emphasis has been given to the role of green infrastructure in supporting water management - for example more efficient use of water by crops through improved crop shelter</p>	<p>See our website pages on <a href="http://www.environment-agency.gov.uk/research/library/publications/40731.aspx">water efficiency and we manage water resources</a> (www.environment-agency.gov.uk/research/library/publications/40731.aspx) for examples of managing use of water. We work with spray irrigators, so that the irrigators can develop the most effective regime.</p> <p>Also see '<a href="http://www.environment-agency.gov.uk/research/planning/147852.aspx">Building a better environment</a>: our role in development and how we can help' (www.environment-agency.gov.uk/research/planning/147852.aspx), a joint Environment Agency, Natural England and Forestry Commission publication.</p>

Litter	
Key points from responses	Our action / response
<p>1 Physical contamination such as litter causes problems for water and wildlife. Issues such as litter not only look unsightly, but lead to a poor impression of the water environment and can damage habitats and wildlife (for example disposal of sanitary products and baby wipes). A national campaign to address this widespread issue would be welcomed.</p> <p>The physical management of watercourses (maintenance and</p>	<p>Litter isn't strictly our remit, but falls under local authorities.</p> <p>We carry out national and local activities, increasingly in collaboration with others in the public, private and voluntary sector, to help raise awareness of the water environment and how people can be involved. Our valuing water campaign aims to help people increase their connection with the local water environment. As the value of nature and water is better understood and people appreciate their role in preserving it, evidence suggests they are more willing to become involved in making decisions about the future of water and its protection.</p> <p>Examples of projects concerning litter are the <a href="http://www.water.org.uk/home/resources-and-">FOG</a> (Fats, oils and grease) (www.water.org.uk/home/resources-and-</p>

<p>litter clearing) is an issue in society that can fall between organisations- for example local authorities, highways authorities, the Environment Agency, drainage boards and the general public. This issue is exacerbated in times of economic uncertainty as now and can lead to a poor perception of the water environment.</p>	<p>links/snap/snap) and <a href="#">Mis-connections</a> (<a href="http://www.connectright.org.uk/">www.connectright.org.uk/</a>) campaigns where we work with the water companies.</p> <p>We will be attending the Marine Conservation Society's Marine Litter summit next year.</p>
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Mines	
Key points from responses	Our action / response
<p>1. Agree that chemicals are the biggest issue resulting from mining and quarrying sector. However new remediation schemes are only progressed if they have a favourable benefit to cost ratio, and there is a concern that ever tightening EQS values could cause potential improvement schemes to fail the cost v benefits assessment, or become technically infeasible, and prevent their implementation.</p>	<p>Benefits assessments are currently entirely focussed on biology or visual impact. WFD Article 1(c) requires “progressive reduction of discharges, emissions and losses of priority substances, and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances”.</p>
<p>2. The Coal Authority (CA) has already remediated many of the worst discharges from abandoned coal mines, however work continues on the rolling programme on a prioritised basis. Continuation of the programmes of remediation for both coal and metal mine waters should be supported. Both are funded by central government departments and continuation of funding is not certain in the next WFD cycle.</p>	<p>We are working in partnership with the Coal Authority (CA) and Defra to develop and deliver a joint programme for abandoned metal mines. There are around 280 water bodies (3000 km) thought to be impacted by mines.</p> <p>Remediation of abandoned coal mines is funded by Department of Energy &amp; Climate Change (DECC). The Environment Agency has prioritised discharges for remediation.</p>
<p>3. In relation to the significant issue of abstraction and flow; it is worth highlighting that abandoned mines and quarries can provide potential for providing compensatory flow, for example. in drought periods. There remains significant opportunity to pump from mines on a seasonal basis to alleviate low flows in rivers.</p>	<p>Refer to <a href="#">Abstraction and flow</a> section – point 11</p>

## Private drinking water supplies

Key points from responses	Our action / response
<p>1 Private drinking water supplies have hitherto been largely ignored in river basin management planning processes, but the number of large supplies (6,000 in England) suggests that many more protected areas and safeguard zones may be needed. In looking ahead to the next RBMPs, the SWMIs should have flagged up this significant issue and confirmed where responsibility for delivering compliance will rest.</p>	<p>We are working with other regulators to identify the most appropriate way to include private supplies in the second river basin planning cycle, and the resources to do that.</p> <p>The day-to-day responsibility for delivering compliance at tap for private supplies, lies with local authorities under the Private Water Supply Regulations 2009 and Private Water Supplies (Wales) Regulations 2010.</p>
<p>2. There are concerns that the risks of radon affecting groundwater and drinking waters, has not been considered in the consultation.</p> <p>A potential challenge facing groundwater in areas designated as Radon Affected is potential health risk (radiological dose) from private water supplies (drinking). There is no reference to risk from naturally occurring radionuclides, like Radon and its breakdown products. Therefore, should the Environment Agency's groundwater baseline monitoring include gross alpha and beta as a screening tool to help assess this risk?</p>	<p>The Environment Agency undertakes radiological monitoring of sources of public drinking water as part of the monitoring required under the Euratom treaty. We sample a mixture of rivers, reservoirs and groundwater. The results are published annually in the <a href="#">Radioactivity in Food and the Environment series of reports</a> (<a href="http://www.environment-agency.gov.uk/business/sectors/110281.aspx">www.environment-agency.gov.uk/business/sectors/110281.aspx</a>), which can be found on our website.</p> <p>These sites sampled were selected in the past to be representative of catchment areas supplying large populations. These include groundwater and rivers. Monitoring includes screening of total alpha and total beta radioactivity and looks at gamma emitting radionuclides, though we would only routinely report the presence of artificial radionuclides if picked up in the gamma analysis, not naturally occurring radionuclides.</p> <p>For public supplies, water companies will also undertake screening of drinking water for total alpha and total beta activity, and their processes would also reduce concentrations reaching the tap. Private supplies are the responsibility of the local authority.</p> <p>Public Health England (previously Health Protection Agency and before that National Radiological Protection Board) carry out work on radon. Also the Committee on Medical Aspects of Radiation in the Environment (COMARE) did a report referring to work looking at radon and other naturally occurring radionuclides in private supplies.</p>

## Public awareness

### Key points from responses

### Our action / response

1. There is poor public awareness and understanding of water issues, and a lack of appreciation of the benefits that the water environment provides. The value of river corridors and other water bodies is not recognised for the contribution they make to health and well-being issues across society.

2. The awareness of the public in general, and of key decision makers and sectors (such as agriculture and land owners) about the state of our water environment and the impact that their actions are having upon it, needs to be improved.

3. A national advertisement campaign regarding what the public can do to influence water quality and water resources and to take a greater pride in the riverine environment could be used. A national campaign to address specific issues, for example litter. Increased public access to river corridors for local transportation, health and recreation benefits should be actively promoted.

Our work on valuing water aims to help people understand their connection with their local water environment better. As the relevance of nature and water issues are better understood, - what people enjoy, value and wish to protect about their water environment -, evidence suggests they are more willing to become involved in making decisions about protecting water. We want to ensure that the public have a straightforward and compelling story from us, which integrates our work on water. Our aim is to encourage positive debate on the value of the water environment among people and businesses, so that groups and individuals are motivated to take action. We are using key milestones within our existing projects and the broader water debate, to provide timely and engaging hooks for our communications.

We carry out national and local activities, increasingly in collaboration with others in the public, private and voluntary sector, to help raise awareness of the water environment and how people can be involved. As part of our communications and engagement activity, we are looking at how we can work with other organisations and groups to use existing networks and communications channels to increase public awareness and deliver projects that improve the quality of our water. We support initiatives such as Midlands Urban River Challenge Initiative (MURCI) to encourage behaviour change.

We have been identifying and contacting new groups to work with and using a variety of methods to engage with more people - for example, social media such as Twitter and Facebook.

- In the South East and Thames RBDs, we are using social media in order to engage beyond those we have traditionally worked with. Each month is themed to coincide with seasonal events, such as the bathing waters during the school holidays and agricultural issues during harvest.

To help prepare for the Challenges and choices consultation, we held a series of workshops with many different sectors between December 2012 and March 2013. In total over 250 stakeholders from a range of organisations attended the workshops.

[For more information, read our information sheet about the workshops](http://cdn.environment-agency.gov.uk/LIT_8352_90d0cc.pdf) ([http://cdn.environment-agency.gov.uk/LIT\\_8352\\_90d0cc.pdf](http://cdn.environment-agency.gov.uk/LIT_8352_90d0cc.pdf)). [You can also read the resulting reports on our website.](#)

These workshops helped shape our consultation and also identified the need for further engagement. Such engagement has included:

- A follow-up workshop on food and phosphorus (early 2013)
- Workshops on abstraction (July 2013)

	<p>We also carry out engagement at a local level. For example, we have held local events; such as a city-centre open day:</p> <ul style="list-style-type: none"> <li>• In the South West RBD we were asked to engage more with users of estuarine and coastal waters. As a result we ran a workshop in September 2013 to bring interested parties together.</li> <li>• A joint breakfast seminar in the Midlands with the British Land Reclamation Society to discuss land and water issues attracted nearly 40 delegates from the private sector, local authorities and the Canal and Rivers Trust.</li> </ul> <p>Working in collaboration nationally:</p> <ul style="list-style-type: none"> <li>• Catchment sensitive farming</li> <li>• Misconnections campaigns</li> <li>• GreenBlue work to reduce pollution from boating</li> <li>• Bathing waters 'Turning Tides' partnership in the north West - messages on local communities and health</li> </ul>
<p>4. Initiatives to raise awareness of the value of the water environment with local communities are needed.</p>	<p>Defra (Department for Environment, Food and Rural Affairs) is promoting a catchment based approach for managing land and water. This approach aims to tackle environmental problems at a local level using stakeholder engagement and a co-ordinated approach. We are active members of catchment partnerships.</p> <p>Work so far on this has demonstrated that working collaboratively in this way brings about many benefits, including stronger relationships with partners.</p> <p>We are exploring how to make better use of online tools in the future, to provide information at different levels of detail and scales. This will encourage feedback and engagement.</p> <p>The next consultation, on the update to the river basin management plans, starting in September 2014, will have information at several levels including local areas, to provide local information and promote engagement.</p>

### WFD / river basin management planning process

Key points from responses	Our action / response
<p>1 There is concern about the lack of reference to upland waters and to the damage they continue to experience from air pollution amongst other pressures.</p> <p>Many upland lakes and streams are in poor ecological condition, reflecting almost two centuries of acidification and, in some areas, substantial degradation of catchment soils.</p>	<p>Yes, there is some evidence to suggest this. We are taking on board any practical suggestions on how they can be better managed.</p> <p>This might be one of the issues, the catchment partnership groups may wish to consider.</p>

<p>The reports on the website suggest low awareness of their current status and the emerging threats they face and their overall importance. For instance, CEH has calculated that over 75% of all English river length is located in headwater catchments with areas &lt; 10 km<sup>2</sup>, and that small streams and other water bodies are disproportionately important in terms of their contribution to overall biodiversity, particularly of rare species.</p>	
<p>2. There is a lack of information in the documents on groundwater</p>	<p>The consultation was focused on significant pressures and reference may have been made where relevant. There will be greater focus on groundwater within the update to the river basin management plans where appropriate.</p>
<p>3. Where are wetlands and lakes?</p>	<p>The consultation was focused on significant issues and pressures and reference may have been made where relevant. The supporting information gave more detail on significant issues affecting different water body types.</p> <p>There will be greater focus on wetlands and lakes within the update to the river basin management plans where appropriate.</p>
<p>4. Coastal waters and estuaries are another area where urgent effort is needed. Improvements to these water bodies are lagging behind those for freshwaters, and less effort seems to be put into protecting and restoring coastal habitats.</p>	<p>Yes this is recognised and a sub group of the National Liaison Panel for England has recently been established to look at this issue.</p>
<p>5. There should be a greater focus on trying to improve the worst quality rivers rather than trying to improve already healthy rivers.</p> <p>Incremental improvement rather than going for good</p>	<p>The catchment-based approach we are taking allows us to identify the most cost-beneficial improvements we can make to rivers, lakes, and other waters within each operational catchment.</p> <p>This means we look at a range of measures that will improve water bodies <i>towards</i> good status, including the 'incremental' steps; for example improving water bodies from bad to poor or poor to moderate status.</p>
<p>6 We are concerned that the consultation interprets the aim of the Water Framework Directive as achieving "good" status or potential, whereas the WFD allows Member States the choice of setting less stringent environmental objectives for specific water bodies where certain conditions are met.</p> <p>A key part of addressing significant water management issues will be to ensure that,</p>	<p>Achieving good status is the default objective as set out in the Water Framework Directive. The technical document on <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8354_dffa61.pdf">setting objectives</a> (http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8354_dffa61.pdf) gives information on how we will be following a 'benefits led' approach and exploring the evidence to propose alternative objectives.</p>

<p>where relevant, due regard is given to this provision. There may already be strong evidence of technical infeasibility or disproportionate cost associated with achieving 'good' status for a given water body.</p>	
<p>6. More clarity is needed on economics and funding of second cycle</p> <p>Public willingness to pay needs to be taken into account</p> <p>It is stated that the approach will be to focus effort on marginal or potentially high cost decisions. We would suggest that the focus should be on those decisions that lead to the best cost - benefit ratio as these are likely to be the easiest / most affordable to deliver and drive the most gain / benefit.</p> <p>The paper on options appraisal does not seem to deal with national scale issues.</p>	<p>The cost-benefit appraisal process will allow us to identify which measures have the highest net benefits to society, which is one of the factors for consideration in deciding which measures should be implemented first.</p> <p>National issues such as measures to address hazardous chemicals will be incorporated into the programmes of measures at the river basin district scale.</p> <p>We agree it is critical that measures included in RBMPs to protect and improve the quality of England's waters, are cost beneficial. We have greater certainty over costs and benefits of some types of measure than others. Exact costs and benefits will vary according to local circumstances and we will use the best information we have available to ensure the measures selected to go into draft plans are cost beneficial. In doing so we are also keen to ensure we take full account of the wider socio-economic benefits of measures to improve our waters and because this is a developing area of evidence, we will be especially keen to receive feedback when the draft plans are published. While we can ensure that measures in draft plans are intrinsically cost beneficial, the ultimate decision on whether plans are affordable is one for government.</p> <p>The following technical summaries explain how the Environment Agency is taking willingness to pay information into account in the catchment scale economic appraisal work, these provide an <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8356_f7aa48.pdf">overview of the approach</a> (<a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8356_f7aa48.pdf">http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8356_f7aa48.pdf</a>) and <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8348_42b259.pdf">information on benefits</a> (<a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8348_42b259.pdf">http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8348_42b259.pdf</a>)</p> <p>For national scale issues, the same approach is being used to assess the costs and benefits, for example the development of the national measures to address priority hazardous substances</p>
<p>7 The downstream beneficiary should pay contributions to the costs of measures advocated</p>	<p>We agree that beneficiary pays options may well be more cost-effective and so should be sought for measures that are needed to achieve improvements over and above meeting the regulatory standards. Costs of measures to meet the current regulatory standards should be borne by the polluting sector.</p>
<p>8 The definition of 'disproportionate cost' employed is of concern. The principle that</p>	<p>Ministers will decide whether measures are disproportionately costly or not. They will consider the balance of costs and benefits, together with other factors</p>

<p>costs must not outweigh benefits means that on balance overall, the action must have no net cost.</p> <p>Even if a measure is deemed cost-beneficial it may still struggle to ensure its place in RBMPs if ministers consider it to be unaffordable. It is currently unclear as how to decisions relating to affordability will be made, especially considering the complication that costs and benefits may be borne by different parties, and over differing timescales.</p>	<p>such as which sectors or parts of society are impacted by costs and benefits and whether costs are affordable. Together with Defra, we will present Ministers with evidence and analysis to inform their decisions. In consulting on draft RBMPs, we will set out the broad implications of different scenarios about the scale of measures that might be affordable and will invite your views.</p>
<p>9. Cost effectiveness is critical to assessing options, and we believe that often the most cost-effective solution does not adhere to the polluter pays principle, which needs to be acknowledged in planning for the 'possible further options in the future' presented.</p>	<p>We agree. Often the most cost-effective solution under WFD will not adhere to the 'polluter pays' principle and this needs to be acknowledged in planning for the 'possible further options in the future' presented.</p> <p>This response should feed into the consideration of measures, including how they are targeted across sectors.</p>
<p>10. Un-monetised benefits need to be taken into account in the selection of measures chosen to improve water bodies. Improvements to water bodies should not be ruled out simply because short term monetised costs appear to exceed benefits. Local differences also need to be fully taken into account in the selection of appropriate improvement measures.</p> <p>Compromises may need to be made to balance the distribution of benefits. In general there are far greater economic, social and environmental returns to be gained from solutions which seek to strike a balance and it is these options that should be pursued most vigorously.</p>	<p>We agree and have designed the approach to catchment appraisals such that the un-monetised benefits of packages of measures are captured in a standardised, transparent and consistent way in the appraisal summary table.</p> <p>The catchment-based approach is designed to ensure that local differences are fully taken into account in the selection of measures, assessment of costs, environmental outcomes and monetary benefits. Distributional impacts, in other words what parts of society benefit from or pay for the measures, is part of the decision that ministers will make in approving or rejecting the updated river basin management plans for the period 2015-2021.</p> <p>You can see how we are approaching the <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8356_f7aa48.pdf">assessment of costs and benefits</a> (<a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8356_f7aa48.pdf">http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8356_f7aa48.pdf</a>) for the second cycle. Un-monetised benefits will be taken into account.</p> <p>The update to the river basin management plan consultation will ask wider questions about how to prioritise improvements.</p>
<p>11. All possible sources need to be thoroughly considered in assessments.</p> <p>More should be done to develop measures for all sectors. For example, in the Challenges and</p>	<p>We are using the data we have to ensure that action taken to reduce pollution is done in the most effective way. The Environment Agency will ensure this is addressed in RBMPs.</p> <p>Operational teams will use reasons for failure data to determine any local measures which may be applicable for</p>



<p>choices document, table 1 highlights that the urban transport and industry sectors together are responsible for just under 20% of the phosphorus and ammonia pollution that is contributing towards the failure of water bodies to meet good condition. However, we could see no measures proposed for either investigating pollution from these sources or implementing action to reduce pollution from these sources.</p>	<p>industry etc.</p>
<p>12. It is essential that the targets set for metals EQSs are realistic, achievable, and not over conservative.</p> <p>The dynamics of the receiving environment, the variances caused by natural events need to be fully understood, together with reasonably accurate modelling capability in order to understand cause and effect in the targets set.</p> <p>Further work and monitoring information is necessary to have greater certainty in developing WFD compliance objectives and actions.</p>	<p>These complexities are recognised and are being taken into account by UKTAG when (following external consultation) they recommended revised EQSs for metals.</p> <p>Additional monitoring is being carried out to improve the understanding of the scale of impact and identify appropriate management options.</p>
<p>13. Improved partnership working is needed to lead to environmental improvements.</p> <p>Effective partnership working at a local and regional level, through existing strategic, operational and project specific partnership groups is needed.</p>	<p>We carry out national and local activities, increasingly in collaboration with others in the public, private and voluntary sector, to help raise awareness of the water environment and how people can be involved. As part of our communications and engagement activity we are looking at how we can work with other organisations and groups to use existing networks and communications channels to increase public awareness and deliver projects that improve the quality of our water.</p> <p>Defra (Department for Environment, Food and Rural Affairs) is promoting a catchment based approach for managing land and water. Work so far on this has demonstrated that working collaboratively in this way brings about many benefits, including stronger relationships with partners.</p>
<p>14. Plans need to be geared to individual rivers and be integrated with other plans.</p> <p>The establishment of the catchment based approach to river basin management planning is welcomed.</p> <p>A major challenge for effective river basin management is how</p>	<p>Defra's promotion of a catchment based approach for managing land and water aims to tackle environmental problems at a local level using stakeholder engagement and a co-ordinated approach. We are active members of catchment partnerships. You can read about our catchment-based approach on our website. This approach enables better consideration of local priorities.</p> <p>Focusing at this level means it is easier to integrate regulation, delivery, and collaborative working across water, land, biodiversity, flood risk and other key sectors.</p>

<p>to best integrate the various complexities of the biophysical environment with appropriate social, economic and cultural frameworks.</p> <p>Currently there is a lack of coordinated action between different elements that undermines the delivery of sustainable management for England's Waters. For example, no clear links or working mechanisms are currently in place with and between flood risk management plans, river basin management plans, river restoration plans and more local strategies.</p>	<p>In June 2013, Defra, Welsh Government, the Environment Agency and Natural Resources Wales agreed the approach to developing flood risk management plans (FRMPs). This approach consolidates information for all sources of flood risk in one place, co-ordinated in each catchment. It also sets out our intention to align the consultations on draft FRMPs and the update to river basin management plans. Together with Defra we have prepared guidance that reinforces this approach. You can see an overview of the <a href="http://www.environment-agency.gov.uk/research/planning/135520.aspx">approach to flood risk management planning</a> (www.environment-agency.gov.uk/research/planning/135520.aspx) on our website.</p>
<p>15. The national document greatly underestimates the importance of delivering objectives for protected areas, particularly Natura 2000 (N2K) sites.</p> <p>Because of their inclusion under WFD as protected areas, dealing effectively with these pressures for Natura 2000 sites must remain a key priority.</p>	<p>The importance of N2K protected areas is fully recognised. Impacts of abstraction on all habitat types including standing waters, wetlands and groundwater dependant ecosystems are considered as part of the RBMP classification assessments.</p> <p>We welcome the engagement with Natural England over alignment of protected area (Natura 2000/N2K) objectives and WFD objectives. Further discussions are ongoing with Natural England over how best to represent the requirements of non-N2K SSSI within the plans including the approach to cost benefit assessment.</p> <p>For water resources, the agreed actions for non-N2K SSSI are incorporated within our RSA programme, which will ensure the delivery of agreed outcomes within planned timescales. The alignment of N2K Protected Area objectives with WFD objectives in the next RBMP will enable greater clarity around what needs to be delivered at a site and the timescale over which this can be achieved. We are working to ensure that solutions are delivered as soon as reasonably practicable.</p> <p>The national Challenge and choices consultation document includes a short <a href="http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8353_dd69b9.pdf">technical note on protected area requirements</a> (http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_8353_dd69b9.pdf)</p>
<p>16. Throughout the WFD process is the need for robust data to enable the development of informed, science-led policy.</p>	<p>Yes, we agree.</p>
<p>17. The measures and mechanisms mentioned in this consultation tend to focus on smaller, less aspirational opportunities. More effective, larger-scale measures are available.</p>	<p>We feel that the consultation had a balance of both national and local scale measures.</p> <p>We would be interested to know what these larger scales measures are and how they can be implemented.</p>

<p>18. Comments on structure and format of the consultation documents</p>	<p>We will be using these comments to inform the development of the update to the river basin management plans</p>
<p>19. There is a lack of protection of species on river stretches, namely water vole and white clawed crayfish.</p>	<p>The level of protection afforded to individual species, riverine or otherwise, is recommended by the <a href="http://jncc.defra.gov.uk/page-1747">Joint Nature Conservation Committee</a> (<a href="http://jncc.defra.gov.uk/page-1747">http://jncc.defra.gov.uk/page-1747</a>) and then implemented through domestic legislation.</p> <p>The regulation of activities which may impact upon protected species is done by Natural England, who issue <a href="http://www.naturalengland.org.uk/ourwork/regulation/wildlife/default.aspx">licences for certain activities and species</a> (<a href="http://www.naturalengland.org.uk/ourwork/regulation/wildlife/default.aspx">http://www.naturalengland.org.uk/ourwork/regulation/wildlife/default.aspx</a>).</p> <p>Water voles and their resting places are fully protected in England (Schedule 5 Wildlife and Countryside Act as amended). It is an offence to deliberately capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It is an offence to disturb them in their breeding or resting places.</p> <p>White clawed crayfish are protected from taking and selling only (Schedule 5 Wildlife and Countryside Act - taking s9(1) and selling s9(5)). In addition, white clawed crayfish are afforded protection through the designation of Special Areas of Conservation under the Habitats Regulations.</p> <p>The Crown Prosecution Service are responsible for bringing offenders to court for offences under the Wildlife and Countryside Act.</p> <p>The Environment Agency has internal policies that state:</p> <ul style="list-style-type: none"> <li>▪ We have to consider the potential impacts of any proposal that we authorise on protected species. All new permits, consents, licences, authorisations and regulated activities that we are responsible for issuing are screened using the best available information for their potential impact on known species of nature conservation interest (including water vole and white clawed crayfish).</li> <li>▪ Where we anticipate damage to wildlife might occur, we take steps to prevent any significant adverse impacts.</li> <li>▪ If protected species are present in an area where we are carrying out our own work, work is stopped and advice is sought immediately from our Biodiversity staff.</li> </ul> <p>The Environment Agency screens applications from third parties to ensure that we do not authorise actions that would damage protected species or their habitat. While we can give advice, we are not the main authority for licensing activities affecting protected species. Any offence rests with the persons who cause any damage.</p>
<p>20. There is a need for better and more easily available evidence</p>	<p>Listening to our stakeholders, we are now making a big effort to provide information at catchment level. There will be catchment summaries and a catchment data explorer tool provided as part of the updated river basin management plans.</p>

	<p>New/improved IT systems include:</p> <ul style="list-style-type: none"> <li>• Linked Data project – will allow stakeholders to take and use data via linked data database</li> <li>• Catchment Data Explorer – will enable stakeholders to see locally relevant data as part of the RBMPs consultation</li> <li>• DataShare – we will use this to host data</li> </ul> <p>Changes in practice, however, mean we will look more to our partners to host information (particularly good practice and some guidance)</p>
<p>21. The potential for marine pollution from shipping - The Local Government Association Coastal Special Interest Group is coordinating a declaration of intent known as the Cross Channel Declaration on Shipping Incidents and Marine Pollution. The purpose of the declaration is to strengthen cooperation between French and English local authorities promoting a coordinated approach to safeguarding our communities, coasts and seas from the threat of maritime pollution. Support for the declaration from the Environment Agency and other relevant authorities would promote the declaration and its status.</p>	<p>This sounds like a good initiative and we will look for more information on the declaration, so that we can properly assess its content.</p>

## Sectors

Central Government	
Key points from responses	Our action / response
<p>1 The strategy for invasive species needs improving or doesn't exist</p>	<p>We are party to the 'Invasive Species Framework Strategy for Great Britain', 2008 and the associated action plan. Our measures for the Water Framework Directive support, and are supported by, the action plan. We believe that this provides a strategic approach. The strategy is currently the subject of a 5 year review.</p> <p>Defra are leading this review, with the support of the GB non-native species secretariat. The review will examine the continuing relevance of the aims, actions and mechanisms contained in the GB Strategy and whether any modifications or additions are merited. A revised strategy document is expected by summer 2014.</p>
<p>2 Legislation or its application needs improving</p>	<p>There are two current actions that might influence legislation. Firstly, the 'Invasive Species Framework</p>

	<p>Strategy for Great Britain' is currently the subject of a 5 year review. Secondly, a proposed EU Regulation on Invasive Alien Species has recently been published; if this is adopted in due course, it is likely to lead to changes in domestic legislation.</p> <p>A ban on the sale of 5 invasive non-native aquatic plants will come into force in April 2014.</p>
<p>3 A Chief Water Officer would be of use within central government and possibly raise the profile and understanding of water issues much in the same way as the Chief Medical Officer and the Government's Chief Scientific Advisor inputs to national policy and debate in those fields.</p>	<p>We have made Defra aware of this response</p>
<p>4 The Government should act at a national and EU level on issues such as water consumption and agri-environment schemes</p>	<p>We have made Defra aware of this response</p>
<p>5 Hydropower. The government needs to decide where the priorities are with regard to connectivity (WFD objectives) and low head hydro power.</p>	<p>We have consulted separately on a review of our guidance for hydropower developments, initially in July 2011 and again in January 2013. Having considered the responses to those consultations, we have now revised our <a href="#">guidance for run-of-river hydropower development</a> (<a href="http://www.environment-agency.gov.uk/business/topics/water/126575.aspx">www.environment-agency.gov.uk/business/topics/water/126575.aspx</a>) published in January 2014.</p>

## Water Industry

Key points from responses	Our action / response
<p>1 There is a need to recognise the risk of INNS posed by water transfer schemes</p>	<p>We recognise this risk and have raised it when commenting on proposed water transfer schemes. Some water companies are demonstrating good awareness of the issue.</p>
<p>2 Drinking water shortage is the most significant issue, suggestion to build reservoirs as a solution.</p>	<p>Water companies prepare statutory water resources management plans every five years that set out their forecasts of water demand and supply over the next 25 years and how they will balance them through either demand management or increasing supplies.</p> <p>Water efficiency supports the twin-track approach to determine the best way to balance supply and demand for people and the environment. Demand management and water efficiency help to deliver no deterioration. We need to consider costs and risks of different options. Reservoirs are costly and high risk, if future resource is not needed. [Also see point 6 in <a href="#">Abstraction &amp; flow</a>]</p>
<p>3 Greater emphasis should be placed on demand management to achieve a reduction in domestic water consumption,</p>	<p>Government policy is that water companies are best placed to decide their approach to metering, depending on local conditions and the views of their customers</p>

<p>particularly with regard to meters. Targets set for Per capita consumption should reflect the water availability and demand.</p> <p>Raising awareness of the value of water as a resource and in the environment; encouraging water efficiency in the public and private sectors and in industry.</p>	<p>[See also <a href="#">Abstraction and flow</a> section for more details on this]</p>
<p>4 Concerns about the lack of match across the country of water supply with requirement. Often areas of greatest need are areas where water supply is under pressure, especially in dry summers. There needs to be a strategic look coupled with a clear implementation plan.</p> <p>That continuity of supply cannot be taken for granted and should be considered as part of strategic planning decisions.</p> <p>Better storage and distribution networks would help users to mitigate the impacts of drought</p> <p>Support for Abstraction Incentive Mechanism (AIM - to encourage water companies to substitute less damaging abstractions) as an interim measure prior to abstraction reform.</p>	<p>Long-term planning of water resources is achieved through RBMP (environmental needs), WRMP and water company business plans (household and business needs). As part of long-term planning, water companies look at all feasible options to balance supply including transfers of water.</p> <p>The government has committed to taking a strategic overview of water sector (all users) including the need for strategic national infrastructure, and has set out that it expects water companies to consider trading in their plans (water white paper). The Environment Agency is working on a project for Defra to provide information for this strategic overview.</p> <p>Water companies are required to take a long term view of resilience in their WRMP to ensure they can respond to future uncertainties.</p> <p>AIM is an Ofwat- led initiative. We have supported Ofwat in the development of AIM. We provided technical advice to Ofwat and water companies on the list of abstraction licences to be included in AIM.</p> <p>The Environment Agency and Ofwat have required companies to give more consideration to options to increase interconnections in their latest draft WRMPs. The 'Water Resources in the South East' (WRSE) modelling project provides the best available evidence on strategic transfers in the south east. We expect companies in the south east to adopt the outcomes of the WRSE modelling or justify any departure. The Anglian Region companies have started a similar project to identify options.</p>
<p>5 During periods of drought, water levels in reservoirs can become seriously decreased which can lead to restriction or cessation of recreational activity. Support to the identification of water availability as a significant water management issue and to highlight some of the wider and perhaps less understood implications.</p>	<p>Water company drought plans are in place to manage water, including reservoir levels, during a drought. Similarly, Environment Agency plans set out how we will respond to drought, including local and national drought management activities, such as fish rescues; how we will reconcile competing interests; what additional monitoring we will undertake and when we will liaise with water companies on awareness campaigns and determination of drought permits. It is helpful to see this recognition from the recreational water user community that there will be occasions where management of reservoirs for essential public supplies has to take precedence.</p>

	(See also point 1 in <a href="#">Abstraction &amp; flow</a> )
6 Support for water companies to be included further in strategic policy setting. This is so matters of water supply, treatment and discharge can be inclusive in nature rather than as separate commercial operators. This would require countenance and possible change to their statutory undertakings and could be managed by OFWAT.	The water companies undertake a great deal of planning in their current role. For example, 5- yearly business plans which were submitted to Ofwat on 2 December 2013, 25 year Water Resources Management Plans. In addition water companies are involved in multi-stakeholder projects such as Water Cycle Studies. We liaise with the water companies directly, and through Water UK, on many matters of joint interest and strategic planning.
7 There is support for demand management activities and these should be enhanced by raising awareness of the value of water in the environment.  Managing demand - raising awareness of the value of water as a resource and in the environment; encouraging water efficiency in the public and private sectors and in industry	Our national communications team have been running a campaign on the value of water. We will work with external partners to help influence customer behaviour. With the move to .Gov.uk we are examining the guidance, reviewing content and considering updating the information to make it readily accessible to abstractors and water users.  Water companies also have a duty to promote efficient use of water. [See <a href="#">Abstraction and flow</a> section for more detail on this]
8 Need to ensure that all responsible sectors are considered, not just water companies.  Want fair allocation of measures -that is sectors other than water industry to pick up areas of work that they are responsible for.	We are using the data we have to ensure that action taken to reduce pollution is done in the most effective way. The Environment Agency will ensure this is addressed through the RBMPs.  Cost benefit will be considered on a catchment scale. Therefore water industry measures are being considered alongside other measures. Operational teams will use reasons for failure data to determine any local measures, which may be applicable for industry.
9 Need to think about flexible consenting for phosphorus, including seasonal consents, and reactive metal limits for aluminium and iron rather than total metal limits.	We are committed to a flexible approach within water quality planning and setting permit limits, provided water quality outcomes are met. Dischargers are best placed to identify the opportunities where a more flexible approach for improving their assets can contribute to delivering water quality improvements , in the most efficient and cost effective way.  We are also taking forward work on flexible consenting for phosphorus and will communicate with the water industry on this, when we are in a position to do so.
10 Concern that environmental benefits may be outweighed by environmental costs (carbon).	We have a number of initiatives aimed at improving sustainability by developing flexible permitting approaches to achieve water quality objectives while reducing cost energy use and carbon emissions.  While some aspects of the RBMP will include a carbon cost, there are opportunities for significant reductions in carbon emissions through the creation of wetlands, upland restoration, rewetting of peat soils, tree planting and other habitat creation.

<p>11 Stronger controls needed – on water companies, and better follow up on discharge consents/exemptions for private septic tanks and private sewage treatment plants</p>	<p>As part of our better regulation approach to water quality, we're changing the way we regulate businesses and individuals that discharge to water. This means we will concentrate our resources on tackling higher-risk and non-compliant sites, improving discharge quality and reducing the number and severity of pollution incidents over time. To achieve this, we've introduced the following initiatives: We'll use operational risk appraisal to assess the risk posed by discharges to water. It enables us to focus our resource where the risks are greatest, so the water environment benefits.</p> <p>Operator Self Monitoring (OSM) - Under OSM, operators (water companies and other businesses) will monitor their own discharges and report the results to us. We'll use these results to determine how well the operator complies with its consent conditions. By doing their own monitoring, operators will better understand their own discharges and how they might pose a risk to the environment. Giving the operators more control, and an incentive to improve, with the opportunity for lower charges and less administration if they perform well. Our Environmental Permitting Programme (EPP) simplifies the way we licence regulated activities. If a site is non-compliant with permit conditions, we will use our powers to enforce.</p> <p>We are currently working with Defra who are preparing to consult on a revised regulatory framework for small sewage discharges (SSDs) from septic tanks and package treatment plants. As part of the proposals, the current registration system would be replaced with general binding rules but permits would still be required in the most sensitive areas. Any new regulatory framework will be accompanied by relevant communications to tell SSD owners what they need to do to comply and how to maintain their sewage treatment systems, to minimise the risk of pollution.</p>
<p>12 Need to consider customer willingness to pay</p> <p>Increased cost of sewage treatment and impact on water company customers should be identified.</p>	<p>Several responses to the Challenges and choices consultation highlighted the need to consider water and sewerage companies' (WaSc) customer willingness to pay. This is an assessment that is carried out by the WaSc to assess how much their customers are willing to pay to avoid pollution or to improve their environment beyond minimum requirements. Recent examples include willingness to pay for a) not being flooded with sewage, b) high quality bathing waters and c) security of supply of water. This information is taken into account through the periodic review process when Ofwat set prices for 5- year periods. This includes taking decisions on the services customers receive and the future investment companies can carry out. Cost of STW improvements should be recognised as impacting bill payers, not just water industry.</p>

## Recreation and Fisheries

Key points from responses	Our action / response
1 A priority should be to	Bathing waters are designated where large numbers of



maintain high water quality for sea water and fresh water swimming and bathing. More inland freshwater bathing areas should be registered; the water quality is then monitored. England has very few registered inland bathing areas compared with other European countries, and this must change in order to give people safe areas to bathe.

bathers already use a bathing water. We are not funded to actively promote bathing in places where it does not traditionally take place. Waters that are currently used by large numbers of bathers should be designated if they are publically accessible. Designations are approved by DEFRA, often following recommendation from the local authority. You can see [more on designation](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268396/pb14103-bathing-water-designation-guidance.pdf) (www.gov.uk/government/uploads/system/uploads/attachment\_data/file/268396/pb14103-bathing-water-designation-guidance.pdf) on our website.

2 One issue not captured by the consultation is the impact of leisure uses as a pressure itself. This can include activities such as amenity use, boating, angling, and in particular their impacts on wildlife, water quality and other types of recreational use. Impacts may be exacerbated in smaller water bodies and standing waters, and not just at a local scale. It would be useful to analyse and comment on how this specific pressure has been considered and assessed.

Where the extent of recreational use of the water environment is having an adverse effect, this will likely be seen in the condition of other uses/services of the water environment. For example, there might be erosion problems, a lack of geomorphological diversity or riparian habitat. These are all identified as part of the strategic environmental assessment/benefits assessment.

We have previously carried out research investigating the effects of canoeing and bathing activity on the movement patterns of salmon at Chester Weir on the River Dee. There was little evidence either way that recreational users cause disturbance or hindrance to fish near obstructions. In a relatively confined channel through which fish must pass, or where fish are sheltering, human activities may act as a deterrent to their passage.

There are several invasive species that can be spread and our 'Check, Clean and Dry' Campaign aims to reduce the spread of invasive species by water users.

Where we have become aware of impacts, we have made the public aware, for example the demise of the native white clawed crayfish following the introduction of the American signal crayfish, which carries crayfish plague – a fungal disease fatal to white clawed crayfish. Our website gives details of [how crayfish and salmon can be protected](http://www.environment-agency.gov.uk/homeandleisure/recreation/137227.aspx) (www.environment-agency.gov.uk/homeandleisure/recreation/137227.aspx).

Our website contains information on a similar threat facing wild salmon due to a [European parasite \(Gyrodactylus salaris\)](http://www.environment-agency.gov.uk/homeandleisure/recreation/fishing/38057.aspx) (www.environment-agency.gov.uk/homeandleisure/recreation/fishing/38057.aspx) that could start a deadly epidemic if transferred to UK rivers on canoeing gear brought back from Europe.

The [Boat Safety Scheme](http://www.environment-agency.gov.uk/homeandleisure/recreation/129912.aspx) (www.environment-agency.gov.uk/homeandleisure/recreation/129912.aspx) helps to improve our management of the boating community and the impact on the water environment.

We have worked for the last two years with GreenBlue on diffuse pollution from coastal cruisers and boaters in the Solent and on the Isle of Wight. We recently reviewed their environmental compliance guide and worked with them on the coastal and inland boat guides.

Where required we carry out environmental impact

	<p>assessments for our works and this may take into account impacts of users after the works. We also ask all users of our sites to comply with the appropriate good practice codes to minimise their impact, for example Countryside Code.</p>
<p>3 Works on all rivers to meet an objective should be designed to not compromise an existing use or users. For examples, for canoeing the removal of an existing structure or raising river bed levels can reduce water levels, and the introduction of features such as woody debris, also has the potential to impact on the physical usability of a water course for canoeing. We believe these benefits should be inclusive with provisions for greater shared use and not lead to a loss of amenity i.e. objections for access to and along water.</p> <p>There is a need for due diligence for Navigation Acts where works are planned.</p>	<p>We will pay due diligence to any navigation legislation when considering any WFD actions. We aim to provide more opportunities for public access to land and water we own. We want to offer a more diverse range of opportunities to address wider issues of social inclusion, health benefits and increasing demand, while managing the impacts on other users and the environment. To achieve this we'll work with others, raise awareness and provide appropriate information. This will help us improve the quality of life of individuals and meet the requirements of our duties. We screen local plans, planning applications and consents to protect existing, and promote new, recreation. We currently manage over 590 sites totalling over 6,000 hectares incorporating public access and recreation activity.</p> <p>An example of our work is improving access and safety for canoeists and anglers and improving fish passage along the Medway. We have introduced better access to weir sites for anglers, removed hidden dangers for canoeists and installed combined fish and canoe passes. Benefits have been considered for all water users.</p> <p>In delivering our duties we have to consider:</p> <ul style="list-style-type: none"> <li>- risk management</li> <li>health and safety</li> <li>- the Disability Discrimination Act</li> <li>- sustainability</li> <li>- adverse impacts on the environment</li> <li>- existing recreational activities</li> <li>the social, economic and conservation value of the site</li> <li>- other local concerns that can't be resolved through practical management solutions</li> </ul> <p>All our schemes are assessed by our National Environmental Assessment Service to ensure that our recreation duty is considered and benefits included if and when appropriate, and where funding is available. We have also worked to improve access to our weir sites to allow more access to our rivers for anglers. This same project has seen some weirs altered to remove the hidden dangers for canoeists, and fish friendly canoe passes installed.</p> <p>All works in, over and under a main river require a flood defence consent. These are assessed in relation to flood defence legislation and the impact to activities of other functions within the Environment Agency is considered in this process.</p>
<p>4. There is poor public access to watercourses. There needs to be better access</p>	<p>Within the Environment Agency, we wish to encourage more people from all backgrounds to enjoy the natural environment and its benefits. One of our corporate commitments is to make more of the land and water we own or manage accessible to people and communities for</p>

	<p>their discovery and enjoyment. We currently manage over 590 sites totalling over 6,000 hectares incorporating public access and recreation activity.</p> <p>Working with partners like Natural England, Forestry Commission, Countryside Council for Wales and the Centre for Accessible Environments, we can improve people's enjoyment of these spaces by providing better and appropriate access for as many users as reasonably possible, and by removing barriers that restrict both disabled and non-disabled people.</p> <p>Provision of inclusive access is a key consideration of our capital projects and improvement works. This is important in helping us promote sustainable development and providing an equality of access to our assets, which is a commitment we have made in our corporate strategy 'Creating a Better Place'. We are also part of the Coastal Access Programme Board, implementing the Natural England Coastal Access Programme, which aims to give people right of access around our entire open coast.</p>
<p>5. Fish-eating birds and mink are a major reason for poor fisheries. There are issues with predation by re-introduced Otters.</p>	<p>The evidence does not exist to show that predation is a widespread or major cause of poor fish stocks, where they occur. However, it is the case that locally it can be shown that there can be issues around predation. In those cases, predator control can be a legitimate action to protect fisheries, but often simple changes to site management – such as fencing or fish refuges - can make a very effective contribution. Where damage can be proven, the Wildlife and Countryside Act provides a system of licensing to allow otherwise protected species to be controlled, including to be killed as a last resort. In England, the licensing system is operated by Natural England, not the Environment Agency, and fishery owners or managers must make an application for a licence, not Environment Agency staff.</p> <p>As a consequence of the recent Defra- sponsored review of management of fish- eating birds, a new role of Fishery Management Advisor is being trialled in 2014, by a partnership of Defra, The Environment Agency, Natural England and The Angling Trust, to see what can be done to improve the all-round performance of this advisory and licensing system.</p>
<p>6. There should be more focus on maintaining fish stocks.</p>	<p>The Environment Agency is responsible for protecting and improving fisheries. £22.5million is raised from the sale of rod licences to fund this work. It is also funded by government to improve fish stocks to meet European targets.</p> <p>We:</p> <ul style="list-style-type: none"> <li>regulate fishing to make sure it remains sustainable; protect stocks from illegal fishing and other fisheries crime; respond to fish kills and rescues fish in distress; monitor fish stocks to identify where individual fisheries may be at risk; and improve habitats for fish. We also work with angling bodies to increase and improve angling participation.</li> </ul>

	<ul style="list-style-type: none"> <li>• work closely with angling clubs, local river trusts and the wider fisheries community, which often are well or better placed to deliver much of this work. We are working with the Angling Trust to pilot a volunteer bailiff scheme to complement our own enforcement work to protect fisheries. In the three years 2009 to 2011, local rivers trusts delivered more than 150 projects improving fish passage to increase the accessible length of rivers to salmon, trout and eel and their work is continuing.</li> <li>• use our powers and regularly review the regulations applying to rod and net fishing to ensure this happens in ways and at levels consistent with sustaining healthy fish stocks.</li> <li>• use our powers to reduce the number of barriers impeding movement of fish in rivers (by having barriers removed or fish passes installed) and prevent entrainment and harm to fish in water intakes and outfalls.</li> <li>• use our powers to guide those planning to move and stock fish to ensure such practices are beneficial to fish stocks and not detrimental.</li> <li>• use our powers and work with others to reduce the spread of invasive non-native species that pose harm to fish.</li> </ul> <p>These issues and actions will be addressed within river basin management plans where relevant. In addition, measures identified to address priority pressures such as water quality or flow or river morphology deficiencies, that will also be important for maintaining and improving fish stocks and fisheries, will also be key components of river basin management plans.</p>
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## Agriculture and rural land management

Key points from responses	Our action / response
<p>1 Concern that legislation to prevent pollution from agriculture is not being effectively used. Suggestion to use payment for ecosystem services model to ensure polluter pays.</p> <p>Regulation has not addressed widespread non compliance in agriculture.</p> <p>Want confirmation that regulation is being effectively applied for mandatory measures such as cross compliance.</p>	<p>Farm visits made by the Environment Agency may be for a number of reasons related to pollution prevention and control or water resources issues, either specific to the farm or general to the river catchment or groundwater body. They are based on risk to the environment The primary objective is to protect and improve the environment. Where action is needed to secure improvements and compliance with regulations, it may be through advice, enforcement or a combination of both.</p> <p>We have improved our local evidence of agricultural impacts through catchment walkovers and our monitoring network. As we work more closely with the agriculture sector, we are confident that farmer intermediaries can also help farmers to improve their awareness of, and compliance with, legislation and encourage them to take the necessary action.</p>

<p>There appears to be little effective integration between agri- environment schemes and WFD actions.</p>	<p>The Environment Agency is supporting Defra in its aim to develop 'earned recognition'. We are building on our existing risk- based approach by improved data-sharing with other Defra agencies. This will improve our approach to targeting advice and enforcement where it is needed most, and reduce the burden on those farmers who are compliant.</p> <p>We are advising Defra on future options to improve the environmental sustainability of farms, such as the revision of the soil protection review within cross compliance, to ensure it delivers the right practical actions.</p>
<p>2 Concern that agricultural input is overstated - evidence gaps and assumptions.</p>	<p>The national figures are used to state the magnitude of the problem. For specific sites, apportionment is made on the basis of local data for that site.</p>
<p>3 Water quality is recognised as an important issue. There is concern about the emphasis and portrayal of farming as a significant contributor of FIO pollution.</p>	<p>See point 4 in FIO section above</p>
<p>4 Mechanisms for action - measures are not adequate to reduce water quality outcomes</p>	<p>As we get a better understanding of CAP reforms and the actions required for the second cycle of river basin management planning, we will prioritise where incentivised measures can best improve water quality outcomes. While some measures may require annual incentives, we recognise that measures should ensure changes for the longer term. We also welcome the uptake of voluntary actions by land managers and will encourage both the agricultural industry and environmental organisations to help improve uptake. We are working with farm assurance organisations to enhance the effectiveness of market led standards to deliver environmental outcomes.</p>
<p>5 Implementation of measures - we encourage others to work with land managers to encourage the uptake of good practice</p>	<p>We are very pleased that so many organisations, both inside and outside the agricultural industry, are engaging with farmers and land managers by providing advice, explaining the complexities of pollution to water and encouraging the uptake of good practice. We recognise the competence and influence of the many advisors that support farmers and the value these many organisations can bring to deliver outcomes for environmental protection.</p> <p>We will continue to develop close links with such organisations and those responsible for knowledge transfer, for example levy boards. We actively contribute to the Farming Advice Service and industry initiatives, such as Campaign for Farmed Environment. We believe the catchment- based approach helps to empower local communities to take ownership of their water catchments, to respond collectively to local environmental pressures and to reap the rewards of an improved local environment.</p>
<p>6 Need to integrate our work with agricultural industry to have a joined up approach</p>	<p>Many of the mechanisms that enable us to make catchment improvements are administered by others. To enable this to happen, we will be working with Defra and its delivery bodies, water companies, sector organisations and the voluntary sector to harness joint working through</p>

	<p>the catchment- based approach. We will endeavour to co-ordinate nationally, to ensure the best measures are implemented in the right place.</p>
<p>7 Better integrated catchment management approach to address these issues. Wider scale catchment initiatives are required to understand landscape connectivity. To encourage the uptake of measures in agriculture to reduce the impact of farming on water bodies in England, measures need to be designed to offer collective benefits for both farm profitability and environmental considerations.</p>	<p>We are working with Natural England to target work such as river restoration in key catchments, bringing together our flood and hydromorphology priorities to deliver multiple benefits. We have developed an option for future 'New Environmental Land Management Scheme (NELMS) to help re-connect rivers with their floodplains. We have also asked for an incentive for group agreements to be built into NELMS to help deliver this.</p> <p>We are committed to the new catchment-based approach of working. We have appointed catchment co-ordinators for most of the 87 operational catchments.</p> <p>The catchment-based approach will provide a clear understanding of the issues in the catchment. It will involve local communities in decision-making by sharing evidence, listening to their ideas, and working out priorities. Local issues will be addressed in a cost effective way and protect local resources.</p>
<p>8 Appears to be little effective integration between agri-environment schemes and WFD actions, and yet achieving catchment scale improvement in land care is critical to achieve GES. The current system is not working to deliver improvements to water bodies. The very low level of monitoring of cross compliance and even lower levels of reported failures do not reflect what we see in our day to day work on rivers.</p>	<p>Many of the mechanisms that enable us to make catchment improvements are administered by others. To enable this to happen, we will be working with Defra and its delivery bodies, water companies and the voluntary sector to harness joint working through the catchment-based approach.</p>
<p>9 Much more could and should be done to address damage to water bodies from degraded upland areas. Erosion and sedimentation driven by over-grazing, burning and drainage are common problems in upland areas, with a direct impact on water body morphology and ecology and secondary impacts through downstream flood risk and measures taken to control it.</p>	<p>A great deal of action has already taken place on the uplands to address the degradation of upland blanket bog and understand the links between land management and water quality and quantity. Discolouration of water is a major issue for some water companies, which is being addressed via a number of Water Safeguard Zones as part of WFD delivery. Agri-environment has made significant impacts by reducing over-grazing and encouraging a diverse habitat. There has also been significant partnership activity (for example: Moors for the Future / SCAMP/ Yorkshire Peat Partnership) to reduce run-off and capture the benefits for biodiversity, carbon, water quality and quantity as well as reduce rates of run-off which may benefit flood risk.</p>
<p>10. Encouragement/enforcement of best farming practices including the creating of buffer zones along the water courses, keeping all livestock out of the water and provide watering away from the river bank</p>	<p>The Environment Agency will liaise with Natural England and other advisory bodies to ensure that the NELMS (New Environmental Land Management Scheme) is implemented in a targeted way to ensure that resource protection measures such as buffer strips are located in the best places to achieve the most benefit.</p>

<p>11. There is no mention of the good work that farmers have already done</p>	<p>To keep the main Challenges and choices document short we did not mention the specific contributions of many of the contributors in the field of diffuse pollution. We will have the opportunity to mention specific partners in the river basin management plans and catchment summaries.</p>
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<b>Business, manufacturing and industry</b>	
<b>Key points from responses</b>	<b>Our action / response</b>
<p>1 Concerns that the consultation did not take account of the latest Environment Agency published information – example of potential significance of phosphate additives.</p> <p>Specifically with respect to phosphorous additives, industry groups are willing to participate in our ongoing phosphorous additives work.</p>	<p>We will update our evidence summary to take account of latest information.</p> <p>In terms of other key actions, we have worked with Defra to set up the new working group with the sector. We are also working closely with Food and Drink Federation (FDF) and WRAP (Waste and Resources Action Programme) on water efficiency measures through our engagement in the FHC (Federation House Commitment) water minimisation initiative.</p> <p>We have established with Defra a ‘P additives working group’. FDF and other stakeholders are participating in this. The relevance of the response is in relation to potential measures to reduce phosphorous in additives and thus the contribution of the food and drink sector to phosphorous in water. The new working group we have set up is taking forward work on this issue.</p>
<p>2 Global pressures have a significant bearing on the water environment.</p> <p>Reliable supplies of water are essential for the food industry. Industry groups are taking steps to encourage the adoption of water efficiency and the sustainable management of water.</p>	<p>The support and leadership of the FDF could be used to help encourage sustainable water management initiatives across the food and drink supply chain. We are working with the food and drink sector and welcome the initiatives being taken by the sector to promote more sustainable water use.</p> <p>(additional information in point 1 above)</p>
<p>3. It is essential that the targets set for metals EQSs are realistic, achievable, and not over conservative.</p> <p>The dynamics of the receiving environment, the variances caused by natural events need to be fully understood, together with reasonably accurate modelling capability in order to understand cause and effect in the targets set.</p> <p>Further work and monitoring information is necessary to have greater certainty in developing</p>	<p>These complexities are recognised and are being taken into account by UKTAG when (following external consultation) they recommend revised Ecological Quality standards (EQSs) for metals.</p> <p>Additional monitoring is being carried out to improve the understanding of the scale of impact and appropriate management options.</p>

<p>WFD compliance objectives and actions.</p>	
<p>4. Information and modelling capacity, e.g. SAGIS, should be freely shared between the Environment Agency and industry for the benefit of all.</p>	<p>We have presented to industry on this in the past at meetings and at an Environment Forum.</p> <p>SAGIS is available to those contributing to the project and can be purchased by others. However proprietary software, a license and training is needed to use SAGIS. Sectors really want to be able to see the model outputs and be able to influence the scenarios run. We will look at how we can work more effectively with sectors and others to use the outputs of the SAGIS model</p>
<p>5 For industry, key requirements are for confidence in a consistent availability of water, at a consistent quality. Cost of supply is also a key issue, particularly in relation to abstracted water.</p> <p>We recognise the pressures from an increased population and the negative effects of future climate change, however the availability of abstracted water for the chemical sector is key to maintaining production, business continuity and growth.</p>	<p>The Environment Agency recognises that water is important for industry. Our Catchment Abstraction Management Strategies (CAMS) set out where water is available for abstraction but we don't give priority to any particular sector or reserve water for future use. It is the role of government to decide the balance of access to water across sectors.</p> <p>We assess the impact of new abstraction proposals against the Environmental Flow Indicator (EFI) in order to prevent new modifications to the flow regime such as abstractions causing deterioration in ecological status. Where a proposal needs more water than is available in the CAMS, then the applicant may undertake their own study to determine whether or not they can demonstrate that taking the additional water continues to support good ecological status and would not cause deterioration.</p> <p>Prevention of deterioration is arguably the highest priority and obligation of the WFD. However, in exceptional circumstances, subject to certain criteria being met, failure to prevent deterioration is not a breach of the WFD where:</p> <ul style="list-style-type: none"> <li>• deterioration in status results from new modifications to the physical characteristics of a surface water body or alterations to the level of a groundwater body;</li> <li>• deterioration from high to good status is the result of new sustainable development activities.</li> </ul> <p>In the future, abstraction reform proposals aim to provide increased flexibility for abstractors and enable them to continue to meet their water needs in a changing climate.</p>
<p>6 It may be that further controls on pollutants at source, or prevention of pathways into the environment will be required. The process for pursuing these issues will be within the river basin management plans. Industry involvement in river basin plans has however been limited in the past, largely due to the issues being raised not being of industrial relevance. However, direct engagement on the specific issues relating to the chemical industry (for</p>	<p>We continue to have 'chemical liaison' meetings with all trade associations in the sector plus bilateral meetings with the Chemical Industries Association (CIA), where these and other issues may be discussed.</p> <p>We provide speakers for CIA events and go to their responsible care cell meetings at an area level.</p>



<p>example through dialogue, workshops etc) has been appreciated, and the chemical sector will continue to involve itself in and support such activities.</p>	
<p>7 It will be important to ensure that the choices taken on water issues do not undermine wider government policy. For example, the UK's security of energy supply could be compromised if there is a significant reduction in access to water for the operation of, or future investment in, water-dependent power generation plants.</p> <p>In setting an entitlement or allocation to the environment, the societal value of that allocation should be considered in the context of the value of other potential uses that society could obtain from the use of that water either now or in the future.</p>	<p>Water resources are managed through CAMS, river basin management plans (RBMPs), water resource management plans (WRMPs) and water company business plans.</p> <p>It is the role of government to decide the balance of access to water across sectors - we will adapt plans in future according to the policy steer that government give us.</p> <p>We have worked with the electricity generation sector to better understand the potential envelope of future demand for water by the sector, in the context of climate change and population growth. The results demonstrate an overall trend of increasing total demand. Projections for future freshwater demand are more variable and could increase or decrease depending on the electricity generation mix, future location and the cooling technology used.</p> <p>We will continue to work with sectors to help them understand the implications of future pressures on their requirement for water.</p>
<p>8 We are concerned that there remains significant uncertainty regarding the links between water flows and ecology. As such, we do not support the application of predefined and generic flow standards (particularly low flow standards) to determine flow related mitigation measures. It is therefore important to base any flow or abstraction corrective measures on robust, site specific biological evidence rather than relying on pre-determined and prescriptive flow standards.</p>	<p>We recognise the complexity of hydro-ecological relationships. We have used compliance with the Environmental Flow Indicator (EFI) as a screening tool to identify where more detailed investigations are needed into the ecological impact of abstractions. Measures will be formulated on the basis of investigations at the water body scale taking into account the evidence of ecological impact. We will not need to restore flows back fully to the EFI, if other sustainable and cost effective solutions can be delivered.</p> <p>We will set environmental objectives for each water body that are spread over a realistic timescale and in the long run are affordable.</p> <p>(See also point 10 under <a href="#">abstraction and flow</a>)</p>
<p>9 We do not agree with some aspects of the general description of chemicals as a significant water management issue. We find it difficult to assess the significance for thermal power plant of 'chemicals' as an issue. Combustion of fossil fuels inevitably leads to the formation of detectable concentrations of some priority substances and priority hazardous substances. Whilst there may be 'issues' associated with specific</p>	<p>'Chemicals' covers a wide range of substances, some released during combustion of fossil fuels and many others besides. Recent research by the water industry suggests that levels of some of these substances are present at higher concentrations than previously realised and this, along with the recent tightening of Environmental Quality Standards (EQSs) for some of these substances, mean that this issue is a significant one. There is further work to be done to identify sources and determine approaches. However we agree that we are not aware of any significant issues within the power sector currently. Information on chemicals will be reviewed for the update to the draft river basin management plans.</p>

<p>individual plant and the water bodies with which they interact, we are not aware of any such circumstances with regard to the sector in general.</p>	
<p>10 We would support meeting appropriately defined WFD objectives established through regulatory dialogue, either with Energy UK (for sector wide measures) or with individual operators (for site-specifics). This is so that the resulting action is optimised taking into account the range of regulatory drivers within which the sector and how individual plant operate as well as WFD. It is not appropriate that RBMP set out prescriptive measures at the sector or individual plant level without detailed dialogue. We welcome continuing sector-level engagement with the Environment Agency on such matters.</p>	<p>We agree and would look to ensure dialogue continues.</p>
<p>11 The current exemption that allows water to be abstracted for the purposes of quarry dewatering - a critical operation for the continuation of our industry. Furthermore, and as demonstrated above, the impact of implementing this provision will be limited as only around 5% of the water abstracted under these exemptions is consumed. Therefore, any assessment of the benefit that this particular action will have should be reviewed in light of this detail.</p>	<p>Quarry dewatering abstractions will be reviewed in terms of their impact on the related water bodies and designated conservation sites. The low loss nature of these abstractions is recognised but in some cases it is the gross abstraction and/or the total loss of water from a groundwater body that is the issue.</p>
<p>12 Another proposed action for abstraction and flow is to develop water storage schemes. We support this suggestion and would like to make the Environment Agency aware that the quarrying industry may be well placed to deliver such facilities through quarry restoration schemes. There are already a number of examples of such schemes at varying scales that could be used as case studies or further review and we would be willing to assist in this regard if it was thought to be helpful.</p>	<p>Water companies should have considered all feasible options when balancing supply and demand through their WRMP. If feasible, water companies should have costed and assessed mine waters. The suggestion is helpful and we would welcome further dialogue both with the quarrying industry and the water industry.</p>

<p>13 Water consumption and waste water pollution from hydraulic fracturing (fracking) should have been identified as a significant future risk.</p>	<p>Our consultation aimed to highlight the most significant risks to the water environment but we recognise there are other risks that also need to be identified and managed. We believe that we already have the right controls available to manage the risks from hydraulic fracking and the current regulations are sufficient to protect the environment, during the exploratory phase of the industry's development. We are keeping this under review and will re-assess our position should the industry develop to a commercial scale in future years. More specifically, we have developed, and are now refining, technical guidance covering waste water issues and feel that our abstraction licensing regime provides the means to regulate those areas of the country where water consumption for fracking may be a problem.</p> <p>With regard to disposal of waste waters, operators will need to ensure that this complies with the requirements of the Environmental Permitting Regulations (EPR). Discharges of effluents to the water environment, whether this is via an existing sewage treatment works or a specialist treatment plant, are subject to the EPR's permitting requirements, with permit conditions designed to protect our waters.</p>
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Urban	
Key points from responses	Our action / response
<p>1 Calling for better (more stringent) regulation of highway run-off</p>	<p>Introducing additional regulatory controls is a matter for government. However we are already working with the Highways Agency and a number of local authorities to pilot a risk-based approach under existing regulatory frameworks that aim to identify problem outfalls and prioritise them for action.</p> <p>We will look for opportunities at the local level to work with Highway Authorities to tackle problem outfalls. There will be reference to highway run-off in Defra's forthcoming urban diffuse pollution strategy.</p>
<p>2 Want to see more trees as part of increasing green infrastructure</p>	<p>We support the use of green infrastructure (GI) as a measure to improve urban water management and deliver wider socio-economic benefits. We are working with Defra to ensure that the value of green infrastructure is reflected in their forthcoming urban diffuse pollution strategy. We are working with Defra to ensure GI is included in their National Networks National Policy</p> <p>RBMPs should give proper consideration to local measures involving green infrastructure and commit to working in partnership with others to identify further opportunities to increase Green Infrastructure and sustainable drainage systems (SuDS)</p>
<p>3 Need to maximise both ecological and wider societal benefits of improved urban waters and the fact that this can only really be achieved through a coherent vision that urban</p>	<p>We already recognise much of this and would agree with most of the points - especially the need for a coherent vision and joined-up delivery to maximise wider benefits. Similarly we agree with the support for WSUD (water sensitive urban design) and SuDS and the Government is in the process of establishing SABs (SuDS Approval</p>

<p>waters should be reconnected to the wider landscape and to the people who live and work in towns and cities. This is only achievable through equally joined up planning and delivery which demands more join up between the various disciplines and professions involved. Strongly supportive of WSUD and SuDS.</p>	<p>Bodies) with whom we will need to develop a relationship. This response also highlights the overlaps between urban pollution (water quality) and hydromorphological pressures and the need to consider them together wherever possible. It's a fair point that we should consider framing RBMPs in the context of the water cycle.</p>
<p>4 Thames Water and other WaSCS are working with others to improve drainage infrastructure, reduce discharges and rectify sewer misconnections. There are supportive of SUDS and ask that the Water and sewerage companies role in working with others to deliver sustainable drainage solutions is recognised.</p>	<p>We acknowledge the water and sewerage companies' (WaSC) role in delivering SuDS and we too are interested in tackling misconnections as a source of urban water quality failures and are supporting initiatives with Thames. Other water and sewerage companies do more to tackle misconnections and we are looking to use novel regulatory approaches in supporting these initiatives.</p> <p>Water companies are supportive of a range of measures and initiatives to tackle urban pollution - with the caveat that Ofwat are supportive of including these types of measure in business plans through the price review process.</p> <p>WaSCs have a clear legal responsibility as owners of the sewerage network to address pollution from their assets. WaSCs are working locally and nationally with the Environment Agency and other key partners to improve practice, implement measures, explore novel regulatory approaches and to raise awareness generally. Much of this work is set out in WaSC business plans</p>

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