Acting on your responses to the draft update to the river basin management plan and flood risk management plan consultations 2015

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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.

Front cover photo: River Wharfe, Burnsall, Yorkshire – Rachel Bennett

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Further copies of this report are available on the river basin management plan web pages

(https://www.gov.uk/government/collections/river-basin-management-plans-2015).

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Foreword

A healthy water environment – in rivers, lakes, estuaries, coasts and groundwater – benefits our health, wellbeing and economic prosperity, as well as benefitting the natural environment. River basin management and flood risk management planning are integral to delivering these benefits, maintaining and improving the water environment and reducing flood risk. Public consultations are one of the main ways that the Environment Agency seeks views on the framework for achieving good water quality and flood risk management in England.

The consultation on the draft update to the river basin management plans (dRBMPs) was the third and final stage of public consultation in the second cycle of river basin planning. The consultation ran for 6 months, from 10 October 2014 to 10 April 2015, with a separate document available for each of the 8 river basin districts (RBDs). The consultation proposed long term objectives for the water environment and the measures to achieve them, where the costs were justified by the benefits. It asked for views about the objectives and measures and sought feedback on what stakeholders could help deliver. The consultation also provided an opportunity to comment on the supporting economic appraisal and environmental assessment.

The consultation on the 10 draft flood risk management plans (dFRMPs) ran from 10 October 2014 to 31 January 2015. The draft FRMPs described the sources and risks of flooding within a river basin district and catchment. They also included information on how risk management authorities (RMAs) plan to work together with communities and businesses to manage and reduce flood risk. The draft FRMP consultation sought views on whether the plans contained the most relevant flood risk issues for each RBD and the objectives and actions (known as measures) for managing and reducing flood risk.

Over 800 responses were received in response to the 2 consultations, with an even greater number of organisations and individuals being engaged through specially organised events, existing meetings and social media. This high level of engagement and response from organisations and individuals demonstrates the importance of both flood risk and river basin management and the need for partnership working. The views and opinions expressed were wide ranging and sometimes contradictory.

The Environment Agency worked in partnership with Natural Resources Wales and the Scottish Environmental Protection Agency to produce the cross border river basin district consultation documents. The draft FRMPs were also developed in partnership with over 100 Lead Local Flood Authorities (LLFAs).

This document covers responses to both the draft RBMPs and FRMPs so that you can see how the feedback you gave us is helping to shape both sets of plans. It summarises the main themes raised during both of the consultations and states how the responses will help influence delivery of those plans for the next cycle.

We really value the feedback you have provided and look forward to working with you to deliver both the river basin management and flood risk management plans. By continuing to work together, the health of the water environment across the country will be protected, and coordinated measures will be put in place to reduce the risk of flooding.

Anne Dacey

Deputy Director, Water Framework Directive
Environment Agency

Andy Wilkinson

Deputy Director, FCRM Strategy Delivery
Environment Agency

Executive summary

The Environment Agency received over 485 responses to the national and river basin district consultations on the draft update to the river basin management plans (dRBMPs) and 393 responses to the draft flood risk management plans (dFRMPs). We also discussed the proposals with people in a large number of national and local meetings and other events. We have received a huge amount of information through formal responses and other feedback from a diverse range of groups, organisations and individuals. These include water, energy and industrial companies, charities, local government, non-governmental organisations and wildlife groups.

A lot of the feedback you provided was supportive of the draft proposals we were consulting on. Many responses also highlighted areas for improvement. Overall, respondents to both consultations said:

- you want more information on the approaches and methods we used
- you want to see continued partnership working, with further integration of both planning and delivery
- you want all sectors to play their part in improving the environment and managing flood risk
- you want the Environment Agency to monitor progress better and share the results
- you want more clarity on and improved access to the information that the plans are based on.

As a result of your feedback, we have made changes to the updated river basin and flood risk management plans. In particular, we have improved the format, structure and content of the plans. We have also:

- improved linkages between the RBMP and FRMP to make it easier to see the overlaps
- further improved access to the supporting data and information
- improved the way we describe and display measures
- made it clearer how the RBMPs and FRMPs link with existing plans and strategies
- updated information on how climate change may affect flood risk and river basin management in the future
- produced a short summary document for each FRMP and a summary section in each RBMP
- made the roles and responsibilities of risk management authorities and others who manage flood risk clearer in the FRMPs.

Many of you provided detailed information on specific areas of the plans. This feedback has helped to shape and improve the data and information that forms the foundation of the plans.

You can find further detail on the feedback you provided and how we are acting on it in the rest of this document. You will be able to see the detail of the plans, associated documents and supporting information after they have been updated in December 2015. A glossary of terms used within this document can be found here: https://www.gov.uk/government/collections/river-basin-management-plans-2015

Contents

1. Introduction

In December 2009, the Environment Agency published the current river basin management plans (RBMPs). These plans are now being reviewed and updated, with partners, to cover the period 2016 to 2021.

The Environment Agency leads on 8 RBMPs in England (including the Severn which covers part of Wales). A further 2 plans, the Solway Tweed and the Dee, are cross-border. Natural Resources Wales (NRW), lead on the Dee River Basin District (RBD) and the Scottish Environmental Protection Agency (SEPA) lead on the Solway Tweed RBD. The Environment Agency legally acts jointly with Natural Resources Wales for the 2 English-Welsh cross-border RBMPs (Dee and Severn) and with SEPA for the Solway Tweed RBMP but the lead arrangements mentioned above are in place for practical delivery of the RBMPs. The English and Welsh plans will be updated in December 2015, then submitted for government approval and sign-off by the Secretary of State, and by Welsh Ministers for the Dee and Severn cross border plans. The updated RBMPs produced by the Environment Agency are available here: https://www.gov.uk/government/collections/river-basin-management-plans-2015. The draft updated RBMPs for the Dee and Western Wales can be found here: https://naturalresources.wales/water/quality/?lang=en. The draft Solway Tweed River Basin Management Plan can be found here: http://www.sepa.org.uk/environment/water/river-basin-management-planning/

The Environment Agency launched the draft flood risk management plan (dFRMP) consultation at the same time as the draft update to the river basin management plan consultation (dRBMP), recognising that the 2 plans are linked. To improve efficiency and our stakeholders' experience during the process, the communications and engagement were further aligned. FRMP and RBMP messages were incorporated into communication materials and Environment Agency staff were equipped with the knowledge to talk about both consultations at stakeholder meetings.

In addition to working with catchment partnerships to update the dRBMPs, the Environment Agency has worked in partnership with 103 Lead Local Flood Authorities (LLFAs) to develop the FRMPs. LLFAs are county councils and unitary authorities with responsibilities under the Flood and Water Management Act 2010. FRMPs identify the risk from flooding at a river basin and catchment scale, and set out the objectives and measures for managing that risk over the next 6 years. In so doing, they bring together information about all sources of flooding and the work that is planned by a range of organisations to manage these risks.

The Environment Agency is the responsible authority for producing FRMPs for England covering flooding from main rivers, reservoirs and the sea. Regarding the Severn and the Dee FRMPs, the Environment Agency and Natural Resources Wales (NRW) are jointly responsible for these river basin districts under the Flood Risk Regulations 2009. The Severn and Dee FRMPs have been developed jointly. LLFAs must prepare FRMPs in flood risk areas (FRAs), where the risk of flooding from local flood risks is significant (identified in Preliminary Flood Risk Assessments as 30,000 people or more at risk of flooding from surface water, groundwater and ordinary watercourses). Main rivers are marked on an official document called the 'main river map'. They are usually the larger streams and rivers. An ordinary watercourse is any river, stream, ditch, drain, cut, dyke, sluice or sewer that does not form part of a main river. For more information on the main river map, go to: http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

The draft FRMPs published by the Environment Agency are available here: https://consult.environment-agency.gov.uk/portal/ho/flood/draft_frmp/consult?pointId=3063510

The draft FRMPs published by NRW for the Dee and Western Wales can be found here: https://naturalresources.wales/about-us/consultations/our-own-consultations-closed/consultation-on-draft-flood-risk-management-plans-for-wales/?lang=en

Consultation summary response documents were produced for both Environment Agency consultations in autumn 2015. These documents summarised the engagement process and the number and type of responses received during the consultations. For each consultation, a summary of feedback from national partners was presented, followed by a summary of feedback from partners within each RBD. The feedback for the Severn and Dee RBD cross border plans, were reviewed jointly with NRW. The feedback for the Dee RBD is included within the "Summary of responses to the updated Dee and Western Wales River Basin Management Plan Consultation" document produced by NRW, which can be found here: https://naturalresources.wales/about-us/consultations/our-own-consultations-closed/publishing-our-results-for-the-consultation-on-updating-the-river-basin-management-plans/?lang=en. The summary response document for the dRBMPs produced by the Environment Agency can be found here: https://consult.environment-agency.gov.uk/portal/ho/wfd/draft_plans/consult.

The summary response document for the dFRMPs produced by the Environment Agency can be found here: https://consult.environment-agency.gov.uk/portal/ho/flood/draft_frmp/consult. The summary response document for the dFRMPs produced by NRW can be found here: https://naturalresources.wales/media/4408/dfrmp-consultation-response.pdf.

The table below shows the number of responses received by the Environment Agency for each RBD, for both consultations. For the Dee and Solway Tweed RBMP consultations, responses were directed to NRW and SEPA respectively, who lead on the development of those plans.

River basin district	RBMP - Number of responses	FRMP - Number of responses
Anglian	103	46
Humber	55	43
Northumbria	26	18
Dee	-	17
Solway Tweed	-	19
North West	53	64
Severn	47	30
South East	33	38
South West	41	32
Thames	86	64
All RBDs	42	22
Total	486	393

The Environment Agency has assessed the information received during the consultations, and has used it to help shape the updated river basin management and flood risk management plans. This document has the following objectives:

- to share an overview of the main themes arising from feedback received from the consultations at a national level
- share information on where we have made changes as a result of your responses.

2. Summary of main findings

The table below shows the main issues raised through the consultations on the draft update to the RBMPs and the draft FRMPs**.**

Main themes from the FRMP and RBMP consultations	Explanation of theme and consultation response
Accessibility of the plans (RBMP and FRMP)	The plans contained lots of very good and useful information, however consultation feedback indicated they were too large and the information was not accessible.
Water body network and designations (RBMP)	Readers were unclear on the approach to defining the water body network and how changes to water body or catchment boundaries were made.
Protected areas (RBMP)	Consultees wanted more clarity on how protected areas would be taken into account within the updated plans.
Sources of flood risk information (FRMP)	Many respondents felt that the dFRMPs did not contain a complete picture of flood risk and that coastal erosion in particular is under represented in the plans.
Classification (RBMP)	Readers raised a number of points on the approach used for producing overall classification, particularly in relation to the "one out, all out" methodology.
Objectives (RBMP and FRMP)	Readers found the objectives confusing and said more context was needed.
Measures (RBMP and FRMP)	Some readers found it difficult to understand the terminology and level of detail included.
Catchment scale costs and benefits (RBMP)	Some consultees found it difficult to understand the catchment appraisals and questioned the approach used.
Achieving multiple benefits from FCRM work (FRMP)	Readers encouraged a holistic approach to flood and coastal risk management (FCRM) looking at the delivery of wider benefits, particularly the use of natural flood management.
Maintenance and flood management structures (FRMP)	Consultees raised the importance of river and asset maintenance and felt it could be better represented in the FRMPs.
Climate change (RBMP and FRMP)	Readers welcomed the fact that climate change was recognised in the draft plans but said more information was needed on the impacts and adaptation.
Integrated planning (RBMP and FRMP)	Both consultations highlighted the need for better integration with other plans and strategies.
Partnership working (RBMP and FRMP)	Readers highlighted the importance of partnership working and that this needs to be clearer in the updated plans.

3. Main themes raised in the RBMP and FRMP consultations

This section sets out the Environment Agency's response to the main themes that stakeholders raised during the consultations on the draft FRMPs and RBMPs. We have focussed on the recurring issues and included specific examples where changes have been made as a result of the responses submitted.

Where relevant, we have included links to documents that provide further details or datasets. Additional links are provided to indicate the location of particular content within the updated plans. A list of the questions asked in both consultations can be found in Annex 1.

3.1. Accessibility of plans (RBMP and FRMP)

Respondents to the consultations raised a number of points about the content of both plans and said they had difficulties locating the required information due to the length. In relation to these comments, respondents also commented on the complexity of the data in the plans and supporting information. Some thought more needed to be done to make datasets easier to understand.

These comments are addressed under the following headings:

- content of the updated RBMPs
- locating information in the RBMPs
- complexity of supporting data in RBMPs
- length, format and structure of the FRMPs

3.1.1. Content of the updated RBMPs

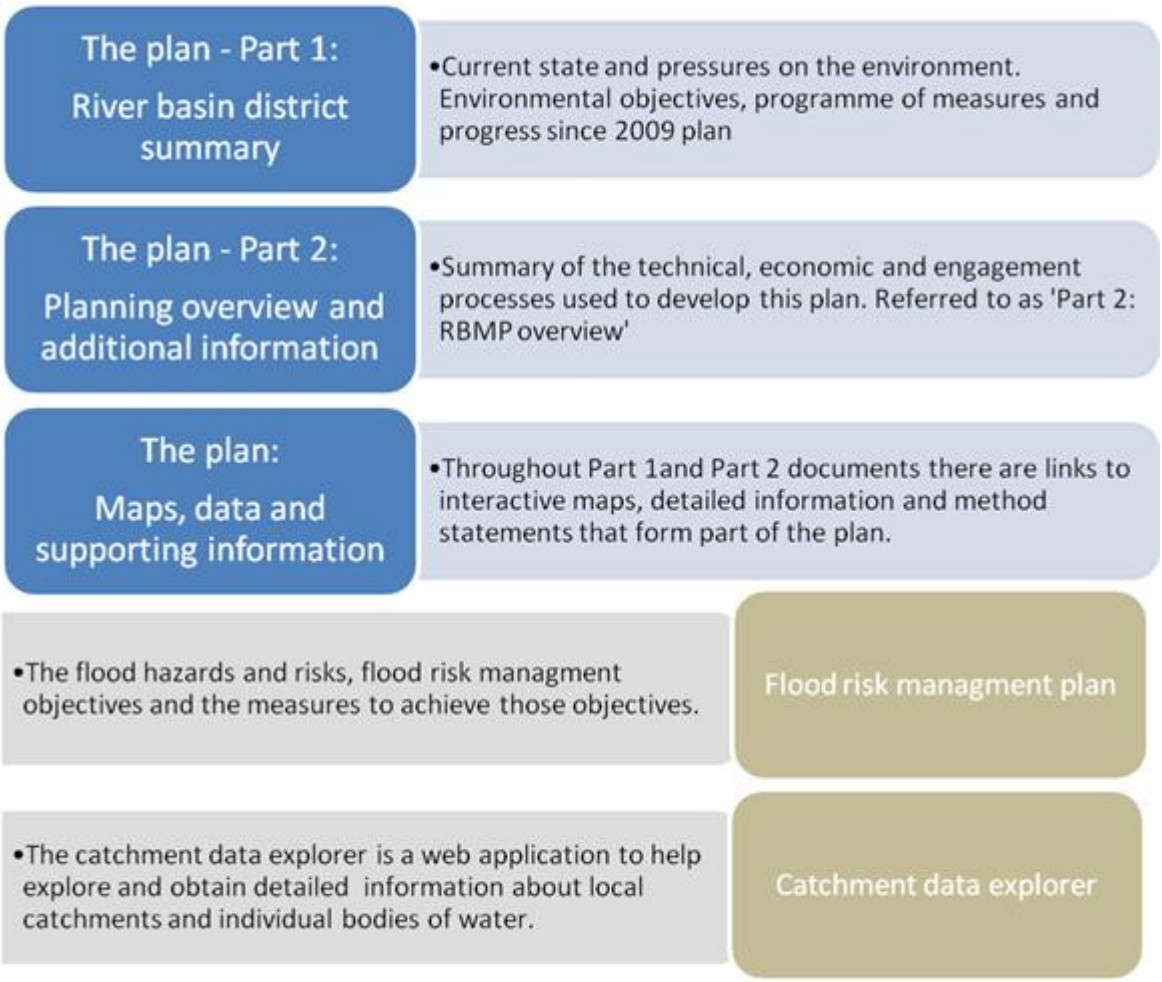
Respondents to the consultation on the dRBMPs and strategic environmental assessment made a number of comments about the content of the plans.

Response

The updated RBMPs are based on the data, information and best understanding of the water environment held by the Environment Agency at the end of June 2015. The responses to the consultation on the draft RBMPs, draft FRMPs and strategic environmental assessment have been considered, and where practicable and appropriate, taken into account in the updated plans.

Parts 1 and 2 of the RBMP

The roles of part 1, part 2 and supporting information are clarified below and in the updated plans. There was previously some cross over in what they presented. Part 1 will now only contain river basin specific (RBD) specific information, apart from where clearly stated as relating to England as a whole. Part 2 now contains more detail about the planning process and links to method statements and pressure narratives. The national data sets have been removed and will appear in a 'national data and evidence' report, separate from the plan (https://ea.sharefile.com/d-s9a6aac8d0f444e38).



Updated information on where environmental problems are present

Classification results for 2014 (based on monitoring carried out in 2013) became available after publication of the dRBMP consultation and can be found here: http://www.geostore.com/environment-agency/. The 2015 classification results will be published in the autumn 2015.

These latest classification results have been taken into account in reviewing and updating the water body and protected area objectives in the RBMPs. In addition to the data on the status of water bodies, further information from investigations and engagement with local stakeholders has helped to improve certainty in environmental problems. This included better understanding of where deterioration has occurred as well as an understanding of failures to achieve good status or protected area objectives.

Updated information on the causes of environmental problems

As new information and evidence becomes available, there is a need to understand what it means for decisions about the water environment. On this basis, investigations to understand the new failures to reach good status or deteriorations in status continued throughout 2014 and 2015 and will continue into the future. Engagement with local stakeholders and partners through various catchment groups also contributed to a better understanding of the causes of problems in catchments and water bodies. This information helped to identify the measures required.

Revised costs and benefits

Economic appraisals have been reviewed and amended where new information on costs and benefits was available. This included taking into account the latest understanding of the water industry schemes that will be in Phase 5 of the Price Review 14 (PR14) National Environment Programme (NEP).

Ongoing engagement activity

Where information on any aspect of river basin management planning became available through ongoing activities (including engagement with stakeholders and catchment groups) this was, where relevant and practicable, taken into account in producing the updated plans.

3.1.2. Locating information in the RBMP

A large number of responses commented that the vast amount of information in the plans made them hard to engage with. Respondents suggested that more could be done to assist with navigating around the RBMP documents and supporting data to improve engagement.

Response

To help readers find the relevant information, a number of improvements have been made to make the plan documents more accessible. Parts 1 and 2 now have an improved navigation page at the start of each document, showing the reader what is available and how it applies to the plan.

Efforts have been made to make the links to data and information more obvious by putting in light green ‘further information’ boxes. These direct the reader to content that is relevant to the section they are reading. The boxes also make it clear if the link will take them to part of the plan (and therefore won't change until the 2021 update) or supporting information (which could be updated during the lifespan of the plan).

A guide to accessing river basin management planning data and information will be published alongside the updated plans. This will direct readers to the information in the plan that is most appropriate to their interests. The guide will also contain details regarding other relevant plans and processes, for example the FRMPs. (A short summary document has also been produced for each FRMP to help readers go to the information most relevant to them).

Presentation of data in part 1 of the updated plans has been simplified, making it more consistent and linking to more information where relevant. Where possible, all data and information will appear in tables rather than integrated into the text, so it can be easily referenced.

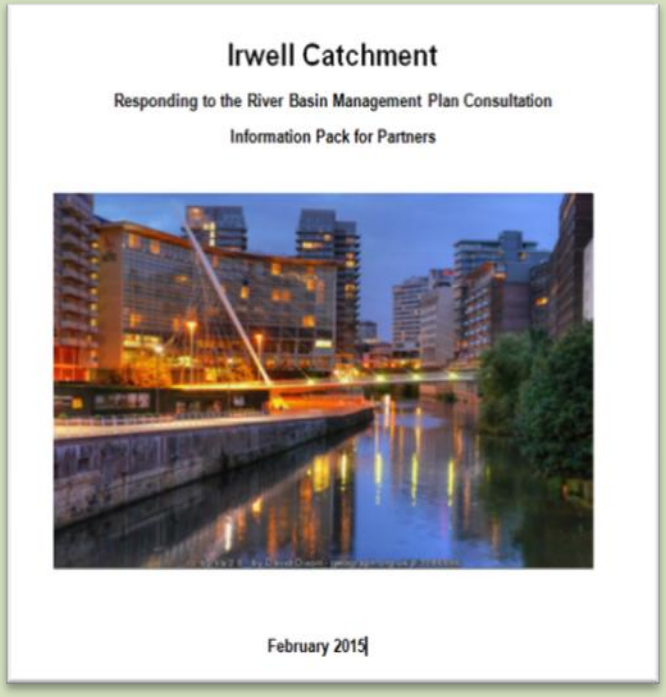
Innovative GeoPDFs and links to the Catchment Data Explorer have been used to display detailed maps and information. (http://environment.data.gov.uk/catchment-planning/). Catchment coordinators and other relevant staff were given additional training on the functionality of GeoPDFs to ensure that they could produce bespoke information for local partners. Catchment coordinators produced a variety of materials including 'catchment consultation packs' to help catchment partnerships find relevant information for their local area. As a result of comments received during the consultation, catchment coordinators took a variety of different steps to help partners locate relevant information, for example:

- producing supplementary information documents for management catchments and circulating to stakeholders during the consultation period
- working with catchment partnerships and attending stakeholder meetings to increase accessibility of plans by talking through the consultation and explaining the data

- producing and presenting ‘Water body Action Plans’ to show all WFD data in one spreadsheet (including failures and required actions) to help explain the measures for each water body.

Making it easier to find consultation information

The Irwell catchment coordinator produced a consultation information pack for partners in the Irwell Catchment to help them respond to the North West River Basin Management Plan consultation. This pack pulled together the relevant information from all the consultation documents and associated plans, into one place; thereby reducing the time it took for each partner to respond. The consultation information pack was produced as a supplementary document to the statutory consultation documents and the Irwell Catchment Summary.



3.1.3. Complexity of supporting data in RBMP

The process of river basin management planning generates a lot of information, and this increases and develops as more data are gathered regarding the water environment. Many respondents said that they found it challenging to deal with the complexity and amount of information available to support the consultation. They also told us that whilst they liked the Catchment Data Explorer, they would like to see more data made available through it.

A number of local councils said it was difficult to distil the main issues of relevance to the local government sector from the wealth of information contained within the draft RBMP. Some also found it difficult to understand what had changed and why, or how they might be impacted.

Response

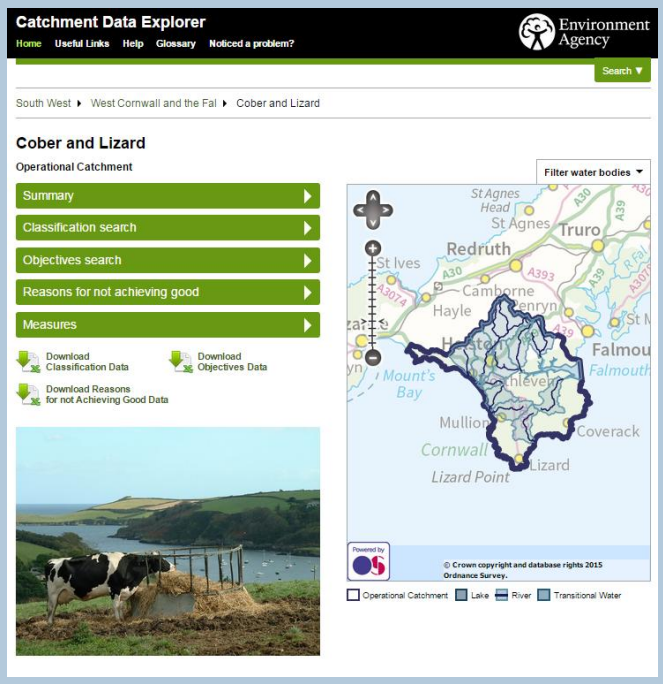
The Environment Agency is fully committed to the principles of 'Open Data'. We will continue to make available as much information as possible, about river basin management planning. WFD data is already available on:

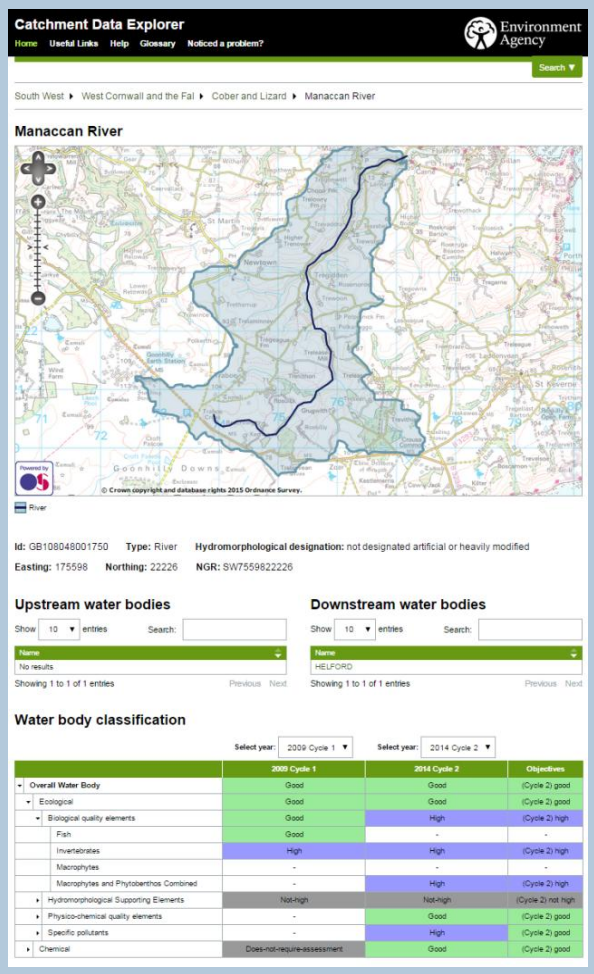
- Catchment Data Explorer (http://environment.data.gov.uk/catchment-planning/)
- Datashare (http://www.geostore.com/environment-agency/WebStore?xml=environment-agency/xml/dataLayers.xml.
- "What's in your back yard" (WIYBY) http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e,

Building on work to enable the sharing of bathing water information (http://environment.data.gov.uk/bwq/profiles/), the Catchment Data Explorer was created to provide a better way for interacting with and downloading data. Information on the Catchment Data Explorer was updated during the consultation in November 2014 and again in April 2015. This tool allows users to browse catchments and water bodies of interest and to explore, view and download datasets. Possible future developments will allow more data from the updated RBMPs to be made available, in particular the measures data, as well as additional improvements to usability.

Illustration of the Catchment Data Explorer

Using the Catchment Data Explorer at www.environment.data.gov.uk/catchment-planning, you can view summary information, classifications, objectives, reasons for not achieving good status and measures data, at the water body scale (e.g. for Manaccan River), or operational catchment (e.g. Cober and Lizard).





Recognising that some sectors prefer more detailed catchment data than the summary information in the dRBMPs, Environment Agency area teams signposted local councils to the relevant pages of the Catchment Data Explorer. (For example, to find more detail about water bodies in the Cober and Lizard catchment, pictured above, or the Thames River Basin District).

Based on feedback from the consultation, the updated RBMP documents now clearly highlight where links to the detailed information and data sets can be found. These datasets (for example protected area action plans) are accompanied by improved explanations of what they contain.

Opportunities across local council boundaries

Local council boundaries are often split over WFD management catchments which can be unhelpful for a local council operating under tight resources.

In West Thames Area, Environment Agency staff developed a GIS tool that shows RBMP options which may cross a number of catchment boundaries. This allows staff to identify and highlight relevant opportunities to local councils and developers. (Picture: Ampney Brook)

In Lincolnshire and Northamptonshire Area, Environment Agency staff developed a tool to identify (at a high level) where allocated sites and WFD priorities come together. This work has supported successful bids for urban opportunity studies and an Environment Agency pilot with developers at Spittalgate Heath, in Lincolnshire.

3.1.4. Length, format and structure of the FRMP

As with the dRBMP consultation, dFRMP consultation feedback highlighted that although the dFRMPs contained lots of very good and useful information, they were too long and that the information was not easily accessible. In addition, some respondents highlighted the lack of an executive summary in the draft FRMPs as a factor in making it difficult to understand the important messages for each river basin district (RBD).

Response

All the comments have been reviewed and as a result, changes have been made to the format and structure of the updated FRMPs. These changes will help to make the updated FRMP documents more accessible and help readers to find the information that is relevant to them. Each of the updated FRMP documents will be split into 4 parts that contain 4 levels of detail to suit different audiences. The order of the content has not been changed to ensure that the updated FRMPs remain compliant with the guidance published on GOV.UK. It has been reformatted as follows, with the addition of a completely new summary document.

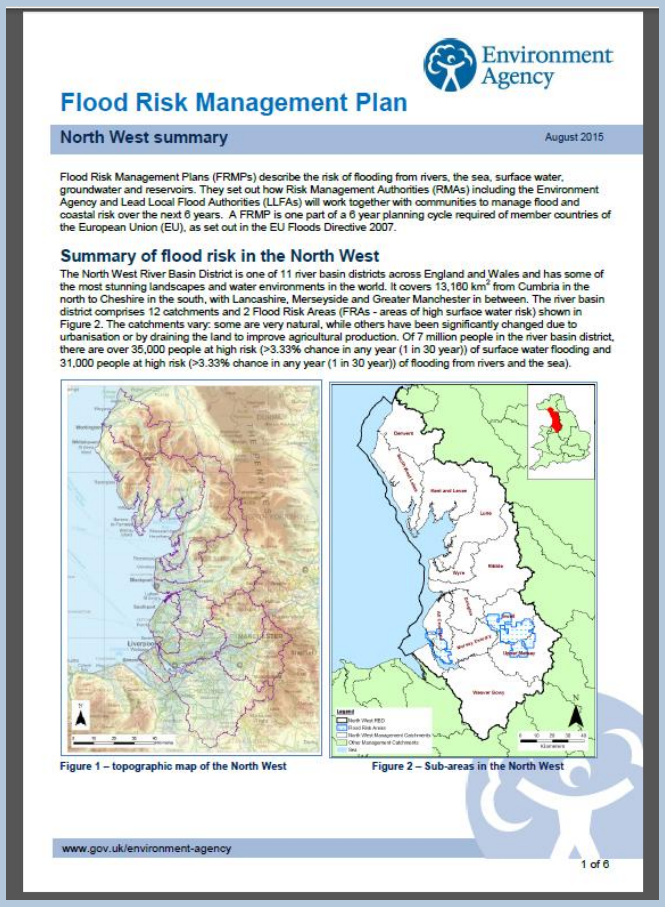
- **Summary Document**: for those who want a high level overview of the plan and main messages.
- **Part A: Background and river basin district wide information**: for those who want some legislative background and river basin district wide, high level information.
- **Part B: Sub areas in the river basin districts**: for those who want the detail of the sub-areas and flooding statistics. This section includes the catchments based on WFD management catchments, Flood Risk Areas (identified through the Preliminary Flood Risk Assessment-PFRAs) and other strategic areas across the RBD. Strategic Areas are places where it is important to consider flood risk management (FRM) across more than one sub-area e.g. The Somerset Levels or Norfolk Broads
- **Appendices**: for those who want to see the detailed programme of work for individual communities. This contains the tables of measures which were in the main section of the

consultation document. This decision was taken to make it easier to locate information on the detailed programme of measures.

Making FRMPs more accessible - FRMP summary document

As a result of consultation feedback, a new summary document will be added to each of the FRMPs. The 6 page summary document provides an overview of the main information for each RBD. This allows the reader to get a flavour of the main flood risk issues and how risk management authorities (RMAs) plan to work together to manage and reduce the risk. The summary document will act as the reader's first introduction to FRMPs and will sign post where they can go to get further information.

The picture shows an example of the summary document for the North West RBD



Environment Agency

Flood Risk Management Plan

North West summary August 2015

Flood Risk Management Plans (FRMPs) describe the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. They set out how Risk Management Authorities (RMAs) including the Environment Agency and Lead Local Flood Authorities (LLFAs) will work together with communities to manage flood and coastal risk over the next 6 years. A FRMP is one part of a 6 year planning cycle required of member countries of the European Union (EU), as set out in the EU Floods Directive 2007.

Summary of flood risk in the North West

The North West River Basin District is one of 11 river basin districts across England and Wales and has some of the most stunning landscapes and water environments in the world. It covers 13,160 km^2 from Cumbria in the north to Cheshire in the south, with Lancashire, Merseyside and Greater Manchester in between. The river basin district comprises 12 catchments and 2 Flood Risk Areas (FRAs - areas of high surface water risk) shown in Figure 2. The catchments vary: some are very natural, while others have been significantly changed due to urbanisation or by draining the land to improve agricultural production. Of 7 million people in the river basin district, there are over 35,000 people at high risk (>3.33% chance in any year (1 in 30 year)) of surface water flooding and 31,000 people at high risk (>3.33% chance in any year (1 in 30 year)) of flooding from rivers and the sea).

Figure 1 – topographic map of the North West

Figure 2 – Sub-areas in the North West

www.gov.uk/environment-agency

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3.2. Water body network and designations (RBMP)

Respondents raised a number of points about the approach to defining RBMP water body networks and changes in water body or catchment boundaries. They also questioned the method used for designating water bodies as artificial or heavily modified. In addition, a number of respondents provided detailed information in support of further changes to the proposed water body shapes or designations. These comments are addressed in more detail under the following headings:

- approach to defining the water body network in RBMP
- changes to water body or catchment boundaries in RBMP
- method for designating artificial or modified water bodies in RBMP
- changes artificial and heavily modified water body designations in RBMP

3.2.1. Approach to defining the water body network in RBMP

Respondents raised a number of questions about changes to the water body network used for delineating the water environment in river basin management planning. Some were

supportive of changes, saying they made the network more logical, but others were concerned about the perceived ‘removal’ of small water bodies, especially those streams that discharge directly into estuaries or coasts.

Respondents asked how and why these decisions had been taken and sought reassurance that changes would not disadvantage the environment in these places. Some consultees were concerned that recent changes might result in a lack of regulatory protection through WFD, make it difficult for third parties to obtain funds for restoration projects, remove drivers to achieve protected area objectives, and reduce opportunities for engagement in coastal areas.

Response

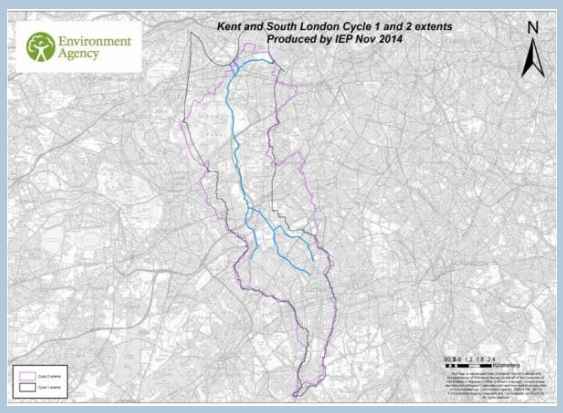
All surface waters and groundwater are protected by environmental legislation in England and WFD covers all bodies of surface water or groundwater, regardless of whether they are formal water bodies. WFD water bodies are units to which the environmental objectives of the WFD apply and are reported in the RBMPs. As such, it is important we follow EU guidance on how they are defined. The tools used for classifying water bodies are designed to respond on a minimum size water body area, so we must adhere to the EU water body criteria to enable us to give a comparable report on the state of England's waters, relative to the rest of Europe.

Many of the recent changes were applied because water bodies in the 2015 update of the RBMPs were completely re-delineated (re-drawn) using a more accurate and higher resolution river network dataset than was available for the first RBMPs in 2009. Following the re-delineation, some water bodies and catchments no longer adhered to the EU guidance outlined above. Changes to the water body network were made following discussions within the Environment Agency and also with some partners. As well as correcting some previous errors, this has led to the ‘removal’ of a large number of very small streams, i.e. those watercourses which are less than 1km in length or with a catchment of less than 10 km^2. These small bodies of surface water are now referred to as non-reportable water bodies. This decision in England follows a common trend across Europe to reduce the number of water bodies per river basin district in the updated RBMPs. The tools used to classify water bodies were designed to be applied to water bodies of a minimum size, using up to 3 years’ monitoring information. This means that any classifications produced for non reportable water bodies would have very low levels of certainty, due to a combination of their small size and lack of monitoring.

Non-reportable water bodies are still protected by environmental legislation and these changes will not result in a reduction in regulatory protection.

Understanding water body boundary changes proposed during consultation on draft RBMP

Catchment coordinators in Kent and South London produced a map showing cycle 1 water body boundaries and the proposed cycle 2 boundaries. These were produced in response to feedback from respondents who felt insufficient information was available in the original RBMP. (An illustration of this map is shown to the right.) Respondents said that the lack of information on boundary changes made it difficult to answer some questions. This was particularly relevant to



the first consultation question.

Presentations were also given to introduce the draft RBMP, set out consultation questions and provide the required data to make an informed response. These presentations were delivered in catchment partnership workshops run jointly with the hosts who had also assessed and presented additional data interpretation from the CaBA data package. Working together with the catchment hosts helped the partnership find the basic data they needed in one place, and then they could look back through the dRBMP documents if they wanted any more detail.

3.2.2. Changes to water body or catchment boundaries in RBMPs

A number of respondents commented on water body delineation (shape) and the links between water bodies and catchment or river basin district. Some felt that changes since the first RBMPs were poorly defined, saying “this information hasn’t been easy to find for our management catchment.”

Other respondents went on to provide detailed information in support of further changes to the proposed water body and catchment network in the updated RBMPs. Some were confused by the terms used for a water body’s ‘delineation’ (its shape) and ‘designation’ (whether or not it has an artificial or heavily modified water body designation and associated ‘uses’).

Response

The quality, accuracy and resolution of river water bodies and river water body catchments have been significantly improved since the first RBMPs were published in 2009 and all have been remodelled. This has been carried out in response to perceived quality issues with the initial water body networks, and has been subject to review by local Environment Agency staff. The break point between different water bodies is more subjective and depends to a certain degree on local opinion. Therefore some further changes may be required as more information becomes available.

Any new information provided during the consultation in relation to water body delineation (shape), catchment, or river basin district has been reviewed by local area staff including catchment coordinators. Changes that have been requested and agreed by our local staff have been, or will be implemented at the next appropriate opportunity.

It has not yet been possible to carry out all agreed changes due to the consequences of significant alteration to water body delineation (i.e. shapes, or “building blocks”). Consequences include the need to review designations, classifications, objectives and measures for affected water bodies. Of the approximately 90 requests to change water body or catchment boundaries we received, 8 have already been revised for the updated RBMP, over half have been approved for action in the near future, 4 have been rejected and the remainder are still under discussion. The Environment Agency will work with partners to further refine the water body network over the period of the updated RBMPs (from 2016 to 2021).

Proposed changes to the water body boundaries

Feedback relating to the size of coastal water bodies received suggested the Yorkshire Coast North water body was too large to be an effective management unit.

As a result of this feedback, the old boundary of the Yorkshire Coast North water body (shown as a red outline on map to the right) was adjusted and split into 2 new water bodies (shown in green and purple).

Other changes were also made to the boundaries of some operational or management catchments and to the names of certain water bodies.

3.2.3. Method for designating artificial or modified water bodies in RBMPs

Respondents questioned the approach used to assign artificial and heavily modified water body (A/HMWB) designations and their associated uses to different water bodies. They also said the A/HMWB designation method could be more transparent and that the process for making updates should be more collaborative.

Response

Methods used for designating A/HMWB have not changed since the first RBMP was published in 2009. The majority of changes to the A/HMWB designations were made in collaboration with stakeholders. For example, in 2011 the Environment Agency consulted on a review of A/HMWB designations for cycle 1 water bodies. Additionally, proposed water body designations for cycle 2 were made available during the recent consultation on the draft update to the RBMPs. These datasets were published in the Environment Agency sharefile "modified waters information", along with associated guidance materials.

3.2.4. Changes to artificial and heavily modified water body designations in the RBMPs

Concerns were raised about the number of changes to artificial and heavily modified water body (A/HMWB) designations, compared to what was published in the first RBMPs in 2009. A number of responses also provided information to challenge proposed A/HMWB designations and uses associated with particular water bodies in the updated RBMPs.

Response

Since 2009 we have improved local knowledge of the environmental conditions and the pressures in different water bodies. In some cases this has led to changes in the water body network, affecting the number and size of water bodies. It has also led to a number of changes in the A/HMWB designations, for example, because more information is now available, or because the water body shape for the updated RBMP is different to that published in 2009. Where an A/HMWB designation is assigned, the water body objectives

will be based on 'ecological potential' (which is assessed differently to 'ecological status'). This approach helps to protect the environment and recognise the importance of its 'use' by society.

Environment Agency staff have reviewed all consultation responses that included information to support changes in proposed A/HMWB designations. Local area staff and catchment coordinators have assessed any new information against WFD guidance and changes have been made accordingly. As a result of additional information provided during the consultation on the draft update to the RBMPs, we have amended A/HMWB designation or uses associated with 25 different water bodies across 3 river basin districts. The majority of these changes have led to the addition of new A/HMWB designated 'uses', but some 'uses' were also removed as a result of consultation responses. This reflects the Environment Agency and partners' aspiration to enhance the environment and attain good status where possible.

In addition to changes made as a direct result of new information supplied during consultation on the draft update to the RBMP, a number of other A/HMWB designation changes were also made by the Environment Agency. These were made due to the availability of better information, or to correct known errors and includes information provided by partners before the consultation.

Following consultation on the draft update to the RBMPs, the percentage of cycle 2 surface water bodies designated as A/HMWB (in England led river basin districts (RBD)) has marginally increased from 42.0% to 42.2% (2027 out 4809) in the updated RBMPs. (These figures exclude groundwater and all water bodies in RBDs that are not managed by the Environment Agency). Overall, fewer cycle 2 surface water bodies are now designated A/HMWB in the updated RBMPs than compared to the 44.5% of cycle 1 surface water bodies designated A/HMWB (2690 out of 6047) in the first RBMPs published in 2009.

3.3. Protected areas (RBMP)

European designations are included in the river basin management planning process because they are considered a "protected area" under Article 6 of the Water Framework Directive (WFD). The WFD includes a specific requirement to meet the objectives of these protected areas. Respondents asked questions about various types of protected area and wanted more clarity on how they are taken into account in the RBMPs. Responses are addressed under the following headings:

- conservation
- water quality

3.3.1. Conservation

A number of respondents said they would like more clarity around the links between RBMPs and Natura 2000 protected areas as well as Biodiversity 2020 outcomes. They also asked for more information on candidate Marine Conservation Zones, in addition to existing and potential coastal Special Protection Areas (SPAs).

Natura 2000 and the RBMP

The Natura 2000 network of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are protected under the European Habitats and Wild Birds Directives. Water dependent Natura 2000 sites are therefore included as protected areas in the river basin management planning process under Article 6 of the WFD.

For more information, please go to: http://www.wfduk.org/sites/default/files/Media/Characterisation%20of%20the%20water%20environment/TAG%202003%20-%20WP%204a%20%28PR03%29%20Natura%20Protected%20Areas%20%28Final%29%2030-03-03%20%28Edited%2020-10-03%29_0.pdf]

Since publication of the draft RBMPs the integration between water dependent Natura 2000 protected areas and the associated water bodies has been improved. This was achieved by ensuring that where water bodies contain Natura 2000 protected areas, the element objectives reflect the environmental conditions that are required to achieve the required conservation objectives (as recommended by Natural England). These standards are often more demanding than the WFD requirement for the coincident water body. More detail on Natura 2000 requirements and where extended deadlines have been employed can be found in Part 2: River basin management overview document (https://www.gov.uk/government/collections/river-basin-management-plans-2015).

Since the draft plans, we have also improved the way we identify and justify the need for extended deadlines on Natura 2000 protected areas. The best available information (derived from the Improvement Programme for England's Natura 2000 Sites (IPENS) programme Site Improvement Plans (SIPs) and other expert advice from Natural England), is provided in National evidence and data report summaries here: https://ea.sharefile.com/d-s9a6aac8d0f444e38.

Since the first RBMPs were published in 2009, we have learnt more, and now understand more, about the issues and the scale of the measures that are required to achieve objectives on these sites. The IPENS programme has made a major contribution to this. We have also had to factor in changes to the standards for different elements that will be required for sites to achieve their objectives based on the advice of Natural England. This information has been used to identify the issues and new measures ('actions' in SIPs) that are required to achieve favourable conservation status, manage threats and prevent deterioration. SIPs also identify the date by when new measures are likely to be implemented. SIPs, along with information on existing measures to maintain or restore Natura 2000 sites (held in Natural England's designated site database), identify the full range of pressures and the measures that will be taken on sites. SIPs for each RBD are available from: http://publications.naturalengland.org.uk/category/6287197783195648.

The information in SIPs has been used to help identify where it is necessary to apply an extended deadline for meeting objectives under Article 4.4 of the WFD. More information on UK protected sites can be found here: http://jncc.defra.gov.uk/page-4.

Biodiversity 2020 and the RBMP

'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra in 2011 to set out how the United Kingdom's international commitments on biodiversity are to be implemented. For more information, please go to: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf.

Inclusion of Biodiversity 2020 outcomes in the RBMPs is not a requirement of WFD, but the updated RBMPs will contribute to achieving habitat quality, habitat creation and restoration outcomes of Biodiversity 2020 for many water dependent species and habitats.

The 'UK Post-2010 Biodiversity Framework', published in July 2012, succeeds the UK Biodiversity Action Plan (1992-2012) (http://jncc.defra.gov.uk/page-5155) although the definitions of priority habitats (the old BAP habitats) remain unchanged. Natural England supply priority habitat data through data.gov.uk as the priority habitat inventory (http://data.gov.uk/dataset/priority-habitat-inventory-england/resource/ca0e9794-68c2-4476-aea2-51c491521eed).

New priority river and lake habitat maps have identified streams, rivers and lakes that are still the most natural in character, containing a dynamic mosaic of habitats and associated species. These maps can be used to help avoid deterioration and to target restoration measures to help conserve and enhance these habitats within a wider programme of action to improve ecological status and provide multiple benefits such as flood storage, mitigating diffuse pollution, restoring more natural hydrological regimes, storing carbon, and protecting ground waters. Reports on the work identifying priority rivers and lakes can be downloaded from http://publications.naturalengland.org.uk/publication/6266338867675136 (rivers) and http://publications.naturalengland.org.uk/publication/5630174502584320 (lakes).

Other water body improvements are also likely to contribute to Biodiversity 2020 outcomes. The extent and location of that contribution will become clearer as catchment based decisions about how to implement measures are made.

Marine Conservation Zones and near shore coastal Special Protection Areas

Marine Conservation Zones (MCZ) are designated under UK rather than European legislation and are therefore not included as protected areas under WFD. However, the Environment Agency and other bodies including the Marine Management Organisation (MMO), Natural England (NE) and some Non Governmental Organisations (NGOs) are working closely with Defra to align the objectives of the RBMPs with the Marine Strategy Framework Directive. This should ensure that there are no gaps in terms of protection in the wider marine environment alongside the suite of designations such as MCZs and the European designations of SACs and SPAs. In terms of the stages of designation, once a site has been designated as a candidate MCZ, or a potential SPA, then we must take account of these sites as if they have full protection, in our day to day activities and duties.

The Environment Agency was represented on the steering groups for the recommendation of MCZs and has provided formal responses to tranche 1 and 2 of proposed sites. We continue to support Natural England in providing evidence and advice for the development of conservation objectives and have a duty as a public body to “best further, or where this is not possible, least hinder, the achievement of conservation objectives for MCZs” in carrying out our activities. We keep track of any newly proposed or designated Marine Protected Areas, or changes to existing ones. We are also working with Natural England to update our supporting documents so they will take into consideration the new conservation advice for newly designated sites or changes to sites.

3.3.2. Water quality

Some respondents questioned whether drinking water protected areas (DrWPA) are given a high enough priority and asked if they are given the same status as other protected areas. Others asked about the use of Water Safeguard Zones (WSZ) and Nitrate Vulnerable Zones (NVZ) and questioned the overlap with priority areas for new agri-environment schemes. Some responses from the water industry suggested that drinking water objectives were not adequately covered, saying that contingencies should be put in place, in case safeguard zone action plans fail to ensure objectives are met.

Concerns were raised by some consultees about the protection for shellfish waters, particularly WFD targets and faecal coliform standards. A number of respondents agreed with the ‘polluter pays’ principle but did not feel it was fairly addressed by all sectors. Some respondents said they would like more information on the management of bathing waters and associated improvements.

Drinking water protected areas, water safeguard zones and the RBMP

All protected areas included in the register established under Article 6 of the WFD are given equal priority in river basin management planning by the Environment Agency. The number,

risk status and types of protected areas, as well as other local WFD issues will then determine how local resources are allocated.

Surface water drinking water protected area requirements are in addition to meeting good chemical or ecological status. Objectives are set for groundwater drinking water protected areas to meet good chemical status for groundwater (see summary tables in RBMP - Part 1). This has included cost-benefit analysis work to identify relevant groundwater body measures. Water companies' funding through the National Environment Programme (NEP) is mainly for safeguard zones which will also contribute to good status in the water body. Pollution prevention measures and NVZs also contribute to improving water quality.

Between the draft and updated river basin management plans all safeguard zone action plans are being reviewed. This includes revising the area of the safeguard zone where necessary and updating the measures to reflect agreed NEP work, any new measures, any changes to measures and any changes to the substances that are 'at risk'. Where possible measures are being improved, to become SMART (specific, measurable, achievable, realistic and time based). These updated safeguard zone action plans are now available for surface water (https://ea.sharefile.com/d-scac3ff7da4a424eb) and for groundwater (https://ea.sharefile.com/d-sa22fd79de304532a).

We continually review the effectiveness of all measures through environmental monitoring (either Environment Agency or water company) and by tracking the progress of measures. We are contributing to the UKWIR (UK Water Industry Research (https://www.ukwir.org/site/web/content/home) project in 2015-16 to consider the effectiveness of catchment actions, including the use of indicative measures, where water quality improvements may take a number of years to be realised. If there is sufficient evidence to demonstrate that voluntary measures are not enough, then we would work with others to identify and consider alternative approaches.

Nitrate Vulnerable Zones (NVZ) and the RBMP

NVZs are areas designated as being at risk from agricultural nitrate pollution. They include about 58% of land in England. High priority areas for Countryside Stewardship cover approximately 41% of England, and they partially overlap with drinking water safeguard zones and NVZs. Groundwater safeguard zones are specifically targeted as high priority in Countryside Stewardship. Surface water safeguard zones are included as high priority only if there is at least one other relevant WFD failure due to agriculture. NVZs are not included in the targeting of these areas as they are a regulatory tool, (implementing the requirements of the Nitrates Directive) although much of the land that is targeted does fall within NVZ areas.

Shellfish waters and the RBMP

The WFD includes a specific requirement to meet the objectives of protected areas, which include designated shellfish waters. Domestic legislation is currently being prepared by Defra which will continue to provide an equivalent level of protection to that afforded by the repealed Shellfish Waters Directive. This requirement is one of the Environment Agency's priorities. This is reflected in the shellfish water action plans (https://ea.sharefile.com/d/se87464f73da4583a) that have been produced for every shellfish water protected area. The action plans assess the issues in each shellfish water, set the objective to be reached and, where needed, the programme of measures needed to improve water quality to reach the objective. In developing the programme of measures, the Environment Agency has used trends rather than individual sample results and has considered all the measures that are needed. This includes measures to tackle pollution from towns, cities, transport and agriculture as well as from waste water.

Bathing waters and the RBMP

The objective for bathing waters as defined by the Bathing Water Directive (BWD) (2006/7/EC) is to preserve, protect and improve the quality of the environment and to protect human health by complementing the WFD, under which bathing waters are protected areas. For more information please go to: https://www.gov.uk/government/collections/bathing-waters. The revised Bathing Water Directive brings in tighter standards for bathing water quality. The vast majority of the bathing waters in England will meet these new standards when they are reported for the first time in 2015. There are 25 bathing waters that are at risk of not meeting the new standards and measures are in place to tackle the sources of pollution. Measures include improvements to sewerage infrastructure and tackling urban and agricultural pollution.

3.4. Sources of flood risk information (FRMP)

One of the issues raised by consultees is that the dFRMPs were branded as being all sources of flood risk in one plan. Consultees said that the lack of information on some of the local sources of risk made it difficult for readers to form a complete picture of the flood risk for each RBD. These comments are addressed in more detail under the following headings:

- information on coastal erosion and tidal flood risk
- surface water information only included for particular areas

3.4.1. Information on coastal erosion and tidal flood risk

Many consultees expressed the opinion that draft FRMPs lacked sufficient information on coastal erosion risk and its management. The consensus amongst these respondents was that the dFRMPs focused on flood risk from rivers, the sea, reservoirs and surface water. Many of the consultation responses agreed on the importance of coastal erosion risk and said that it should have greater emphasis in the plans.

Response

The Floods Directive and Flood Risk Regulations set out how FRMPs should deal with risks from flooding (including flooding from the sea), but do not cover coastal erosion. The Environment Agency has an overview in relation to erosion but is not the primary authority for these purposes. However, on 1 April 2008 the Environment Agency took on the new coastal strategic overview role in England. The coastal overview joins up coastal management activities to ensure flooding and erosion risk is managed effectively. The overview encourages authorities to work together in partnership to achieve effective management of coastal flooding and erosion risks. Work to tackle coastal erosion is the responsibility of district or unitary councils. Local councils have operational powers relating to managing coastal erosion under the Coast Protection Act 1949 and the Flood and Water Management Act 2010. They lead on coastal risk management activities and undertake works on sea flooding and coastal erosion where they are best placed to do so. This is undertaken in collaboration with the Environment Agency.

Shoreline management plans are non-statutory, high level planning documents. They are large scale assessments of the risk associated with coastal processes, and a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner. They set the strategic direction for how the coast should be managed over the next 100 years. SMPs identify the most sustainable approaches to managing coastal erosion and flooding risks in the short, medium, and long term.

The updated FRMPs draw some coastal erosion information from the shoreline management plan 2 (SMP2). The SMP measures for sea flooding and flood risk issues are included in the FRMPs. You can access further information and the full SMPs here: https://www.gov.uk/government/publications/shoreline-management-plans-smps/shoreline-management-plans-smps.

As a result of feedback received during the consultation we have added additional information into the updated FRMP. This information provides a background to coastal erosion and how it is managed. The inclusion of this information will help ensure that the individual FRMPs are consistent in how they represent coastal erosion. It will also ensure that the reader is directed to where they can find additional detail on coastal erosion in their location.

3.4.2. Surface water information only included for particular areas

Some of the consultation responses highlighted that the dFRMPs do not contain a complete picture of flood risk. Respondents commented that whilst the dFRMPs have information on rivers, the sea and reservoirs for the whole of England, coverage of surface water information was incomplete. Following on from these comments, consultees agreed that the lack of surface water risk in some areas made it very difficult to form a true picture of flood risk in their area. Some respondents also said that the draft plans did not provide enough explanation as to why surface water was included in some areas and not others.

Response

FRMPs bring together for the first time the measures to address all sources of flooding. This is the first cycle of implementing the European Floods Directive and the Flood Risk Regulations 2009. The Environment Agency is required to prepare FRMPs for all of England covering flooding from main rivers, the sea and reservoirs. Lead Local Flood Authorities (LLFAs) must prepare FRMPs in Flood Risk Areas (FRAs), where the risk of flooding from local flood risks is significant (as identified in Preliminary Flood Risk Assessments (PFRAs)) for instance from surface water, groundwater and ordinary watercourses. Only those LLFAs within FRAs have to produce a FRMP. However, some LLFAs have opted to voluntarily include information on how they are managing local sources of flood risk.

Surface water is the responsibility of LLFAs. In response to consultation feedback, in Part B of the FRMP we have made it clearer what information is included in each FRA and in each RBD. Improvements have also been made by clarifying the FRMPs link to local flood risk management strategies (LFRMS). These changes will make it easier for readers to access information on local sources of flood risk.

3.5. Classification (RBMP)

Respondents raised a number of points about the approach used for calculating overall classification status of water bodies in the dRBMPs, especially in relation to the ”one out all out” methodology. A number of responses also commented on the monitoring strategy, the chemical assessment methods and standards, the links between pressures and classification failures and the classification of estuarine and coastal water bodies in the dRBMPs. Comments are addressed under the following headings:

- producing the overall classification status
- monitoring strategy and availability of RBMP data
- chemicals assessment method and standards
- linking pressures to classification failures

- classification of coastal and estuarine water bodies

3.5.1. Producing the overall classification status

A number of respondents raised questions about the approach to classification in the dRBMPs and said the 'one out all out' rule masked progress where environmental improvements have been achieved for multiple elements. Others mentioned that it was difficult to identify real changes in status (as opposed to ones resulting from changes in the methodology since the first RBMPs in 2009) and asked for more clarity around real deterioration.

Response

Over the course of cycle 1 the Environment Agency has annually reported progress against the headline indicator of number (or percentage) of water bodies at good status. We also use a number of other indicators. These include Defra's Natural Environment indicator and the Office for National Statistics (ONS) sustainability indicators. We are legally bound to use the 'one out all out' methodology of classification, as this is required by the Water Framework Directive. However, there is considerable recognition that using the 'one out all out' system of classification does not provide a complete picture of environmental change because classifying a water body according to the lowest (worst) performing element will mask any improvements made to other elements.

We now regularly report progress made at an element level to our stakeholders, alongside reporting the mandatory water body level (one-out-all-out) headline results. Our current method of assessment incorporates a second generation of classification tools. These are based on updated science and best practice, as well as revised water body delineations (shape of the cycle 2 water bodies or new building blocks), updated artificial or heavily modified designations and the recently reviewed water quality standards. Along with the improved ecological monitoring programme, this provides the most accurate and comprehensive picture of environmental quality yet.

These new classifications are showing up more symptoms of environmental problems. The headline statistics show that a smaller proportion of water bodies are achieving good status or potential, than was the case using the old methods. This is not a real environmental change; instead the results represent a more accurate picture of the state of the environment as more refined methodologies are being used. Alongside the new building block classifications, we are continuing to report compliance against the old set of environmental standards so that we can properly assess deterioration over the course of the first river basin planning cycle. These classifications weren't incorporated into the draft RBMPs due to the complexity this would have introduced and the detailed explanations that would have been required. However, the results have been published externally and the updated RBMPs will use these results to report on progress in cycle 1 and any deterioration in status.

Detailed water body information describing progress during cycle 1 can be found at: https://ea.sharefile.com/d-s13e5e39caef432d9 and each RBD Part 1 document has a section (section 4) which describes progress from 2009 and any deterioration for that RBD.

3.5.2. Monitoring strategy and availability of RBMP data

A number of respondents commented on the WFD monitoring programme and asked whether it gave enough information for reliable status classifications, or to drive environmental improvements at the water body scale.

Response

The WFD monitoring programme has developed over the course of cycle 1. Early cycle 1 monitoring (2010 to 2012) focussed on improving certainty in existing classification results, particularly failures reported in the 2009 RBMPs, and understanding what was causing those failures. This included a work programme of around 13,000 investigations, many of which were underpinned by time-bound, targeted investigative monitoring programmes that were in addition to routine monitoring for deriving classifications.

Since 2012 the Environment Agency has implemented a more comprehensive ecological monitoring programme in rivers. This has improved our biological evidence base to support the implementation of measures and gives a statistically more robust understanding of trends and deterioration. Our current network of monitoring is based around our understanding of risk. All water bodies identified as being either 'at risk', or 'probably at risk' of failing from a priority pressure have been monitored and assessed for relevant ecological indicators.

Over the course of cycle 1 we have made improvements to our monitoring programmes, however cuts to public spending are likely to have an impact on the level of traditional monitoring the Environment Agency can carry out in future. We are looking toward a more dynamic, flexible and smarter way to gather environmental information, including making better use of third party data and utilising innovative monitoring and modelling techniques.

3.5.3. Chemicals assessment method and standards in RBMP

Some respondents commented that chemical status was poorly defined and that the objectives could change significantly depending on the outcome of the proposed chemical investigation programme (CIP). Given the longer list of Environmental Quality Standards Directive (EQSD) chemicals, (more than the 9 currently risk assessed as being of national relevance), some said the setting of objectives appeared premature. They suggested that more information was needed on baseline quality and to address issues around technical feasibility and affordability. The EQSD is routinely revised and new substances are added, so some respondents commented that a specific review mechanism would be essential.

Response

In the draft RBMPs, the Environment Agency set objectives for chemicals based on a classification derived from both analytical monitoring and from risk assessments (where real data were missing). We have since monitored these previously unmonitored sites to confirm the predicted risks. As a result, failures of good chemical status (GCS) are lower than predicted, at about 3% of water bodies, and chemical failures contribute to good ecological status (GES) failures in about 2% of water bodies. Over 90% of chemical failures can be attributed to the chemicals that we have included in risk assessments of being of national relevance. In the updated RBMP chemical classifications for both GCS and GES are based solely on analytical data. We will set objectives on the basis of this classification methodology and therefore on an established and evidenced baseline. We have not yet used biota standards in classification or included the new substances introduced in the 2013 revision of the EQSD. More information about the EQSD is available from http://ec.europa.eu/environment/water/water-dangersub/pri_substances.htm#dir_prior and additional information on the CIP is available from https://www.ukwir.org/publishor/system/component_view.asp?LogDocId=97002&PhyDocId=29387.

We will continue to develop our understanding of the risks of these substances during this planning cycle and will engage stakeholders on the implications for status and possible solutions.

3.5.4. Linking pressures to classification failures in RBMPs

A number of respondents said that they would like more clarity around the links between water body classification failures, pressures and measures.

Response

Since the draft RBMPs were published, the Environment Agency has undertaken a data cleaning programme to address issues associated with 'reasons for not achieving good status' (RNAGS) data, ensuring clearer links between RNAGS and measures. We have also invested more time and effort through additional investigations to confirm the causes for not achieving good status, to ensure appropriate measures have been identified. This means that we have identified more RNAGS and consequently been able to identify additional measures (to address these additional RNAGS) since the draft RBMPs were published in 2014.

We will be using the latest classification data to target our efforts toward addressing the highest priority issues. Some of the proposed measures (for example those tackling the threat posed by invasive non-native species) are in place to prevent deterioration, not just to achieve good ecological status.

3.5.5. Classification of coastal and estuarine water bodies in the RBMPs

Some consultees highlighted that there was a lack of information and data relating to estuarine and coastal water bodies. There were some concerns that having less information on these water categories than presented for inland waters might result in fewer actions being taken in estuaries and coasts. Some respondents said they did not feel that estuarine and coastal waters were properly integrated in catchment plans and that a lack of monitoring led to them being under-represented.

Response

The Environment Agency acknowledges that we need to strengthen our information and data on estuarine and coastal waters in the next cycle. We are already working with the wider marine community, through the UK's Marine Monitoring and Assessment Strategy (UKMMAS) evidence groups, to strengthen our knowledge and understanding of the links between the pressures and measures in saline waters.

In order to improve our data and information evidence base, we are currently exploring ways with our partners (for example Natural England and the Centre for Environment, Fisheries and Aquaculture Science, CEFAS) to integrate our monitoring. We are also actively looking to work with stakeholders, academia and citizen science groups to improve our information on both a local and national scale.

3.6. Objectives (RBMP and FRMP)

Respondents raised a number of questions about the process used to set water body objectives for the updated RBMPs. Some responses suggested that more clarity was required around the statutory nature of objectives and a number of respondents asked for further details regarding implementation of the cycle 1 measures that were required to meet objectives in the first RBMPs.

The FRMPs contain objectives for managing flood risk at the river basin district and catchment scale. Some consultees said that whilst they understood the objectives as described in the draft FRMPs, they thought that they could be improved. These comments are addressed under the following headings:

- objective setting process in the RBMPs
- statutory nature of objectives and measures in the RBMPs
- implementation of measures to achieve objectives in the RBMPs
- processes and guidance to help achieve objectives in the RBMPs
- different sets of objectives and consistency across the FRMPs
- limited information about objectives in the FRMPs
- addition of new objectives in the FRMPs
- linking objectives to measures in the FRMPs

3.6.1. Objective setting process in the RBMPs

Respondents felt there was a need for greater clarity on the objective setting process, including how objectives were justified and how the requirement to prevent deterioration had been taken into account when updating objectives.

Response

The text in the RBMPs (Part 1 and Part 2) will be updated, describing how objectives have been reviewed and updated for second cycle, including changes since the consultation. The updated text will:

- no longer refer to 'long term' in relation to objectives as this caused confusion during the consultation
- explain the full process for reviewing and updating water body status objectives and protected area objectives for second cycle plans, including how the dates for achieving the objectives were determined
- describe how the requirement to prevent deterioration has been taken into account when updating objectives
- describe the circumstances in which exemptions under Articles 4(4) and 4(5) of the WFD have been used to apply extended deadlines and to set less stringent objectives

In addition to the summary of objectives that will be presented in Part 1 (section 2) of the updated RBMPs, full details of every water body status objective will also be provided.

3.6.2. Statutory nature of objectives and measures in the RBMPs

Some respondents thought the statutory nature of water body objectives and measures had changed for the updated RBMPs and were concerned this might impact on achieving successful outcomes.

Response

There has been no change from first cycle. In both the current and updated river basin management plans, the objectives are legally binding but measures are only statutory if the individual measure is underpinned by a legal mechanism. Putting a voluntary measure, for example a local partnership project, in the programme of measures in a RBMP, does not add a statutory driver. This point about the statutory nature of measures was explicitly made in the Ministerial Guidance for cycle 1 (Vol 1, para 11.18) and is also in the new Ministerial Guidance that has been issued for cycle 2.
https://www.gov.uk/government/publications/river-basin-planning-guidance

The specific outcomes predicted by 2021 are based on measures where there is confidence (at least a reasonable expectation) that the measures will be implemented during the next 6-year period (i.e. 2016-2021). In some cases the level of confidence will be very high

because of an existing statutory requirement or a well regulated delivery process like the Periodic Review process. In other cases it will be lower but still with a reasonable expectation that the measures will take place and achieve the predicted outcomes. The updated RBMPs describe how confidence in the implementation of measures has been taken into account in updating water body objectives.

3.6.3. Implementation of measures to achieve RBMP objectives

Respondents said they would like more information on the implementation of cycle 1 measures and the progress already made toward achievement of environmental outcomes set out in the first RBMPs.

Some people had concerns about the lack of systematic review on effectiveness of cycle 1 measures or a timetable for delivery of cycle 2 measures. Questions were asked about how it will be possible to assess progress with implementing the measures in the updated RBMPs and some people commented that more information on affordability was required to inform objective setting.

Response

The updated RBMPs now include additional information to summarise progress with the implementation of cycle 1 measures, to explain the reasons why some measures have not been put in place and to summarise any additional measures. This is provided for each RBD in Part 1 - section 4. Feedback on the first cycle RBMP measures indicated it would be helpful to have a better tracking system in place for measures proposed in the second cycle plans. The Environment Agency will be developing a system during 2016 to help track the implementation of measures for cycle 2.

Final decisions on the application of exemptions on grounds of disproportionate expense are for Ministers. Decisions will be informed by the Environment Agency's analysis. Scenario 5 in the economic analysis shows what funds might be made available over the second cycle (2016 to 2021) and how these might affect what could be delivered over the next 6 years. There is an emphasis on making sure that the funds that will be available to improve water quality, are spent in catchments where there is most benefit.

3.6.4. Processes and guidance to help achieve objectives in the RBMPs

Respondents were interested to know how the Environment Agency would monitor compliance with objectives and how all public bodies would have regard to them when making decisions. The agricultural sector were supportive of revising the "Clearing the Waters" guidance for dredging in coastal and estuarine waters, and suggested it should be expanded to rivers to alleviate flood risk and loss of productive agricultural land.

Response

In response to these points, we can confirm that the Environment Agency is revising and expanding the guidance for dredging in estuaries and coasts called 'Clearing the Waters' (https://www.gov.uk/government/publications/complying-with-the-water-framework-directive-marine-dredging).This guidance is currently focused on dredging and will now be expanded to include all activities taking place in coastal and estuarine waters, but it will not be extended to cover rivers at this time. This will help public bodies to have regard to objectives when making decisions in estuarine and coastal waters. It will also help operators prepare consent applications. This project is being undertaken in consultation with regulators and other stakeholders to ensure the revised guidance meets all users' needs.

For new works on rivers, the Environment Agency provides expert WFD advice for applicants via the work of area staff. We base our advice on risk-based principles and have developed these into clear guidelines for developers. These include the 'run-of-river guidance for hydropower developers' published in 2013

(https://www.gov.uk/government/collections/hydropower-schemes-guidelines-and-applying-for-permission). We continue to develop and clarify our regulatory positions and how we work with stakeholders to ensure RBMP objectives are supported through consenting, and how we communicate these guiding principles. The Environment Agency will outline the core principles of how we support RBMP objectives and secure WFD compliance in supporting material which will be published with the updated RBMPs.

3.6.5. Different sets of objectives and consistency across the FRMPs

In the draft FRMPs, objectives were included for each RBD, catchment summary, flood risk area and strategic place. In some dFRMPs, the objectives were the same at all spatial scales, whereas in other dFRMPs, the objectives were different in each sub area. There was a consensus amongst respondents that the multiple sets of objectives were very confusing. Respondents also highlighted the inconsistencies in the way objectives were described and shown across the 10 dFRMPs.

Response

The explanatory information about objectives and the different spatial scales (river basin wide or more local catchment wide objectives) has been expanded and made clearer. It is in Part A - section 3 of all of the updated FRMPs, so that objectives are referred to consistently across all 10 plans. Where we have cross border FRMPs with Wales, additional explanation has been added to section 3 of Part A. Feedback on the objectives themselves has been considered. Improvements have then been made to the plans where previous explanation was not clear and where the plans may not have addressed a locally important issue. As the objectives for this planning cycle were compiled from existing plans, the feedback received on the objectives will be reviewed and taken forward as 'lessons to be learned' for the second cycle FRMPs.

3.6.6. Limited information about objectives in the FRMPs

Another issue raised by consultees was that the draft FRMPs did not provide enough contextual information about the objectives, how they were developed, what they meant and how they will be used. Respondents highlighted that they did not understand what the objectives were trying to achieve. One particular issue which consultees asked for greater clarity on was the categories of objectives. The draft FRMPs split objectives into 3 categories (social, economic and environmental). Consultation feedback suggested more information was needed to make it clear to the reader whether these categories were weighted.

Response

The information about objectives in the dFRMPs has been reviewed. Based on the responses received, we have added information explaining the purpose of the objectives, how they were developed and the categories. Objectives are split into categories to help demonstrate the balance of objectives across the plans but the categories aren't assigned a weighting in the FRMPs. This text will be included in all 10 updated FRMPs.

3.6.7. Addition of new objectives in the FRMPs

The consultation questions for the draft FRMP asked consultees whether there were further objectives that should be included in the updated plans. Many respondents suggested additional objectives which covered a wide variety of themes.

Response

This feedback was reviewed and the suggested objectives considered by each RBD.

3.6.8. Linking objectives to measures in the FRMPs

Many respondents said that the draft FRMPs did not draw clear linkages between the objectives and measures. Consequently they said that it made it difficult for readers to determine which objective the individual measures related to. Furthermore, consultees stated that the inability to link objectives to the measures in the draft FRMPs meant that there was no way of recording progress against objectives.

Response

The tables of measures in Part C of the dFRMPs set out the detailed information for each measure. Within the tables, each measure is linked to the category of objective that it relates to (either social, economic or environmental). Based on the feedback received, it is clear that this information was not visible enough in the draft FRMPs. As a result, reference to this information will be included in Part A of the FRMP to help direct the reader to where the information can be found.

3.7. Measures (RBMP and FRMP)

Respondents raised many points about the programme of measures in the draft RBMPs. These were predominantly associated with a perceived lack of detail on proposed measures at the water body scale. Some respondents also made suggestions about the types of measures they thought should be considered or about mitigation measures to reduce the impact of specific pressures in modified water bodies.

The dFRMPs included information on the measures that risk management authorities (RMAs) plan to carry out with communities and businesses to manage and reduce flood risk. There were different approaches to managing flood and coastal erosion risk described in the dFRMPs as measures. Many respondents raised concerns about how these measures were described and the level of detail included.

These comments are addressed under the following headings:

- level of detail in the programme of measures for RBMPs
- types of measures in the updated RBMPs
- selection of mitigation measures for the RBMPs
- how measures are described in the FRMPs
- lack of location information in measures tables in the FRMPs
- addition of new measures in the FRMPs and RBMPs

3.7.1. Level of detail in the programme of measures for RBMPs

Many respondents said that information provided on the proposed programme of measures was vague and lacking in detail, making it difficult for them to either agree or disagree with the RBMP consultation question *"do you agree the correct measures have been identified*". Some of the respondents said the level of information presented made it difficult for local groups to engage. They requested more detail at the water body scale, instead of operational catchment or RBD scale.

Response

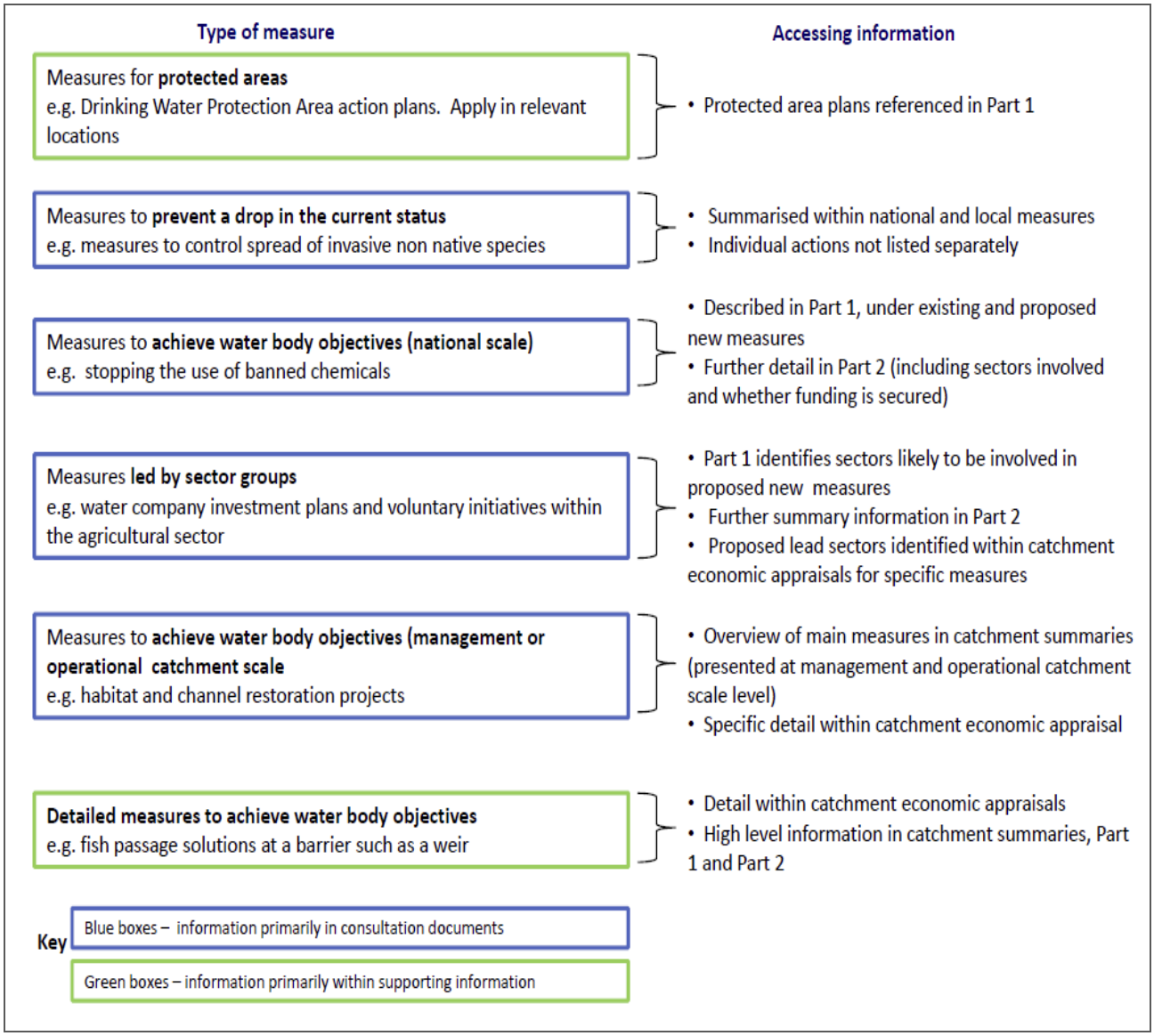
The Environment Agency has considered the responses to the consultation and made some changes to the way measures are presented in the updated RBMPs and supporting information. These changes include presenting measures categorised by their outcome in

Part 1, and providing additional data sets as supporting information, some of which provide detail at the water body level.

The purpose of the consultation was to discuss the objectives for the water environment. To support this, a high level summary of the technically feasible measures, where the costs are justified by the benefits, was provided. This demonstrated the range of activities needed to achieve the objectives.

In response to feedback on measures, an explanatory note was made available on the consultation site in January 2015 (https://consult.environment-agency.gov.uk/file/3270762). This note explained that RBMPs are statutory strategic plans. It provided clarity on what information was available and how additional detail could be requested from Environment Agency catchment coordinators.

The dRBMPs presented summary information on measures in a number of ways, as summarised by the following diagram.



The updated RBMPs still present the programme of measures at a summary level. Measures are presented based on the outcomes they will achieve, as follows:

- ongoing measures to prevent deterioration (for example, permitting and best practice)

- main programmes of measures for 2021 outcomes (including national investment programmes and local action through catchment partnership groups)
- measures to achieve objectives to 2027 and beyond
- additional measures to achieve protected area objectives

Further supporting information will be made available as part of the updated RBMPs for those who want to see more detail. (It should be noted that this information is provided as the best available at the time, and is subject to change). Changes in the detail of the measures could be brought about for a number of reasons including new evidence, changes in water body status, funding availability, government policy changes, development impacts and climate change.

By presenting the measures in this way, you will be able to see more clearly the sources of investment driving improvements in the water environment. In response to your requests for information at a water body scale, a number of supporting data sets will be made available via the Environment Agency's ShareFile service (https://ea.sharefile.com/d-sabbd14301a44d5e9) in December 2015. The data sets include:

Data set	Summary of contents
List of the measures used to predict improvements in status by 2021 for specific elements in specific water bodies	This list identifies measures where the Environment Agency are confident that: - the measure will take place by 2021 - the location of the measure is known - the measure will result in a change to status of the WFD classification element The list will identify the water body (location), a short description of what the measure is, the lead organisation and the source of funding.
Summary of the measures that will deliver additional environmental outcomes by 2021	This summarises the types of measures which the Environment Agency is confident will take place by 2021, but where there is some uncertainty in the exact location or the outcome of the measure.
List of water company measures	List of measures in water companies 5 year investment plans which will benefit the water environment.
List of the measures needed to achieve water body objectives for 2027 and beyond.	This includes the measures from the economic appraisal bundles. It should be noted that this data set will develop over time as the shared understanding improves and new information becomes available.

3.7.2. Types of measures in the updated RBMPs

Many consultation responses discussed the types of measures that should be considered to address different pressures. Some respondents said that more measures were needed to tackle diffuse pollution, whilst the agricultural sector said more analysis of existing options was required before committing to new measures.

Several respondents felt there was an omission or lack of ambition to deal with invasive non-native species (INNS). Some commented that the impact of INNS (both flora and fauna) is a significant issue and one that is likely to increase in importance over the period to 2027.

Respondents said that more measures were needed to address water abstractions and that abstractions should only be licensed if they support good status and that all measures

needed to achieve favourable conservation status, should be implemented without delay. Respondents also said that the importance of woodlands in achieving multiple benefits in catchment management may have been overlooked in the draft RBMPs. A small number of responses said more thought should be given to the potential role of shellfish aquaculture for improving water quality, using filtration to remove potentially harmful pollution in estuarine and coastal water bodies.

All sectors need to play their part and many respondents felt this was a particular challenge when dealing with diffuse pollution. Some respondents said more needed be done to recognise what has already been achieved by different sectors, whilst others said there was an over-emphasis on measures delivered by the water industry. Some felt diffuse pollution measures were weak and voluntary approaches unlikely to succeed, saying funded solutions and stricter enforcement of regulations were needed.

Response

Responses are provided under the following headings:

- agriculture (including Countryside Stewardship and Catchment Sensitive Farming)
- invasive non-native species
- water resources
- woodlands
- water quality

Agriculture

Farming has a number of environmental regulations that provide a minimum level of protection to the environment and these will help prevent deterioration of water bodies already at good status, whilst improving the quality of others. Examples include the Nitrate Vulnerable Zone (NVZ) action programme and the Silage, Slurry and Agricultural Fuel Oil Regulations (SSAFO). These regulations will encourage more farmers and rural land managers to take significant steps towards good practice through routine business decisions. Good practice is achieved through farm assurance schemes and industry initiatives provide additional advice on the efficient use of water, nutrients and pesticides. Further steps towards achieving basic expectations and requirements are encouraged by financial incentives through Common Agricultural Policy (CAP) cross compliance conditions. Farmers who receive the ‘Basic Payment Scheme’ are required to meet certain conditions as a result. Examples of these conditions include the provision of buffer strips and implementing good soil management. The latter will help prevent deterioration and may significantly reduce the loss of sediment and associated nutrients and pesticides from some catchments.

The agricultural industry has encouraged farmers to improve their environmental footprint through schemes including the ‘Voluntary Initiative’ on pesticides and the ‘Campaign for the Farmed Environment’. These schemes encourage the voluntary adoption of measures to prevent deterioration and contribute to environmental improvements, for instance by promoting integrated pest management and nutrient plans.

Countryside Stewardship supports the implementation of measures over and above legal requirements and good practice. These measures address soil management and reduce the effect of nutrients, sediment and faecal pollution, which helps to reduce the impact of eutrophication, benefitting bathing waters, shellfish beds and drinking water. Countryside Stewardship will contribute £900 million of new funds to enhance the natural environment, particularly the diversity of wildlife and water quality. About £400 million of this new funding will be used to improve water quality and increase resilience against flooding. By 2020, it is expected that 30% to 40% of rural England could be part of a Countryside Stewardship agreement.

Countryside Stewardship is expected to achieve additional environmental outcomes for 2021. Preliminary research suggests that the mean average load of nutrients, sediment and faecal indicators could reduce by 2-10% from the current position where supported with advice. In some discreet locations a greater improvement of up to 18% may be achieved, but the precise locations will depend on the level of uptake of measures by farmers and the supporting advice provided. Further research is planned that will help to evaluate the likely benefits of Countryside Stewardship for water. For more information on Countryside Stewardship, go to: https://www.gov.uk/government/collections/countryside-stewardship-get-paid-for-environmental-land-management

Catchment Sensitive Farming (CSF) is an advice-led project that delivers targeted support enabling farmers to take action to reduce water pollution. The project works with farmers to raise awareness and encourage voluntary action. It also seeks to create partnerships and integrate with other initiatives that have similar objectives. CSF catchments cover 6.1 million hectares of agricultural land (approximately 46 per cent of England). The most recent evaluation report (http://publications.naturalengland.org.uk/publication/6510716011937792) demonstrates that advice has been provided to 16,133 farm holdings covering 2,311,527 hectares (42 per cent of the CSF catchments). This advice has been delivered through 13,055 one-to-ones, 9,047 group events and 906 drop in advice sessions.

62 per cent of measures recommended through one-to-one advice have been implemented (based on the recommended measures and their measured uptake levels), average modelled pollutant reductions were 4 to 12 per cent (7 to 9 percent for phosphorus; 6 per cent for nitrate; 12 per cent for sediment; and 4 per cent for Faecal Indicator Organisms).

Catchment improvements of the same magnitude as CSF would be expected from other funded schemes that have contributed to the catchment based approach with a focus on rural land management. For more information on catchment sensitive farming, go to: https://www.gov.uk/catchment-sensitive-farming-reduce-agricultural-water-pollution.

Defra has been working with interested parties to identify some additional basic actions farmers could take which reduce diffuse pollution from agriculture.

Invasive non-native species

The impact of invasive non-native species (INNS) is recognised as a significant water management issue in all river basin districts. The majority of INNS measures are national measures, which are locally delivered to prevent deterioration. The Part 1 of the updated RBMPs summarises the current measures, including rapid response eradications, legal requirements, policies, partnership actions and awareness raising initiatives. However, it also acknowledges that, once established, the control of some INNS is often technically infeasible. The national risk assessments (https://ea.sharefile.com/d-sd0f63dc4a3b4f008) show around 70% of water bodies are at risk of deterioration due to establishment of INNS during the period to 2027.

Water resources measures

The Environment Agency has updated the RBMPs to outline the measures we will implement and our strategy for delivery, as well as the responsibilities of others. These measures will ensure our licensing strategies and actions fully incorporate all environmental objectives and align with the updated river basin management plans, helping stakeholders to understand the risks to the environment from current and future abstraction. All applications for licences will be assessed to ensure that any licences issued will adequately protect and improve the environment, as well as helping to deliver all relevant environmental obligations.

Around 2300 time-limited licences are due to come to an end, either wholly or partially, during the period covered by the updated RBMPs. This means that many abstractors will be seeking replacement licences. The Environment Agency will only grant replacement licences

where: the abstraction continues to be environmentally sustainable; abstractors can demonstrate they have a continued need for the water and that they will use it efficiently.

The Environment Agency will take a risk based approach to revoke licences that have not been used for over 4 years to remove future risk and reduce the scale of action that might be needed on other abstractions licences. For existing licences, the Environment Agency will prioritise actions to protect and improve Natura 2000 sites and to address the most seriously damaging abstractions during this period of river basin management planning. Where we identify that serious damage occurs, or may occur, and assessments show the need to take action, abstraction licences will be constrained. All abstractors in surface water and groundwater bodies where serious damage is occurring or would occur without action, should expect their licences to be constrained over the next 6 years.

Action will be taken to address any outstanding issues from the remaining 241 Restoring Sustainable Abstraction (RSA) licences by March 2020. Abstractors will need to either offer a voluntary change, or the Environment Agency will serve notice to change their licences if they are associated with Natura 2000 sites by 22 December 2015.

Required water company infrastructure investments will be funded through customer charges (Periodic Review) and licences will be changed, setting out clear action required by specified dates. Where infrastructure changes may take time, we will expect water companies to better manage systems to minimise pressure on the most sensitive areas. Improved demand management and water efficiency is expected from all abstractors. The Water Act 2014 makes a number of reforms to help us face future challenges arising from a growing population and changing climate. The Act includes reforms which will increase resilience to help ensure water is always available to supply customers without damaging the environment, including a new Ofwat duty to promote long-term resilience in the water supply and sewerage sector.

Defra will end most remaining exemptions from abstraction licensing control (new authorisations), abstractions that are considered low risk will remain exempt. The Environment Agency will also support government in developing their proposals for Abstraction Reform to meet the challenges of an increasingly varied climate, increasing demand for water and a growing population. This will support economic growth and the need for increased resilience of water supply. In addition we expect all sectors to adopt or promote water efficiency measures, including water industry work on metering, leakage, audits, providing water efficient products, promoting water efficiency and education. Agriculture and rural land management will need to manage demand for water and use water more efficiently to help secure a sustainable water supply for the future.

Woodland measures

Many organisations told us about woodland projects they are implementing (or hope to implement) which include aspects of tree planting and woodland creation. This information has been passed onto local Environment Agency staff to inform local planning and catchment action.

The role and importance of woodlands was specifically recognised and referred to in both Parts 1 (section 4.3) and 2 (section 6 and linked document https://ea.sharefile.com/d/se1dde0a8ffd484da) of the draft RBMPs, with the appropriate measures and mechanisms. The Environment Agency worked directly with Forestry Commission staff to do this. Part 1 (section 3.2) of the updated RBMPs includes reference to the UK Forestry Standard, and the use of opportunity mapping to identify and promote locations where woodland creation can deliver multiple benefits for the water and wider environment. In addition, the 'Measures and Mechanisms' document (available on the Environment Agency's ShareFile service https://ea.sharefile.com/d-sabbd14301a44d5e9) refers to forestry as a mechanism to achieve outcomes.

Water quality measures for estuarine and coastal waters

The role that shellfish aquaculture could play in removing potentially harmful pollution (through filtration) is a new area of work which the Environment Agency is following with interest. The Marine Management Organisation (MMO) has developed draft policies for their South marine plan to encourage the use of the natural environment to resolve water quality issues. The MMO is currently setting up a project to investigate the scope for environmental remediation in the South Inshore Marine Plan Area, including biofiltration by native species such as seaweed and filter feeding shellfish. The Environment Agency is actively involved in the development of the MMO's marine plans and has provided comments on the project proposal.

3.7.3. Selection of mitigation measures for the RBMPs

Where water bodies have been designated as either heavily modified or artificial, an important part of the planning process is the identification of measures to reduce the impact of the physical modifications. For the purposes of river basin management planning, these are referred to as 'mitigation measures'. A number of respondents, particularly those from the ports and harbours sector, said they felt they had not been sufficiently involved in developing mitigation measures for artificial or heavily modified water bodies (A/HMWB). Some said they were concerned that mitigation measures may have been incorrectly attributed to them, or that they had been identified as being required, when this was not the case. They felt that the process should be more transparent and open.

Response

In response to these comments, we have worked in close partnership with external sector leads to review the estuarine and coastal water bodies which were designated as A/HMWB for navigation use. Mitigation measures for the navigation use in these A/HMWBs have been revised as appropriate to ensure they are correctly allocated, and that they reflect the correct situation in those water bodies. We are now confident that the current classifications for all navigation water bodies are correct and their objectives are also correct.

Understanding which mitigation measures were relevant to particular water bodies

The mitigation measures spreadsheet was a useful tool to allow individuals and groups to understand what measures were relevant to a particular HMWB water body in the Broadland Catchment.

Information was cut down to the relevant water bodies and presented in a shortened version with further explanation of what the data showed. This was well received by the consultees and lead to 3 consultation responses which although specific to these water bodies, was useful for the Environment Agency when considering how to engage in the future. The picture shows an abandoned wind pump in the Broadland Catchment where a number of water bodies are designated as artificial or heavily modified for land drainage, recreation and flood defence uses.

3.7.4. How measures are described in the FRMPs

In the draft FRMPs measures were assigned an implementation status. Measures were classed as ongoing, agreed or proposed. Consultees were specifically asked whether they understood the difference between the 3 categories. Many respondents commented that splitting the measures in this way was overly complicated. They said that this in turn made it difficult to identify and assess the measures that were relevant to them.

A summary of the issues raised is shown below:

- the approach was said to be unnecessarily complicated
- it was difficult to understand the differences between the categories based on the definitions in the plan
- it was not clear how measures move from one category to another
- diagrams used to explain the different types of measures were confusing

Response

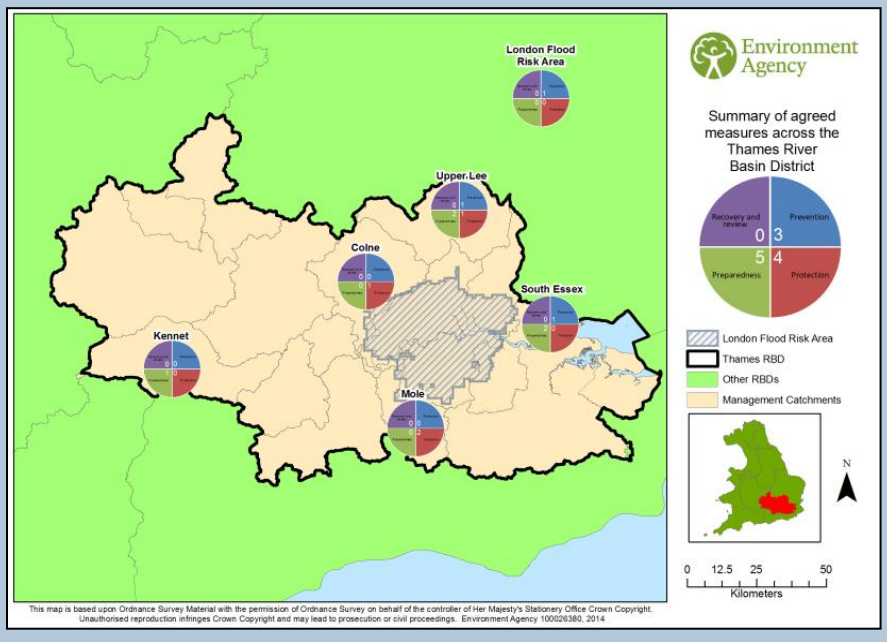
Consultation feedback highlighted a need to simplify the way that FRMPs categorise and describe flood risk management measures. The way measures were shown in the draft FRMPs has been reviewed to make it easier for readers to understand. As a result the following changes were made to the updated FRMPs:

- The ‘ongoing’, ‘agreed’ and ‘proposed’ terminology was included in the draft FRMPs to indicate which measures were being consulted on and which had already been approved. These 3 categories have now been removed from the updated FRMPs. The measure tables now contain information on where measures have come from, making it easier for readers to see if they originated from an existing plan or strategy, or are new.
- We have removed maps (see below) from the FRMPs which showed the distribution of measures in the 3 categories. Consultees said that these could be misleading and didn’t represent the breadth of flood risk management measures across the RBDs.

Simplifying FRMP measures

The map shown is extracted from the draft Thames FRMP. It shows an example of how the distribution of the measures was displayed in the draft FRMP. The draft plans used a circular graphic containing the number of measures at various spatial scales. The maps were used both at the RBD scale and the catchment scale.

Many respondents felt that the summary maps with the charts showing the spread of measures were confusing, difficult



to interpret and not representative of the risk being managed. In addition some respondents felt that quantifying measures in this way was not representative as the number of measures in a category gives no indication as to the scale of the action or how it reduces risk.

As a result of this feedback, these maps were removed from the updated FRMPs to try and simplify the way that we display measures.

3.7.5. Lack of location information in measures tables in the FRMPs

The draft FRMPs displayed the measures to manage flood risk in a 'measures table' at the end of each sub area (flood risk area, catchment summary or strategic place). These tables contain the detail for each measure but did not contain a location field. Some respondents said that this made it extremely difficult to identify the measures that relate to them, particularly at a community level. In addition there was general agreement that this made it difficult for readers to cross reference measures in the draft FRMPs with measures in other strategic plans, such as the draft RBMPs.

Response

As a result of consultation feedback, a location field has been added to the measures tables in the updated FRMPs, which will make it easier for readers to identify the measures that correspond to their area.

Showing FRMP measures spatially has not been technically feasible during the current cycle. However, we are currently looking into options to map the measures for the second cycle, which will help to show how they overlap with other priorities such as WFD. This will greatly improve the accessibility of the FRMP measures.

3.7.6. Addition of new measures (FRMP and RBMP)

The draft RBMP and draft FRMP consultation questions asked whether there were further proposed measures that should be included in the updated plans. Many respondents provided additional local measures that they would like to see included.

Response

Respondents suggested a variety of new measures that they believed should be included in the updated RBMPs and FRMPs, both at the RBD and catchment scale. This feedback is being reviewed and any new suggested measures will be considered for inclusion within the updated plans.

Updating the type of measures proposed in the draft RBMPs

Respondents to the consultation in the Brent and Crane Catchments (Thames RBD) noted that, for these catchments, the draft RBMP did not include any SUDS (Sustainable Urban Drainage Solution) actions to address diffuse urban pollution. They also commented that, whilst there were actions for rectifying misconnections in these catchments, they felt the possible importance of end of pipe retrofit solutions may have been overlooked.

In response to these comments, the Environment Agency has added SUDS and retrofit end of pipe solutions to local measures for these catchments. This means we will now consider these types of actions when working with partners in the Brent and Crane Catchments, as part of a suite of potential actions to address diffuse urban pollution. We have now added a small number of additional river and wetland improvement actions that were planned by partners. Partners gave a positive response and welcomed the changes when they were informed of them.

3.8. Catchment scale costs and benefits (RBMP)

Respondents raised a number of questions about the approach used in catchment appraisals (the method for assessing the cost benefit ratio of measures). Some respondents queried the costs used and in some cases additional cost information was submitted. In addition, some respondents questioned the approach that was used to estimate benefit values.

Many respondents implied they would support a benefits led approach to prioritise investment that achieves the widest possible benefits, and suggested that local stakeholders should be involved in decision making. Others asked how costs of measures required for achieving protected area objectives were taken into account.

These comments are addressed in more detail under the following headings:

- approach to catchment appraisal for RBMPs
- cost values used in RBMP catchment appraisals
- estimation of benefits for RBMP catchment appraisals
- assessment of RBMP protected areas

3.8.1. Approach to catchment appraisal in the RBMPs

A number of respondents said they found the catchment appraisals difficult to understand and that there was a lack of supporting information to help them understand the work. Some thought the cost benefit appraisal was too high level and that it didn't give useful project level information or take into account the number of projects that would be likely to obtain funding.

Response

The methods used to assess costs and benefits are set out in the Water Appraisal Guidance (WAG) http://www.ecrr.org/LinkClick.aspx?fileticket=YptJfk/36pI%3D. This is supported by an online training package called "Economic appraisal – a tool for river basin management planning" available to download here https://ea.sharefile.com/userinvitations-register.aspx?id=ia2938a7e56f442aa.To understand how the methodology was applied in a specific location, you can also speak directly with local Environment Agency staff.

A ‘triage’ approach was taken for the catchment appraisals. This allowed a relatively quick assessment of whether measures were cost beneficial or not, at a programme level (looking at bundles of measures collectively), not project level.

The catchment-level economic appraisals have not been used as project planning tools but to assess whether or not, at a catchment scale, measures to improve water bodies to (or towards) good status are worthwhile. As a result, the appraisal doesn’t take into account the number of projects likely to be funded, and therefore does not assess the economies of scale with regards to delivering a smaller number of larger projects or larger number of smaller projects.

The appraisals do not themselves determine exactly where and how measures will be delivered; the methodology is designed to weigh up the costs of implementing measures against the benefits, in order to support decision making.

The measures data that underpinned scenarios 3, 4 and 5 in the draft economic analysis were collated at a catchment level by local Environment Agency environmental planning experts. A proportionate approach was taken when assessing and monetising the benefits resulting from predicted improvements in the status of water bodies. This approach was set out in the Economic Analysis extended report (section 4.4) that supported the draft RBMPs.

We identified a ‘bundle of measures’ to improve and restore the water environment for each operational catchment (operational catchments are typically made up of 5 to 40 water bodies with logical hydrological boundaries) in England, using evidence from programmes of investigations to understand why some water bodies are not meeting the default objective of good status or potential. Appraising measures at this scale enabled Environment Agency staff to engage better with the people living in the catchments and identify the benefits of implementing measures to local communities. There has been both local and national level engagement on economic appraisals carried out at the catchment scale. Local engagement has been through river basin district liaison panels, with specific stakeholders such as water companies and with catchment partnerships, and has been planned and undertaken by local Environment Agency staff. We grouped measures together into a ‘bundle’ for appraisal so all costs and benefits could be assessed together.

As part of the consultation, partners had the opportunity to request the catchment appraisals and comment on the measures identified. Detailed measures data were not available through a centralised national database, however, this information was held at the local scale and was available on request via Environment Agency catchment coordinators.

Presenting an ‘economics appraisal guide’ to explain how cost benefit analysis works

Catchment coordinators in the Humber RBD presented an economics appraisal guide to the Rivers Trust Catchment Based Approach workshop in January. It was used to explain the cost benefit analysis work carried out for the draft RBMP. It proved to be very successful for helping stakeholders understand and answer the questions on catchment scale costs and benefits, as well as affordability and funding.

Two models were purchased to help people understand the interrelated pressures and processes acting in different catchments. These were very effective for explaining:

- how catchments work as a whole
- how SUDS* improve water efficiency and reduce run off

- how climate change might exacerbate certain pressures
- how changing industrial and farming practices can improve water quality

The picture shows one of the models, focussing on human activities that can affect the water environment. The models can be used to demonstrate how wetlands help to reduce flooding and erosion, hold sediment and pollutants, and provide habitat for wildlife. They are also helpful for showing how all sectors can contribute to catchment scale improvements and have been used by the Environment Agency at a number of events and meetings (and also lent out to partners).

**SUDS (Sustainable Urban Drainage Systems) are a natural approach to managing drainage in and around properties and other developments. SUDS work by slowing and holding back the water that runs off from a site, allowing natural processes to break down pollutants.*

3.8.2. Cost values used for RBMP catchment appraisals

Some respondents said that the costs used for assessing projects were not always based on the best available information. People also questioned whether the benefit cost ratio (BCR) calculations were robust and whether more accurate cost data might have tipped the balance.

Response

Environment Agency staff undertaking catchment appraisals tried to include all technically feasible measures for catchments to improve water bodies to (or towards) good status. They worked with information readily available to them, using generic tools and information where appropriate, which supports the proportionate triage approach.

The costs included in the appraisals came from a variety of sources. Where there were local, accurate cost values available for specific schemes, these costs were used. Examples include cost values provided by a water company for the upgrade of a sewage treatment works, and a quote for a site specific sustainable urban drainage scheme. For other measures, where local costs were not available, a database of generic costs (the 'Cost Effectiveness Database') was used. These more generic costs have been derived from previous experience of undertaking similar measures. Depending on the measure and source of information, averages or cost ranges were available for Environment Agency staff to apply to their economic appraisals. The ranges allowed staff to use their judgement about the most appropriate cost to use.

In appraisals for surface waters the Environment Agency used the National Water Environment Benefit Survey (NWEBS - NERA 2007, updated for 2012 values) willingness to pay values to estimate some of the benefits (in pounds sterling per km) of improvements to the water environment from society's perspective. For groundwater appraisals, we transferred values from previous peer-reviewed economic assessments to monetise (give a value to) some ecosystem service benefits. Benefits are monetised in this way in order to compare like-with-like (costs in pounds sterling with benefits in pounds sterling). This

method of valuation is a proportionate approach that monetises some of the benefits expected to result from applying a bundle of measures to a catchment and compares these benefits to the costs of implementing the measures.

We are aware that there is likely to be uncertainty concerning the inputs to the appraisals, including cost information. Therefore the methodology has been developed to allow for these uncertainties by testing the robustness of results through sensitivity analysis. Sensitivity analysis helps us understand how important the uncertainties are to the final recommendations of the appraisal. These tests look at what happens to results if the main input data are adjusted, such as the willingness to pay value, higher or lower costs and if the success of the measures achieving their outcome (the risk of failure) is adjusted. These uncertainties and sensitivity analysis were included in the Final Appraisal Reports.

3.8.3. Estimation of benefits for RBMP catchment appraisals

A number of respondents were concerned that benefit estimates could be inaccurate or underestimated and commented that some benefits were not included at all. They also felt benefit values from the National Water Environment Benefits Survey (NWEBS) could have been more up to date.

Some respondents said catchment appraisals didn't give enough consideration to using Catchment Based Approach (CaBA) partnerships as a successful delivery mechanism.

Response

The Environment Agency is aware of the limitations of surveys such as NWEBS and will be developing even more robust methods in the future. However, at present, we believe this is a well established and approved method of considering benefits. Information used to inform the benefits estimates included monitoring data, investigation outcomes, local expert knowledge and partner inputs where possible. It also included additional guidance such as the affect of a pressure on a specific NWEBS category, which is described in the WAG. If consultees have additional information about benefits, the local Environment Agency catchment coordinator should be the first point of contact.

In spring 2012, the Environment Agency commissioned an independent consultant to update the NWEBS benefit values. The update takes into account any changes in population, price year and any recent developments in stated preference valuation, to give the most robust estimate of value. NWEBS values were subject to a rigorous scientific panel and review, but we accept benefits values are likely to be underestimated rather than overestimated in the stage 1 valuation, because we monetise 3 main ecosystem services rather than all of them. However, the most important non-market benefits for water environment improvements and those for which we have the most information have been selected for monetisation in the economic appraisals.

Recent research shows that people are prepared to pay a similar if not greater amount for nature-based recreation than the values estimated in NWEBS, so values used in the draft RBMPs may be a conservative estimate.

Through the consultation, we invited partners to provide cost and benefit information which helped to improve input data to appraisals.

The Environment Agency is not just evaluating monetary costs and benefits. We are also looking at the wider non-market costs and benefits that can be delivered. To do this we are assessing changes to the multiple benefits that the water environment provides as part of the appraisals, using the Appraisal Summary Table (AST). Information collated in the AST is the first step in the appraisal process and is fundamental to the process and final recommendations. It describes the impacts of measures on a wide range of ecosystem services, some of which are then monetised in the cost benefit analysis stage of the appraisal.

The most important non-market benefits for water environment improvements, and those for which we have the most information, have been selected for monetisation (conversion into money) in the economic appraisals. In addition to existence values and recreational and aesthetic services, the ecosystem services provided by wetland creation are also monetised in the economic appraisals.

We recognise the importance of the Catchment Based Approach (CaBA) and catchment partnerships as successful mechanisms to deliver measures. However, the appraisals themselves are not designed to assess the mechanisms to deliver measures. For these economic appraisals, the baseline includes those measures that are already in place or part of existing regulation, and do not assess the costs of Environment Agency staff 'day job'. The appraisal assesses and aims to value the additional measures (the costs of these) needed that will improve water body status. Community engagement is part of the 'day-job' for many Environment Agency staff, and as a result, these costs are not included. However this work is not undervalued and has been referenced in the economic analysis to ensure it is part of the economic evidence for decision making.

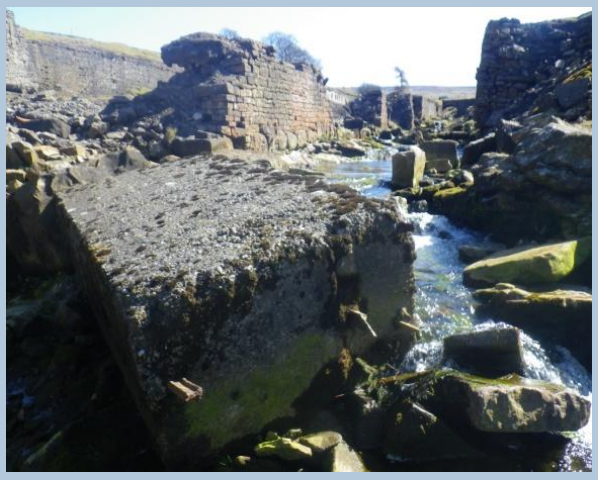
A benefits led approach that prioritises investment was supported by stakeholders where it can achieve the greatest possible benefits to the widest range of ecosystem services and also to other plans as well as the WFD. Examples include upstream wetland creation and sustainable urban drainage that deliver benefits for flood risk management, as well as water quality, quantity and biodiversity.

Recognising benefits of healthy water bodies in other plans, in addition to the RBMPs

A number of respondents commented on the need for resources to help deliver measures in the plans, especially with resources in the public sector being tight for the foreseeable future.

In recent work with Local Enterprise Partnerships (LEPs) the Environment Agency has succeeded in a number of cases in getting economic benefits of healthy water courses and wetlands embedded in strategic plans with resources for delivery attached. LEPs can help provide a framework that supports improvements to the water environment through their Strategic Economic Plans and European Structural Investment Fund Strategies.

In Northumberland, Durham and Tees area, the Environment Agency joined forces with economic and environmental partners (including Newcastle Council, Port of Tyne and the Coal Authority) to develop a joined-up £10.5m project. This project will deliver a long term solution to the pollution caused by disused mines and a tar works in the River Tyne catchment, enabling redevelopment of historic quays for new offshore industries.



The picture on right (supplied by Tyne Rivers Trust) shows Barney Craig spoil collapse on the West Allen, a tributary of the South Tyne. This is one of the sites to be remediated as part of the project to halt polluting mine waters entering the River Tyne.

3.8.4. Assessment of protected areas (RBMP)

A number of respondents commented it was unclear how measures for protected areas had been accounted for in the cost benefit analysis work.

Response

Measures to achieve protected area objectives have not been included in the cost benefit analysis. These measures are considered 'must do' actions to achieve the aims and objectives of the WFD; they are required to be undertaken, regardless of cost benefit analysis results. These measures still form part of the bundle of measures for a catchment and contribute to the water body objectives. The effects of the measures are appraised alongside the measures to improve water body status in the Appraisal Summary Table (AST). This is to ensure that all of the benefits from these measures and those to improve water bodies towards good status are captured, as well as any potential adverse effects. Some information on the costs of measures is also available in the Improvement Programme for England's Natura 2000 Sites (IPENS) site improvement plans. More information on IPENS is available from http://publications.naturalengland.org.uk/category/6287197783195648

3.9. Achieving multiple benefits (FRMP)

Many respondents said that the draft FRMPs should place emphasis on delivering multiple benefits through flood risk management activities. Consultees said that a catchment wide approach that delivered multiple environmental benefits through partnership working, was considered to be the most effective way to reduce flood risk.

In addition to delivering multiple benefits many consultees said that FRMPs should provide more information on how flood risk management outcomes can be delivered by working with natural processes. The need to act where multiple benefits could be achieved was also highlighted in some responses to the RBMPs.

The main FRMP themes identified are shown below:

- delivering multiple benefits
- working with natural processes

3.9.1. Delivering multiple benefits

A theme which emerged during the dFRMP consultation was the importance of identifying opportunities to deliver wider benefits when undertaking flood risk management activities. Respondents highlighted that often multiple organisations and individuals are involved in water management in the same area. Identification of projects that deliver multiple benefits early in the planning cycle, will deliver the greatest value for money, whilst delivering greater outcomes for the water environment.

Response

Risk management authorities (RMAs) work together to deliver the government's policy of managing flood risk, to achieve the greatest overall benefit for communities, property, business and the environment. In 2013 Defra launched a policy framework to encourage the wider adoption of an integrated catchment based approach to improving the quality of our water environment. The consultation feedback received during this current cycle of FRMPs will be used to inform and influence the second planning cycle.

3.9.2. Working with natural processes

Many respondents said that the draft FRMPs placed a lot of emphasis on engineered approaches to flood management and capital works. Whilst they recognised the importance of these measures for managing flood risk, they said that working with natural processes should be given more weighting in the plans. Many consultees highlighted that there is lots of potential for natural flood management measures. Natural flood management and upstream storage was seen as addressing the root cause of flooding whilst also delivering wider benefits for people and wildlife.

Response

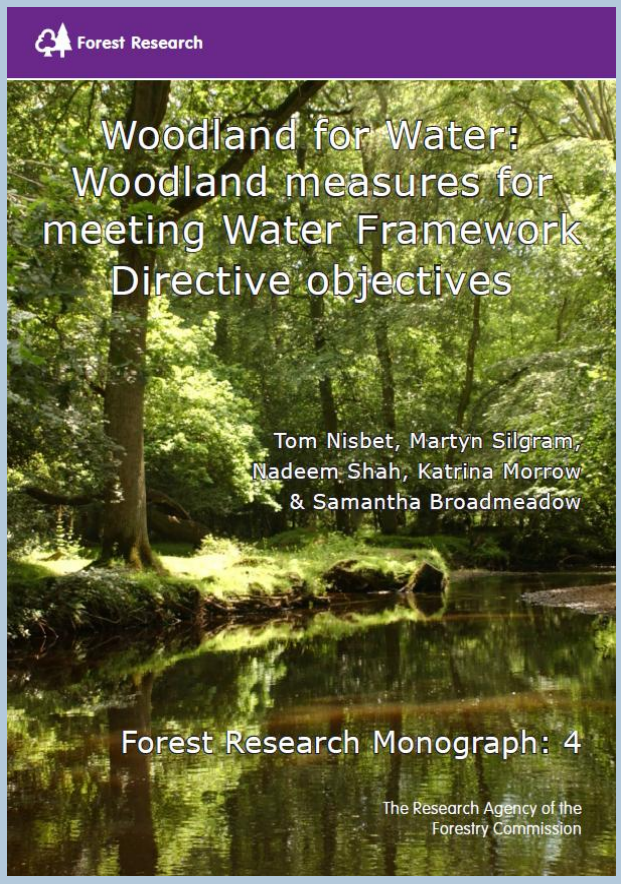
Working with natural processes includes ways of managing flooding that work with the nature. Other terms used to describe these sorts of methods may include ‘natural flood risk management’, and ‘soft engineering’.

Working with natural processes means taking action to manage flood and coastal erosion risk by restoring and copying the natural function of catchments, rivers, floodplains and coasts. Examples include re-instating washlands and wetlands to store flood water, allowing cliffs to erode to provide sediment along the coast, beach nourishment, tree planting, woody debris dams, managed realignment and peat bog restoration. It can also refer to slowing down the flow of water for example by re-instating floodplains or creating obstructions in watercourses in upstream areas to reduce flood flows further down the catchment.

The Environment Agency has worked closely with Natural England and the Forestry Commission to identify areas where working with natural processes and forestry could be used to reduce flood risk. The updated FRMPs will include additional information highlighting the potential benefits and direct readers to where they can access additional information.

Using woodland to reduce flood risk

There is a strong, evidence-based case that woodland measures can reduce flood flows, particularly but not only, within smaller catchments. Trees help reduce flood risk in a number of ways:



- greater water use by trees compared to other vegetation types reduces run-off and also creates greater capacity for woodland soils to absorb rainfall during flood events
- higher infiltration rates of forest soils resulting from the extensive rooting systems of trees reduces run-off to watercourses and aids interception of overland flow from adjacent land
- flood flows can be slowed through channel management or by increasing local woodland, which can increase temporary storage and thereby delay the transfer of flood water downstream
- soils under woodland are generally well structured and protected from erosion risk, reducing delivery of sediment to watercourses

The joint Environment Agency and Forestry Commission 'Woodland for Water' report, published in 2011, detailed the evidence behind these conclusions.

The updated FRMPs will include additional information detailing the benefits of using woodland to reduce flood risk. This will also link to opportunity mapping being carried out by the Forestry Commission.

3.10. Maintenance of watercourses and flood management structures (FRMP)

FRMPs include the measures to manage risk across each RBD. These measures are brought together from existing strategic plans and the 6 year investment programme. Respondents said they felt that there was insufficient information in the draft FRMPs about ongoing maintenance. These comments are addressed in more detail under the following headings:

- more emphasis on ongoing maintenance
- lack of information on the responsibilities of riparian land owners
- value of agricultural land and food security

3.10.1. More emphasis on ongoing maintenance

Many consultees said that the draft FRMPs placed a lot of emphasis on capital flood defence works, as opposed to ongoing maintenance of existing flood defence structures and water courses. Some respondents said that the updated FRMPs should give more emphasis to ongoing maintenance. Consultees said that maintenance, particularly in rural areas, was an essential part of managing flood risk and should be represented in the plan accordingly. Some respondents told us that there was a need to ensure that there is a robust maintenance programme, with several requests for maintenance measures to be included in the updated FRMP documents.

Response

RMAs carry out maintenance work in line with government policy to provide the greatest benefits to people and property at risk of flooding within the available funding. Like other RMAs, the Environment Agency carries out work to maintain channels, assets and structures under its permissive powers. A risk-based approach is used to assess the need and justification for maintenance and activities are prioritised that will contribute most to reducing flood risk per pound of funding.

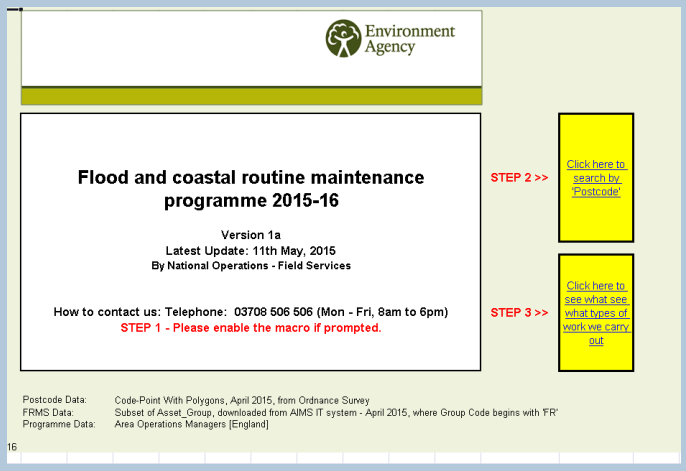
The consultation feedback about ongoing maintenance has been reviewed. As a result the updated FRMPs will provide more information on maintenance activities. Additional text will be added to the updated FRMPs providing more background. The updated plans will also now provide a link to the Environment Agency online maintenance programme. This will enable readers to access local detail regarding the maintenance activities in their area.

Environment Agency river maintenance programmes

Maintenance work the Environment Agency plan to do between 1 April 2015 and 31 March 2016 is published on GOV.UK (https://www.gov.uk/government/publications/river-and-coastal-maintenance-programme). Enter your postcode to find out what type of maintenance activities the Environment Agency may do near you and when they plan to do it. The programmes show the maintenance work that the Environment Agency do:

- every year (frequent maintenance)
- every few years (intermittent maintenance)

The Environment Agency consults internally and with Natural England to ensure that the environment is considered when doing any maintenance activities. The Environment Agency makes every effort to ensure the maintenance programme is up to date.



Sometimes work may not go ahead at the planned time because of adverse weather, floods, available resource or national environmental incidents. Updated FRMPs will link to the published maintenance programmes to make it easier for readers to see the maintenance activities planned for their area.

3.10.2. Lack of information on the responsibilities of riparian land owners

Consultees also said the draft FRMPs did not provide enough information on the roles and responsibilities of riparian land owners. Respondents highlighted that in addition to RMAs, a wide variety of organisations and landowners have a role to carry out maintenance. Consultees highlighted that these responsibilities should be detailed in the FRMPs.

Response

Comments made during the consultation have been considered and as a result, changes have been made to the updated FRMPs. A new section 'What is flood risk and who manages it?' has been added to section 1 of Part A in the updated FRMPs. This section provides background information about flooding and how it is managed. Within this section there is a table showing RMAs and others involved in managing flood risk. This information outlines the roles and responsibilities and will help the reader understand all those who have a role to play in the management of flood risk.

3.10.3. Value of agricultural land and food security

A common theme highlighted by some respondents was the issue of managing flood risk to agricultural land. Some consultees, particularly those from the farming and land management sector, said that agricultural land is under-valued in the current Flood and Coastal Risk Management (FCRM) funding process. These consultees said that the current

funding process does not take into account the importance of agriculture for the rural economy and for food security.

Response

The FRMPs reflect the current government position regarding managing flood risk to agricultural land, indicating that resources are prioritised where the risk to people and property is highest. Land drainage for agricultural purposes was historically an important element of our operational activity in flood and coastal erosion risk management. Government policy is based on the prime driver for investment in water management for flooding and drainage, being one of risk reduction to people and property, and for the improvement of the environment. The Environment Agency prioritises investment according to government policy, the National Flood and Coastal Erosion Risk Management Strategy and HM Treasury green book on economic appraisal. Government policy gives the highest priority to lives and homes. This will mean the Environment Agency reducing or stopping maintenance work in some areas, where the impact of flooding directly affects fewer people.

There are no proposals to make substantial changes to the updated FRMPs. However, the text included within the plans on land management will be improved to reflect the current policy.

3.11. Climate change (RBMP and FRMP)

Respondents commented that they would like to see more of a steer on the approach to climate change in the updated plans. Some said that the assessments in the draft plans underplayed the potential benefits that implementation of the updated plans would have on alleviating the effects of climate change, including the effect of climate-induced water stress.

Respondents also noted there was likely to be an increase in invasive non-native species as a result of climate change and said this should be addressed in the updated RBMPs. These comments are addressed in more detail under the following headings:

- approach to climate change in the RBMPs and FRMPs
- risk of deterioration due longer term challenges in RBMPs

3.11.1. Approach to climate change in the RBMPs and FRMPs

Some respondents welcomed the fact that climate change was recognised in the RBMPs. Others said they felt more steer should be given on how the plans would address the pressures associated with climate change. A number of consultation responses said that measures should help mitigate and adapt to the impacts of climate change. There was also mention that it was important to consider both the costs and benefits with regard to climate change.

The draft FRMPs contained information on how climate change will affect flood risk management in the future. Consultees overwhelmingly agreed that climate change is one of the main challenges facing flood risk managers and communities at risk over the coming years. Given the importance of the issue many respondents said that climate change should be given more emphasis in the plans. Respondents said that the information in the dFRMPs did not reflect the most up to date climate science and data available. They also expressed that dFRMPs should include more information on how climate change is likely to affect people and the environment. Finally, there was also agreement that the updated FRMPs should include more detail on how RMAs will ensure that flood risk management measures take into account the effects of climate change when they carry out flood risk management activities.

Response

An important focus during cycle 1 of river basin management planning has been to improve the evidence about the costs and benefits of measures to improve water bodies to good status or potential by 2021 to 2027. This has been pioneering work and was complex to implement. However, as a result of this work, the Environment Agency now has an important 'baseline' from which we can develop our plans to be resilient to climate change and other pressures on river catchments.

We have already started considering the impacts of climate change with some initial risk assessments in the draft RBMPs. These have been done at the management catchment scale. This work will complement a growing evidence base of good practice, which we will use in the implementation of measures agreed in this cycle. For example, this might include planting trees next to rivers (riparian shading) to reduce water temperatures and avoid losses in salmonid fisheries.

As well as informing the implementation of current measures, this developing evidence base will inform us as we develop longer-term adaptation plans for different catchments. The regular review of RBMPs will allow new findings from this evolving evidence base to be taken into account, so measures can be adapted or updated accordingly, to reflect changes in climate and population growth.

The Environment Agency has a strategic overview role for all forms of flood and coastal erosion risk management (FCERM). As part of this role we commission and collect evidence on the scale of the impact of flood and coastal erosion, its probability and management. The nature of climate change and the scale of its impacts are uncertain, depending in part on our ability to manage emissions to help tackle the causes. Predicting the consequences of climate change is therefore complex, and for flood and erosion risk the consequences also depend upon decisions about development planning and FCERM infrastructure. We work with local councils and other partners to plan investment that accounts for climate change in a transparent and proportionate way, without closing off options to adapt our approach in the future as new information emerges. Given the long lifetime and the cost of many FCERM schemes, plans and investment projects must take account of the changing risks over the coming century. This includes designing for adaptation to a changing climate where appropriate. Climate change has been factored into design assessments since 1998

The Environment Agency and other RMAs recognise that climate change presents a significant challenge for future flood risk management and the sustainability of communities which are at risk. As a result of this feedback, the information on climate change will be improved and will provide further detail on how RMAs will factor in the effects of climate change into flood risk management. These changes will be consistent across all the FRMPs. The changes are summarised below:

- **Climate change text**: this section has been re-written to ensure that the information in the updated FRMPs reflects the current government position and Environment Agency advice on how climate change should be considered in flood and coastal decision making. This section will reference the latest government guidance for taking climate change into account when making planning decisions (Climate Change Allowances Guidance for Planners) published in 2015.
- **Climate change measures**: 2 river basin district wide measures have been added to each of the 10 updated FRMPs. The measures set out how RMAs will incorporate climate change allowances into flood management schemes and look for opportunities to use natural flood management and other adaptation techniques. These measures are detailed below:
    - incorporate climate change allowances into flood risk management works

- identify where working with natural processes or natural flood management can help to reduce flood and coastal erosion risk, helping catchments both adapt to and become more resilient to the impacts of climate change

The inclusion of these measures strengthens the commitment to plan and prepare for the effects of climate change in the updated FRMPs. Progress will be reported against these measures annually.

3.11.2. Risk of deterioration due to longer term challenges in RBMPs

Some respondents suggested that the issue of invasive non-native species (INNS) will increase in importance in the period to 2027 given the effects of climate change. A number of respondents commented on the fact that increasing demand for water supplies for housing and business needs would be exacerbated by the pressure from population growth and climate change. Some suggested that river basin management planning should be integrated with local plans so that new development always has a sustainable water supply, whilst protecting the water environment.

Response

The impact of invasive non-native species is recognised as a significant water management issue in all river basin districts. The updated RBMP (Part 1 - section 1.4) describes how climate change is expected to drive certain species northwards, increasing their frequency and variety in the future and affecting the condition of water bodies. This increasing risk was taken into account in the invasive non-native species risk assessments (https://ea.sharefile.com/d-sd0f63dc4a3b4f008).

The Environment Agency shares data and information to support water cycle studies (http://planningguidance.planningportal.gov.uk/blog/guidance/water-supply-wastewater-and-water-quality/information-about-the-water-environment/). In the second cycle of river basin management planning, we will continue to assist local councils in their preparation of water cycle studies by supplying the relevant data and information. These studies provide evidence to show if the required water-related infrastructure (for the proposed growth period) can be accommodated and delivered in time. Where the evidence supports it, and the viability of development is not adversely affected, local council plan policies can require new developments to reduce water usage by incorporating water-efficient devices such as low-flow taps and rainwater harvesting systems from the outset.

Reducing the risk of deterioration

Following advice from the Environment Agency in Anglian River Basin District, the Broads Authority has adopted a policy which states:

> *"Sufficient water infrastructure capacity to meet the additional requirements arising from a development should be in place before the development commences.*
>
> *Development will only be permitted where it can be demonstrated that it will not have an adverse impact on surface or ground water in terms of quality and quantity. This should include the requirements of the Water Framework Directive and Habitats Regulations."*

This policy will ensure new development is properly planned for without increasing pressure on the water environment in order to provide a sustainable water supply. Measures to enhance water quality, amenity and biodiversity within the catchment may also be encouraged as a result.

3.12. Integrated planning (RBMP and FRMP)

A number of respondents said the RBMPs and FRMPs should be better integrated with other plans and strategies including the Marine Strategy Framework Directive, shoreline management plans, local council plans and the water industry's National Environment Programme (NEP). Many of the points were in relation to differing planning time frames, or implementation of actions that would be of benefit to multiple plans.

Other points raised queries on how the FRMPs will work alongside existing plans. Some respondents said that the draft FRMPs did not include enough information or links to these plans. Comments are addressed under the following headings:

- planning timeframes for RBMPs
- linkages between FRMPs and RBMPs
- Marine Strategy Framework Directive links with RBMPs
- shoreline management plan links with FRMPs and RBMPs
- local council plans and the RBMPs
- local flood risk management strategy links with FRMPs
- national flood and coastal erosion risk strategy for England links with FRMPs
- six year investment programme links with FRMPs
- catchment flood management plan links with FRMPs

3.12.1. Planning timeframes for RBMPs

Respondents said they would like to see better integration between the RBMPs and other plans, in particular with the FRMPs and the water industry's NEP. A small number of respondents also commented that planning timescales for the WFD are relatively short in comparison to other planning timeframes.

Response

The 6 year planning cycle under the WFD allows effective monitoring and review of the environmental outcomes resulting from the measures implemented. This relatively short-term iteration means we can be responsive to changes in technology as well as environmental quality, and better evaluate the effectiveness and economic viability of the planned improvements as we progress towards 2027. This approach means we can target improvement measures most effectively. We will draw on the views shared during this consultation to consider how we can work more effectively with others through the next cycle of planning for RBMPs and FRMPs.

There is a mismatch in timings of river basin management planning cycles and water industry planning and funding cycles. RBMPs run for 6 years whereas water industry business planning and funding is reviewed every 5 years (known as the price review or periodic review of prices). This price review fixes prices that the water companies can charge their customers for the next 5 years. As part of this process, the Environment Agency produce the National Environment Programme (NEP), which is a list of measures that water companies are required to implement during the 5 year period. This includes measures to deliver WFD objectives and is the main funding mechanism for delivering these measures.

The current price review period runs from April 2015 to March 2020 and water company business plans were finalised in December 2014 (price review 2014; PR14).To overcome the mismatch in timings the Environment Agency produced a phased NEP, releasing information to the water companies on NEP requirements as they became available. However, since the updated RBMP is published a year after business plans were finalised,

we also worked with the water companies to include an allowance for unconfirmed WFD measures in their business plans. The final NEP measures will be confirmed in 2016.

3.12.2. Linkages between the FRMPs and RBMPs

There was a consensus amongst respondents that better integration of flood risk and river basin management planning is needed to make better decisions about managing the water environment. A common theme amongst respondents was the possibility of combining the FRMP and the RBMP into one plan. Consultees said that having a single plan would make it easier to identify where FRMP and RBMP measures overlap.

Some respondents said that bringing the 2 plans together would make it easier to access information, reduce duplication and enable benefits to both the environment and through reduction of flood risk. Many respondents said that there needs to be better cross over between the Floods Directive and Water Framework Directive.

Response

Recognising the need to have strong links between the 2 plans to deliver the best outcomes for the water environment, the Environment Agency launched the draft FRMP and draft RBMP consultations at the same time, to help respondents to see the linkage between the 2 plans. Consultees agreed that there should be stronger links between the 2 plans, but many said that this did not go far enough and needs to be improved.

There are no plans to combine the RBMPs and the FRMPs into one holistic plan during this current planning cycle. However, we will take this feedback forward for consideration as part of our planning for the next cycle of plans. Format and integration options were considered before producing the plans. However, producing a combined flood risk management plan with our partners for the first time was considered the priority, as it is the first time a plan has been coordinated across RMAs each with their own responsibilities. Therefore the priority was to coordinate effectively with our partners, instead of introducing the further challenges around producing a holistic plan for the first cycle of FRMPs. The feedback on producing one plan is being considered for the 2021-2028 planning cycle.

To improve co-ordination between the 2 plans, the FRMP measures that will contribute to RBMP outcomes have been summarised in the updated FRMPs. This will focus on outcomes for 2021, but with an opportunity to summarise the potential for longer term outcomes too. This will make it easier for the reader to see cross over between the 2 plans.

Improving the linkages between the FRMPs and the RBMPs

New information will be added to the updated FRMPs in response to consultation feedback. The ‘Contributing to broader benefits’ section in Part A of the FRMPs gives details about how the plans impact on, or benefit the wider environment. It also outlines the flood risk management measures that contribute to WFD benefits.

The addition of this information should help readers to better understand the linkages between the FRMPs and RBMPs.

The FRMPs are being developed in partnership with others by bringing together relevant information about all sources of flood risk from existing plans. FRMPs are developed using the best information currently available including:

- information from past flooding
- information from existing preliminary flood risk assessments

- catchment flood management plans
- shoreline management plans
- developing local flood risk management strategies (and surface water management plans)

Throughout the development of the FRMPs and RBMPs, we have been striving to enable more explicit read-across to wider water management objectives in the updated RBMPs. The FRMPs and updated RBMPs together provide a unique opportunity to look across different aspects of river basin management. This will help ensure a common understanding of issues and the agreement of priorities and solutions. It will also enable partners to work together to achieve multiple benefits for best value, as these plans will drive significant resource allocation between 2016 and 2021.

The FRMPs should enable better consideration of flood risk in spatial planning, through improving local planning authorities understanding of all flood risk and enable better coordination with other policy areas particularly relating to water management. We are also considering whether we can align flood risk planning more closely with river basin management planning. The following sections outline how the FRMPs and RBMPs integrate with existing plans and strategies.

3.12.3. Marine Strategy Framework Directive links with RBMPs

Some respondents said that measures in the updated RBMPs should be better integrated with other plans including marine plans and the Marine Strategy Framework Directive.

Response

The Marine Strategy Framework Directive (MSFD) establishes an integrated policy for the protection of the marine environment in a similar manner to the Water Framework Directive (WFD) and requires the achievement of good environmental status in marine waters. The scope of the MSFD is broader than that of the WFD, covering a greater range of environmental components and indicators. However, there are some significant areas of overlap with WFD, particularly in relation to chemical quality, eutrophication and aspects of ecological and hydromorphological quality. The MSFD recognises these overlaps and makes it clear that in coastal waters the MSFD is only intended to apply to those aspects of good environmental status which are not already covered by the WFD, for example noise, litter and aspects of biodiversity.

The Environment Agency has been working closely with Defra's MSFD team to align and integrate the directives with MSFD relying on WFD programme of measures, for pressures relating to contaminants, eutrophication and hydrographical conditions, to support the attainment of 'good environmental status'. Alignment has also been developed between RBMPs and FRMPs, with relevant RBMP measures being built into the proposals for the UK's Marine Strategy Part 3. This assists public bodies making authorisation or enforcement decisions capable of affecting the marine area to ensure they take their decisions in accordance with the MSFD, RBMPs, FRMPs and marine plans.

We have also updated the RBMPs (Part 2) to provide further information on the work to align and integrate WFD and MSFD. In recognition of the role that WFD measures will play in achieving MSFD objectives, the reporting on programmes of measures to the European Commission, under both directives, will be closely linked. The Environment Agency is working with Defra and others to ensure that implementation of both directives is complementary and are exploring opportunities to integrate delivery through the National Liaison Panel Estuaries and Coasts Subgroup and the MSFD Policy Steering Group. The UK targets and indicators in MSFD for good environmental status have been aligned, as far as possible, with existing WFD assessment tools.

Further information on the overlaps between the MSFD and WFD can be found on GOV.uk.

3.12.4. Shoreline management plan links with FRMPs and RBMPs

A number of respondents said they would like to see more integration and better links between the RBMP, FRMPs and shoreline management plans.

Response

Shoreline management plans (SMPs) are owned by coastal groups (which include Coastal Protection Authorities). They are non-statutory, high level planning documents. They are large scale assessments of the risk associated with coastal processes, and a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner. SMPs identify the most sustainable approaches to managing coastal erosion and flooding risks in the short, medium and long term. More information can be found at: http://apps.environment-agency.gov.uk/wiyby/134834.aspx.

FRMPs and SMPs are linked by the fact that FRMPs contain information and actions from SMPs that are directly related to flood risk from the sea. SMPs will remain the primary high level strategic planning documents on the coast as they are owned by coastal groups who are primarily responsible for coastal management. The plans also contain information on coastal erosion risk management, and their content can be updated or changed using an established auditable process. Any changes will be reflected in the next cycle of FRMPs (2021 to 2027), as they are updated on a 6 yearly cycle. Changes may result from the SMP evidence base and emerging experience from RBMP implementation. Therefore, the programme of measures in the updated RBMPs, the action plan and information in the updated FRMPs, and the 'living' SMP documents should successfully inform and read-across to each other.

3.12.5. Local council plans and the RBMPs

Some respondents commented that local councils can make an important contribution to achieving RBMP outcomes. They went on to say that measures in the RBMPs should be integrated with local council spatial plans, for example local plans, highways plans, green space strategies and community infrastructure delivery plans, in order to help achieve good status and prevent deterioration.

Response

The Environment Agency has developed guidance with partners to help Local Planning Authorities understand how they can use the RBMPs when preparing their own planning documents. More information can be found at: http://www.catchmentbasedapproach.org/local-authority-guidance-engaging-with-the-water-framework-directive

The Environment Agency has produced a 'local plan tool kit' to help our area planning staff integrate RBMP measures into local plan policies. In the second planning cycle, our area planning staff will be increasing their strategic planning focus on working with Local Planning Authorities to get the most appropriate WFD policies embedded in local plans.

The Peterborough Flood and Water Supplementary Planning document

The Environment Agency has worked closely with Peterborough City Council on the Peterborough Flood and Water Supplementary Planning document (SPD). This is a comprehensive planning document bringing together policy on flood risk, sustainable

drainage and the protection of aquatic environments. It was adopted by the council in December 2012. It focuses on managing flood risk and the water environment in and around new developments in Peterborough in ways that achieve multiple benefits and reduce the likelihood and consequences of both flooding and pollution.

The SPD supports and further explains the higher level water and environment related policies of Peterborough's Local Plan. It helps developers and decision makers understand flood and water management and embed it in decision making at all levels of the planning process. Detailed guidance is provided on:

- requirements of the Water Framework Directive (WFD)
- information about how people and development influence the water environment and the WFD status of rivers
- how to assess the impacts of development on aquatic environments
- requirements for other permissions needed for works affecting watercourses

The Flood and Water SPD and is available on the Peterborough City Council website.

3.12.6. Local flood risk management strategy links with FRMPs

Many consultees said that the updated FRMPs should have closer links with local flood risk management strategies (LFRMSs) to give a more complete picture of flood risk from all sources.

Response

Local flood risk strategies are being produced by Lead Local Flood Authorities (LLFAs) to identify local flood risks (surface water, groundwater and ordinary watercourse flooding) including interactions with main river and the sea, and how these can be managed. Local strategies provide an opportunity to bring together information on local flood risk and set out the measures (or actions) that will be taken to manage it. Where a local strategy has been published, the measures can be included in the updated FRMPs. Where a local strategy has not yet been produced, this has not been possible. LLFAs are expected to finish publishing their local strategies during 2016.

In response to the consultation feedback, changes have been made to the updated FRMPs to try and make it clearer what information is included for each RBD. As part of this we have made improvements in how the updated FRMPs will link to LFRMS. The updated FRMPs will now include links to all LLFA websites where readers can either access the LFRMS, or obtain further flood risk management information where there is not yet a local strategy in place.

Local Flood Risk Management Strategies (LFRMSs)

The table below is an extract from the updated Humber FRMP. It lists the LLFAs within the RBD, and gives a link to further information. The links take readers to the LFRMS for each council. Where no LFRMS is available, links are provided to the website for the LLFA.

LLFA	Management catchments within LLFA boundary	Link to further information
North Yorkshire County Council	• Esk • Derwent • Hull and East Riding • Aire and Calder • Swale, Ure, Nidd and Ouse • Wharfe and Lower Ouse • Don & Rother • Tees (Northumbria RBD) • Ribble (North West RBD)	NYCC flood risk pages including access to their LFRMS: http://www.northyorks.gov.uk/article/25991
Kirklees Council	• Aire and Calder • Don and Rother	Kirklees Council flood risk pages including access to their LFRMS: http://www.kirklees.gov.uk/community/flooding/flooding.aspx
City of York Council	• Swale, Ure, Nidd and Ouse • Wharfe and Lower Ouse • Derwent Humber	City of York Council LFRMS: CYC Flood Risk Management Strategy

3.12.7. National flood and coastal erosion risk management strategy for England links with FRMPs

Consultees said that the updated FRMPs should have closer links with the existing flood risk management strategies including the national flood and coastal erosion risk management strategy for England, and that there was not enough information in the draft documents on how FRMPs work alongside this strategy.

Response

The Flood and Water Management Act 2010 requires the Environment Agency to develop a national strategy for England. This describes the roles of all RMAs and the objectives and measures nationally to guide what needs to be done by all RMAs involved in flood and coastal erosion risk management (FCERM) to reduce the risk of flooding and coastal erosion, and to manage its consequences. The RMAs, as set out in the Act, are local councils, internal drainage boards, water and sewerage companies, highway authorities and the Environment Agency. The national strategy addresses the impacts of climate change and how the strategy contributes to the achievement of wider environmental objectives.

RMAs must have regard to the national strategy and act consistently when exercising their flood and coastal erosion risk management functions, and when carrying out other functions.

The strategy received Parliamentary approval in 2011 and is a statutory document. It provides the first statutory framework for how communities, the public sector and other organisations will work together in England to manage flood and coastal erosion risk. It supports local decision-making and engagement in FCERM, making sure that risks are managed in a co-ordinated way across catchments and along the coast.

Additional information has been added to the updated FRMPs introducing the national flood and coastal erosion risk strategy for England and setting out how it links and will be delivered by the FRMPs.

3.12.8. Six year investment programme links with FRMPs

Consultees said that FRMPs should have closer links with the 6 year investment programme for flood risk management, and there was not enough information in the draft documents on how FRMPs work alongside this.

Response

In December 2014 the government set out a 6 year plan for investment in flood and coastal erosion risk management (2015/16 to 2020/21). More than £2.3 billion will be invested in capital projects alone over the 6 year period from 2015/16 to 2020/21. The latest published figures show the current funding profile of each year. The published programme can be found here: https://www.gov.uk/government/publications/programme-of-flood-and-coastal-erosion-risk-management-schemes. The updated FRMPs contain measures from the 6 year investment programme which are detailed in the appendices.

3.12.9. Catchment Flood Management Plan links with FRMPs

Consultees said that FRMPs should have closer links with catchment flood management plans (CFMPs) and commented that there was not enough information in the draft documents on how FRMPs work alongside these plans. Many readers felt that more information was needed about the future of CFMPs.

Response

CFMPs consider different types of inland flooding and assess the likely impacts of climate change and the effects of land use.

FRMPs will enable better spatial planning against flood and coastal risks by bringing together the outputs of many other strategic plans (CFMPs, SMPs, LFRMs where they are available) and because the FRMPs are coordinated at a river basin district scale. CFMP actions are included as measures in the FRMPs. The tables of measures in the FRMP appendices set out which plan or strategy each measure originates from (where applicable). The FRMPs do not supersede CFMPs. The future need for CFMPs as the strategic plan for river and estuary flooding is being reviewed by the Environment Agency.

3.13. Partnership working (RBMP and FRMP)

Feedback received during the first cycle of river basin management planning highlighted the vital importance of reaching out to new stakeholder groups and audiences who value their local water environment. The formation of the catchment partnerships helped to bridge this gap and their success has been recognised in responses to the consultation on the draft RBMPs.

Respondents were supportive of efforts to engage local interest and activity and to develop better relationships through partnership working. Some respondents suggested that more could be done to make use of third party data sets in the updated RBMPs and that they would welcome new opportunities for data sharing.

This feedback was echoed by that received during the draft FRMP consultation which highlighted the vital importance of partnership working to deliver flood risk management outcomes. Consultees were keen to build on existing collaborative working practices in order to achieve the outcomes set out in the FRMPs. Respondents said that partnership working was essential not just to the delivery of works and schemes but also to share knowledge and best practice. Respondents were also supportive of efforts to engage local interest and activity and to develop better relationships through partnership working.

These comments are addressed under the following headings:

- working with others (RBMP and FRMP)
- working with cross border organisations (RBMP and FRMP)
- data sharing and use of third party data sets in RBMP

3.13.1. Working with others

Strong support was received for the Catchment Based Approach (CaBA) to working in partnership. However, some concerns were raised about the need for better representation by some sectors. In particular, there were calls for greater emphasis and engagement with coastal, estuarine and marine stakeholders. Linked to this were demands for the Environment Agency to make better use of evidence provided by others to inform and influence objectives, actions and outcomes.

Consultation responses included strong support for working in partnership to deliver FCRM outcomes. However, some concerns were raised that catchment partnerships required greater emphasis in the FRMPs.

The launch of the ‘Save Our Waters’ campaign run by the Blueprint for Water consortium (http://blueprintforwater.org.uk/) coincided with the start of the consultation on the draft RBMPs and reinforced the opportunities available to engage with a wider range of audiences.

Draft RBMP consultation responses contained positive feedback for engagement with sectors including the water industry and Local Planning Authorities (LPAs). There were also suggestions about areas to improve partnership working and lots of offers to engage with the Environment Agency.

Some consultees suggested that evidence from a wider range of sources ('third party evidence') should be used to inform and influence decisions about the water environment. Many consultees were keen to continue to work in partnership with the Environment Agency and to build upon and improve existing relationships.

Response

Our responses are set out under separate headings for the CaBA, ‘Save Our Waters’ and for working with other organisations, focussing on work with the water industry, LPAs and marine regulators (in line with comments received during the consultations).

Catchment Based Approach (RBMPs)

The CaBA is built around engagement of local stakeholders to establish common ownership of problems and their solutions, building partnerships to implement actions at the local level. CaBA is a community-led approach that engages people and groups from across society to help improve our precious water environments. The CaBA aim is to balance environmental,

economic and social demands and align funding and actions within river catchments to bring about long term improvements. Over 100 CaBA partnerships are now actively working across England and Wales. (Further information on CaBA can be found here: http://www.catchmentbasedapproach.org/)

A number of LPAs said they are very supportive of the CaBA. However, some went on to say that in some instances, there needs to be more engagement between the catchment partnerships and planning authorities. Some also mentioned that more could be achieved through existing opportunities and initiatives that LPAs might be already be involved in e.g. Nature Improvement Areas (NIAs) or Local Nature Partnerships (LNPs) and that partnership working is main but must be resourced effectively.

Working with LPAs in Northamptonshire and Durham

In Northamptonshire the Environment Agency has worked closely with the Nene Valley NIA, where a project officer was employed to identify WFD issues and opportunities across the Nene Catchment.

This work helped identify measures the LPA could assist with implementing and was also useful for planning responses associated with development applications.

In Durham, Tees and Northumberland, we have successfully used the CaBA with catchment groups to discuss and agree a way forward for large scale strategic planning applications and proposed local plan allocations.

WFD issues are often cross cutting, so discussion between catchment groups has helped secure better integrated outcomes for local plans than compared to a straightforward planning consultation.

The Environment Agency will continue to work with our catchment partners and stakeholders across England (and Wales and Scotland for cross border catchments) to co-design arrangements that improve engagement for catchment and river basin management planning. This will commence with a national strategic review of current arrangements.

In addition to the recently formed National Liaison Panel Estuaries and Coasts subgroup, the CaBA National Support Group are proposing to create an estuarine and coastal task and finish group to help support catchment partnerships on estuarine and coastal issues in the future. Through these groups we will explore options to better utilise existing coastal groups (including Coastal Partnerships and Coastal Cell groups) to help implement updated RBMPs in estuarine and coastal waters at both catchment and river basin district scale.

Save Our Waters (RBMPs)

The Environment Agency welcomed the opportunity to work with Blueprint for Water during the ‘Save Our Waters’ campaign (http://saveourwaters.org.uk), collating dRBMP responses, providing regular updates on the results and splitting the responses by river basin district and management catchment. The responses have been shared with catchment coordinators who will work with their catchment hosts to review information contained in the responses and see where they can take forward any comments or recommendations at a local level. The Environment Agency wants to explore further opportunities to work proactively in partnership with national and local organisations during cycle 2, and to continue finding ways to enable non-technical audiences to get involved with implementing and influencing their local RBMPs.

Marine regulators (RBMPs)

The Environment Agency continues to work closely with fellow marine regulators to best utilise all mechanisms for the sustainable management of estuarine and coastal waters helping to deliver WFD objectives in an integrated way.

This includes work with the Marine Management Organisation (MMO), taking a joined up approach to support marine plan development and marine licence applications including 'Coastal Concordat' projects, work with Defra to support Marine Strategy Framework Directive (MSFD) development and shared evidence initiatives, and work with Natural England to support the designation and management of marine protected areas. Further information about the MMO can be found here: https://www.gov.uk/government/collections/marine-planning-in-england.

Lead Local Flood Authorities (FRMPs)

Lead Local Flood Authorities (LLFAs) are responsible for managing flooding from local sources (surface water, ordinary watercourses and groundwater). Under the Floods Directive (2007) and Flood Risk Regulations (2009) LLFAs must prepare FRMPs in Flood Risk Areas (FRAs), where the risk of flooding from local sources is significant (as identified in Preliminary Flood Risk Assessments (PFRAs)). LLFAs have no legal requirement to produce a FRMP outside of FRAs, but they can opt to voluntarily contribute to information on the management of surface water flood risk.

The Environment Agency has worked closely with LLFAs to prepare the FRMPs. There are 152 LLFAs in England. 65 must produce a FRMP as they fall within a FRA. Of these 65, 64 have opted to partner Environment Agency FRMPs and 1 has opted to produce a standalone FRMP (East Riding of Yorkshire Council). In addition 39 LLFAs have provided voluntary contributions. The Environment Agency will continue to work in partnership to deliver the objectives in the updated FRMPs.

Working with other organisations (RBMPs and FRMPs)

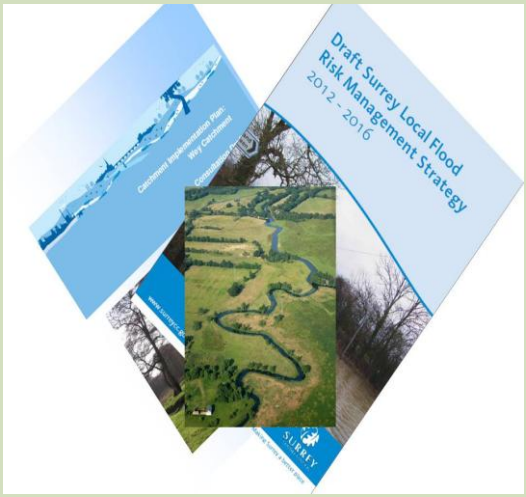
In addition to those mentioned above, the Environment Agency works with many other organisations. Recent work with the water industry aims to better understand how we can use different measures such as hydromorphological changes to help manage the impact of abstraction. As part of this, the Environment Agency ran a technical workshop on adaptive management of flow and morphology measures, which was a collaborative event with UK Water Industry Research (UKWIR) https://www.ukwir.org/site/web/content/home. The workshop addressed adaptive management in the context of river basin management planning. It aimed to provide an opportunity for practitioners from water companies, statutory conservation bodies and environmental regulators to share good practice and promote collaborative effort on flow and morphology measures to address impacts of abstraction.

The water and sewerage undertakers in England are responsible for managing the risks of flooding from their surface water and foul or combined sewer systems. There is no statutory obligation to include sewer flooding in the FRMPs. However, the Environment Agency has worked with water companies to encourage voluntary contributions of information relating to sewer flood risk in the updated FRMPs.

Partnership Working

The Environment Agency has been working closely with the Surrey Wildlife Trust in the Wey Catchment since 2012. As a result of the consultation, closer ties between the Environment Agency, Surrey Wildlife Trust and Surrey County Council have now been formed. This has included:

- investigating ways to make data more accessible to all partners
- increasing the number of opportunities identified for projects with multiple outcomes. For example work undertaken by Highways engineers being used to protect land as well as helping to drain roads
- incorporating the objectives of the WFD into Surrey's Local Flood Risk Management Strategy
- increasing integration programmes of projects between the 3 organisations to help create more naturalised rivers in the Wey Catchment.
- working together to find more funding to invest in improving our rivers



3.13.2. Working with cross border organisations

Respondents to the draft RBMP consultation said different approaches to economic appraisal taken by England and Wales in the Severn RBD caused confusion, giving the impression that Natural Resource Wales (NRW) and the Environment Agency were working independently on a critical part of the RBMPs. They said this made it difficult to compare different versions of the same information.

Some respondents also said they didn't know which consultation to respond to, and found it difficult to find information for specific places, especially in the cross border catchments.

Response

Severn, Dee and Solway Tweed are all cross border RBDs. The Environment Agency and NRW are jointly responsible for the Severn and Dee RBD although to ensure we operate most efficiently in practice, the Environment Agency takes the lead for the Severn RBD and NRW takes the lead for the Dee RBD. The Scottish Environmental Protection Agency (SEPA) is lead organisation for the Solway Tweed RBD under the legislation.

Both the Environment Agency and NRW are committed to working together to promote the greatest benefits for the water environment and where possible the same approach will be used to produce the updated Severn and Dee plans.

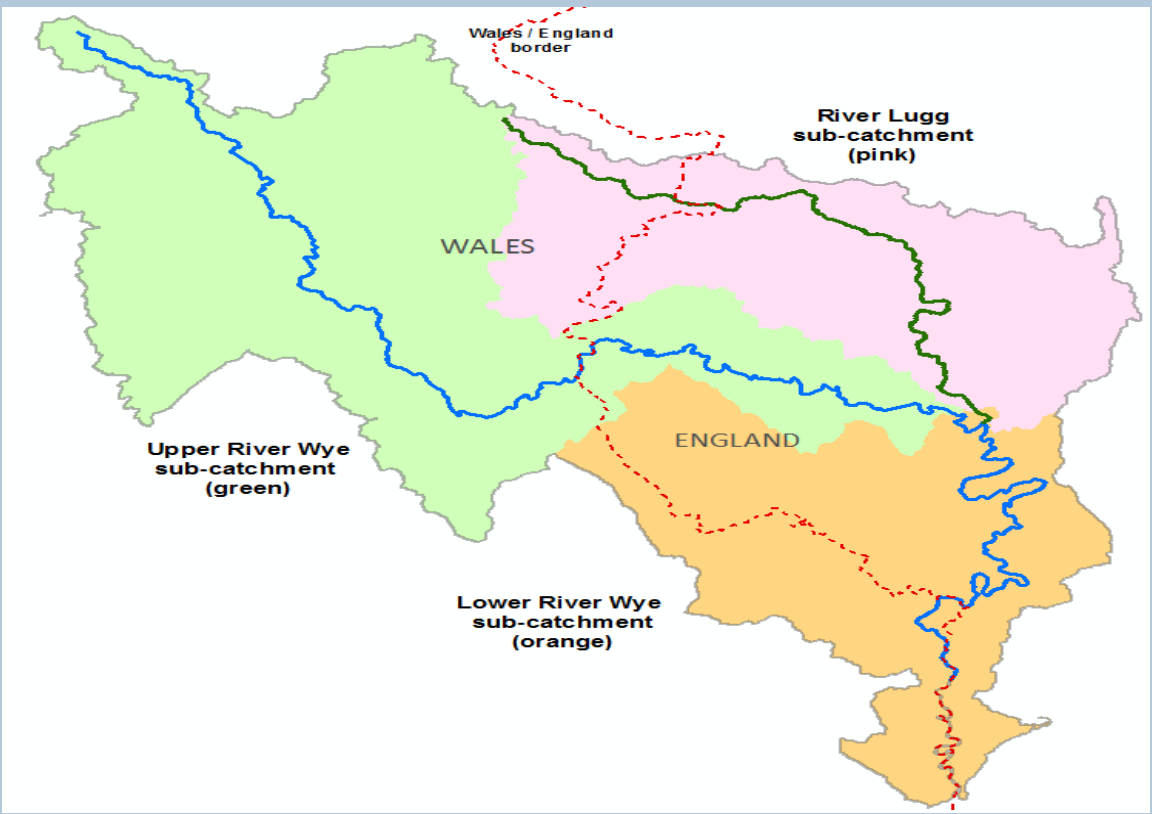
In areas where government direction or local policy results in different methods to reach the same or similar outcome, this will be made clear. Where necessary, further explanation will be provided in the supporting information. Improved signposting in the updated RBMPs will help users find the supplementary information more easily.

The Environment Agency is also committed to working in partnership with SEPA in the Solway Tweed RBD, which crosses the border between the north of England and southern Scotland. A consultation to inform the development of the Solway Tweed RBMP was held by SEPA between 9 December 2014 and 9 June 2015. A summary of responses will be published in the autumn, and the RBMP will be updated in December 2015.

Cross border working in the Severn RBMP

Environment Agency and NRW are working closely with partners to address issues within our cross border catchments. Examples include:

- production of Nutrient Management Plans: Identifying and delivering actions to achieve water quality targets for phosphate in the Wye and Teme catchments
- working together to improve the migration of fish through the removal or adaptation of weirs and barriers
- delivering actions for the Wye and Teme SSSI River Restoration Strategies
- reviewing licensing arrangements for the abstraction and effective management of water resources
- developing Water Safeguard Zone Action Plans
- identifying opportunities for projects to deliver multiple benefits with partners building a strategic vision for the Severn RBD. (The map below shows an example of cross border sub-catchments)



3.13.3. Data sharing and use of third party data sets in RBMP

Respondents made a number of suggestions relating to the use of third party data in river basin management planning and some also said they would welcome more opportunities for data sharing. Positive feedback was received about data available through DataShare and ShareFile, but people also said they would like more information to be made available on open access, without the need to sign up or register.

Response

The Environment Agency has improved data and information sharing among the river basin management planning and CaBA co-deliverer community by supporting the CaBA partnerships, and establishing the Catchment Data User Group (CDUG).

We have worked hard with users of our data and plans to develop the Catchment Data Explorer (CDE) and its underlying data feeds, which are all available as open data for anyone to use however they like. (More information on CDE can be found in section 3.1.3).

The CDUG is a sub group of the CaBA national support group and is jointly chaired by the Environment Agency and Rivers Trust, who also both provide advice and expertise to the group. The group aims to identify and spread best practice amongst catchment groups on data management issues http://www.catchmentbasedapproach.org/about#catchment-data-user-group. This group is helping to shape the Environment Agency's data sharing tools and feed into their development. The group have piloted an open and collaborative 'Evidence Sharing Platform' for sharing data and evidence online, both into and out of the organisation for the benefit of catchment partnerships and the environment. Through this group we have provided support and advice and published data electronically using the Environment Agency DataShare portal (http://www.geostore.com/environment-agency/), and in an open linked data format through the Catchment Data Explorer. We have recently made the Datashare portal much more comprehensive and useful to CaBA partners by creating a special section for them with many datasets freely available for download and reuse (including some non Environment Agency data).

We have moved our spatial datasets (including catchment boundaries and water bodies) to open data wherever we can. Our data have been used widely by CaBA partners over the last few years in a multitude of ways. (Some examples are given on the CaBA website, many of which use data from the Environment Agency: http://www.catchmentbasedapproach.org/best-practice/use-data.)

The Environment Agency will continue to explore ways of utilising third party datasets. Third party data cannot currently be used for classification purposes, unless it complies with UK Technical Advisory Group (UKTAG) standards and is compatible with our WFD databases. There are however lots of other uses that this information can be put towards that don't require such high standards, such as local investigations and the identification of measures. If you have information that may be of use to the Environment Agency, then please get in touch with your local area team, directing correspondence to the Area Environment Manager for Monitoring, or by bringing it to the attention of your local catchment partnership.

Using third party data to assess potential impacts from invasive non-native species

To assess the potential impacts of invasive non-native species (INNS) on WFD status, the Environment Agency uses records of species we collect as part of our ecological monitoring programmes. However, we also use thousands of records shared by many organisations via the National Biodiversity Network (http://www.nbn.org.uk/). This includes records provided by other statutory bodies, local and national recording schemes and societies, citizen science projects, or data shared by the local record centres.

Third party datasets for INNS are used nationally in 2 ways:

1. **Screening of high status water bodies:** some INNS (UKTAG high impact species), if established, can prevent a water body from achieving high status. Environment Agency staff used third party information about INNS to screen 7 water bodies in England in 2015. These were water bodies that would have achieved high status, provided that INNS were not established.
2. **Risk Assessments:** species records are also used to assess the risk of deterioration in water body status as a result of INNS. All water bodies were assessed and their risk categories were determined. This was done by looking at which UKTAG high impact species were already present and how vulnerable the water bodies are to colonisation and damage from those species. Over 70% of water bodies in England are currently at risk of deterioration because of the impacts of INNS.

(The photograph above shows the Soar Catchment, in the Humber RBD, where Floating Pennywort is impacting WFD status).

4. Strategic Environmental Assessment

This section is the response to the consultation comments on the Strategic Environmental Assessment (SEA) environmental reports published with the draft FRMPs and RBMPs.

4.1. Wider environmental effects of implementing the plans

Of those who commented on SEA environmental reports for the dFRMPs and dRBMPs, the overall majority agreed with the conclusions that the plans will lead to significant positive effects on the environment and society and a range of potential positive and negative effects more locally. Some respondents raised concerns about the potential negative effects of the plans on the environment. These included:

- the effects on heritage features such as canals, weirs, mill races and sluices
- the potential impacts on archaeology
- the effects on landscape character
- the potential disturbance to people
- the effects on recreational use of rivers such as canoeing and boating
- the effects on agricultural land
- the effects on protected and valued species and habitats
- the effects on carbon use
- the effects on future hydropower generation (RBMP only)
- the effects on the availability of freshwater for consumption (RBMP only)
- the effects on flood risk (RBMP only)

The environmental reports recognised that implementing the measures in the plans could lead to some negative environmental effects. There are many controls and procedures already in place to help manage potential environmental effects. It is expected that all organisations involved in implementing the plans including the Environment Agency, Lead Local Flood Authorities, Internal Drainage Boards and water companies will adhere to these controls and procedures. Some of the controls and procedures include:

- Projects which include physical works will often require planning consent from the relevant authority and some level of environmental assessment will often be a condition of the consent. Larger projects falling under the EIA Regulations will need to submit an environmental statement to describe the environmental effects and mitigation required to manage the effects.
- Many projects will also require other consents, permits and licences. These include permits in relation to listed buildings and scheduled monuments, protected species licences and permits to abstract from or discharge to water into a watercourse.
- It is also expected that all organisations would engage with statutory bodies including the Environment Agency, Historic England, Natural England and the Marine Management Organisation to discuss work programmes and develop protocols to help manage potential environmental effects.

The following case studies are examples of how potential environmental effects have been managed on previous Environment Agency projects.

Managing risks to heritage - Gayton Weir, Staffordshire

This is a photograph of an 18th Century weir which was discovered during an archaeological investigation for a fish pass project on Gayton Weir, Staffordshire.

A heritage desk-based assessment identified the need for further archaeological investigation which uncovered the 18th Century weir. The weir was subsequently excavated, recorded and retained under agreement with the local council.

The project followed a protocol on managing heritage risks on WFD projects agreed between the Environment Agency and Historic England.

Managing effects on heritage and hydropower potential on rivers: Quarry Bank Mill, Cheshire

Quarry Bank Mill on the River Bollin is a Grade II listed building owned by the National Trust. It is of national historical significance as one of the most intact functioning cotton mills in Britain.

An integral part of the history and functioning of the mill is a 5m high weir which until recently was an impassable barrier to the migration of fish and eels – preventing them reaching spawning grounds upstream.

When considering options to allow the free movement of fish upstream, removing the weir was ruled out on heritage grounds. In addition, the National Trust had aspirations to generate hydroelectricity from the force of water at this location. The Environment Agency and the National Trust worked in partnership to design and build a fish pass solution which minimised the impact on the setting of the listed buildings and also incorporated a water turbine to generate electricity. The photograph shows the completed fish pass on the left and the historic weir on the right.

Considering landscape effects – Keswick Flood Risk Management Project, Cumbria

This is a photograph of a completed flood risk management project on the River Greta in Keswick, Cumbria. Keswick is a market town in the Lake District National Park. During the design process, the environmental impact assessment identified the potential landscape and visual impact of new flood walls in the town.

Through consultation with planners and the local community, the walls were designed using local materials and incorporated glass panels to minimise the visual and landscape impact.

Some respondents to the draft RBMPs were disappointed that the assessment did not consider local wildlife sites. Although not explicitly referenced in the SEA document, local wildlife sites were considered under the 'habitat provision' ecosystem service during the appraisal of measures for the draft RBMPs.

A number of respondents were concerned that some of the measures in the draft RBMPs, such as re-naturalising rivers, could have knock-on effects for flood risk. Any proposal for re-naturalising rivers will include a thorough assessment of the potential impact on flood risk.

4.2. Habitats Regulations Assessment

Some responses raised a concern around the timing of the Habitats Regulations Assessment (HRA), suggesting that the absence of a published document at the draft plan stage meant less clarity on the potential effects on European designated sites and a missed opportunity to influence the measures in the draft plans. The effects on European sites were an integrated aspect of the appraisal of measures for both plans. The HRA was undertaken in time to influence the outcome of the updated plans and the approach developed with Natural England and Natural Resources Wales (NRW). The HRA is being finalised and when complete will be available at www.gov.uk.

Concerns were also raised about an over-reliance on existing HRAs (FRMPs) and the absence of a systematic assessment of the impact on all designated sites. Part of the HRA process for the FRMPs was to consider existing HRAs and determine the extent of any changes since publication.

Other comments included the need to consider new and proposed European sites, offshore marine designations and Ramsar sites and a request for one cross-border HRA for the Severn RBD. Where new sites have been designated or proposed these were taken account within the HRA. The Environment Agency has been working with Natural England and NRW on cross-border plans to agree the approach to the HRA for both sets of plans.

4.3. How the SEA has influenced the plans

Some respondents felt that it was not clear how the SEA had influenced decisions made in the draft RBMPs and FRMPs and that the assessment appeared to be done on a final set of measures rather than on options. The SEA has been an integrated component of the development of both sets of plans. A Statement of Environmental Particulars will be

published with the updated plans describing how the plans have changed through the SEA process.

Response for the FRMP

It is important to note that the FRMPs have evolved from existing plans, each with their own SEA, and therefore many options have already been considered in the development of the measures. Where the plan has cited catchment or RBD-wide measures, these are generally environmentally beneficial (for example working with natural processes). Any new measures in the FRMPs reflect a strategic need to manage flood risk rather than focus on a pre-determined solution.

Some concerns were also raised that the combined effects of the FRMPs with other plans was not considered in the SEA. Other plans were considered during the SEA process and associations drawn between these plans and the FRMPs. Environmental assessments will be published alongside the updated FRMPs. With regard to European sites, the HRA process has considered potential cumulative effects with other plans.

Response for the RBMP

Measures in the RBMPs have evolved from a comprehensive programme of investigations to understand the quality elements that contribute to the status of a water body and the reasons the water body is not at good status or potential. SEA was part of the process of determining the measures required to achieve these outcomes. Additionally, further alternatives will be considered during the project or catchment plan stage when specific solutions will be developed.

It should be noted that RBMPs are plans setting out the actions to improve the environment and therefore the SEA has focussed on identifying unintended consequences, so that they can be taken into account in subsequent plans and projects.

4.4. Opportunities

A number of responses raised opportunities where both the updated FRMPs and RBMPs could improve the environment. These included considering natural flood management options to create new habitat such as wetlands and woodland, which could also provide recreation and health benefits for people.

Natural flood management will be considered during the assessment of options for projects within the updated FRMPs. In the example below, the Environment Agency has been working with multiple partners to investigate how land management can reduce flood risk in Pickering, Yorkshire.

Natural Flood Management: 'Slowing the flow' pilot project in Pickering, Yorkshire

Pickering has flooded multiple times in the last 10 years. Rapid run-off in the steep catchment is part of the reason for this flooding.

The Environment Agency has been working with multiple partners on a pilot project to investigate the extent to which land management can reduce the risk of flooding.

Others cited the potential benefits that new habitats could bring to climate change resilience. Several responses also provided lists of potential opportunities to improve existing wildlife sites. The Environment Agency aims to improve the environment with all projects and has a good past record of incorporating positive outcomes for people and wildlife on projects. Below are some examples of projects where we have provided opportunities for recreation.

Wetland creation and access: Steart Marshes, Somerset

This photograph shows part of the footpath network and wetland margins created at Steart Marshes, Somerset.

Steart Marshes is one of the largest wetland habitat creation projects in England. Completed in 2014, the project helps to protect homes and businesses on the Severn Estuary from flooding. Managed by the Wildfowl and Wetland Trust, the marshes provide a valuable resource for people and wildlife.

Education and awareness raising: Freeman's Pools, Lancaster

This photograph is of Freeman's Pools in Lancaster. Wetland habitat was created in a clay pit left behind following construction of new flood embankments on the River Lune.

This habitat was designed to attract a variety of wetland bird species.

Interpretation boards were erected at viewing areas adjacent to existing public routes to enrich visitor experience of the site.

Incorporating recreational use of rivers into WFD projects: Porters Lock Weir, River Medway, Kent

This is a photograph of a combined fish pass and canoe shoot built by the Environment Agency on the River Medway, Kent. The structure uses artificial reeds known as 'fish brushes' fixed to a 1.5m wide steel channel on a 1 in 12.5 slope. The design successfully incorporated provision for canoeists into a project primarily designed to improve the River Medway for fish.

5. Economic Analysis (RBMP)

This section relates only to the river basin management plans (RBMPs), not the flood risk management plans (FRMPs). The economic analysis used scenarios to illustrate the impact of different levels of ambition on 4 sector groupings. Of the scenarios developed, most feedback was received on scenarios 4 and 5. Scenario 4 showed the costs and benefits of implementing technically feasible and cost beneficial measures to prevent deterioration and achieve protected area and water body objectives. Scenario 5 showed the costs and benefits based on an assumed level of national funding for the measures.

Overall responses received on the economic analysis during the consultation were positive. Many felt that the scenarios used in the economic analysis were a good way to illustrate a range of options available to achieve WFD improvements. In particular the majority commented that scenario 5 represented a realistic view of what can be achieved within known funding constraints. Respondents did however raise some concerns around the way the scenarios in the economic analysis were developed and presented. The main issues were:

- level of ambition
- affordability
- allocation of costs
- sector groups
- methodology
- chemicals costs

Consideration of the consultation responses overall has not resulted in any significant methodological changes; however it has resulted in improved data and assumptions used in the economic analysis that will underpin the impact assessment. We will refer in more detail in the impact assessment, to the main issues raised so that responsibility for dealing with them is clearer. We will also work to make the economic evidence base more accessible to stakeholders so they can use it to understand the impact on their own sectors, and also help us improve it with better data and evidence based assumptions.

5.1. Level of ambition

A number of respondents raised concern that scenario 5 lacks ambition, potentially pushing the bulk of improvements into cycle 3. A few consultees questioned how scenario 5 was generated as a progression from scenario 4. They were unclear about what was included in scenario 5; particularly whether all the relevant costs had been taken into account to determine which measures might be considered disproportionately expensive.

Response

The economic analysis that supported the draft RBMPs presented 5 planning scenarios illustrating different levels of investment from 4 broad sector groups.

Scenario 4 considers improvements in water body status using all measures which are technically feasible where benefits justify costs. The assumptions behind this scenario were used to propose objectives (2027 and potentially beyond) for individual water bodies, as set out in ‘Part 1: River Basin Management Plans’ and ‘Part 2: River Basin Management Planning overview’ documents of the draft update to the RBMP.

Scenario 4 costs and benefits were estimated and collated from 'bundles of measures' for each operational catchment in England. Sources for the cost estimates are outlined from page 19 of, Part 3: Economic Analysis – extended report. National data sources were used, for example the Cost of Agricultural Measures tool, unless better local data were available. Additional local cost information, for example from water companies, has been provided which will be used in the impact assessment for the updated RBMPs. Most of the monetised benefits were estimated using National Water Environment Benefit Survey willingness to pay values[1].

Once the benefit to cost ratio has been estimated for each bundle of measures, a sensitivity analysis was undertaken to better understand how assumptions on the main inputs affect the results. This includes assumptions around the scale of the benefits and costs.

Scenario 5 was based on an illustrated level of national funding for the most relevant water management action programmes in the 6 year period to 2021, along with an assumption that voluntary action and targeting, mediated by catchment partnerships, will help optimise outcomes through additional local efforts. The illustrative funding in scenario 5 was not a prediction of all funding and measures that will be available in the second cycle but it is linked to funded action programmes under development at the time.

Scenario 5 was developed using a basic model (outlined on page 14, Part 3: Economic Analysis). For the updated RBMPs, to calculate the costs and benefits over the next plan period (2015-2021), the impact assessment will use specific measures with confirmed funding to calculate the costs to 2021. The benefits will be based on the predicted outcomes from those measures.

The ambition of the plans is illustrated through scenario 4, on the basis of objectives that are technically feasible and where the costs are justified by the benefits. Under this scenario an estimated 75% of water bodies and 95% of elements are predicted to achieve good ecological status or potential by 2027. Scenario 5 reflects what progress could be made by 2021 towards the objectives based on an assumed level of national funding. The funding assumptions were provided to us by Defra. Final decisions on the funding and extent of measures to be taken forward over the period 2016 to 2021 will be made by the Secretary of State when considering the approval of the updated plans.

5.2. Affordability

Affordability of the scenarios was raised in many responses with some respondents asking for clarity over how affordability will be taken into account and what the funding assumptions are based on.

Response

Who will actually pay for the measures and over what time period is a policy decision for government. Defra have advised us of the funding assumptions to use when developing the updated RBMPs.

The scenario 5 'illustration' was based on guidance from Defra to consider the largest funding sources and to use planning information that has been made public, provided by others, or estimated by the Environment Agency. This includes known funding in the

[1] The main method of monetising benefits used was the values supplied by the National Water Environment Benefits Survey (NWEBS) which cover aesthetic, recreational and existence values: P.Metcalfe (2012). Non-market valuation using stated preferences: Applications in the water sector, Thesis submitted to the Dept.of Geography and Environment, the London School of Economics and Political Science.

Periodic Review 2014 confirmed water company investment programme, Countryside Stewardship Scheme, flood risk management investment programme, government funding to the Environment Agency and Catchment Partnership Action Fund, and the abandoned metal mines programme, amongst others. Table 22 in the Economic Analysis extended report (which can be found here: https://consult.environment-agency.gov.uk/file/3078881) summarised the funding assumptions. It was stated that these assumptions should not be seen as pre-empting the decision on how funding for measures would be prioritised in the updated plans. The Secretary of State will make the final decision on affordability when considering whether to approve the updated plans.

5.3. Allocation of costs

There was general consensus across sectors that it was not clear how the costs are being attributed to sectors other than the water industry. A large proportion of responses suggested that the 'polluter pays' principle needs to play a bigger role in how the costs of improvements under scenario 5 are assigned. This was reflected in the majority of water industry responses that "the water sector has a disproportionate amount of cost compared to other sectors in the short term", which conflicts with the message that significant water management issues originate equally from rural land management and the water industry.

Response

The economic analysis identified the costs of implementing measures to resolve the environmental issues caused by the 4 sector groups. The costs for scenarios 2, 3 and 4 were broadly allocated by applying the 'polluter pays' principle. Scenario 5 then illustrated the assumed funding sources against the sectors. In response to the consultation, we will make the attribution of costs clearer by identifying where the 'polluter pays', the 'beneficiary pays' and 'government pays'. Scenario 5 shows the majority of the costs allocated to the water industry. This reflects the funding assumptions that were provided by Defra. We have reflected to Defra the concerns made by stakeholders regarding the potential distribution of costs over the next 6 years. The Secretary of State will make the final decision when considering the updated RBMPs.

5.4. Sector groups

Many respondents felt that given the high level sector groups used in the scenarios, there was insufficient detail in the consultation to understand the types of measures specific to their sector and were unable to identify the impacts, costs and potential benefits on their sector.

Response

We recognise that grouping costs and benefits within 4 main sector groups makes it difficult to identify specific costs by sub-sector. However, whilst the impact assessment illustrates the balance of costs and benefits at a strategic level, the evidence base used to build the scenarios for each sector group was available at a finer detail through the catchment appraisals. This information and any subsequent updates used in the impact assessment are available on request via the Environment Agency's local catchment coordinators. We are also working to develop the economic analysis evidence base so that it is more accessible to stakeholders over the longer term. You can find information about the programme of measures in Part 1 – section 3 of the updated RBMPs.

5.5. Methodology

A number of water industry respondents also had concerns about the benefits values used; they expressed ‘low confidence in the benefit values’, concern over the age of the willingness to pay survey data given the different economic climate, and pointed out that single issue studies are likely to give higher values than where consumers are presented with trade-offs between alternative potential improvements.

The water industry has asked for assurance "…that there will be no scope creep over and above the level of investment agreed with Ofwat [during the periodic review]". The sector also suggested that the updated RBMPs should contain a plan to show the longer term programme of measures required to achieve the WFD objectives, rather than just the next cycle; to ensure a proportional programme for the third cycle. The industry also suggested that the economic appraisal methodology could be improved if costs and benefits were assessed by scheme. They also suggested updating scenario 5 based on PR14 decisions.

Response

The benefit values used in the catchment appraisal process were updated in 2012, peer reviewed and approved by an expert panel (Defra’s Economics Advisory Panel) as fit for purpose for the second cycle of river basin management planning. The original study, carried out as part of the Collaborative Research Programme in 2007, was carefully designed to be applicable across sectors and to be able to capture the national as well as local value of improvements to the water environment. Last year, the Environment Agency carried out a project (Eftec, 2014) to determine whether the water company willingness to pay values from customer surveys would be useable for catchment appraisals. The conclusion was that they would not be suitable for the analysis we were conducting across the river basin districts, because of the lack of marginal environmental change values and consistent survey question format.

The updated RBMPs will contain a summary of programmes of measures for cycle 2 and cycle 3. Phasing of water industry improvements in cycle 2 will reflect PR14 decisions. For potential water industry investments, outcomes from catchment level assessment of costs and benefits were compared to a set of assessments at scheme level. There was little difference in the conclusions from the 2 different assessment methods.

5.6. Chemicals costs

A number of respondents commented that the costs of improving chemical status could be significantly understated compared to the recent review of the Environmental Quality Standards Directive that considered costs in the order of tens of billions of pounds. One respondent from the water industry raised concerns that the economic analysis states these costs may rise significantly as further evidence becomes available, but the size of the challenge would suggest a need to consider the requirement for less stringent objectives on economic grounds, or that more time is needed to deliver cost-effective measures.

Response

Most of the chemical failures in the 2015 classification are caused by metals, many of which can be attributed to abandoned metal mines. Other sources include both highways run off and wastewater treatments works. Investigations are underway on all these sources and so it is difficult to cost a final programme at this stage. We will update the impact assessment to highlight the uncertainties and scope for escalated costs with the introduction of new standards. When the water industry undertakes options appraisals at specific sites or for

catchments in the Chemical Investigation Programme, optimal treatment options will consider all the relevant chemicals discharged. Due to the high potential costs and impact on water customers' bills, any investment decisions on waste water treatment will be subject to further costs and benefits assessments as part of the water industry asset management process. If Ministers consider the costs to be disproportionate, they may want to consider setting less stringent objectives when river basin management plans are updated in 2021.

6. Summary

River basin management plans (within England) were presented to government for approval in autumn 2015. Once approved, the plans will be published here:

https://www.gov.uk/government/collections/river-basin-management-plans-2015

We really value the feedback you have provided and look forward to working with you to deliver the plans. By continuing to work together, the health of the water environment across the country will be protected, and coordinated measures will be put in place to reduce the risk of flooding.

Annex 1- Consultation questions

FRMP consultation questions:

Question 1: Do you agree that this draft plan sets out the most significant flood risk issues for your area?

Question 2: What do you consider to be the highest priorities for managing the risk of flooding in your area?

Question 3: Do you understand the objectives as described in the draft plan?

Question 4: Is the balance right between the 'social', 'economic' and 'environmental' objectives, as explained in the draft plan?

Question 5: Are there other flood risk management objectives that should be included?

Question 6: Do you understand the difference between on-going, agreed and proposed measures, as explained in the draft plan?

Question 7: Across all proposed, agreed and ongoing measures, the plan describes 'prevention', 'preparation', 'protection' and 'recover and review' approaches. Is the balance right between these different types of approach, as explained in the draft plan? If not, which proposed measures would you change, and why?

Question 8: Are there other proposed measures that should be included?

Question 9: How can you support the work set out in the draft flood risk management plan to reduce flood risk?

Question 10: Are there things you think should be done to improve co-ordination of river basin and flood risk management planning?

Question 11: (South West and Severn River Basin Districts only) We have proposed a change to the boundary between the Severn and South West River Basin Districts. Do you agree this proposed change should be adopted in the final plan?

Strategic Environmental Assessment Consultation Questions

Question 12: Do you agree with the conclusions of the environmental assessment? (yes / no). If not, please explain why.

Question 13: Are there any further significant environmental effects of the draft plan which you think should be considered? (yes / no). If yes, please describe what they are.

We have described potentially 'negative effects' of the draft plan on the environment which would need mitigation, as well as wider opportunities to achieve 'positive effects'.

Question 14: Are there further mitigations or opportunities that should be considered for the plan? (yes / no). If yes, please give details.

RBMP consultation questions:

Question 1: "Do you agree with the proposed changes to the river basin district and catchment, water body boundaries and artificial and heavily modified water body designations?"

Question 2: "Do you agree with the objectives proposed for water bodies and protected areas?"

Question 3: "Where flexibility exists, should the priority be maximising the number of water bodies at good status or improving the worst water bodies?"

Question 4: "Do you agree the correct measures have been identified?"

Question 5: "Do you agree with the way the economic appraisal process has been done?"

Question 6: "What measures can you deliver to help achieve the long term objectives?

Question 7: "Do you have any further comments on this consultation?"

SEA Question 1 "Do you agree with the conclusions of the environmental assessment? (yes / no). If not, please explain why."

SEA Question 2 "Are there any further significant environmental effects of the draft plan which you think should be considered? If yes, please describe what they are."

SEA Question 3 "Are there further mitigations or opportunities that should be considered for the plan? If yes, please give details."

Economic Analysis Question 1 "Do you have any comments on the scenarios and how they have been produced?"

Economic Analysis Question 2 "How could scenario 5 be developed to present a preferred option for the impact assessment that will accompany the updated plans in autumn 2015?"

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