Office of Environmental Protection

Review of the third River Basin Management Plans in England and Northern Ireland

Final Report

July 2023

Report for

John McCartney
Principal Monitoring Environmental Law Officer
Office of Environmental Protection

Main contributors

Ashleigh Dawson
Liz Buchanan
Maggie Rogers
Natalie Sims
Aimee Fraser

Issued by

.....
Ashleigh Dawson

Approved by

.....
Liz Buchanan

WSP

3rd Floor
11 Westferry Circus
Canary Wharf
London E14 4HD
United Kingdom
Tel +44 (0)20 3215 1610

Doc Ref.

853371 – Final report

Copyright and non-disclosure notice

Third party disclaimer

Management systems

This document has been produced in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

Document revisions

No.	Details	Date
1	Draft report	20/03/2023
2	Draft report V2	23/03/2023
3	Draft report_V3	30/05/2023
4	Final report	24/07/2023

Executive summary

Under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017, River Basin Management Plans (RBMPs) must be produced every six years. RBMPs are currently on their third cycle. The RBMPs set out the status of waterbodies, the environmental objectives and measures required to achieve them. The overall objectives of the third RBMP cycle are to prevent deterioration in status of waterbodies and to aim for all waterbodies to be at good status by 2027. Under certain conditions, derogations may be used to set alternative targets to the good status by 2027 objective.

The aim of this project was to review the most recent plans for England and Northern Ireland in relation to key thematic topics. At the time of undertaking the review, the final third RBMPs were available for England and a draft third RBMP was available for Northern Ireland. This difference in finalisation meant that more detailed information was available for England compared to Northern Ireland in some key topics.

Following the review of the RBMPs and using insights gained from stakeholder engagement during the project, opportunities where delivery in the water environment could be improved were explored. The overall objective of the project was to assess the extent to which the RBMPs are an effective tool in improving the environmental health of waterbodies and whether they are part of a harmonised strategy with other statutory requirements and other policy instruments.

The RBMPs were reviewed by defining a series of questions under which to perform an assessment. These questions covered the general presentation and content of the plans; the analyses undertaken within the plans; the level of environmental improvement the Programmes of Measures may deliver; the use of derogations; the approach to cross-border cooperation and the lessons that can be learnt from the implementation of the WFD Regulations. The findings of the review were evaluated against the six building blocks of environmental stewardship identified by the OEP as required to be in place to achieve delivery in the environment. These are (1) understanding environmental drivers and pressures; (2) creating a vision; (3) setting targets; (4) coherent strategy and policy; (5) governance; and (6) monitoring, assessing and reporting.

The RBMPs undertake a detailed assessment of the current condition of waterbodies. This is based on a range of elements that are used to provide a classification of ecological and chemical status in surface water and quantitative and chemical status in groundwater. The RBMPs identify the key pressures facing the water environment and present a summary of the Programme of Measures designed to address these issues.

Based on the classification results for the third RBMPs, there has been little change in the status of waterbodies since the previous RBMP cycle. Both RBMPs for England and Northern Ireland highlighted that there are expected issues around meeting the good status objectives by 2027 tied to uncertainties surrounding the delivery of measures and the waterbodies that will benefit. This indicates that there are challenges with implementation – namely a gap between the objectives set for the plans and the ability to achieve them within the set timeframe.

The table below presents a summary of the lessons learnt from WFD implementation. Further detail on these points can be found in Section 6 of this report.

Summary of Lessons from WFD implementation

What has worked well? (Section 6.2)	• Public access to data on the water environment as a way to convey state and change. Improvements could be made to increase the usability by non-technical users. • Emphasising the importance of hydromorphology to overall river health. • Enhanced public debate around river health. • A nationally consistent planning process which looks at all waterbodies. Improvements could be made to the Programme of Measures process by providing more clarity on the actions to be taken and the resultant improvements at the waterbody level. • The “no deterioration” principle and its integration into the permitting process. • Co-operation across national borders using a common framework. • The one-out all out principle as a mechanism for driving action and the value it provides in enforcing the ‘no deterioration’ principle. An improvement could be to develop indicators that show changes within the status band so that progress is not hidden.
What particularly effective areas should be retained? (Section 6.3)	• A sound framework for addressing the conceptualisation of Driver-Pressure-Status-Impact-Response (DPSIR) at a waterbody level. • An integrated framework for all waterbody types (surface and groundwater). • A framework for the justification of objectives and a structured use of derogations. • The use of indicators which address environmental health. • Regular maintenance and updating of national consistent data (linked to the above).
What learning could have relevance to other policy areas? (Section 6.3)	• Nationally consistent and regularly updated datasets. • Consistent indicators of progress across multiple planning periods. • The focus on local state and outcomes (rather than a purely strategic focus). Linked to this is the development of the Catchment Based Approach groups to drive local action. • Thinking about how to implement actions based on the cause of the problem, not just which mitigate its impacts. • Integration of planning with sectoral plans (e.g. water company planning).
What could be changed about the RBMP process to improve it? (Section 6.4)	• The administration of the production of the RBMPs could be streamlined, with potentially a longer period between the more formal plans and more frequent updates on action. • Better certainty on funding streams – and clear conversations about what can be afforded and by when. • Taking uncertain action, in some situations broadening consideration beyond simple no regrets measures into some more risky measures to prevent stagnation due to in action. • Improving the links between drivers, pressures and measures, and more clarity in the local problems (and types of solutions). This needs to be balanced against the point above. • Additional metrics and indicators which allow better transparency of progress and action, rather than just binary indicators around pass/fail of targets. • A more integrated planning and policy environment. Moving towards better aligned targets and guidance. Better integration of climate change adaptation and understanding of the environmental change which will need to be accommodated. Integration of this thinking into targets and measures.

List of abbreviations

Abbreviation	Description
AFBI	Agri-Food and Biosciences Institute
AMP	Asset Management Plan
AWB	Artificial waterbodies
BOD	Biochemical oxygen demand
BQE	Biological Quality Element
CaBA	Catchment-based approach
CDE	Catchment Data Explorer
DAERA	Department of Agriculture, Environment and Rural Affairs of Northern Ireland
DCWW	Dŵr Cymru Welsh Water
DO	Dissolved oxygen
DPSIR	Driver Pressure Status Impact Response
DWMP	Drainage and Wastewater Management Plan
EA	Environment Agency
EC	European Commission
EIP	Environmental improvement plan
EPA	(Irish) Environmental Protection Agency
FCS2	Fish Classification Scheme Two
FIL2	Fish in Lakes 2
FIO	Faecal indicator organisms
FRMP	Flood Risk Management Plans
HMWB	Heavily modified waterbodies
IAS	Invasive Alien Species
INNS	Invasive non-native species
JNCC	Joint Nature Conservation Committee
KTM	Key Target Measures
MTR	Mean Trophic Rank
NAP	Nutrient Action Programme
NIEA	Northern Ireland Environmental Agency
NRW	Natural Resource Wales
NVZ	Nitrate Vulnerable Zones
NWEBS	National Water Environment Benefit Survey
OFWAT	Water Services Regulation Authority
OOAO	One out all out
PAH	Polycyclic aromatic hydrocarbons
PBDE	Polybrominated diphenyl ethers
PFOS	Perfluorooctanesulfonic acid
PLUTO	Phytoplankton Lake Assessment Tool with Uncertainty Module
POMs	Programme of Measures
RBD	River Basin District
RBMP	River Basin Management Plan
RICT	River Invertebrate Classification Tool (RICT)
RNAG	Reasons for not achieving good

Abbreviation	Description
SAC	Special area of conservation
SEPA	Scottish Environment Protection Agency
SIMCAT	Simulation of catchments
SRO	Strategic Resource Option
SSSI	Site of Special Scientific Interest
STW	Sewage treatment works
SWAT	Soil and Water Assessment Tool
SWELL	Shared Waters Enhancement and Loughs Legacy
TDI	Trophic Diatom Index
TraC	Transitional coastal
UKTAG	United Kingdom Technical Advisory Group
uPBT	ubiquitous persistent, bioaccumulative and toxic
UWWTP	Urban wastewater treatment plant
WFD	Water Framework Directive
WINEP	Water Industry National Environment Programme
WISE	Water Information System for Europe
WISER	Water Industry Strategic Environmental Requirements
WRMP	Water Resources Management Plan

Contents

1 Introduction

1.1 Purpose of this report

This report presents a review of the River Basin Management Plans (RBMPs) for England and Northern Ireland. An RBMP is the planning instrument that pursues and shows progress against the objectives of the WFD Regulations. This has been described in more detail in Section 1.2.

At the time of undertaking the review, a final plan was available for England and a draft plan was available for Northern Ireland. The draft plan reviewed for Northern Ireland was the PDF version that was used for public consultation. The third RBMPs for England and Northern Ireland were assessed in their overall alignment with the WFD regulations (see section 1.2), the Environmental Improvement Plan (EIP) targets[1] (for England) and The Environment Act targets. The third RBMPs were assessed in their implementation of key thematic topics of the WFD Regulations including the Programme of Measures, the use of derogations and the approach to alignment between cross-border RBDs. The findings of the review were used to gain an understanding of the effectiveness of the RBMP process and its associated regulatory framework in delivering and maintaining improvement in the water environment.

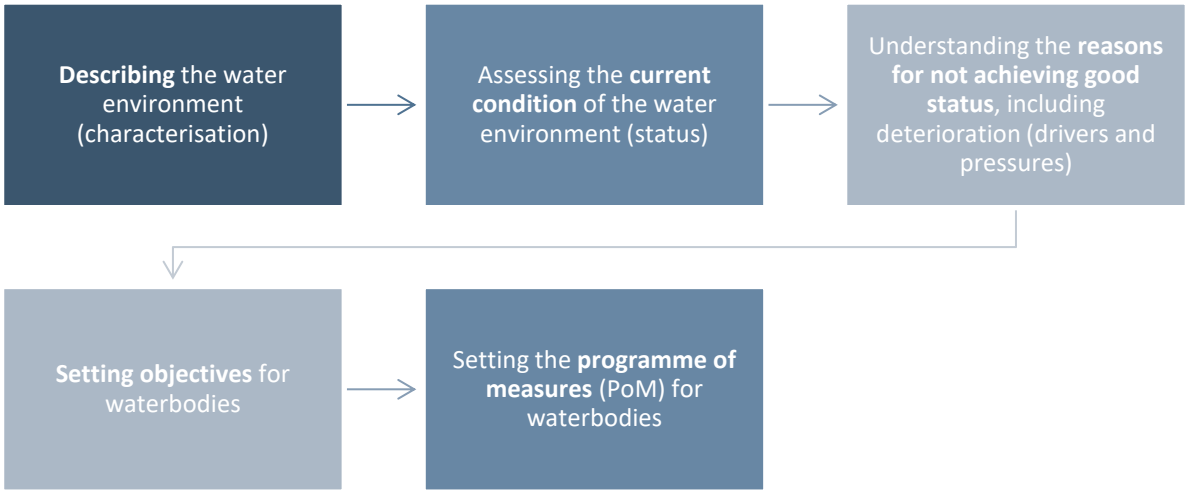
1.2 What is the WFD Framework?

The European Water Framework Directive (2000/60/EC) was transposed prior to the UK's exit from the European Union (EU) into The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. The regulations have been retained as domestic law following the UK's exit from the EU. These will be referred to as the WFD Regulations in this report. A summary of these regulations can be found in Appendix A.

The WFD Regulations provide a framework for managing the water environment. They set objectives for waterbodies which include the achievement of good ecological and chemical status in surface water and good quantitative and chemical status in groundwater. They also set a no deterioration of status objective for waterbodies. The WFD Framework can be summarised as in the graphic below:

1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf

Figure 1.1 A summary of the WFD Framework



A brief description of each of these steps has been given below. Further information on the RBMP process can be found on gov.uk[2] and daera-ni.gov.uk.[3]

1.2.1 Characterisation of the water environment

This is the division of surface and groundwaters into units of assessment. Surface waters are defined as rivers, lakes, estuaries (transitional) and coastal waterbodies. Surface water bodies can be natural water bodies, artificial waterbodies (AWBs) or heavily modified waterbodies (HMWBs). HMWBs are previously natural waterbodies which have been so significantly modified by anthropomorphic use that they cannot be reasonably be supposed to achieve a "nearly natural" state (see section 1.2.2). For a HMWB to be designated it must pass a series of tests to certify that the removal of structures (such as dam walls) cannot be undertaken without a significant adverse effect on the human use which cannot be substituted through other means.

1.2.2 Assessing the status of the water environment

Monitoring data should be used to assess the status of the environment. The status is assessed as the deviation of the waterbodies from the natural condition. Surface water bodies are assessed against targets for ecological and chemical status. For heavily modified and artificial waterbodies a lower target of ecological potential is used, recognising the non-natural objective of the waterbody. The chemical targets are the same for natural waterbodies and heavily modified and artificial waterbodies. Groundwater bodies are assessed against targets for quantitative and chemical status. This process is set out in Figure 1.2 and Figure 1.3.

[2] https://www.gov.uk/guidance/river-basin-planning-process-overview

[3] https://www.daera-ni.gov.uk/topics/water/river-basin-management

Figure 1.2 Assessment of status of surface waters according to the EA surface water classification methodology[4]

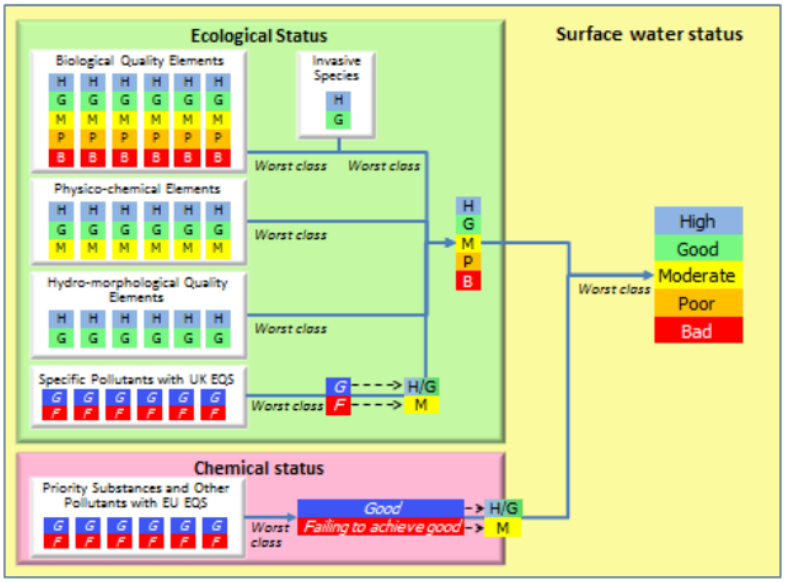
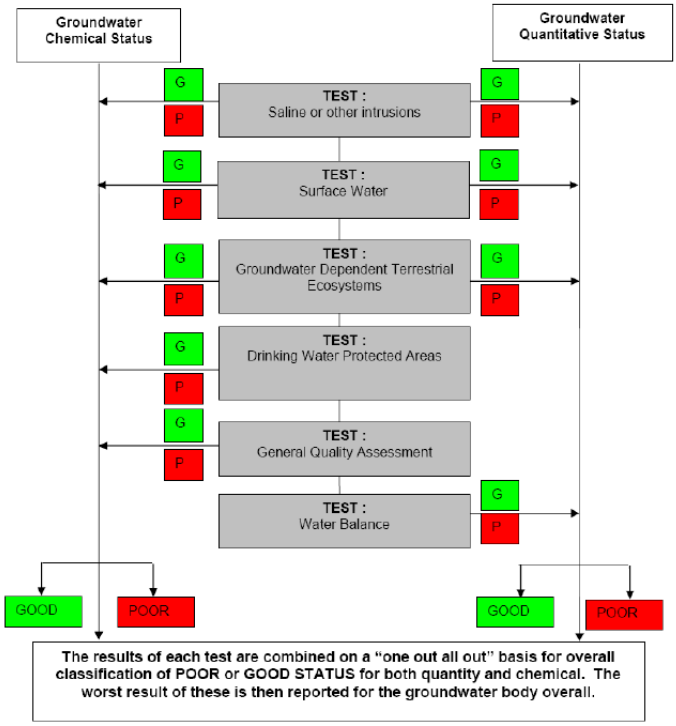


Figure 1.3 Assessment of status of groundwaters according to the EA groundwater classification methodology[5]



[4] Available at: Rules-for-assessing-surface-water-body-ecological-status-and-potential.odt (live.com)

[5] Environment Agency method statements: Groundwater Chemical Status Assessment (Classification) and Trend assessment; Groundwater Quantitative Status Assessment (Classification). Downloaded from: How to use Catchment Data Explorer | Catchment Data Explorer | Catchment Data Explorer

1.2.2.1 The “one out all out” principle

The status classification follows the “one out all out” (OOAO) principle, this means that the status is the lowest of the quality element classifications applicable for a water body. The quality element classification is in turn classified as the lowest of the individual constituents of the quality elements (see Figure 1.2). This means that:

- A benthic invertebrate result of “moderate” could put a surface waterbody at a “moderate” overall ecological status even if all other elements were at “good” or “high” status.
- A failure of the saline intrusion test could classify a groundwater body as “failing to achieve good quantitative status” even if all other quality elements are at “good”.

The overall status is assigned using the chemical and ecological status, the lowest status of these two will be the overall status. There has been extensive debate around the use of the OOAO principle since the inception of the WFD. Proponents of the principle cite its benefits in ensuring that a holistic approach to the improvement of river health is implemented. Detractors cite it as a barrier to the communication of progress at an element level, leading to perceptions of a lack of progress in environmental condition.

The OOAO principle was most recently reviewed by the European Commission as a part of the 2019 Fitness Check of the WFD.[6] It was decided to retain the principle due to concerns about watering down the overall effectiveness of the WFD, in particular the “no deterioration” principle. However, work is ongoing at a European level to develop better indicators for the communication of progress to try and overcome some of these issues.

1.2.2.2 The role of supporting elements in defining the surface water status classification

Surface water ecological status is defined by the combination of the biological, physico-chemical and hydromorphological quality elements. Ecological Status is defined as one of five classes (high to bad) as in Figure 1.2.

It is important to note that not all elements of ecological status are used to define all five classes. This is summarised in the list below and shown in Figure 1.4.

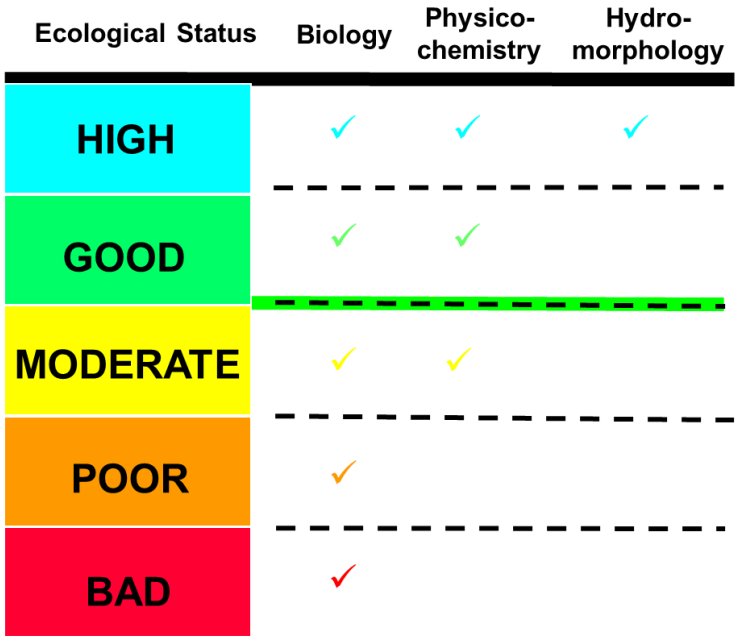
- For a waterbody to be at high status all quality elements (biological, physico-chemical, specific pollutants and hydromorphological) must be at high status. The values of the hydromorphological quality elements are only taken into account to define high status.
- At the high status classification, an Invasive Non-Native-Species (INNS) check is also performed. If a species from the UK TAG list of high impact species[7] has been recorded in the last three years, the waterbody will be downgraded to good. The presence of INNS cannot cause a further downgrade in ecological status to lower than good.
- For a waterbody to be at good status, the physico-chemical, specific pollutants and biological quality elements must be at good status. Hydromorphology does not define good status.
- For a waterbody to be at less than good status either the physico-chemical, specific pollutants or biological quality elements must be at less than good status. Less than good status can be defined by either the biological or physical chemical result as follows:

[6] https://commission.europa.eu/publications/fitness-check-water-framework-directive-and-floods-directive_en

[7] Rules for assessing surface water body ecological status and potential. Environment Agency. 2022. Appendix 1.

- If the waterbody is at good biological status but failing physico-chemical status and / or specific pollutants then it will be at moderate ecological status. Physico-chemical elements are classified from high to moderate, therefore the lowest status that can be defined by physico-chemical elements is moderate.
- If the waterbody is at less than moderate biological status then it is defined as poor or bad based on the biological status. Only biological status can define a poor or bad status result.

Figure 1.4 Role of quality elements in the definition of surface water ecological status



1.2.3 Understanding the reasons for not achieving good status, including deterioration (drivers and pressures)

This involves the identification of those drivers and pressures which have the potential to have a significant impact on the water environment. This could be done through (e.g.) the examination of registers of permitted industrial activities or through modelling to examine the impact of cumulative or diffuse sources. Further information on the models and analyses used can be found in Section 2.

1.2.4 Setting objectives for waterbodies

All waterbodies have a target of "good status" unless an alternative objective can be set. The WFD had a target of good status for all waterbodies by 2015. Derogations could be used to set alternative targets, for reasons of natural conditions, technical feasibility or disproportionate cost. Further information on derogations is in Section 4 of this report. The original aim of the WFD was to achieve good status for all waterbodies at the latest by 2027. The aim of good status by 2027 is still in place.

1.2.5 Set the Programme of Measures (PoM) for waterbodies

The PoM is the list of actions which have been set to achieve the objectives. These should include:

- Basic measures (those which are already planned as a part of the legislative framework or as a result of other planning processes (e.g. planned upgrades to Waste Water Treatment Works).

- Supplementary measures: these are additional measures if it is judged that the basic measures are not sufficient to achieve the objective set.

Further information on the PoMs process can be found in Section 3.

1.3 Overview of the RBMP process in England and Northern Ireland

To set out how the objectives of the WFD Regulations will be achieved, an RBMP must be prepared for each River Basin District (RBD). This is undertaken on a six-year cycle. The objectives of the WFD Regulations are to achieve good status in waterbodies by 2027, however, many waterbodies have alternative objectives set determined in accordance with the scope for derogations in the WFD Regulations. The RBMPs include an assessment of current waterbody status, environmental objectives and a summary of the PoMs intended to achieve them. The relevant authorities who are responsible for the development of RBMPs are the Environment Agency (EA) covering England and the Northern Ireland Environmental Agency (NIEA) covering Northern Ireland. The plans are subject to approval by the Secretary of State in England and the Department of Agriculture, Environment and Rural Affairs of Northern Ireland (DAERA) in Northern Ireland.

1.3.1 England

England is comprised of ten RBDs: Anglian, Dee, Humber, Northumbria, North West, Severn, Solway Tweed, South East, South West and Thames. Three of these are cross-border RBDs:

- The Dee and Severn are cross-border RBDs and lie within both England and Wales. These are managed as follows:
  - **Severn:** The Environment Agency and Natural Resources Wales (NRW) jointly manage the RBD. The Severn RBMP summary and cross border catchments (England and Wales) document[8] provides an overview of river basin planning in England and Wales for the RBD. Information on the Welsh part of the Severn RBMP is available on the NRW RBMPs website.[9]
  - **Dee:** NRW lead on the administrative side of the review and update of the RBMP. The EA manage the English part of the Dee RBD and provide supplementary information[10] to describe how the water environment is managed in England. This information is referenced in the Dee RBMP.
- The **Solway Tweed** is a cross-border RBD that lies within both Scotland and England. It is jointly managed by the EA and the Scottish Environment Protection Agency (SEPA). SEPA leads on the administrative side of the review and update of the RBMP for the RBD. Supplementary documents[11] are provided by the EA to describe how the water environment is managed in England. These documents are referenced in the Solway Tweed RBMP.

A map of the RBDs in England Is shown in Figure 1.5 and general information on the area and population of each RBD is shown in Table 1.1.

[8] https://www.gov.uk/government/publications/severn-river-basin-management-plan-summary-and-cross-border-catchments-england-and-wales

[9] https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/river-basin-management-plans/Severn-river-basin-management-plan-2021-2027/?lang=en

[10] https://www.gov.uk/government/publications/dee-river-basin-management-plan

[11] https://www.gov.uk/government/publications/solway-tweed-river-basin-management-plan

Figure 1.5 Map of River Basin Districts in England

Source: Environment Agency, 2015

Table 1.1 General information on RBDs in England

RBD	Area (km²)	Population (millions)
Anglian	27,900	7.1
Dee	2,251	0.5
Humber	26,100	10.8
North West	13,200	7
Northumbria	9,000	2.5
Severn	21,000	5
Solway Tweed	17,500	0.45
South East	10,200	3.5
South West	21,000	5.3
Thames	16,200	15

Source: Third cycle RBMPs for England and Wales

1.3.1.1 The principles of river basin planning

The box below contains the principles of river basin planning for England, taken from the Ministerial guidance produced for the EA,[12] as updated in September 2021. These are linked from the river basin planning process overview.[13]

12 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1019774/River_basin_management_planning_ministerial_guidance.pdf

13 https://www.gov.uk/guidance/river-basin-planning-process-overview/2-river-basin-management-plans

The principles of river basin planning are to:

- Encourage **active involvement of a broad cross-section of stakeholders** and **enable the exchange of knowledge** (including information and data) between regulators, planners, stakeholders and the research community.
- Set out and communicate a **clear, transparent and accessible process** of analysis and decision-making.
- Focus at the **river basin district level** and **catchment level** from source to sea.
- **Work in partnership** with other public bodies and private sectors.
- **Align, co-ordinate and streamline plans** and mechanisms to improve water quality and **deliver multiple benefits** such as managing flood risk and enhancing biodiversity through catchment approaches.
- In addition, support **wider benefits** around nature recovery, enhancing landscape and connecting people with the environment to promote health and well-being.
- **Make use of the alternative objectives** to support sustainable development.
- **Consider the cost-effectiveness** of the full range of possible measures and mechanisms.
- **Seek to be even handed across different sectors** of society and sectors of industry.

1.3.2 Northern Ireland

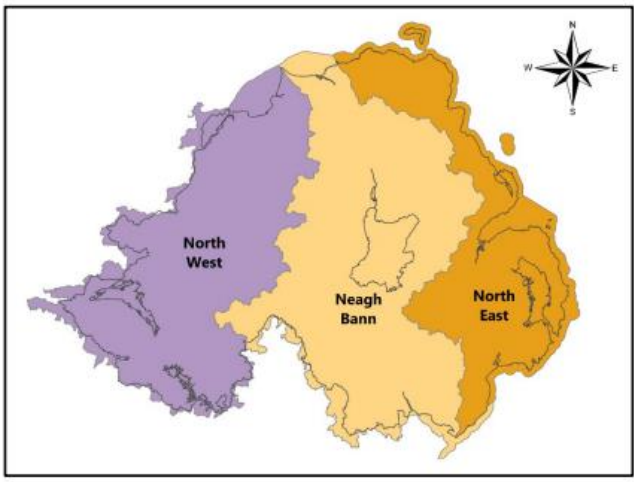
Northern Ireland is comprised of three RBDs: Neagh Bann, North Eastern and North Western. The North Eastern RBD lies entirely within Northern Ireland. The remaining two RBDs are international RBDs (iRBDs) and lie within both Northern Ireland and the Republic of Ireland. A map of the RBDs for Northern Ireland is shown in Figure 1.6.

The size of each RBD is shown in Table 1.2. The total population of Northern Ireland is around 1.9 million,[14] population data for each RBD is not within the Plan documents, however it is estimated from the location of urban areas that the North East will hold around 40 - 50% of the total population and the North West around 10 – 20% of the total population, with the majority of the remainder in the Neagh Bann RBD.[15]

[14] https://www.ukpopulation.org/northern-ireland-population/#:~:text=Based%20on%20our%20research%2C%20Northern,by%201st%20July%20of%202023.

[15] These are rough estimates undertaken for this report, based on the population of urban areas.

Figure 1.6 Map of River Basin Districts in Northern Ireland



Source: Water Framework Directive Statistics Report, NIEA, 2021.

Table 1.2 General information on RBDs in Northern Ireland

RBD	Size (km^2)
Neagh Bann	5,740
North East	4,000
North West	4,900

1.4 Key points from the EC compliance check of the UK's second RBMPs

The European Commission (EC) undertakes a compliance check of each RBMP as published by Member States. This process covered the second RBMPs for the UK which were published prior to the UK's exit from the EU. The core recommendations from the EC review of the second RBMPs[16] encouraged the UK to:

- Ensure that, in the preparation of the next RBMPs, the public is duly consulted taking into account these documents' purpose and complexity.
- Address the large uncertainties reported in relation to the assessment of the status, the pressures and the effect of potential measures for groundwater bodies.
- Continue to improve justifications for the application of exemptions in relation to Article 4(4) and 4(5) and make them more transparent and detailed in all RBMPs. Reconsider particularly the criteria used for the justification of Article 4(5) exemptions.
- State clearly for all RBDs, to what extent, in terms of area covered and pollution risk mitigated, basic measures or supplementary measures will contribute to achieving the WFD objectives. Identify sources of funding to facilitate successful implementation of measures in all RBDs.

A full assessment of the UK second RBMPs is also listed on the EC website.[17] These assessments were undertaken with a detailed assessment questionnaire (hundreds of pages in length) and supported by quantitative data analysis which looked at (1) changes since the first RBMP and (2) compliance with the WFD processes.

[16] Annex to the 5th Implementation Report 2019 - https://eur-lex.europa.eu/resource.html?uri=cellar:bee2c9d9-39d2-11e9-8d04-01aa75ed71a1.0005.02/DOC_2&format=PDF

[17] Second River Basin Management Plans – Member State: United Kingdom - https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:58:FIN&qid=1551205988853&from=EN

1.4.1 Changes to reporting between the second and third cycles

This data analysis described above was undertaken using information that the UK was required to provide in standard formats to the European Environment Agency (EEA) as uploads to their WISE Water Framework Directive database[18]. This provided information on all aspects of RBMP implementation, including the links (high level) between pressures and measures. Following the UK's exit from the EU, this reporting requirement has not been replaced with a UK-specific process and the same datasets have not been produced in the public domain. This means that a comparable compliance check cannot be fully undertaken for the third RBMPs.

1.5 Approach to the assessment

1.5.1 Assessment of the third RBMPs

A structured assessment framework has been used that is designed to capture targeted information from the RBMPs and supporting information. The assessment framework comprises a series of questions as set out in points 1-5 below:

1. Is the technical approach to the RBMPs robust and appropriate?
    a. Are the Plans robust and appropriate?
    b. Are the conclusions and assessments in the Plans realistic?
    c. What types of models and analyses are the Plans based on and are they appropriate?
2. How will the Programmes of Measures deliver results?
    a. What level of environmental improvement would the 2021-2027 RBMPs deliver if their Programmes of Measures (PoMs) are implemented?
    b. How does this compare to what the WFD regulations require?
    c. How does it compare with the Environmental Improvement Plan goals and Environment Act Targets?
    d. Are the supporting regulatory regimes, policies and guidance that are relied on to achieve the required improvements coherent and comprehensive or are there important gaps?
3. What is the approach to derogations?
4. What is the approach to transboundary issues?
5. What can be learnt from WFD implementation?
    a. What already works well, or could be made to work well, in the delivery of the WFD regulations and RBMPs?
    b. Are there particularly effective elements in this regime which should be retained or built upon to protect and improve the water environment or could be applied as principles or good practice to other areas of environmental policy beyond water?
    c. Overall, does the river basin management planning process and associated legislative and institutional framework provide an effective basis to protect and

[18] https://www.eea.europa.eu/data-and-maps/data/wise-wfd-4

improve the water environment and achieve the outcome intended? If not, why not, and what would need to be done to address this?

These have been answered by drawing on the RBMP documents and other supporting information. Information sources have been stated clearly in the assessment.

1.5.2 Comparison with the OEP environmental stewardship building blocks

The questions have been aligned with the six building block headings of environmental stewardship identified by the OEP as being necessary to achieve the delivery of the ambitions set out in the government's Environmental Improvement Plan (formerly the 25 Year Environment Plan). The six building blocks are as follows: understanding environmental drivers and pressures; creating a vision; setting targets; coherent strategy and policy; governance; and monitoring, assessing and reporting. The assessment framework is designed to gain an insight into opportunities where delivery in the water environment could be improved. This is captured through additional questions that aim to identify potential areas of improvement in the thematic areas of the review.

1.6 Structure of this report

The structure of this report is as follows:

- Sections 2-6 address questions 1-5 from the assessment framework, as set out in Section 1.5.1.
- Section 7 looks at the answers to these questions in the context of the six OEP environmental stewardship building blocks.
- Section 8 provides an overall summary of the work against each of the topics covered in Sections 2-6.

2 Is the Technical approach to the RBMPs robust and appropriate?

2.1 Introduction

This section addresses three questions around the technical approach in the RBMPs:

- Are the plans robust and appropriate?
- Are the conclusions and assessments of the plans realistic?
- What types of models and analyses are the Plans based on and are they appropriate?

These questions are examined for England (Section 2.2) and Northern Ireland (Section 2.3).

2.2 England

2.2.1 Are the plans robust and appropriate?

2.2.1.1 Alignment of the plans with WFD regulations

Each RBMP for England is a collection of documents describing how waters are managed, together with information about the RBD in data tables and maps. The plans cover the main required elements:[19] overview of the river basin, environmental objectives, programme of measures, economic analysis, monitoring programmes, consultation and participation, and reporting. The structure of the Plans can be seen in Appendix B.

The majority of the sections are the same for each RBMP and give general information rather than being specific to the RBD area. The sections that are different are:

- The information on catchment data explorer (CDE), which provides a descriptive summary of the RBD and water body specific information on status, objectives and pressures.
- The map explorer which displays data in a map format.
- The Habitats Regulations Assessment (HRA).

This high degree of uniformity means it can be difficult to find information at the RBD level when it is sourced from one of the general information pages. The plans are more similar to a national strategy, with waterbody detail in the CDE platform, rather than fully fleshed plans that present a specific vision for an RBD. It is accepted that the uniformity of the text has been undertaken to increase the readability of the plans to the general public. This is beneficial as RBMPs can be difficult documents to understand and navigate (based on the authors experience of reviewing RBMPs in other countries). However, the unintended consequence of the high degree of standardisation is that resulting document falls short of a true RBMP in a WFD context for any specific RBD. The waterbody (or groups of waterbodies) narrative around the link between driver-pressure-status-impact-response is not present in the plan documents. It is left for the user to piece this together from the underlying documentation and further links.

[19] As set out in Regulation 27 of the 2017 Regulations, and the referenced sections of the text of the original Directive 2000/60/EC

For example, when looking for information on the programme of measures (PoMs), these pages are the same for each RBD in the plan documentation. Though the Plans contain an elaboration of the specific pressures/status at a waterbody level, this is not linked to a justification of measures. Information on measures can be accessed through separate links, though this is still a quite high level summary (see section 3). It would be beneficial for each of the RBMPs to include an overview of the data and results, to provide context to the mapping and data on the CDE platform. Something like this would allow the reader to gain an overview of the data for each specific RBD and save time trying to find this information in the general overview pages.

To be fully in line with the regulations (and Ministerial Guidance) this element should be strengthened. It is noted that these connections were contained within the electronic reporting[20] proforma submitted to the EU in the 2nd cycle. However, this data reporting has not been undertaken in the third cycle due to the exit from the EU's reporting requirements.

2.2.1.2 How has the public consultation been evidenced in the plans?

The Environment Agency carried out a six-month public consultation on the draft river basin management plans (22 October – 22 April 2022) on eight draft plans. There were 270 responses received. The main themes that respondents raised in their feedback have been briefly summarised for this report and are as follows:

- **Further focus required on key environmental issues:** habitats and species recovery; emerging issues around chemical and plastic pollution; risk from increased abstraction pressure linked to housing development; stronger focus on increasing the environmental resilience to climate change and integration with longer term planning; and better integration of nature-based solutions (including increased water company funding of these initiatives).
- **Better integration with other plans and policies**: integration with flood and coastal erosion risk management including enhancement of relevant building regulations.
- **Funding and implementation**: more certainty needed on funding, including how catchment partnerships would be funded and details of implementation. Acknowledgement of the challenge of effective and collective implementation.
- **Partnership working and development of targeted solutions**: there was strong support for a collaborative catchment-based approach. The importance of a collaborative evidence base, multi-sector funding and to improve partnership working was raised in relation to drinking water. A 'one size fits all' policy to tackling rural diffuse pollution issues will not work and that a targeted approach using local evidence is required. A more systematic approach to solution development – conceptualising catchments from "source to sea".
- **Improved data and access to data**: using a wider range of sources to enhance the database, including citizen science. Improving the access to data at a local level.

The draft RBMPs posed six consultation questions. A summary of the responses has been produced for this report and is shown in Table 2.1. The full consultation response can be seen on the draft RBMPs consultation: improvements to plans page.[21]

[20] As a part of EC reporting on the RBMPs all Member States are required to submit pdf reporting (the RBMPs) and electronic reporting (standardised proforma which numerically tabulate key portions of the RBMP assessments). This was done by the UK for the 2nd RBMPs and is being done by Member States for the 3rd RBMPs in line with the 3rd RBMP reporting guidance. This reporting forms the basis of the EC's compliance assessment of the 3rd RBMPs.

[21] Draft river basin management plans consultation: summary of responses - GOV.UK (www.gov.uk)

Table 2.1 Summary of the consultation responses on the draft RBMPs

Consultation question	Summary of the responses
Question 1. Implementing the plan – what are your views on these principles?	Responses largely supported the implementation principles however, more detail on how the principles will be implemented was asked for. Responders wanted better integration with other strategic plans,[22] including how to fund the measures set out in the plans. They wanted policies, strategy, and legislation to be better integrated and aligned to help pool resources and improve the likelihood of meeting ambitious targets to protect, manage and maintain water resources. Feedback noted that there were too many principles and that they could be summarised and simplified as they are all very broad. The principles were also criticised for a lack of ambition and difficulty finding the information they wanted.[23]
Question 2. Do you agree with the environmental objectives in this draft plan? Should there be changes to any objectives?	Responses agreed that to meet the objectives outlined in the plans, a strong ambition is needed but questioned whether the RBMPs are ambitious enough to meet the objectives. There was concern about the lack of progress in meeting good ecological status since the last RBMPs and that some water bodies have deteriorated in status since 2015. Additionally, there was concern that progress toward good status is being masked by the one out all out rule. Some respondents thought biodiversity should be added, however other responses noted broadening the remit can be a distraction.
Question 3. Are you aware of any funded measures that are missing from the Programme of Measures? Please let us know what measures are missing.	About a third of the respondents said there were funded measures missing. Local measures have been suggested for each RBD. Further information can be seen in Appendix C.1.
Question 4. Do you have any comments on the potential new measures set out in the programme of measures? Please tell us about any other new measures that can be taken forward with support from partners to achieve the objectives in the plans.	There was broad support for many of the measures included as potential new ones within the draft plans. In general, there was some concern about delaying measures until after 2027. More detail on how measures will be prioritised as well as more information around the measures was wanted.
Question 5. Catchment Partnerships – Do you have any comments on the challenges and measures suggested as priorities in your local catchment partnership page? Please give catchment specific examples and tell us where, by working together, more benefits can be achieved.	There were many supportive comments for the catchment partnership pages as a way for partners to use local evidence to identify priorities and demonstrate local delivery. Many said that they demonstrate the growing importance of the catchment-based approach and partnership approach to implement RBMPs. There was also recognition that the pages are a new development in the RBMPs for this cycle and that their intention aligns with those of the RBMPs.

[22] A table of the various water management plans and their cycles is shown in Section 7 this report.

[23] Executive Summary section - Draft river basin management plans consultation: summary of responses - GOV.UK (www.gov.uk)

Consultation question	Summary of the responses
Question 6. Do you have any further comments on the draft RBMPs, not covered by the previous questions?	This covered the issues in the bullet points above, as well as specific concern that the National Water Environment Benefit Survey (NWEBS)[24] will not take place in time to inform the ambitions of this cycle of RBMPs.

2.2.1.2.1 Environment Agency response to the consultation on the Draft RBMPs

The EA noted that many of the comments received have longer-term implications for water that are outside the scope of the plans. The EA noted that such comments were shared within the EA and with Defra and are being used for strategic planning and implementation.

The EA made the following changes based on the consultation (this summary has been produced for the purpose of this report):

- The structure of the plans was improved. For example, this includes individual RBD landing pages with all relevant links on one page.
- Further improvements were made to the Catchment Data Explorer and online maps including additional information such as an explanation on the chemical failures' status.
- In response to feedback that there was a need for a more joined up approach to implement the principles to deliver multiple benefits, the EA said that it will continue to connect RBMPs with other strategies and programmes.
- Corrections were made to some water body status objectives in response to concerns that some were updated incorrectly.
- Updated plans have a specific summary Programme of Measures webpage and signposting within the spreadsheets has been improved.
- A new page has been added to the catchment data explorer, listing all the catchment partnership pages by management catchment and including links to their location.

A summary of responses by RBD can be seen in Appendix C.

2.2.1.3 Link between the first, second and third Plans

The RBMPs provide two online mapping tools to present various data. These are the Catchment Data Explorer[25] and the RBMP map explorer.[26] The classification data for all of England is presented on the catchment data explorer webpage.[27] The catchment data explorer is an online tool developed by the EA, which shows information on waterbody classifications, objectives and challenges. At the national level, the classification data is only shown for the third cycle. This is summarised in Table 2.2. There is a dropdown menu to select the cycle, however, at the time of writing this report, there is only an option to select the third cycle, so the first and second cycle summary of classification data for all of England cannot be seen on this webpage. The RBMP maps tool includes a map that shows changes in status of waterbodies since the second RBMP cycle. This provides a good visual presentation of status change that can be seen at the waterbody, RBD and national level.

[24] The NWEBS is used to assess the monetary value of environmental benefits and underpins the cost-benefit-assessments of the economic analyses of the RBMPs.

[25] Available at: https://environment.data.gov.uk/catchment-planning

[26] Available at: https://experience.arcgis.com/experience/73ed24b6d30441648f24f043e75ebed2/page/Introduction/

[27] Available at: https://environment.data.gov.uk/catchment-planning/England/classifications. Accessed May 2023.

Table 2.2 Classification data for the third cycle RBMP from the Catchment Data Explorer webpage

Surface water						
Ecological status or potential	Bad	Poor	Moderate	Good	High	**Total**
Number of water bodies	137	794	2,962	754	4	4,651
Chemical status	Fail			Good		
Number of water bodies	4,649			0		4,649
Groundwater						
Quantitative status	Poor			Good		
Number of water bodies	72			199		271
Chemical status	Poor			Good		
Number of water bodies	149			122		271

Note: This data is taken from the summary classification data for England as presented on the catchment data explorer. This data shows a total of 4,651 surface waterbodies classified for ecological status and 4,649 surface waterbodies classified for chemical status. It is not known why there is a difference.

Some data from the second cycle is presented in the 2022 progress report, which is available online.[28] It does not, however, provide any data from the first cycle, so does not provide information on the full progress story from the beginning of the RBMP process. The progress report provides an overview of status change, progress towards achieving the environmental objectives, a summary of the measures implemented since 2015 and identifies some ways in which the evidence used in river basin management planning has changed. For overall waterbody status, it is stated that between 2015 (second cycle) and 2019 (third cycle) 151 waterbodies improved from moderate or worse to good or better and 171 waterbodies deteriorated from good or better to moderate or worse. This is a net deterioration of 20 waterbodies changing from good or better to moderate or worse.

For ecological status, the progress report provides an overview of the status classes between the second and third cycle. This is summarised in Table 2.3. This data shows that there has been very little change in ecological status class between the second and third cycle and there is deterioration of the number of waterbodies in the good and high status classes. For chemical status, the progress report states that there has been very little change in status for most substances that are assessed as part of chemical status for surface water. It acknowledges that due to the inclusion of new substances in the assessment, and due to changes in the techniques and method used since the second cycle, the overall chemical status has changed considerably since the second cycle. This is why all surface waterbodies are classified as fail for chemical status, as shown previously in Table 2.2. For groundwater, the progress report states that there has been a net increase in the number of groundwater bodies at good quantitative status, with 73% at good in 2019 compared to 69% in 2015 and there has been a net decrease in the number of groundwater bodies meeting good chemical status, with 45% at good in 2019 compared to 53% in 2015. The RBMPs do not include an overview of the overall reasons for deterioration in chemical status in groundwater bodies. The progress report states that the reasons for changes are specific to each waterbody and deteriorations fall into the following two categories:

- A reduction in status resulting from an increase in the pressures on the environment; or
- A change in how status is assessed, for example changes in monitoring programmes, including the location of monitoring points or the elements monitored.

The progress report includes a link to the RBMP map explorer,[29] which provide a visual presentation of changes to waterbody status. Using this map, waterbodies that have deteriorated can then be

[28] Available at: https://www.gov.uk/government/publications/river-basin-management-plans-updated-2022-progress-report/river-basin-management-plans-updated-2022-progress-report#changes-in-the-state-of-the-water-environment-since-2015

[29] Available at: Progress | River Basin Management Plan: maps (arcgis.com)

viewed in the catchment data explorer to understand which aspects of the chemical assessment have resulted in a poor status classification. For groundwater bodies, the methodologies for the chemical tests have remained the same since the previous cycle, although for some of the tests, additional data has been included.

Table 2.3 Ecological status or potential in the second and third cycle from the 2022 progress report

Ecological status or potential (number)					
Year	**Bad**	**Poor**	**Moderate**	**Good**	**High**
2015	135	820	2,943	774	7
2019	137	793	2,988	756	4
Net Change	+2	-27	+45	-18	-3
Ecological status or potential (% of total waterbodies)					
Year	**Bad**	**Poor**	**Moderate**	**Good**	**High**
2015	3%	17%	63%	17%	less than 1%
2019	3%	17%	63%	16%	less than 1%

The RBMP maps webpage provides a good overview of changes in status at the RBD level and national level. However, in the catchment data explorer,[30] information is provided at the waterbody level regarding classification, including a breakdown of classification elements; objectives; and reasons for not achieving good (RNAG) across the first, second and third cycle. It provides details of the monitoring sites used to classify the waterbody. It also provides information on whether the waterbody falls within a protected area. A zoomable map to view the waterbody and downloadable data files are also included. This information is useful and shows a lot of detail allowing any improvements or deteriorations to be clearly seen at the waterbody level. An accompanying 'how to use the catchment data explorer' is also provided.[31]

2.2.1.4 Usability of the plans

The presentation of the plans has been designed to consider accessibility as described in the Accessibility Statement for content published on the .gov.uk domain.[32] However, from exploring the plans, a notable level of difficulty in their usability was identified. A difficulty in navigating the plans was also mentioned numerous times in the consultation feedback. This was something that the EA stated that it improved on between the draft and final plans. Improvements that were made included creating individual river basin district landing pages, with introductory text and all relevant links on one page; separating a plan summary document into individual, topic-focused documents; and clearer links and references to improve the navigation between documents. Further details of such changes that were made can be found online on the consultation outcome webpage.[33]

Even after the changes that were made following consultation to improve the usability of the plans, navigating the plans still remains difficult. It is stated in the consultation outcome webpage that one of the improvements that was made was to put all relevant links in one place. This is reflected in there being an individual landing page for each RBD, and using the Anglian RBD as an example, links to the following are included:

- Introduction;

[30] Available at: https://environment.data.gov.uk/catchment-planning/

[31] Available at: How to use Catchment Data Explorer | Catchment Data Explorer | Catchment Data Explorer

[32] Available at: Accessibility statement - GOV.UK (www.gov.uk)

[33] Available at: Draft river basin management plans consultation: improvements to plans - GOV.UK (www.gov.uk)

- Implementing the plans;
- Current condition and environmental objectives;
- Challenges for the water environment;
- Summary programmes of measures;
- Anglian RBD data explorer;
- Anglian RBD map explorer;
- River basin planning process overview;
- Progress report; and
- Anglian river basin management plan, updated 2022: habitats regulations assessment report.

When the user navigating the plans reaches a landing page for an RBD, they may be expecting to read information that is specific to that RBD. However, RBD-specific information is only provided for the links that direct to the data explorer, the map explorer and the habitats regulation assessment. The remaining links direct the user to national overview documents. An improvement that could be made in the plans is to state in the contents if the link directs to a national overview webpage, or to an RBD-specific webpage.

Additionally, the contents as shown in the bullet points listed previously are very over-arching, and the links often direct to pages that contain information covering lots of different topics. It would be highly beneficial to produce a more in-depth contents page, that provides more detail on what information or data is included for each link. This would help the user find information more easily on a specific topic, because in the current presentation of the plans, they would have to click through several links to try and find information on a specific topic.

2.2.2 Are the conclusions and assessments in the Plans realistic?

As part of the RBMP process, a wide array of assessments have been undertaken to classify the status of waterbodies, assess significant pressures, establish objectives, and plan out measures to maintain and improve the status of waterbodies. There are some aspects of these assessments that mean the conclusions drawn from them are not necessarily clear-cut. Some key examples are discussed below.

Confidence in achieving objectives

The RBMPs identify many waterbodies where there is low confidence that they will achieve the 2027 good status objective. This is not presented as a derogation (see Section 4), but rather an acknowledgement that there are uncertainties regarding the ability to implement measures, or uncertainty about which waterbodies will benefit from the measures.[34] In the ministerial guidance for River Basin Management Planning, it states that the EA should indicate that the level of confidence in the objective is low if there is uncertainty about when some of the measures needed to achieve an objective by 2027 will take place[35] and this is discussed in more detail in Section 3.2.1 of this report. The wide-ranging low confidence in achieving the objectives can be interpreted in different ways. For example, it may suggest that the PoMs that has been established is unrealistic and does not equate to a PoMs that is fully implementable for this RBMP cycle. It may also be interpreted as

[34] River basin management plans, updated 2022: current condition and environmental objectives - GOV.UK (www.gov.uk)

[35] River basin planning guidance (publishing.service.gov.uk)

realistic, in that the RBMPs are being transparent and acknowledging that there are expected issues regarding the implementation of the measures.

Classification

As discussed in section 1.2.2.1 of this report, basing the overall classification result on the lowest scoring element is known as the 'one-out-all-out' principle. This principle has been debated since the inception of the RBMP process and there are arguments that it can mask improvement progress being made in waterbodies.

The one-out-all-out principle can result in two waterbodies classified at the same status, which may in fact have very high variability between them in the classification at the element level. An example of this from the third RBMP is shown in Table 2.4. This shows that two waterbodies can be classified as having the same overall ecological status, but have a high variability when the element level is looked at. Waterbody GB103023074720 only has one element classified as moderate, whereas waterbody GB104028053090 has eight elements classified as moderate. As previously shown in Table 2.2, most waterbodies are classified as moderate ecological status, however, there is likely to be large variability regarding water quality and ecology within this classification band. Taking a look at the status of individual elements provides a more complete understanding of the state of the waterbody. Communicating this nuance is where the one-out-all-out test is not the best indicator of progress and river health. A wider set of summary statistics showing progress and element status may be more useful in understanding the problem and providing clarity on the conclusions and assessments.

Table 2.4 A comparison of two natural river waterbodies classified as moderate ecological status in the third cycle RBMPs

Waterbody ID	**GB103023074720**	**Waterbody ID**	**GB104028053090**
Classification Item	**Classification**	**Classification Item**	**Classification**
Ecological	Moderate	**Ecological**	Moderate
Biological quality elements	High	**Biological quality elements**	Moderate
Fish	High	Invertebrates	Moderate
Invertebrates	High	Macrophytes and Phytobenthos Combined	Moderate
Macrophytes and Phytobenthos Combined	High	Macrophytes Sub Element	Moderate
Macrophytes Sub Element	High	Phytobenthos Sub Element	Good
Physico-chemical quality elements	High	**Physico-chemical quality elements**	Moderate
Ammonia (Phys-Chem)	High	Ammonia (Phys-Chem)	Moderate
Dissolved oxygen	High	Dissolved oxygen	Good
Phosphate	High	Phosphate	Moderate
Temperature	High	Temperature	High
pH	High	pH	High
Hydromorphological Supporting Elements	Supports good	**Hydromorphological Supporting Elements**	Supports good
Hydrological Regime	High	Hydrological Regime	Does not support good
Morphology	Supports good	Morphology	Supports good
Specific pollutants	Moderate	**Specific pollutants**	Moderate
Copper	High	Copper	High
Iron	High	Iron	High
Manganese	High	Manganese	Moderate
Zinc	Moderate	Zinc	Moderate

There are instances in the classification data where the recent classification is not based on a full suite of quality elements. For example, waterbody GB102076070880 (Eden - Scandal Beck to Lyvennet Water Body) is at good ecological status, however, the most recent fish classification for this waterbody was in 2014, where it was classified as moderate.[36] This site was monitored for fish every year between 2009 and 2014, but then has not been monitored for fish since then. It is not known why the fish monitoring ceased. There are also other sites where fish monitoring ceased after cycle 1 (based on the data available in the catchment data explorer and the classification CSV data).[37]

The WFD Regulations state that the monitoring programmes must comply with certain provisions of Annex V to the WFD (2000/60/EC). This sets out the monitoring frequencies that should be followed as a guide, which for fish is every three years. It does state that greater intervals can be used if justified on the basis of technical knowledge and expert judgement. In the third RBMPs, the background method statement for assessing surface water sets out the sampling frequency for fish as one survey within the appropriate six-year window.[38] This may be why there are some sites which have not had a more recent fish survey, as a fish survey undertaken in 2014 falls within this six-year window for the third cycle classifications which were undertaken in 2019.

The method statement for assessing status in the third RBMPs does not provide information on the specific reason for the wider window for fish monitoring than set out by the regulations. There could be more information provided in the catchment data explorer at the waterbody level to inform on how classification has been approached when the full suite of monitoring elements is not present for the third cycle.

2.2.3 What types of models and analyses are the Plans based on and are they appropriate?

2.2.3.1 Assessment of the condition (status) of water

The UK Technical Advisory Group on the Water Framework Directive (UKTAG) develops environmental standards and conditions to support river basin planning.[39] It is noted there are a range of other environmental standards in use for the UK with regards to water quality, these have been identified from European directives or developed independently by respective countries. The EA should apply the standards and criteria as set out in the statutory Directions: The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

The EA has provided details on defining and describing the water environment.[40] In surface waters, surveillance monitoring is undertaken to obtain data on long term natural and anthropogenic trends. The RBMPs state that surveillance monitoring is undertaken in a small network of sites. Operational monitoring is used to obtain data for classifying the status of waterbodies. For groundwater, there are groundwater quality and groundwater level monitoring networks to obtain data for chemical status and trend assessment and quantitative assessment.

[36] Data from https://environment.data.gov.uk/catchment-planning/WaterBody/GB102076070880?cycle=3. Accessed May 2023.

[37] Available at: England | Catchment Data Explorer

[38] The Environment Agency. Rules for assessing surface water body ecological status and potential (2022)

[39] UKTAG was established to provide coordinated advice on technical aspects of the implementation of the Water Framework Directive (Directive 2000/60/EC). Further information on UKTAG can be found at: http://wfduk.org/about and further information on recent UKTAG recommendations for standards and conditions can be found at: http://wfduk.org/resources.

[40] https://www.gov.uk/guidance/river-basin-planning-process-overview/3-defining-and-describing-the-water-environment

2.2.3.2 Assessment of the risk to water bodies from pressures

The assessment and management of risk is critical for identifying environmental pressures within water bodies and can help prevent deterioration of status. Furthermore, the WFD Regulations require any pressures acting upon a water body to be identified. Risk assessments produced for the 2009 plans (RBMP plans/first cycle) were reviewed for the 2015 cycle/plans and subsequently updated. For the third RBMPs, whilst risk assessments were reviewed again, they were assessed as appropriate and have not been updated. The EA has published the risk assessment methodologies alongside the 2015 RBMPs.[41]

In England, nine methods have been published to assess risk to the water environment alongside the 2015 RBMPs. These were organised by pressure:

- Abstraction and flow;
- Chemicals and metals;
- Faecal indicator organisms (FIO);
- Groundwater – chemical pressures;
- Invasive non-native species;
- Phosphorus from sewage treatment works (STWs);
- Physical modification;
- Sanitary pollutant pressures (ammonia, dissolved oxygen (DO) and biochemical oxygen demand (BOD) from STWs; and
- Sediments.

Each risk assessment provides an overview of the method, information about the data sources uses, outputs from the assessment and method limitations. More detailed information on this may be found in Appendix E.

The published methods often include discussion in the confidence in the risk assessment outputs, basis and validation of the methods, along with assumptions and limitations of the methods. It is mentioned that many of the methods are developed from well-established guidelines (e.g. EU or UKTAG), and have had input from expert judgement. Furthermore, the inclusion of local knowledge where available is mentioned. For example, in the methodology for invasive non-native species (INNS), local overrides have been included in some of the species assessment rules where nationally available datasets are not able to address a critical risk factor.

In the chemicals and metals methodology, the importance of utilising different sources of data is highlighted. Additional monitoring data had previously demonstrated in a number of cases that the modelled risk assessments were overestimated. This was particularly the case where run off was considered to be a significant contribution. However, additional monitoring data showed that water bodies predicted to be failing, based on both modelling and expert judgement, were in fact meeting respective EQSs.

A method which has large uncertainty appears to be the physical modification methodology, and risk assessments here are assigned with low confidence. The justification is that there is a high level of uncertainty due to the nature of the source data (a range of different datasets are utilised), and the assumptions in translating an extent and type of pressure into risk class. There are also acknowledged gaps in the understanding of the different types of morphological pressures, as

[41] HYPERLINK "https://www.gov.uk/guidance/river-basin-planning-process-overview/3-defining-and-describing-the-water-environment"https://www.gov.uk/guidance/river-basin-planning-process-overview/3-defining-and-describing-the-water-environment

currently whilst it is known some pressures will have more impact than others, these cannot be quantified at present as the detailed response of the river system to each pressure is not known. It is also noted that the link between a pressure and the impact of that pressure on river morphology is not well understood. Therefore in the assessment, the thresholds used to define the effect of a pressure on a water body are based solely on expert judgement. However, finding specific examples of implementation is challenging, as these are not given in the methodology document. For further improvement of these risk assessments, giving specific examples of the application of the methodology across RBDs, giving case studies or lessons learnt could provide valuable insight and transparency.

A recommendation from the first RBMPs for the UK from the EC compliance check was that more information needs to be included in the RBMPs on the methodology used to identify significant pressures and how this analysis feeds into the development of monitoring programmes.[42] It was noted in the assessment from the second RBMPs that there had been no specific changes in methodology for the second cycle so there was no evidence that this recommendation had been fulfilled.

Of note for the UK, a large proportion of groundwater bodies are not subject to monitoring. Surveillance monitoring is implemented in a limited number of groundwater bodies and operational monitoring does not cover all groundwater bodies at risk. In the EC compliance check of the second RBMPs it was mentioned that whilst quantitative status is assigned to all groundwater bodies, the method for assigning status without monitoring data is unclear.

Furthermore, the UK technical guidance methodology provides recommendations for how spatial issues and the use of multiple monitoring stations should be dealt with. For example, if there are only a handful of sites and each monitoring station is representative of a significant proportion of the water body, the entire water body can be classified on the basis of the results for the monitoring station indicating the worst impact. How this recommendation has been implemented is not discussed in the RBMPs.

In future RBMPs, it would be beneficial to include further details on the specific decisions and judgements made in selecting representative water bodies. A dedicated section or annex could be added to outline how the UKTAG guidance has been implemented. This section could clarify how spatial issues and the use of multiple monitoring stations were addressed, and the rationale behind selecting monitoring sites. Providing clear information on the guidance application would help provide transparency and openness to scrutiny, while demonstrating that decision-makers are following established guidelines and recommendations for accountability. Moreover, it would allow for the evaluation and improvement of RBMPs by offering detailed information on implementation, which could be used to assess effectiveness and identify areas needing enhancement.

2.2.3.3 Integration of climate change

Whilst climate change is considered to be one of the key risks to water resources and aquatic ecosystems in England, there is no specific climate change risk assessment. Reasoning for this could be that climate change is a cross cutting issue, and is a driver in many of the risk assessments mentioned above.

Due to this, several of the above risk assessments have integrated climate change risks in the assessment. For example, in the Faecal indicator Organisms (FIO) risk assessment[43], in order to assess compliance in the future, the source appointment data has been combined with information on predicted changes in pressures, including climate change.

Whilst climate change has been considered in some risk assessments, like the FIO risk assessment, others have not mentioned it in the methodologies, presenting a potential gap. For example, the risk

[42] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=SWD:2019:58:FIN&qid=1551205988853&from=EN

[43] In which the total faecal bacteria loads for each waterbody in 2030 and 2050 were calculated

assessment for groundwater abstraction, completed in 2015, mentioned that there was no consistent methodology for assessing the impacts of climate change on groundwater recharge. It was mentioned in this document however, that in 2013 there was to be a project to deliver climate change forecasts for groundwater recharge, and that risk of deterioration due to climate change will be dependent on the outcomes of this project linking climate change to water being delivered for these next RBMPs. Updated information regarding this, however, has not been found in the review of the third RBMPs for this report.

Recommendations for the refinement of the pressure and risk analysis

The aim of this question was to gain an understanding of the technical and scientific basis used for the development of the plans. The models and analyses used were developed based upon good practice, for example many of the methods were mentioned to be developed from well-established guidelines (e.g. EU or UKTAG). There does also not appear to be any significant change between the cycles. Whilst this consistency is good for comparison between cycles, it does mean that certain questions or issues have been left unaddressed. For example, having a more quantitative assessment of the morphology components of hydromorphology pressure. Furthermore, whilst decisions may have been made correctly on how methodology is applied to water bodies, it is not possible to draw this conclusion from the information presented.

The nine risk assessments are generally comprehensive, as they broadly cover the main pressures directly impacting the chemical and ecological status of a water body. However, these risk assessments tend to focus on both the pressures and monitoring aspects, rather than the drivers themselves (e.g., climate change, agriculture, etc.). This might be because many of the drivers have cross-cutting impacts on the risk assessments listed above, and that pressures potentially provide a more direct link to the impacts on water bodies, which can be more easily measured and quantified.

While these pressures are directly impacting water bodies, and these risk assessments aim to identify, quantify, and prioritise them, it is also crucial to recognise where these pressures originate. These risk assessments could therefore be considered too focused on the pressures, without emphasising the drivers enough. Failure to recognise both current and emerging drivers in water bodies may lead to insufficient understanding of the underlying factors, which can impede the improvement of water status. Future improvements could include developing more driver-related risk assessments or further integrating the assessment of drivers within the current risk assessments.

2.3 Northern Ireland

2.3.1 Are the plans robust and appropriate?

2.3.1.1 Alignment of the plans with WFD regulations

At the time of writing this report, the third RBMP for Northern Ireland is in the draft stage. As a change from the second cycle, the information for the RBDs is presented in a single document rather than separately. It is stated in the draft RBMP that this single presentation will be the same format for the final plan.

The main components of the draft third RBMP include:

- A summary RMBP comprising information for the North Western, Neagh Bann and North Eastern RBDs. This includes information on classification, changes since the last cycle, protected areas, pressures, reporting of objectives, implementation of measures since last the cycle, draft PoMs (at a national level) and an overview of the consultation process.

- Supporting documents including classification methodologies updated for this cycle.
- NIEA Catchment Data Map Viewer.

There are some gaps between what is presented in the draft plans and what is expected to be available in the final plan. For example, the plans did not provide objectives data and derogation use at the waterbody level. It was confirmed by DAERA that this was because these aspects cannot be published prior to the plans having executive approval. This limited some of the assessments that could be undertaken in the plans. The structure of the Plans can be seen in Appendix B.[44]

2.3.1.2 How has public consultation been evidenced in the plans?

Consultation on the draft third cycle River Basin Management Plan opened in April 2021 and closed in October 2021.[45] Resources available for the consultation were the draft third RBMP, a link to a video guide of the draft third RBMP and various supporting documents. The supporting documents included a 'Synopsis of Responses to Consultation on the Significant Water Management Issues Report – June 2021' which has helped in shaping the draft third RBMP.[46]

The draft third RBMP sets out a series of questions for the public consultation. These are related to the reporting of status; assessment of coastal river waterbodies; the working target approach; selecting priority areas; the PoMs; and the findings of the screening and impact assessments. Some key issues that have been raised during the consultation phase of the draft plans include:

- There is considerable scope for more partnership working to address diffuse pollution from farms;
- Agricultural land could be used to help address flooding in urban areas, for example through tree planting, erosion control and wetland restoration on agricultural land;
- There should be alignment with planners and water companies to ensure there are adequate wastewater treatment works for the growing population demands;
- Upgrades should be made to sewerage systems to reduce use of combined systems;
- The Surface Water Alternations handbook[47] contains useful information and should be regularly updated and promoted to landowners and other water users;
- The one-out-all-out principle should be reconsidered;
- There are many other initiatives and projects under way that will also help deliver environmental and water quality improvements. The RBMP does not fully recognise the amount of work being carried out by industry stakeholders to address water quality;
- The working target of 70% of waterbodies to be at good ecological status or potential is too low and the target should be 100% of waterbodies;
- There should be better use of technology to monitor waterbodies, including the use of remote monitoring to detect pollution; and
- The Programme of Measures should include more nature-based solutions.

[44] The structure of the second RBMP is shown in the Appendix.

[45] Consultation on the Draft 3rd Cycle River Basin Management Plan 2021 to 2027 | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

[46] Synopsis of Responses to Consultation on the Significant Water Management Issues Report - June 2021_0.pdf (daera-ni.gov.uk)

[47] Available at: https://www.daera-ni.gov.uk/publications/surface-water-alterations-handbook

2.3.1.3 Link between the first, second and third Plans

In Northern Ireland, an update on waterbody status is provided in a Water Framework Directive Statistics Report, which can be found online.[48] The latest report, published in 2021, presents classification data for surface water and groundwater bodies from 2015, in 2018 (interim classification assessment) and in 2021 (third cycle assessment). This report provides more detailed information on the waterbody status between cycles compared to the progress report for England. It provides more classification information at the level of the waterbody type and includes figures to visualise the results.[49] An overview of classification summarised from the Northern Ireland Water Framework Directive Statistics Report is shown in Table 2.5.

Table 2.5 Classification data summarised from the Northern Ireland Water Framework Directive Statistics Report

Surface water - Ecological status or potential							
Year	**Bad**	**Poor**	**Moderate**	**Good**	**High**	No data	Total
2015	12	50	268	152	9	5	496
2018	11	50	276	154	2	3	496
2021	7	56	276	151	2	4	496
Net change between 2015 and 2021	-5	+6	+8	-1	-7		
Surface water - Chemical status							
Year	**Fail**			**Good**		No data	Total
2015	22			259		215	496
2018	26			442		28	496
2021 including uPBT substances and cypermethrin	496			0		n/a	496
2021 excluding uPBT substances and cypermethrin	16			461		19	496
Groundwater - quantitative status							
Year	**Poor**			**Good**		No data	Total
2015	8			67		n/a	75
2021	4			71		n/a	75
Groundwater - chemical status							
Year	**Poor**			**Good**		No data	Total
2015	24			51		n/a	75
2021	22			53		n/a	75

Note: The RBMP acknowledges that improvements in groundwater status are mostly attributed to changes in monitoring data collection or changes in monitoring stations within the groundwater bodies.

2.3.2 Are the conclusions and assessments in the Plans realistic?

As previously discussed, there are some aspects of the RBMP process where an in-depth look at results may be required to obtain a more complete understanding of the conclusions drawn. This was previously discussed in relation to the one-out-all-principle.

Classification

[48] NI Water Framework Directive Statistics Report 2021.pdf (daera-ni.gov.uk)

[49] It should be noted that the NI report is a report focusing on classification and results and the English report is a progress report which also provides information on other areas such as objectives and measures. Therefore, the two reports are not aiming to present the same overall content.

In the third RBMP for Northern Ireland, the RBMP has categorised its summary presentation of chemical status results into three sub-groups. The RBMP has provided a clear presentation of chemical status that includes ubiquitous persistent, bioaccumulative and toxic (uPBT) substances and cypermethrin and chemical status that excludes these substances. It also provides a third sub-group were uPBTs are excluded but cypermethrin is included. This provides a realistic assessment of the chemical status of waterbodies, it is clear that the uPBTs are ubiquitous and result in a blanket failure of chemical status in waterbodies. However, by also showing the chemical status of waterbodies with these substances excluded, it allows waterbodies where other chemical areas contributing to the failures to be identified. This can provide opportunities to address issues caused by chemicals other than uPBTs and cypermethrin which may be more rectifiable over a shorter time frame than the time it takes to mitigate the effects of uPBTs once they are present in the environment. It is stated in the RBMP that this also allows a meaningful comparison to be undertaken of chemical status since the last cycle.

Confidence in achieving objectives

The draft RBMP for Northern Ireland acknowledges the uncertainty surrounding achieving the objectives. In the draft RBMP, it is stated that is highly unlikely that Northern Ireland will achieve good status in all waterbodies by 2027. The RBMP also states that resources are limited and has set up a working target[50] approach to focus limited resources to waterbodies identified as high priority. The RBMP attributes failure to meet the objectives to challenges in implementing measures, and in particular, the challenge in addressing diffuse pollution. It states that challenges such as these require a cross-cutting approach and that there is a lack of system thinking in implementation.[51] RBMP is being somewhat realistic in acknowledging the challenges surrounding implementation, but it is limited in identifying what can be done to address this implementation challenge. Whilst it does outline that there will be continued working together to achieve the objectives of the WFD Regulations, it does not specifically identify where there are opportunities to reduce the implementation gap.

2.3.3 What types of models and analyses are the Plans based on and are they appropriate?

2.3.3.1 Environmental statistics

Statistics on the state of the water environment are published annually in the Northern Ireland Environmental Statistics Report.[52] This reports on a range of environmental indicators that cover key themes, including public attitudes, climate change, air, water and marine, biodiversity and land, waste and historic environment. Whilst statistics on the state of the water environment are published annually in the Environmental Statistics Report, the WFD data is not updated each year due to the timescales and the amount of monitoring data required, with DAERA noting that the latest WFD statistics were published in 2021.[53] The environmental indicators are generally broader measures used to monitor and assess the state of the environment, and likely do not capture the full breadth and depth of data required to meet the specific reporting requirements of the WFD. A status update

[50] Further details of the working target approach can be found in Section 3.3.1 of this report.

[51] The RBMP references two papers, one is looking at different governance structures in addressing pressures & one that discusses system thinking. The first paper says that a coherent, joint up approach is needed to address these kind of pressures the second paper discusses looking at the system as a whole, i.e. under the Drivers-Pressures-State-Impacts-Responses framework rather than looking at isolated components. Paper 1: De Vito, L, Fairbrother, M., Duncan, R. 2020. Implementing the Water Framework Directive and Tackling Diffuse Pollution from Agriculture: Lessons from England and Scotland. Water. 12 (1): 244 [Online]. Paper 2: Voulvoulis, N., Arpon K. D., Giakoumis T. 2016. The EU Water Framework Directive: From great expectations to problems with implementation. Science of The Total Environment. 575: 358-366.sec

[52] https://www.daera-ni.gov.uk/articles/northern-ireland-environmental-statistics-report

[53] https://www.daera-ni.gov.uk/publications/northern-ireland-water-framework-directive-statistics-report-2021

of all water body types was undertaken prior to the production of the third cycle River Basin Management plan 2021-2027.

2.3.3.2 Groundwater quality monitoring network

Groundwater quality is assessed via a network of water samples from boreholes and springs. A map of the monitoring stations can be viewed on the River Basin Plan Map Viewer. Regional monitoring of groundwater in Northern Ireland has been undertaken since 2000. It is noted that a review of the network was undertaken in 2007. Results are summarised in 'Approach to Groundwater Monitoring for Northern Ireland, United Kingdom to meet the requirements of the Water Framework Directive' published by the Environment and Heritage Service in February 2007. The monitoring frequency and the selectant of determinants are stated to follow UKTAG guidance.[54]

2.3.3.3 Risk Assessments

The draft third RBMP for Northern Ireland includes a series of supporting documents that provide details on methodologies used in the RBMP assessments.[55] A summary of the risk assessments included in these methodologies is shown in Appendix D2. In general, these documents providing the methodology for the assessments do not discuss the confidence in the risk assessment outputs, basis and validation of the methods, or assumptions and limitations of the methods. UKTAG guidance is used in several of the methods shown in Appendix D2. UKTAG guidance documents are developed by experts from UK environment agencies and conservation agencies to advise on the scientific and technical aspects of WFD implementation. There are differences in the presentation of the methodologies between Northern Ireland and England, therefore direct comparisons between the two are challenging to make. Some differences were noted which are described below.

2.3.3.3.1 Non-native species

There is a difference in the handling of non-native species. Northern Ireland states that the Invasive Alien Species (IAS) downgrade refers only to those species that are listed in the High Impact Alien Species list as per UKTAG guidance. Due to differences in flora and fauna, the WFD recognises the island of Ireland as a separate Ecoregion (Ecoregion 17) from Great Britain (Ecoregion 18). As a result, two separate lists of High Impact Alien Species for each region have been produced. In Northern Ireland's IAS supporting document, it states that it follows UKTAG guidance to a certain extent (i.e. the High to Good downgrade). It is further noted that a critical issue is associated with the further downgrading of status from Good to Moderate. This is due to the availability of robust scientific evidence to assess whether or not an alien species is 'causing more than a slight adverse impact on any biological element'. Due to this factor, it has been highlighted that Northern Ireland will only downgrade from High to Good using the Ecoregion 17 High Impact Alien Species list, but no further.

2.3.3.3.2 Water quality modelling

Another potential difference was highlighted in the supporting document about "Agricultural Nutrients and Water quality",[56] it states that catchment modelling research is still in its early stages compared to other parts of the UK and Ireland. Instead, modelling in Northern Ireland has tended to focus on the Soil and Water Assessment Tool (SWAT) in specific catchment areas. Other models that have

54 http://www.wfduk.org/sites/default/files/Media/Characterisation%20of%20the%20water%20environment/Groundwater%20monitoring_Draft_010807.pdf

55 Available at: https://www.daera-ni.gov.uk/publications/supporting-documents-draft-3rd-cycle-river-basin-management-plan

56 Agricultural Nutrients and Water Quality June 2021_0.pdf (daera-ni.gov.uk)

been used include source appointment models (e.g. SIMulation of CATchments (SIMCAT)), export coefficient modelling and GIS tools.

3 How will the programme of measures deliver results?

3.1 Introduction

This section discusses the Programmes of Measures (PoMs) presented in the plans and their alignment with the objectives of the WFD Regulations and with other statutory targets. This section addresses four questions:

- What level of environmental improvement would the 2021-2027 RBMPs deliver if their PoMs are implemented?
- How does this compare with what WFD the regulations require?
- How does it compare with recent government announcements of goals and targets for the water environment? For England this section looks at Environmental Improvement Plan goals and Environment Act targets. For Northern Ireland this section looks at the draft Environment Strategy for Northern Ireland.
- Are the supporting regulatory regimes, policies and guidance that are relied on to achieve the required improvements coherent and comprehensive or are there important gaps?

These questions are examined for England (Section 3.2) and Northern Ireland (Section 3.3).

3.2 England

The third RBMPs for England provide summary PoMs in the form of a downloadable excel file. This comprises both national measures and measures that are RBD-specific. The RBMPs state that these are a summary of the PoMs and do not contain all of the measures in full detail. The RBMPs also includes potential additional PoMs. The summary and additional PoMs can both be downloaded from the RBMPs catchment planning webpage.[57] The RBMPs also include a series of Topic Action Plans[58] which provide narratives on the summary PoMs in relation to key thematic areas.

3.2.1 What level of environmental improvement would the 2021-2027 RBMPs deliver if their Programme of Measures (PoMs) are implemented?

The RBMPs include objectives that set out the target status for waterbodies and the target date to achieve that status. Objectives are provided at the level of the waterbody, at the ecological and chemical level for surface water and at the quantitative and chemical level for groundwater. They are also provided at the level of elements used in the classification assessments. The overall objectives of the third RBMPs are for waterbodies to achieve 'good' status (or 'good potential') by 2027, unless subject to a derogation. There are instances where waterbodies are exempt from this objective where an extended deadline or less stringent objective could be granted for reasons of

[57] Available at: Measures data for England | Catchment Data Explorer

[58] Available at: River basin management plans, updated 2022: summary programmes of measures - 5. Topic action plans - Guidance - GOV.UK (www.gov.uk)

natural conditions, disproportionate cost or technical feasibility.[59] This is discussed in Section 4 of this report.

The RBMPs identify many waterbodies where there is low confidence that they will achieve the 2027 good status objective. An assessment can be made on the expected level of improvement *if* the PoMs are implemented. However, as noted, there is a high level of uncertainty regarding the level of implementation that will take place. Therefore, there is likely a large gap between the level of environmental improvement that would in theory be achieved if the PoMs are implemented and the level of environmental improvement that will, in reality, occur if the low confidence is realised.

To obtain an understanding of the level of improvement expected if the PoMs are implemented, the difference between the current classification status and the expected future statuses can be used. This is shown for ecological status in surface water in Table 3.1, quantitative status in groundwater in Table 3.2 and chemical status in groundwater in Table 3.3. A table has not been provided for chemical status in surface water. This is because a Regulation 16 (extended deadline) derogation has been applied (see Section 4) to account for the chemical status recovery time required for the presence of uPBTs to dissipate. Therefore, no surface waterbodies have a good chemical status target of 2027.

Table 3.1 shows that there is a good level of improvement in the number of waterbodies expected to reach good or higher ecological status expected if the PoMs are successfully implemented during this RBMP cycle. However, as previously noted, surface waterbodies are flagged as having a 'low confidence' that this objective will be achieved. In England, there are 3,591 waterbodies that have a good or higher ecological status target to be achieved by 2027. Of these, 2,735 are flagged as having low confidence that the objective will be met.

This leaves only 856 surface waterbodies where there is confidence that the good or higher ecological objectives by 2027 will be achieved. In a worst-case scenario, where the 2,735 waterbodies with low confidence in achieving the objective, actually do not achieve the objective, this would equate to only a 2% improvement in the number of surface waterbodies being at good or higher ecological status during this RBMP cycle. This is shown in the bottom row of Table 3.1. The improvements expected in the groundwater bodies where there is low confidence in achieving the objectives is shown in Table 3.2 for quantitative status and Table 3.3 for chemical status.

Table 3.1 Surface waterbodies currently at good or higher ecological status and the expected percentage change by 2027 if measures are successfully implemented

RBD	Number of waterbodies	Current classification		Objective		% improvement in waterbodies at good or higher status
		# good or higher	% good or higher	# good or higher by 2027	% good or higher by 2027	
Anglian	599	47	8%	352	59%	+51%
Dee	10	1	10%	8	80%	+70%
Humber	985	150	15%	703	71%	+56%
North West	600	131	22%	530	88%	+67%
Northumbria	374	99	26%	352	94%	+68%
Severn	475	45	9%	394	83%	+73%

[59] River basin planning process overview - 4. Updating objectives - Guidance - GOV.UK (www.gov.uk)

RBD	Number of waterbodies	Current classification		Objective		% improvement in waterbodies at good or higher status
		# good or higher	% good or higher	# good or higher by 2027	% good or higher by 2027	
Solway Tweed	139	63	45%	137	99%	+53%
South East	282	45	16%	225	80%	+64%
South West	693	146	21%	599	86%	+65%
Thames	501	31	6%	291	58%	+52%
England	4658	758	16%	3591	77%	+61%
England (minus low confidence waterbodies) *	4658	758	16%	856	18%	+2%

* This scenario is based on the improvement that would occur if only waterbodies where there is confidence in the objectives being achieved were the ones to actually reach their objective, in other terms, if the 2,735 waterbodies flagged as having low confidence actually do not achieve the objective.

Table 3.2 Groundwater bodies currently at good quantitative status and the expected percentage change by 2027 if measures are successfully implemented

RBD	Number of waterbodies	Current Classification		Objective		% improvement in waterbodies at good status
		# good	% good	# good by 2027	% good by 2027	
Anglian	31	17	55%	30	97%	+42%
Dee	1	1	100%	1	100%	0%
Humber	51	41	80%	42	82%	+2%
North West	18	13	72%	18	100%	+28%
Northumbria	10	9	90%	9	90%	0%
Severn	33	24	73%	27	82%	+9%
Solway Tweed	5	4	80%	5	100%	+20%
South East	33	21	64%	32	97%	+33%
South West	42	39	93%	42	100%	+7%

RBD	Number of waterbodies	Current Classification		Objective		% improvement in waterbodies at good status
		# good	% good	# good by 2027	% good by 2027	
Thames	47	30	64%	38	81%	+17%
England (minus low confidence waterbodies	271	199	73%	219	81%	+8%
England	271	199	73%	244	90%	+17%

Table 3.3 Groundwater bodies currently at good chemical status and the expected percentage change by 2027 if measures are successfully implemented

RBD	Number of waterbodies	Classification		Objective		% improvement in waterbodies at good status
		# good	% good	# good 2027	% good by 2027	
Anglian	31	16	52%	18	58%	+6%
Dee	1	0	0%	1	100%	+100%
Humber	51	25	49%	42	82%	+33%
North West	18	8	44%	17	94%	+50%
Northumbria	10	3	30%	4	40%	+10%
Severn	33	21	64%	29	88%	+24%
Solway Tweed	5	1	20%	3	60%	+40%
South East	33	17	52%	25	76%	+24%
South West	42	13	31%	39	93%	+62%
Thames	47	18	38%	43	91%	+53%
England (minus low confidence waterbodies	271	122	45%	142	52%	+7%
England	271	122	45%	220	81%	+36%

The RBMPs do not provide details on the assessment of confidence. The confidence in the 2027 objectives is expressed as the following:

- *Good by 2027: where there is confidence that the target status will be met by 2027, based on a reasonable expectation that all the necessary measures will be in place.*
- *Good by 2027 (low): where there is still uncertainty about whether all the necessary measures will be in place to achieve the target status by 2027.*[60]

In another section of the RBMPs, the confidence in the 2027 objectives is expressed as the following:

- *Having confidence that the necessary actions will be implemented by 2027.*
- *Having confidence about which specific water bodies will benefit.*

Where confidence in either of those aspects is low, the target date is expressed as 'by 2027 (low).[61]

In the summary PoMs, which provide an overview of the measures needed to achieve environmental objectives, the measures are split into two categories "Linked to 2027 outcomes" and "Not linked to 2027 outcomes". For both categories, it states that funding has been committed or there is an established funding mechanism. For the measures "Not linked to 2027 outcomes", it states that there is uncertainty about the specific locations where improvements from the measure will occur and that this uncertainty is reflected in some of the water body objectives proposed in the plans.[62]

In the summary PoMs, it states that funding is in place for all of the measures. However, it does not provide information on how this funding is allocated at a level to provide specific action in a specific area. This may be a reason why there is uncertainty on the specific locations where improvements from the measure will occur.

There are some measures, both those that are 'linked to 2027 outcomes' and 'not linked to 2027 outcomes', where it is stated that the funding mechanism is European Union funding. It does state in the summary PoMs that all the measures listed have been committed or have an established funding mechanism. It states on .gov.uk that EU funding that has already been awarded will still be received.[63] Some examples of measures where the funding mechanism is EU funding include the following:

- River Kent LIFE Project – to improve the ecological conditions of Cumbria's River Kent Special Area of Conservation (SAC);[64]
- Cumbria River Restoration Strategy - to restore and improve rivers in the Lake District;[65] and
- Hoveton Great Broad Restoration Project – lake restoration in East Anglia.[66]

3.2.2 How does this compare to what the WFD regulations require?

Under Regulation 20 of the WFD Regulations, a PoMs must be produced which includes basic measures, as set out in paragraph 2 of Regulation 20 and, where necessary additional (supplementary) measures. Under Regulation 27, paragraph 2(d) of the WFD Regulations, the

[60] River basin planning process overview - 4. Updating objectives - Guidance - GOV.UK (www.gov.uk)

[61] River basin management plans, updated 2022: current condition and environmental objectives - GOV.UK (www.gov.uk)

[62] Available at: Summary of the measures planned for each river basin district.xlsx (live.com)

[63] Getting EU funding - GOV.UK (www.gov.uk)

[64] Further information available at: LIFE R4ever Kent: restoring and revitalising to make a more resilient River Kent and its species - GOV.UK (www.gov.uk)

[65] Further information available at: Cumbrian rivers project scoops prestigious European Riverprize - GOV.UK (www.gov.uk)

[66] Further information available at: The Project - Hoveton Great Broad

RBMPs must include a summary of the programmes of measures required to achieve the environmental objectives. Therefore, the RBMPs are not required to set out the full picture of all the measures necessary to achieve the objectives in an RBD and the full details of the mechanisms necessary to deliver them in the public domain. It is stated in the RBMP ministerial guidance that, this will be set out in a large portfolio of technical, legal and administrative documents (which cover different geographical scales, contain different levels of detail, are owned by different bodies and operate over different timescales).[67]

The RBMPs provide an overview of the measures that aim to achieve waterbody status objectives.[68] These are listed as:

- Water company investment programme in the Water Industry National Environment Programme (WINEP) and the Green economic recovery;
- Water resources sustainability measures;
- Rural Development Programme for England agriculture, environment schemes;
- National Highways environment fund;
- Mine water programmes: (coal mine water treatment and metal mine water treatment);
- Flood risk management investment programme; and
- Catchment level government funded including the Water Environment Investment Fund and the Environment Agency's Environment Programme, and/or other local measures including Catchment Partnership Action Plans.

WINEP represents a series of actions that the Environment Agency have requested all 20 water companies operating in England, to complete between 2020 and 2025, in order to contribute towards meeting their environmental obligations. It is supported by WISER (Water Industry Strategic Environmental Requirements). Many of the WINEP measures are categorised as 'linked to 2027 outcomes' meaning there is certainty around both the measures being implemented and the specific waterbodies that will benefit.

The WINEP measures in the summary PoMs provide a link to access to a dataset, which shows the measure type at the waterbody level.[69] The WINEP data set includes data at the waterbody level on the driver, the measure type, details on implementation specifics in some cases, and the environmental outcome measured by various indicators. One of the indicators used by WINEP is the kilometres enhanced indicator, which was established by the EA as a new approach to reporting work to enhance the water environment. It aims to track the resultant progress of the actions prior to the response being seen in the classification results and captures the work done to support the objectives. The WINEP measures therefore provide tracking at the waterbody level of the progress made towards achieving the objectives.

Other measures in those listed above, such as the 'Rural Development Programme for England', the 'National Highways environment fund' and 'Flood risk management investment programme' are categorised as 'not being linked to 2027 outcomes' in the summary programme of measures. This means there is uncertainty around which waterbodies will benefit from the measures. For these measures, there is less clarity (e.g. compared to the WINEP measures) on how these measure will help specific waterbodies reach their objectives.

[67] River basin planning guidance (publishing.service.gov.uk)

[68] River basin management plans, updated 2022: summary programmes of measures - 3. Measures to achieve the environmental objectives - Guidance - GOV.UK (www.gov.uk)

[69] Water Industry National Environment Programme - data.gov.uk

3.2.3 How does it compare with the Environment Improvement Plan goals and proposed Environment Act Targets?

The Environmental Improvement Plan 2023 (EIP23)[70], (a revision of the 25 Year Environment Plan)[71] sets out the government's aims for environmental improvement in relation to ten thematic goals. The third goal within the EIP23 is for clean and plentiful water. Within this goal, the EIP23 specifies a series of long-term targets and interim targets related to pollution, water supply and improving ecological and chemical status of waterbodies.

The Environment Act 2021 is a UK framework for environmental protection in priority areas and Part 5 of the act contains regulations for water. The Environment Act 2021 targets are listed in the summary PoMs as a measure, with Defra being the lead organisation responsible for the measure.

An overview of the water-related targets of the EIP23 and The Environment Act (2021) and some of the measures that will contribute towards achieving these targets are shown in Table 3.4.

The EIP23 distinguishes between interim targets for 2028 and long-term targets for 2038. The Environment Act 2021 also sets out targets to 2038. The Topic Action Plans within the RBMPs set out statements for measures to achieve targets in priority areas on both a short-term (to 2027) and on a longer term (2038) basis. In some instances, this provides information on measures and actions that are currently in place such as Catchment Sensitive Farming, Championing the Farmed Environment, water company catchment-based schemes, and others to address the 2027 nutrient-based target. In other instances it decribes the measures that will be *needed* to achieve the target, such as 'four mine water treatment schemes and twelve diffuse sources interventions would be delivered by the end of 2025'. It states that the measure will be needed, but does not provide certainty that this will be implemented.

The EIP and the Environment Act targets focus on reducing nutrient and sediment pollution from agriculture, reducing phosphorous loadings from wastewater, reducing the pollution from abandoned mines, and reducing the use and leakage of the public water supply. The significant water management issues and the contributing sectors are shown in Table 3.5. The most common reason for not achieving good status is pollution from rural areas with agriculture and rural land management as the responsible sector. The second most common reason for failure is physical modifications, due to a range of responsible sectors. The third most common reason for failure is pollution from wastewater with the water industry as the main (but not the only) responsible sector. The EIP23 and Environment Targets related to pollution from agriculture and pollution from treated wastewater are well aligned with common reasons for failure described in the RBMPs. However, physical modifications are also identified as a common reason for failure and there is not a specific target in the EIP23 and / or the Environment Act addressing this. The EIP23 and Environment Act target related to reducing the length of rivers polluted by abandoned mines are addressing a SWMI, however as shown in Table 3.5, this is not one of the most common reasons for waterbodies failing to achieve good status.

[70] Available at: Environmental Improvement Plan 2023 - GOV.UK (www.gov.uk)

[71] Available at: 25 Year Environment Plan - GOV.UK (www.gov.uk)

Table 3.4 EIP targets, Environment Act targets and example measures selected from the summary PoMs and Topic Action Plans that aligned with the targets

EIP Targets and Commitments	Environment Act Targets	Example measures
Reduce nitrogen, phosphorus and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline, with an interim target of 10% by 31 January 2028, and 15% in catchments containing protected sites in unfavourable condition due to nutrient pollution by 31 January 2028.	Reduce nitrogen, phosphorus and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline.	Measures in the summary PoMs: • Water Industry Asset Management Plan Price Review 2019 Water Industry National Environment Programme schemes - Catchment schemes, e.g. farm nutrient management plans and soil testing – improved farming practice. • Regulation of agricultural and rural land including targeted regulation of protected areas such as Nitrate Vulnerable Zones - Regulation by Environment Agency officers - preventing pollution of nitrates, phosphates and sediment. Increased agricultural regulatory resource secured in 2021 continues to at least 2025.
Reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline, with an interim target of 50% by 31 January 2028.	Reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline.	Measures in the summary PoMs: • Water Industry Asset Management Plan Price Review 2019 WINEP schemes - Sewage treatment improvements by changes to licence conditions at specific sites.
Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500km (approximately 930 miles), with an interim target to construct eight mine water treatment schemes and 20 diffuse interventions to by 31 January 2028.	Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500 km.	Measures in the summary PoMs: • Defra Abandoned metal mines programme - Mine water remediation schemes and diffuse metal controls - Reduce existing pollution of rivers by metals • Abandoned coal mine water programme: led by Coal Authority with funding from Business, Energy, Industrial Strategy. (Mine water treatment schemes to prevent new pollution of rivers and groundwater (deterioration) and reduce existing pollution (iron, manganese, sulphate, chloride, bromide) which causes ecological harm).
Reduce the use of public water supply in England per head of population by 20% from the 2019 to 2020 baseline reporting figures, by 31 March 2038, with interim targets of 9% by 31 March 2027 and 14% by 31 March 2032, and to reduce leakage by 20% by 31 March 2027 and 30% by 31 March 2032.	Reduce the use of public water supply in England per head of population by 20% from the 2019/2020 baseline reporting year figures, by the end of the reporting year 2037/2038.	Topic action plan statement: Achieving the (Environment Act) target will require reducing household per capita consumption to 122 litres per person per day, a 36.9% reduction in leakage and a 9% reduction in non-household water use by 2038. Water companies have already committed to reducing leakage by 50% by 2050 from a 2017 to 2018 baseline.

EIP Targets and Commitments	Environment Act Targets	Example measures
Restore 75% of our water bodies to good ecological status as soon as is practicable.	-	This target requires a suite of measures depending on the waterbody and its reasons for not achieving good ecological status. The summary PoMs contains various measures where it is stated that the measure is aimed at improving good ecological status or potential.
Require water companies to have eliminated all adverse ecological impact from sewage discharges at all sensitive sites by 2035, and at all other overflows by 2050.	-	Measure in the summary PoMs: Water Industry Asset Management Plans Price Review 2019 WINEP schemes – sewage. In the Topic Action Plan (5.7 Sewage discharges and storm overflows) various measures are set out to deliver a progressive reduction in the adverse impacts on the environment discharges from storm sewage overflows.

Table 3.5 Significant water management issues and reasons for not achieving good by business sector

Significant water management issue	Changes to the natural flow and level of water	Invasive non-native species	Physical modifications	Pollution from abandoned mines	Pollution from rural areas	Pollution from towns, cities and transport	Pollution from waste water
Agriculture and rural land management	116	0	854	0	5,120	8	3
Domestic general public	0	0	12	0	0	529	49
Industry	22	0	99	0	0	244	27
Local & central government	5	0	828	0	0	1	10
Mining and quarrying	0	0	6	422	0	10	0

Significant water management issue	Changes to the natural flow and level of water	Invasive non-native species	Physical modifications	Pollution from abandoned mines	Pollution from rural areas	Pollution from towns, cities and transport	Pollution from waste water
Navigation	8	0	100	0	0	3	0
No sector responsible	0	118	5	0	0	2	0
Other	19	0	249	2	0	37	10
Recreation	2	0	149	0	0	10	0
Sector under investigation	7	0	352	0	0	1	0
Urban and transport	0	0	825	0	0	899	27
Waste treatment and disposal	0	0	0	0	0	18	6
Water Industry	281	0	408	0	0	124	3334
Total	460	118	3,887	424	5,120	1,886	3,466

Source: Challenges data for England | Catchment Data Explorer
Note: The numbers in the table are individual counts of the reasons for not achieving good status where the certainty of the sector being responsible for the SWMI is 'confirmed' or 'probable'. There may be more than one reason in a single water body

The targets of the Environment Act 2021 are reflected in the first four targets of the EIP23. The RBMPs have made alignment with their PoMs and the Environment Act 2021 targets. This alignment can most clearly be seen in the Topic Action Plans, where the Environment Act 2021 targets are listed, and the RBMPs summarise the measures required to achieve them. It also provides information on measures currently in place or required to achieve the shorter-term targets to 2027 of the EIP23.

There is notable overlap in nutrient policy between the PoMs and the targets of the EIP23 and the Environment Act 2021 targets. There are with multiple measures at the national and RBD level relating to the reduction of nutrient pollution. Examples of measure include advice to farmers on nutrient management and farm nutrient management plans, the latter of which is under WINEP. This is also reflected in the Topic Action Plans, which set out existing measures in place to address nutrient pollution and future measures required.

There is weaker overlap between the summary PoMs and the EIP23 targets around reducing leakage and improving drought resilience targets. No nationwide PoM directly corresponds to these targets, probably because they are not as explicitly linked to WFD status elements. However, commitments and required measures are set out in the Topic Action Plans.

At the RBD level, Anglian and South East regions do have measures relating to water use listed in the summary PoMs. In the potential additional measures expected after 2027, there are future potential measures that regard water use. One such example is a measure aimed at both reducing leakage and addressing nutrient pollution by addressing mains water leaks that introduce nitrogen and phosphorous into rivers and groundwater.[72] Therefore, whilst there are considerable overlaps between the PoMs and the EIP and Environment Act targets, there are still gaps and opportunities for improved synergies between the frameworks.

One of the targets of the EIP23 is to ‘restore 75% of our water bodies to good ecological status as soon as is practicable’. There are two differences in this target from the objective of the WFD Regulations, which is to achieve good status of all waterbodies for all water bodies not already at good or better by 2027. The first difference is the number of waterbodies striving to reach good status, which is ‘75%’ in the EIP23 target and ‘all’ in the objectives of the WFD Regulations. The second difference is the timeline, which is ‘as soon as is practicable’ in the EIP23 targets and by ‘2027’ in the third RBMPs objective. This suggests a possible lack of alignment between the objectives set out in the RBMPs and the target in the EIP23, or at least a different use of terminology.

As previously discussed, the RBMPs indicate that there is a low confidence in many of the waterbodies reaching their good by 2027 objective. Furthermore, as will be discussed in more detail in Section 4 of this report, many waterbodies have derogations applied to delay the time required to achieve certain status objectives or to set less stringent objectives. Therefore, due to these factors, it seems that the RBMPs and the PoMs are more aligned with the EIP target to ‘restore 75% of our water bodies to good ecological status as soon as is practicable’ rather than the stricter WFD Regulations objective of all at good status by 2027.

3.2.4 Are the supporting regulatory regimes, policies and guidance that are relied on to achieve the required improvements coherent and comprehensive or are there important gaps?

A full summary of the supporting regulatory regimes from Schedule 2 is provided in Appendix E. This details how each piece of legislation in Schedule 2 supports the PoMs implementation. The key pieces of supporting regulation to the PoMs are the following:

- Water Act, 2014 – This provides regulation of the water industry. It has sections focusing on the arrangements between water and sewerage undertakers and Ofwat; regulation

[72] Available at: Measures data for England | Catchment Data Explorer

of the water industry; water resources, including the progress in reporting on abstraction reform; environmental regulation which relates to water abstraction and impoundment licences, flood defence consents and fish passage approvals. It contains powers to integrate new regulations for the permitting of abstraction licences, flood defence consents and fish pass approvals with regulations covering existing pollution prevention and control permit requirements.

- Environment Act 2021 – Introduces a new framework for setting long-term, legally binding targets for environmental improvement. Water is a priority area within the Environment Act and at least one long-term target must be set to improve the water environment or people's enjoyment of the water environment. The Environment Act targets are included in the summary PoMs. These are a national measure requiring implementation from multiple sectors.
- The Environmental Targets (Water) (England) Regulations 2023 –There are measures that relate to these targets[73] within the PoMs, however, mechanisms to achieve these targets, such as the RBMPs and their PoMs are not described in The Environmental Targets (Water) (England) Regulations 2023.

3.2.4.1 Regulatory mechanisms within the PoMs

The summary PoMs contain information on the lead organisation responsible for the implementation of the measures. They also contain information on the associated scheme or mechanism that will be used to implement the measure. Information is provided on the broad type of mechanism that the measure is categorised by. These comprise regulatory measures; advice schemes; education and targeted information; financial incentives; guidance and process; multiple (for example if there are different mechanisms involved with implementing a single measure); non-regulatory; partnerships; and shared learning and research. For measures which are implemented through a regulatory mechanism and linked to the 2027 outcomes, there are six measures that are repeated across all RBDs.

- These include four measures implemented under the Water Industry Asset Management Plan Price Review. It is intended to support measures including those related to habitat restoration and species recovery; nutrient management; sustainable abstraction practices; and sewage treatment improvements. For these, a link for additional detail is provided. For example, this includes information on the WINEP which represents a series of actions that the EA have requested all 20 water companies operating in England, to complete between 2020 and 2025, in order to contribute towards meeting their environmental obligations. It is supported by WISER (Water Industry Strategic Environmental Requirements). The link provides access to a dataset, which shows the measure type at the waterbody level.
- There are a further two measures that are implemented through regulatory mechanisms and linked to the 2027 outcomes. These are measures implanted under the Abstraction Plan delivery (Environment) and Abstraction Plan delivery (priority catchments). This includes a link to the government's water abstraction plan which provides further information on impact assessment, progress, pressures remaining, goals, actions to be made, and tracking progress.

For measures that do not have a regulatory mechanism behind their implementation, information on the supporting schemes is included for each measure. Examples include: Aquatic Biosecurity Campaigns, England Woodland Creation Offer, Delivery of Lowland Agricultural Peat outcomes, and many more. The measures also include information on cross-sector working and partnerships.

[73] Targets are described previously in Table 3.4.

In the 'ReadMe' sheet of the summary PoMs, it states that funding has been committed or there is an established funding mechanism for all measures within the document. When looking at individual measures within this document, for some measures, the specific source of the funding is described, although for the majority, the funding source is not specified. Including a column that shows the source of funding for each measure would improve the detail of the summary PoMs and present a stronger link between the measure and how the measure will be actioned.

3.2.4.2 Summary

There is a large body of regulation which supports the implementation of the plans. This has grown substantially since the original inception of the WFD, most recently through the introduction of the Environment Act Targets. Though there are no significant gaps in the legislative framework there are some challenges:

- **Diversity of targets** – the Environment Act has introduced a new programme of target setting, which whilst not opposed to the WFD introduces a lack of clarity of prioritisation and timescales. Having multiple targets which speak to the timescales in which "good status" will be achieved, for example, will not encourage effective and efficient delivery. Behind the legislation sit a number of guidance documents (for example the JNCC Common Standards Monitoring Guidance,[74] which sets specific targets for more sensitive areas). These can make it hard to understand what condition is being aimed for in any river or protected site. There should be one overarching framework for the protection and improvement of the water environment, to which all targets and approved and adopted Guidance, are clearly linked.
- **Challenges of implementation (and a lack of leadership)** – though the legislative framework addresses the protection of the water environment, and empowers the various regulatory bodies, there are obvious challenges of implementation. Targets have not been met. This is likely to be due to a combination of a lack of resources (technical and financial), regulatory cohesion and drivers (e.g. is the ultimate driver the cost of the water bill to the consumer or the state of the river, how and when should the two be balanced – the driver will trigger different actions). The leadership of WFD implementation could strengthened, lack of a single overarching legislative voice to provide clarity of direction allows a multiplicity of views to develop as to what effective implementation would look like, and the proper balance between the environment and human requirements – this appears to be an impediment to progress towards results.
- **A multiplicity of plans (with uncertain outcomes)** - A number of the pieces of legislation result in plans – most notably the plans which govern the behaviour of the water sector. The main example is the WINEP programme.[75] This is aiming to bring together a cohesive environmental plan for the water sector. However, its results are, currently, not visible at a catchment level in the public domain, and some work is required to tie together RBMP data with WINEP plans. Though the aims of the WINEP programme are good there is obviously a great deal of uncertainty as to what it will actually deliver, given the huge prevalence of low certainty associated with the 2027 good status targets.

In summary, though there is a significant body of good quality regulation, policy and guidance there is an obvious gap. The RBMPs have very little confidence in outcome. It must therefore be concluded that the regime in its current form does not work and that a more cohesive, focused and clear regime is needed to drive effective action.

[74] https://jncc.gov.uk/our-work/common-standards-monitoring-guidance/#guidance-documents

[75] https://www.gov.uk/government/publications/developing-the-environmental-resilience-and-flood-risk-actions-for-the-price-review-2024/water-industry-national-environment-programme-winep-methodology#section-12-winep-timetable-for-pr24

The question then remains, is the barrier to a more effective regime purely organisational and administrative or is it a fundamental question of funding. Should the latter be true then unambiguous conversations are required around what can be afforded (in regulatory support and environmental outcome) and by when.

3.3 Northern Ireland

The draft third RBMP for Northern Ireland includes a draft PoMs within the PDF.[76] The measures are grouped by the following key sectors: agriculture; urban development; drinking water, chemicals and pesticides; abstraction, fisheries and morphology; non-native invasive species, forestry, waste and contaminated land; and other (which includes key targeted measures relating to research, education and protected areas). The summary PoMs presented in the draft third RBMP are not specific to RBDs.

3.3.1 What level of environmental improvement would the 2021-2027 RBMPs deliver if their Programme of Measures (PoMs) are implemented?

The WFD Regulations (Northern Ireland) 2017 set the overall requirement of all waterbodies being at good status by 2027, unless derogations apply. The regulations also set a target of no deterioration. Since the second cycle, there have been some improvements in waterbodies, however, there has also been some deterioration, resulting in an overall stagnation of status since the second cycle. The third RBMP acknowledges this stagnation and states that it is highly unlikely that Northern Ireland will achieve good status in all waterbodies by 2027.

In addition to the objectives set for each waterbody,[77] in the third RBMP, each waterbody has been assigned a 'working target' in addition to the objective. It is stated that the working target sits alongside the good status objective as per the WFD Regulations. It is also stated that there is a working target to have 70 % of water bodies at 'good or better status' for 2027. The setting of working targets was based on three main principles:[78]

- 2015 principle: all water bodies that remain at moderate status in the third cycle but had been assigned a good status objective for 2021 in the second cycle have a working target of 'good status';
- improvement principle: all water bodies that improved in status have their new third cycle status as the working target; and
- no deterioration principle: all water bodies that had true deterioration in status have their second cycle status from before the deterioration as their working target.

The working target approach has been used to help prioritise waterbodies for action. The RBMP includes a prioritisation matrix which demonstrates the prioritisation hierarchy. The highest priority waterbodies for action are those that have deteriorated in status since the second cycle. The RBMP acknowledges that this method will aid in focusing limited resources and in identifying the most appropriate measures to address key pressures. Therefore, it seems likely the environmental improvements seen in this cycle will be targeted improvements in high priority waterbodies aiming to address key pressures.

[76] Draft 3rd cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027).

[77] Not available at the time of writing this report

[78] Draft 3rd cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027). Chapter 7. Objectives and working targets for 3rd cycle RBMP.

The draft third RBMP does not provide a dataset of objectives and working targets at the waterbody level. Therefore, an assessment of the improvement gap to achieve the working target of 70% of waterbodies at good status and the WFD Regulations objective of all waterbodies at good status by 2027 has been undertaken. This is shown in Table 3.6 for ecological status in surface water, Table 3.7 for quantitative status in groundwater and Table 3.8 for chemical status in groundwater.

Table 3.6 Surface waterbodies currently at good or higher ecological status and the percentage change by 2027 to reach the working target and the WFD Regulations target

RBD	No of waterbodies	Current classification		Improvement required to reach 70% of waterbodies at good status	Improvement required to reach 100% of waterbodies at good status
		# good or higher	% good or higher		
North Eastern	109	29	27%	+43%	+73%
North Western	173	68	39%	+31%	+61%
Neagh Bann	214	59	28%	+42%	+72%
Northern Ireland	496	156	32%	+38%	+68%

Table 3.7 Groundwater bodies currently at good quantitative status and the percentage change by 2027 to reach the working target and the WFD Regulations target

RBD	No of waterbodies	Current classification		Improvement required to reach 70% of waterbodies at good status	Improvement required to reach 100% of waterbodies at good status
		# good	% good		
North Eastern	14	12	86%	n/a (already over 70%)	+14%
North Western	45	43	96%		+4%
Neagh Bann	16	16	100%		+0%
Northern Ireland	75	71	95%		+5%

Table 3.8 Groundwater bodies currently at good chemical status and the percentage change by 2027 to reach the working target and the WFD Regulations target

RBD	No of waterbodies	Current classification		Improvement required to reach 70% of waterbodies at good status	Improvement required to reach 100% of waterbodies at good status
		# good	% good		
North Eastern	14	5	36%	+34%	+64%
North Western	45	38	84%	n/a (already over 70%)	+16%
Neagh Bann	16	10	63%	+7%	+37%
Northern Ireland	75	53	71%	n/a (already over 70%)	+29%

3.3.2 How does this compare to what the WFD regulations require?

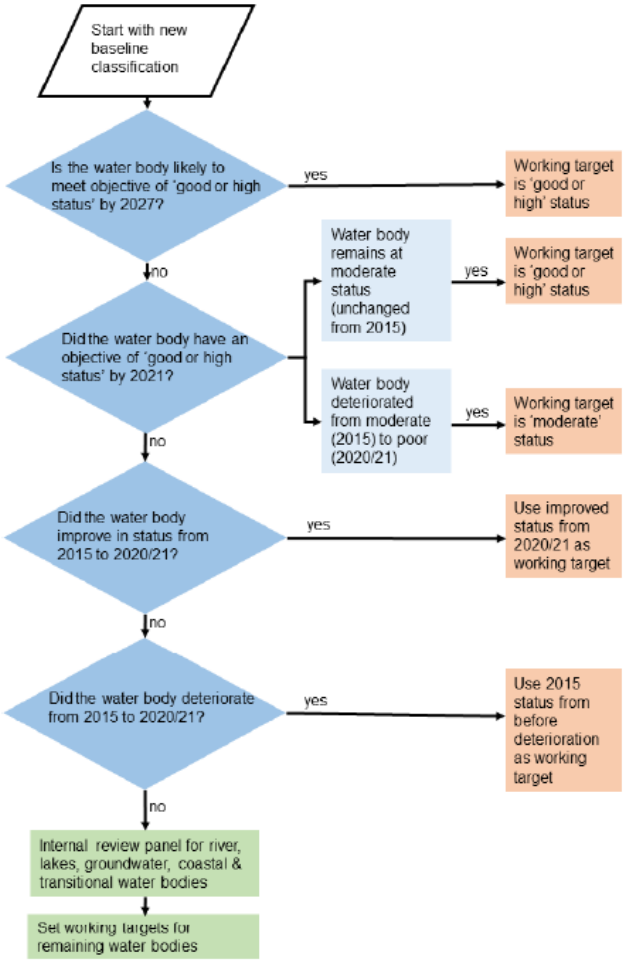
In Northern Ireland, as previously discussed, a 'working target' approach accompanies the good status objectives of the WFD Regulations. The decision-making for the working targets is shown in Figure 3.1.The reason for including the working target has been to help with the prioritisation of waterbodies for action and the focusing of resources when delivering the PoMs.

The working target approach sets less ambitious targets than those set out in the WFD Regulations. The working target sets an aim to have 70% of waterbodies at good or better status by 2027. Waterbodies that improved in status since the previous cycle have this status as their working target. Waterbodies that deteriorated since the previous cycle have their status from before the deterioration as their working target.

However, the objective of the WFD Regulations is to aim to achieve good status. It is not clear in the RBMP how the working targets sits alongside the objectives of the WFD regulations. For example, if a waterbody has a working target of moderate status, under the WFD regulations, it should still have a good status objective unless it has had a Regulation 17 derogation applied to set less stringent objective. This is discussed further in Section 4.3 of this report. One of the principles of the working target is the 'improvement principle' where it is stated that all water bodies that improved in status have their new 2020 / 21 status as the working target'.[79] It is not clear why there would not be an aim to further improve the status in the third cycle, especially if the working target is less than good.

[79] Draft 3rd cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027). Chapter 7. Objectives and working targets for 3rd cycle RBMP.

Figure 3.1 Flow diagram showing how working targets for 2027 will be set



Source: Draft third cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027).

3.3.3 How does it compare with the draft Environment Strategy for Northern Ireland?

The draft Environment Strategy for Northern Ireland[80] is a framework that outlines Northern Ireland's environmental priorities, and is closely linked to the Green Growth Strategy.[81] The draft Environment Strategy presents six strategic outcomes, each accompanied by relevant actions, targets, a summary of the current status, and a future vision.

The draft Environment Strategy for Northern Ireland has a target of: 'by 2027: 70% of waterbodies at good status. This is in line with the working target approach outlined in the draft third RBMP for Northern Ireland which is also to reach good status in 70% of waterbodies by 2027.

The draft Environment Strategy has been aligned with the RBMP. This is particularly apparent in the Strategic Environmental Outcome 1.2 - Water Resources: Quality & Quantity. This outcome directly refers to the RBMP PoMs and lists several of them in the actions section. An overview of this alignment is presented in Table 3.9.

[80] Available at: Draft Environment Strategy.PDF (daera-ni.gov.uk)

[81] Draft Green Growth Strategy available at: Consultation on the draft Green Growth Strategy for Northern Ireland | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

The measures listed from the RBMP in the Draft Environment Strategy for Northern Ireland have a strong focus on nutrient pollution and / or the agricultural sector. This may be because, in the draft Environment Strategy, two out of the three future visons / intended outcomes for the water resources theme are increased sustainable nutrient management on farms and to reduce the levels of nitrates and phosphorus in Northern Ireland's waterbodies.

In the draft third RBMP, it states that nutrient pressures, either in the form of phosphorous, nitrogen or nitrate are the biggest reason why waterbodies have not achieved good status. The main sources of nutrient pressures are agricultural land use and sewage infrastructure. The draft Environment Strategy for Northern Ireland does have a strong focus on nutrients therefore demonstrating alignment with the main reasons for failure identified in the RBMP. The draft third RBMP lists flow, levels and volumes of water resources, and chemicals and emerging contaminants as other pressures. However, it does not provide a quantification the other pressures, so it is not known how much these pressures are contributing to the failure of status.

The Strategic Environmental Outcome 1.3 - Marine and Coastal Water Resources: Quality & Quantity also lists several actions and targets. It refers to the current status of Transitional Coastal (TraC) waterbodies in the context of the WFD Regulations stating that 60% failed to achieve good status due to nutrients and certain pesticides. Within the context of the Northern Ireland Marine Plan it states an intention to Implement the Water Framework Regulations through delivery of Third Cycle River Basin Management Plans (2022-27).

Although the draft Environment Strategy has evidently considered and incorporated the RBMP into its framework, it seems that only certain areas have been emphasised, and the level of integration has not been specified consistently across the two water-related outcomes in the draft strategy.

Table 3.9 Draft Environment Strategy for Northern Ireland strategic outcomes and examples of measures listed in the strategy

Draft Environment Strategy for Northern Ireland Strategic Environmental Outcome 1.2 - Excellent air, water, land & neighbourhood quality: Water Resources: Quality & Quantity	Examples of measures from the RBMP PoMs that are identified in the draft Environment Strategy for Northern Ireland
Targets: • By 2027: 70% of waterbodies at good status. • 2022 – Publish final RBMP • By 2031: achieve the sustainable management and efficient use of natural resources including water and soils. • Publish conservation management plans and site nutrient action plans. • Integrated ecosystem models: Lough Foyle; Carlingford Lough; and Belfast Lough • Implement the 'Living With Water in Belfast Plan'. Future vision / outcome: • An environment with high water environment standards which supports biodiversity and contributes to health and well-being and a living and productive landscape. • More sustainable nutrient management on farms - chemical and organic fertilisers are only applied based on soil requirements and intended land use • Reduced levels of nitrates and phosphorus in NI waterbodies.	• Reduce phosphorus and nutrient content of concentrate feed. • Reduce use of chemical fertilisers. • Minimised and correct use of pesticides. • Licencing of slurry spreading contractors. • Address gap on farm level nutrient management data. • Greater phasing in of Low Emission Slurry and spreading equipment requirements for more • farms. • Potential new overall Phosphorus & Nitrogen Balance targets. • Consider & implement recommendations of the NAP review 2019-22; and consider for future NAP 2023-26. • By 2031 the nutrient surplus in soils has been reduced.

3.3.4 Are the supporting regulatory regimes, policies and guidance that are relied on to achieve the required improvements coherent and comprehensive or are there important gaps?

A full summary of the supporting regulatory regimes from Schedule 2 are provided in Appendix E. Some of the supporting regulatory regimes are directly referred in the RBMP. These are shown in Table 3.10.

Table 3.10 Supporting regulatory regimes from Schedule 2 referenced in draft third RBMP for Northern Ireland

Schedule 2 Enactments	Reference in RBMP
Fisheries Act (Northern Ireland) 1966	There is a measure in the summary PoMs within the abstraction, fisheries and morphology key sector which is for robust enforcement of the Fisheries Act (Northern Ireland, 1995). This is a measure under the key target measure 'protection of fisheries'.
The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009	The RBMP describes the publication of the Flood Risk Management Plan (FRMP) and its role in implementing The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009.
The Water (Northern Ireland) Order 1999	The RBMP describes the regulation of discharges to the water environment under the Water (Northern Ireland) Order 1999 and the charges for discharges under this regulation.
The Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006	The RBMP describes the powers given to NIEA under The Water Abstraction & Impoundment (Licensing) Regulations (Northern Ireland) 2009 for the setting of fees and annual charges, in order to recover all of the costs associated with the regulation of The Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006.

There are several measures within the summary PoMs where the measure is delivered through a regulatory mechanism. These include:

- The Nutrient Action Programme Regulations (Northern Ireland) 2019 to deliver under the key targeted measure 'Reduce nutrient pollution from agriculture'.
- There is a measure to establish a Northern Ireland Regulators Forum for Chemicals & Pesticides to deliver under the key targeted measure 'Measures for the phasing-out of emissions, discharges and losses of Priority Hazardous Substances or for the reduction of emissions, discharges and losses of Priority Substances'.
- There is a measure to address riparian widely spread species under the Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019 to deliver under the key targeted measure 'measures to prevent or control the adverse impacts of invasive alien species and introduced diseases'.

3.3.4.1 Summary

Given the lack of the final third Plans, and associated detail on the PoMs, it is harder to conclude on the adequacy of the regime in Northern Ireland than for the equivalent situation in England. The smaller size when compared to England), and there only being one water company, for example, will mean that some of the challenges discussed in England are not felt at the same scale. However, the same challenges in meeting environmental targets can be seen, which indicates that questions along the lines of those discussed in section 3.2.4.2 for England must be answered.

4 What is the approach to derogations?

4.1 Introduction

The WFD Regulations permit four derogations in which waterbodies can have an alternative objective to the 'good status' by 2027 objective. Depending on the derogation, the environmental objectives are either delayed or not achieved, or both. These are derived from the Articles 4(4), 4(5), 4(6) and 4(7) exemptions set out in The Water Framework Directive 2000/60/EC, as reflected in the WFD Regulations. The derogations under the WFD Regulations and the reasons under which they can be applied are shown in Table 4.1.

Table 4.1 Derogations under the WFD Regulations 2017 and permitted reason for use

Derogation	Permitted reasons for use
Regulation 16 Extended deadlines for environmental objectives	• The scale of improvements required can only be achieved in phases exceeding the timescale for reasons of technical feasibility (for deadline extensions to 2027, or beyond 2027 if it is a chemical status derogation for certain substances as set out in the WFD Regulations); • Completing the improvements within the timescale would be disproportionately expensive (for deadline extensions to 2027, or beyond 2027 if it is a chemical status derogation for certain substances as set out in the WFD Regulations); and / or • Natural conditions do not allow timely improvement in the status of the body of water (for deadline extensions to 2027 and beyond).
Regulation 17 Setting less stringent environmental objectives	• The body of water is so affected by human activity or its natural condition is such that the achievement of the environmental objectives set would be infeasible or disproportionately expensive; • And certain distinct conditions as set out in the WFD Regulations are met.
Regulation 18 Temporary deterioration in the status of a body of water due to natural causes or force majeure	• Circumstances of natural cause or force majeure which are exceptional or could not reasonably have been foreseen, in particular, extreme floods or prolonged droughts, or • Circumstances due to accidents which could not reasonably have been foreseen, and • Certain distinct conditions as set out in the WFD Regulations are met.
Regulation 19 Modifications to physical characteristics of water bodies	• The failure is the result of new modifications to the physical characteristics of the body of surface water or alterations to the level of the body of groundwater due to new sustainable development activities; and • Certain distinct conditions as set out in the WFD Regulations are met.

Note: The derogations set out in the WFD (England and Wales) Regulations 2017 and in the WFD (Northern Ireland) Regulations 2017 are comparable.

4.2 England

4.2.1 Insofar as delivery will or may not achieve the headline WFD targets, what derogations are being relied on?

In England, Regulation 16, Regulation 17 and Regulation 19 derogations have been applied. This setting of alternative targets is different from the "low confidence" in the outcome for waterbodies where good status by 2027 targets have been set (as discussed in Section 2).

A summary of the applications of Regulation 16, Regulation 17 derogations and the waterbodies where there is low confidence that the objectives will be achieved is shown in Table 4.2. The total number of applications and the percentage of total surface waters or groundwater is shown. The reasons for using derogations and the number of times such reasons were cited are shown in Table 4.3.

There are two waterbodies that have been granted Regulation 19 derogations. These comprise one heavily modified river under the Hacket Thicket Reservoir scheme and one natural river under the Maidenhead Waterways scheme. There are 27 waterbodies that have been flagged as potentially requiring such or have pending Regulation 19 derogation applications.[82] These waterbodies potentially requiring Regulation 19 derogation applications are for various Strategic Resource Option (SRO) schemes, HS2, Environment Agency Flood and Coastal Risk Management schemes and other development schemes. They are flagged as potentially requiring a Regulation 19 derogation for various reasons including uncertainty on whether the works will cause a deterioration in status or failure to achieve good status or where the schemes are in a proposed or pending stage. The RBMPs state that including information on Regulation 19 derogations that may be applied in the future is to support public participation in the decision-making processes and to ensure that the use, or potential future use, of derogations is transparent.

Table 4.2 Applications of Regulation 16, Regulation 17 derogations and waterbodies in which there is 'low confidence' that the 2027 objective of good status will be achieved

Waterbody and status type	Surface water (ecological status & potential)		Surface water chemical status		Groundwater (quantitative status)		Groundwater (chemical status)	
Application	**No.**	**% of total waterbodies**	**No.**	**% of total waterbodies**	**No.**	**% of total waterbodies**	**No.**	**% of total waterbodies**
Regulation 16 (extended deadline)	113	2.4	4,648*	99.8	8	3.0	21	7.5
Regulation 17 (less stringent objectives)	865	18.6	0.0	0.0	26	9.6	29	10.7

[82] Regulation 19 covers what are commonly called Article 4(7) exemptions under the WFD. These are new modifications that will prevent an achievement of good status, but have been allowed for reasons for overriding public interest, and it will need to be provided that there are no better environmental options. The specific conditions are set in Regulation 19.

Waterbody and status type	Surface water (ecological status & potential)		Surface water chemical status		Groundwater (quantitative status)		Groundwater (chemical status)	
Application	**No.**	**% of total waterbodies**	**No.**	**% of total waterbodies**	**No.**	**% of total waterbodies**	**No.**	**% of total waterbodies**
2027 – low confidence	2,735	58.7	0	0.0	25	9.2	78	28.8

Source: Summarised from England_objectives.csv data.[83]
* There are ten waterbodies that do not have the Regulation 17 derogation applied for chemical status, these have been listed as not requiring a chemical status assessment.

Table 4.3 Reasons for using derogations and the number of times they were cited for waterbodies

Waterbody and status type	Surface water (ecological status & potential)	Surface water (chemical status)	Groundwater (quantitative status)	Groundwater (chemical status)
Regulation 16 – Technical infeasibility	21	1,403	4	3
Regulation 16 – Disproportionate costs	98	288	8	6
Regulation 16 – Natural conditions	61	4,648	1	19
Regulation 17 – Technical infeasibility	307	0	2	8
Regulation 17 – Disproportionate costs	824	0	26	29

Source: Summarised from England_objectives.csv data.[84]
Note: For some waterbodies, multiple reasons are used together.

4.2.2 Based on what approach to justification, and backed up by what evidence?

4.2.2.1 Reasons for derogations

The RBMPs include an overview of the general circumstances in which alternative waterbody status objectives were set. This is available online.[85] This includes information on the general approach

[83] Available at: https://environment.data.gov.uk/catchment-planning. Accessed February 2023.
[84] Available at: https://environment.data.gov.uk/catchment-planning. Accessed February 2023.
[85] Available at: River basin planning process overview - 4. Updating objectives - Guidance - GOV.UK (www.gov.uk)

and provides some information on specific circumstances. The approaches are summarised in Table 4.4.

Table 4.4 Reasons for using derogations in England's third RBMPs

Regulation 16 reason	Information regarding its use
Technically infeasible – cause of adverse impact unknown	• Genuine scientific uncertainty remains despite investigation work having been carried out. • There has been insufficient time to complete the necessary investigation work since the water body was classified at less than good status.
Technically infeasible – practical constraints of a technical nature prevent implementation of the measure by an earlier deadline	• Where the appropriate measures to achieve the water body objectives have been identified, and funding has been agreed and there is a mechanism in place to deliver it, but there are constraints on commissioning and undertaking the necessary works that will extend the time taken to achieve the objectives. An example provided in the narrative of the RBMPs is for physical habitat restoration in lakes; which can be complex, large-scale and involve multiple organisations comprising significant work to secure partner consensus and cooperation.
Disproportionately expensive – disproportionate burdens	• This has been used for phased achievement of measures. The funding for measures is governed through legal, administrative, and funding frameworks to protect and improve the water environment. The government must assess the economic impact of costs and distribution (who pays) of the costs of measures informed by economic (costs and benefits of measures) and other evidence, to balance often conflicting policy needs. This includes government funding paid for through taxes or borrowing, or private funding incentivised by regulation, advice, guidance, financial gain, or altruism. • Where funding for measures was not confirmed, it is assumed that the measures fell outside the government's legal, administrative, and funding frameworks and were therefore unaffordable to implement before 2021 without creating a disproportionate burden on the relevant sector or wider society or fell outside government spending limits.
Natural conditions – ecological recovery time	• This refers to the delay of the time taken for the plants and animals to re-colonise and become established after the hydromorphological, chemical or physicochemical conditions have been restored or the time taken for the habitat conditions to stabilise after improvement works.
Natural conditions – groundwater status recovery time	• Groundwater bodies can take many decades to recover from chemical pressures once measures to reduce the pressures are in place. The recovery time delay can vary between several years to many decades. In the majority of cases where this exemption has been used the substance causing poor status was nitrate. Groundwater status recovery time has mainly been used for groundwater chemical pressures.

Natural conditions – chemical status recovery time	• This has been used to account for the long recovery time once measures are in place for persistent, bioaccumulative and toxic (PBT) substances.

Regulation 17 reason	Sub-reasons
Technically infeasible – no known technical solution is available	• There is no known practical technique for making the necessary improvement. • Techniques are under development but are not yet known to be effective in practice. • There is a known technical solution, but that solution cannot be applied in a specific location due to specific local conditions.
Disproportionately expensive – unfavourable balance of costs and benefits	• There is no environmental problem to solve and therefore the costs of taking any action would exceed the benefits. An example of this is provided in the RBMPs. The fish classification tool may give a result of less than good status for a waterbody, due to the absence of a fish species (not found during monitoring) but it is known from other data, such as angling records that the species is both present and at expected densities for that waterbody. Whilst waterbody classification tools and the monitoring programme represent best science, due to the varied nature of the environment they sometimes flag a problem where no problem exists. Additional information including risk assessments and information from third parties can be used to establish if there is an environmental problem. • Economic appraisal has determined that the costs of implementing the most cost effective and technically feasible measures needed to reach good status are greater than the benefits to be gained from achieving good status. • In some cases, although a less stringent objective has been set, action will still happen to improve the water body to the best possible status, as required by Regulation 17(3) and (4). Measures will be implemented up to the point where doing more would be disproportionately expensive. In these cases, pressures may be partially resolved or, where there are multiple sources in a catchment, some may be addressed whilst others are not.

4.2.2.2 Justification of derogations

The narrative provided in the RBMPs do not inform on the sources that were used in the derogation decision-making process, but following a request for information from the Environment Agency, it is understood that ministerial guidance[86] and EU CIS guidance[87,88] has been used for setting alternative objectives.

The ministerial guidance includes information on the economic analysis used to assess disproportionality. This describes a cost-benefit approach to assessing disproportionality, taking into account monetised cost and benefits estimates. The monetary value of benefits is assessed using National Water Environment Benefits Survey (NWEBS). The difficulty in quantifying benefits is

[86] River basin planning guidance (2021) Available at: River basin planning guidance (publishing.service.gov.uk)

[87] Natural Conditions in relation to WFD Exemptions (2017) Available at: NaturalConditionsinrelationtoWFDexemptions.pdf (europa.eu)

[88] Clarification on the application of WFD Article 4(4) time extensions in the 2021 RBMPs and practical considerations regarding the 2027 deadline.

highlighted, and it is indicated that sensitivity analyses and qualitative information should be taken into account when assessing benefits.

Guidance for assessing costs and benefits is set out in Water Appraisal Guidance; Assessing Costs and Benefits for RBMP document.[89] However, the thresholds marking the point after which costs become disproportionate is not clear in the RBMPs. The ministerial guidance also states that if disproportionate costs are used as the basis for a derogation, the reasons for doing so should be clearly set out in the RBMPs and an explanation of what alternative financing mechanisms were considered and why they were not used, and, if possible underlying data and assessments used to inform the decision must be available to the public. The RBMPs do not include details on alternative finance mechanisms or the data and assessments used to assess disproportionality in the objectives data and setting alternative objectives narratives.[90,91]

There are usually multiple drivers and impacts behind the use of a derogation. There is not a data table within the RBMPs that links the use of each derogation with specific drivers and impacts. In the second cycle RBMPs, data that linked the waterbody, the derogation applied and the pressure was reported to the Water Information System for Europe (WISE).[92] Following the UK's exit from the EU this reporting was not required and there is no replacement UK specific process. Further detail on the use of Regulation 16 – setting an extended deadline to achieve the environmental objectives

4.2.2.2.1 Surface water

The Regulation 16 derogation has been used extensively to extend the deadline to achieve chemical status in surface waterbodies. For most of these applications, the deadline is extended to 2063. This has been used due to the presence of persistent, bioaccumulative and toxic (PBT) substances such as Polybrominated diphenyl ethers (PBDEs), perfluorooctanesulfonic acid (PFOS) and mercury. PBT substances can remain in the water for long periods of time, even when measures to reduce or eliminate the emissions of these substances are in place. The extended deadline is required to take into account the long time between implementing a measure and the recovery of the waterbody. PBTs are a not a problem unique to England, and some Member States in the European Union are also applying the extended deadline derogation to achieve chemical status in all surface waterbodies (based on the current third RBMPs information available at the time of this report).

4.2.2.2.2 Groundwater

The Regulation 16 (extended deadline) derogation has been used to extend the deadline to achieve good quantitative status and good chemical status in groundwater. This has been applied in eight cases regarding quantitative status (3% of groundwater bodies) and in 21 cases regarding chemical status (7.5% of groundwater bodies). Technical feasibility, disproportionate costs and natural conditions are all cited as reasons for applying this derogation. Natural conditions under the Regulation 16 (extended deadline) derogation refers to the lag period after a damaging or polluting activity has ceased, for the conditions necessary to support good status to be restored. Using information in the 'updating objectives'[93] document within the RBMPs, this derogation has been applied due to chemical pressures that can take many decades to rectify once measures are in place. In the majority of cases where this derogation has been used the substance causing poor status was nitrate.

[89] Water Appraisal Guidance; Assessing Costs and Benefits for River Basin Management Planning. 2017. The Environment Agency.

[90] Objectives.csv. Available at: England | Catchment Data Explorer

[91] Available at: River basin planning process overview - 4. Updating objectives - Guidance - GOV.UK (www.gov.uk)

[92] Available at: https://water.europa.eu/freshwater/data-maps-and-tools/water-framework-directive-surface-water-data-products/exemptions-environmental-objectives

[93] Available at: https://www.gov.uk/guidance/river-basin-planning-process-overview/4-updating-objectives

4.2.2.3 Further detail on the use of Regulation 17 - setting less stringent environmental objectives

4.2.2.3.1 Surface water

The Regulation 17 derogation has been applied in 865 out of 4,658 (18.6%) surface waterbodies according to the England_objectives.csv data.[94] This derogation is used to reduce the status or potential of a waterbody to lower than good. It has been applied in cases of ecological status and potential, and not in cases of chemical status. In the 865 cases, disproportionate costs have been cited as a reason in 95% of cases and technical feasibility has been cited as a reason in 35% of cases (noting that multiple reasons can be used for one waterbody). In the 'updating objectives'[95] document within the RBMPs, several situations are discussed for the application of less stringent objectives for water bodies under Regulation 17, these include reasons related to fish; hydrological regime; fish, invertebrates, mitigation measures assessment; phosphorus, ammonia, dissolved oxygen, macrophytes, phytobenthos; nutrients; and metals. From this narrative document, the main drivers behind the use of this derogation are industry, urban development and agriculture. The main impacts are related to physical modifications, abstraction, nutrient pollution and chemical pollution.

4.2.2.3.2 Groundwater

The Regulation 17 derogation has been used to set less stringent objectives for quantitative status and chemical status in groundwater. In the England_objectives.csv data,[96] disproportionate costs are cited as the main reason for applying this derogation and technical infeasibility is also cited in some cases. In the 'updating objectives'[97] document within the RBMPs, for groundwater quantitative status, this has been applied for groundwater bodies that are a confined aquifer that has no direct or indirect link to environmental features or problems.[98] Regarding the impact behind the use of these derogations, it is stated that, measures to restore the groundwater body to good status (for example, stopping the abstraction and / or pumping water into the aquifer) would result in no environmental benefits. In the 'updating objectives' document within the RBMPs, for groundwater chemical status, this derogation, with disproportionate costs as the reason, has been applied to some groundwater bodies which are failing the General Chemical Test for nitrates.[99] It is stated that farming would need to stop across a very wide area of land in order to meet the good status objective. The costs of implementing such measures have been judged to exceed the benefits and therefore disproportionately expensive. There is no accompanying reference in the narrative providing case-specific information on this conclusion. In these cases, the driver behind the use of derogations is agriculture and the impact is nutrient pollution.

4.2.3 How do these derogations and their justifications compare with what is allowed in the WFD regulations?

The WFD Regulation (2017) set out the reasons for which the four derogations can be applied. These were summarised previously in Table 4.1.

The reasons that have been cited in the RBMPs for use of a Regulation 16 derogation are listed below:

[94] Available at: https://environment.data.gov.uk/catchment-planning. Accessed February 2023.

[95] Available at: https://www.gov.uk/guidance/river-basin-planning-process-overview/4-updating-objectives

[96] Available at: https://environment.data.gov.uk/catchment-planning. Accessed February 2023.

[97] Available at: https://www.gov.uk/guidance/river-basin-planning-process-overview/4-updating-objectives

[98] A confined aquifer is a groundwater body covered by layers of impermeable material

[99] This is part of the General Chemical Assessment (GCA) test that is undertaken as part of the chemical status classification in groundwater bodies.

- Natural conditions:
    - Chemical status recovery time
    - Ecological recovery time
    - Groundwater status recovery time
- Disproportionately expensive
    - Disproportionate burdens
    - Unfavourable balance of costs and benefits
- Technically infeasible
    - Practical technical constraints prevent implementation of the measure by an earlier deadline
    - No known technical solution is available
    - Cause of adverse impact unknown
- Good status prevented by A/HMWB designated use/Action to get biological element to good would have significant adverse impact on use

The reasons that have been cited in the RBMPs for use of a Regulation 17 derogation are listed below:

- Disproportionately expensive
    - Unfavourable balance of costs and benefits;
    - Disproportionate burdens;
- Technically infeasible
    - No known technical solution is available;
    - Cause of adverse impact unknown;
    - Practical technical constraints prevent implementation of the measure by an earlier deadline;
- Natural conditions
    - Ecological recovery time.
- Good status prevented by A/HMWB designated use / Action to get biological element to good would have significant adverse impact on use.

There are some occurrences where further explanations of sub-reasons are not provided in the river basin planning overview text, such as ‘good status prevented by A/HMWB designated use/Action to get biological element to good would have significant adverse impact on use’ and ‘Ecological recovery time[100]’ for a Regulation 17 derogation. The use of ‘good status prevented by A/HMWB designated use/Action to get biological element to good would have significant adverse impact on use’ is not provided in the justification narrative within the RBMPs, so it is unclear why this has been used. It has not been provided a single reason and has been used in combination with a disproportionate cost reason. The use of ‘Ecological recovery time’ for a Regulation 17 derogation,

[100] This could be a reference to natural conditions

is not in line with what is set out in the WFD Regulations, and is more appropriate for a Regulation 16 derogation.

Low confidence in achieving the 2027 objectives

The RBMPs have flagged numerous waterbodies where it is considered that there is 'low confidence' that the 2027 objectives will be achieved. In surface water, there have been 2,735 (58.7% of surface waterbodies) cases where it has been identified that there is 'low confidence' of achieving the ecological objectives by 2027. In groundwater, there have been 25 (9.2% of groundwater bodies) cases where it has been identified that there is 'low confidence' of achieving the quantitative objectives in 2027. There have been 78 (28.8% of groundwater bodies) cases where it has been identified that there is 'low confidence' of achieving the chemical objectives by 2027.

In the RBMPs, it is stated that for waterbodies where this 'low confidence' is applicable, it is because there is low confidence that the necessary actions will be implemented by 2027 and / or there is low confidence about which specific water bodies will benefit (from the actions).[101] The RBMPs do not provide a detailed explanation of the reasons informing the lack of confidence in achieving the 2027 targets or the underlying assessment of this. This creates a difficulty in understanding why the 'low confidence' has been used rather than applying a Regulation 16 derogation.

4.2.4 Is this being transparently and objectively set out in RBMPs to the appropriate level of detail?

The use of derogations in presented in the following publicly available sources within the RBMPs:

- England_objectives.csv[102]
- Catchment data explorer[103]
- River basin planning process overview: 4.2 - Circumstances for setting alternative waterbody status objectives[104]
- River basin management plans, updated 2022: 5 - current condition and environmental objectives[105]

Further information on the setting of derogations can also be found in the river basin planning ministerial guidance.[106]

The reasons for use of derogations can be found within the England_objectives.csv data and within the catchment data explorer. The reasons for the use of derogations are provided at the following levels: overall waterbody; ecological, chemical or quantitative status; component status (for example priority hazardous substances, biological quality elements, physico-chemical quality elements; and element status (for example invertebrates, phosphate, perfluorooctane sulphonate (PFOS)). A narrative on the justifications on the use of derogations is presented in the RBMPs.

The use of derogations could be more clearly defined in the RBMP data. For this assessment, it has been extracted from the 'reasons for alternative objectives' column in the England_objectives.csv data. In this spreadsheet, it does not explicitly say 'Regulation 16 applied' or 'Regulation 17 applied'. The user has to extract this information by checking if the waterbody has a delayed target to achieve

[101] River basin management plans, updated 2022: current condition and environmental objectives - GOV.UK (www.gov.uk)
[102] Available at: https://environment.data.gov.uk/catchment-planning. Accessed February 2023.
[103] Available at: https://environment.data.gov.uk/catchment-planning
[104] Available at: River basin planning process overview - 4. Updating objectives - Guidance - GOV.UK (www.gov.uk)
[105] Available at: River basin management plans, updated 2022: current condition and environmental objectives - GOV.UK (www.gov.uk)
[106] Available at: River basin planning guidance (publishing.service.gov.uk)

good status or a lower status target. A spreadsheet explicitly specifying where Regulations 16 & 17 have been applied would be clearer. Furthermore, a summary of the number of derogations applied would be beneficial to provide the user with easier access to this information. Additionally, mapping the drivers and impacts to the derogation usage would be useful. Detailed information can be obtained using the England_challenges.csv data which shows the issues affecting the status classification elements, but a more direct link mapping drivers and impacts to derogation usage would be beneficial, this may make it clearer to understand the decision-making for individual derogation applications.

In the EC's compliance assessment of the second RBMPs, it was noted that there was a lack of detail in several plans regarding the justification of derogations. In the third RBMPs, the RBMPs provide reasons for an alternative objective (use of a derogation) at the waterbody level. The RBMPs also provide a descriptive narrative of the types of circumstances in which these reasons have been applied. This descriptive narrative is provided in an overview format. The presentation of the use of derogations at the waterbody level could go into more detail on the specific circumstances for which the derogation has been applied. For example, one of the reasons for applying a derogation is 'technically infeasible: no known technical solution is available' and this is the level of detail the RBMPs provide at the waterbody level. However, the descriptive narrative lists several circumstances in which this may be applied. Therefore, transferring this level of detail to the waterbody level (i.e. including more information on the specific circumstance for which the derogation has been applied) would provide greater clarity on the justification for applying the derogation.

4.3 Northern Ireland

4.3.1 Insofar as delivery will or may not achieve the headline WFD targets, what derogations are being relied on?

A dataset informing on the number of derogations applied to waterbodies is not included in the draft third RBMP. A previously discussed, the RBMP provides information on the setting of 'working targets'. Some waterbodies have a working target that will be less than good status, however, it is not clear from the information available if these waterbodies will have a Regulation 17 derogation applied, as it states in the RBMP that the working targets sit alongside the objective of 'good status' set out by the regulations. There is one mention that specifies where a derogation has been applied (Lough Neah).

There is a brief acknowledgement regarding the use of derogations where it states that a 'derogation for good status to be achieved following a further cycle of integrated catchment planning is allowed up to 2027. For some specified priority substances, an extension of the good status objective to 2033 or 2039 is possible. Deadlines can also be extended due to natural conditions, processes and technical limitations.' The draft third RBMP also states 'we will also take into account extended deadlines due to natural conditions'.

Due to the limited information on derogations in the draft third RBMP for Northern Ireland, this section will take into account information from the second RBMP to prove an overview of derogation use. In the second cycle RBMPs, Regulation 16 (extended deadline) derogations were applied. These are summarised in Table 4.5. There were no Regulation 17 (less stringent environmental objectives) derogations applied in the second RBMPs. The reasons for the derogation use are shown in Table 4.6. Reasons of natural condition and technical infeasibility were used. Disproportionate costs were not used as a reason. There was one Regulation 19 (new modification or sustainable development activity) derogation applied in the North Western RBD for a hydroelectric scheme on a river waterbody.[107]

[107] At the time of the second RBMP, the derogations were under Article 4 of the WFD 2000/60/EC.

Table 4.5 Regulation 16 (Article 4(4) of WFD 2000/60/EC) derogations in the second cycle RBMPs for Northern Ireland showing number of applications and this as a percentage of the total surface water or groundwater bodies

Surface water				Groundwater			
Ecological		**Chemical**		**Quantitative**		**Chemical**	
Number of waterbodies	%	Number of waterbodies	%	Number of waterbodies	%	Number of waterbodies	%
344	69	30	6	8	11	46	61

Note: At the time of the second RBMPs, Northern Ireland had a total of 496 surface waterbodies[108] and 76 groundwater bodies.[109]

Table 4.6 Reasons for using derogations and the number of times they were cited for waterbodies in the second cycle RBMPs for Northern Ireland

Waterbody and status type	Surface water (ecological status & potential)	Surface water (chemical status)	Groundwater (quantitative status)	Groundwater (chemical status)
Regulation 16 (Article 4(4) of WFD 2000/60/EC) - Natural conditions	269	20	8	46
Regulation 16 (Article 4(4) of WFD 2000/60/EC -Technical infeasibility	75	10	0	0

In the second cycle RBMPs, the derogations were linked to associated drivers and pressures. This was a requirement of the electronic reporting to WISE[110] requirement whilst the UK was in the EU. In Northern Ireland, from the second cycle RBMPs, the biggest pressure linked to derogation use for ecological and chemical status in surface water and chemical status in groundwater was diffuse pollution, with agriculture being the driver. This reporting has not been undertaken for the third cycle (following the UK's exit from the EU) and therefore this information may not be available.

4.3.2 Based on what approach to justification, and backed up by what evidence?

In the second cycle RBMPs, reasons of natural conditions or technical feasibility were used for waterbodies in which derogations were applied. Disproportionate costs were not used as a reason. The decision-making process was supported by a series of workshops carried out in 2015 in which each waterbody was reviewed. This comprised individually examining the impacts observed, trends over time, the effects of the current measures and effect of agreed and funded measures to deliver good status.

[108] According to Raw Data 'SWEcologicalExemptionType' datasheet. There is a difference in the number of waterbodies listed on this sheet (496) vs what is listed in the DAERA Map Viewers (450 rivers and 21 lakes).

[109] Using the DAERA Map Viewers

[110] Available at: WISE Freshwater (europa.eu)

For each water body, the pressures causing less than good status were examined to determine whether good status was likely to be achieved by 2021, or if a further extension to 2027 was required. It is stated that in setting the objectives, an approach that tries to be realistic was taken. The judgement on what was considered achievable was established through workshops held examining each waterbody. It was also stated that the balance between protecting the water environment and ensuring sustainable activities can flourish was taken into consideration when reviewing the objectives.[111]

The approach for assessing natural conditions and technical feasibility was guided using UKTAG guidance.[112] This is summarised for technical feasibility and natural conditions in Table 4.7.

Table 4.7 UKTAG recommendations on reasons for setting alternative objectives under reasons of technical feasibility and natural conditions

Reason	Sub-reason	UKTAG guidance note
Technical infeasibility	No known technical solution	Applies where there is no practical technique for making the necessary improvement. Does not include financial considerations. Techniques which may be under development but which are not yet known to be effective in practice will fall into this category. Provides a justification for aiming to achieve a less stringent objective as provided under Regulation 17 / Article 4(5) – provided the other criteria of that Article are satisfied
Technical infeasibility	Cause of adverse impact unknown	Applies where a water body is classed as less than good but the reason (the pressure or the specific source of the pressure) for this failure has not yet been determined. Consequently, a solution cannot feasibly be identified. Whilst the cause of the problem is investigated this provides a justification for extending the deadline for the achievement of the objectives as provided under Regulation 16 / Article 4(4) – provided all other criteria of that Article are satisfied.
Technical infeasibility	Practical constraints of a technical nature	Practical constraints of a technical nature prevent implementation of the measure by an earlier deadline. Includes administrative constraints in terms of commissioning, gaining permission for, and undertaking the necessary works. Does not include constraints due to a lack of legislative mechanisms or funding. Provides a justification for extending the deadline for the achievement of the objectives as provided under Regulation 16 / Article 4(4)(a) – provided all other criteria of that Article are satisfied.
Technical infeasibility	Problem cannot be addressed because of lack of action by other countries	Application expected to be very limited in the UK. May possibly be applicable: (a) in the international river basin districts shared between Northern Ireland and the Republic of Ireland if the problem cannot be resolved

[111] Reviewing the Environmental Objectives for the Second Cycle River Basin Management Plan. (2015). NIEA.

[112] Available at:https://www.wfduk.org/sites/default/files/Media/Setting%20objectives%20in%20the%20water%20environment/Standard%20list%20of%20reasons%20for%20setting%20alternative%20objective_Final_010508.pdf

Reason	Sub-reason	UKTAG guidance note
		through the established partnership working arrangements for those basins. (b) where problems are caused by aerial deposition of transboundary pollutants and (a) local mitigation cannot solve the problem; and (b) discussions with the other countries has not led to effective action.
Natural conditions	Ecological recovery time	Applies where there is expected to be a delay before the biological quality of the water body recovers. The delay may be due to the time taken for the plants and animals to re-colonise and become established after the hydromorphological and chemical and physicochemical conditions have been restored to 'good'; or the time taken for the habitat conditions to 'stabilise' after improvement works. For example, may apply to lakes affected by eutrophication. Provides a justification for extending the deadline for the achievement of the objectives as provided under Regulation 16 / Article 4(4) – provided all other criteria of that Article are satisfied. In this case the deadline is not limited to 2027 where the natural conditions are such that the objectives cannot be achieved within that period.
Natural conditions	Groundwater status recovery time	Applies where the climatic or geological characteristics dictate the rate at which groundwater levels or quality recover or saline (or other) intrusions reverse once over-abstraction has been addressed. Provides a justification for extending the deadline for the achievement of the objectives as provided under Article 4(4) – provided all other criteria of that Article are satisfied. In this case the deadline is not limited to 2027 where the natural conditions are such that the objectives cannot be achieved within that period.

The above information provides an overview of the derogations applied in the second RBMPs, the drivers and impacts behind them, and the decision-making process. However, it is not up to date and further information from the latest RBMP is needed to gain an understanding on the current picture regarding the extent to which derogations have been applied and the drivers and impacts behind them.

4.3.3 How do these derogations and their justifications compare with what is allowed in the WFD regulations?

At the time of writing this report, derogation data and justification details are not available for Northern Ireland's third cycle in the draft plan. Therefore, a comparison of the derogations applied under the third cycle and the WFD Regulations could not be made. The most recent dataset made available is from the second cycle RBMPs, published in 2015 when the UK was still in the EU. The derogations were applied in line with the reasons permitted under the WFD 2000/60/EC.

4.3.4 Is this being transparently and objectively set out in RBMPs to the appropriate level of detail?

Regarding the third cycle RBMP, at the draft stage of the plan, derogation data has not been transparently set out in the plan. Following the executive approval of the plans and their subsequent finalisation it is expected that derogation data will be included.

Data was received from NIEA on the second cycle derogations. This included the derogations applied at the waterbody level and the reason for application. The reason was at the level of Article 4(4) Natural conditions or technical feasibility and did not go to the next level down of sub-reason, for example: 'No known technical solution'. Therefore, more information could have been provided on the sub-reason for a derogation application to obtain a better understanding of the justification for their use. For example, the data on derogations included in England's third RBMPs provided sub-reasons within the main reason for applying a derogation.

5 What is the approach to transboundary issues?

5.1 Introduction

There are three transboundary basins within England, these comprise the Severn RBD and Dee RBD with Wales and the Solway Tweed RBD with Scotland.[113] It is stated on the Natural Resource Wales (NRW) RBMP webpage that the EA leads on the Severn RBMP and that there is collaboration between NRW and the EA to ensure that the appropriate collaborative arrangements are in place for planning and managing the cross-border catchment for the Severn RBD.[114] It is stated in the River Basin Planning Guidance for England[115] that Defra and the Welsh Government will issue guidance to the EA and NRW on joint river basin planning in the cross-border Severn and Dee RBDs. The Scottish Environment Protection Agency (SEPA) leads on the administrative side of the review and the update of the RBMP for the Solway Tweed RBD.[116]

There are two transboundary basins within Northern Ireland, these comprise the North Western IRBD and the Neagh Bann IRBD.

5.2 England

5.2.1 Where a river basin sits across a national or international border does the approach taken allow the RBMP to effectively cover transboundary issues, and align with the approach taken in the neighbouring country or region?

5.2.1.1 Monitoring

Severn RBD

Both the EA and NRW present their monitoring networks online. For England, this is in the 'River Basin Management Plan: maps'[117] and for Wales this is in the 'Water Watch Wales Map Gallery'.[118] A visualisation of this is shown in Figure 5.1. These are useful tools to understand the locations of the monitoring sites. There are monitoring sites in cross-border areas for the Severn RBD as can be seen on both maps, such as 'WFD Cycle 2 Monitoring SW - WFD Monitoring Sites: BOUNDARY LANE'.

The data that the points are showing only goes to the level of 'biology', 'fish' and 'chemistry' for England and 'ecology', 'flow' and 'chemistry' for Wales. This does not extend to a further level down to provide information on the parameters monitored at each point. Without more detailed information on the monitoring points that may show information on the parameters measured and the data collection and analysis methodologies within rivers that are cross-border, it was difficult to conclude on how well aligned the monitoring is between England and Wales in the Severn RBD. Wales does

[113] Northumbria RBD extends a short distance into Scotland, but does not include any significant transboundary waterbodies.

[114] Natural Resources Wales / Severn River Basin Management Plan 2021-2027

[115] Available at: River basin planning guidance (publishing.service.gov.uk)

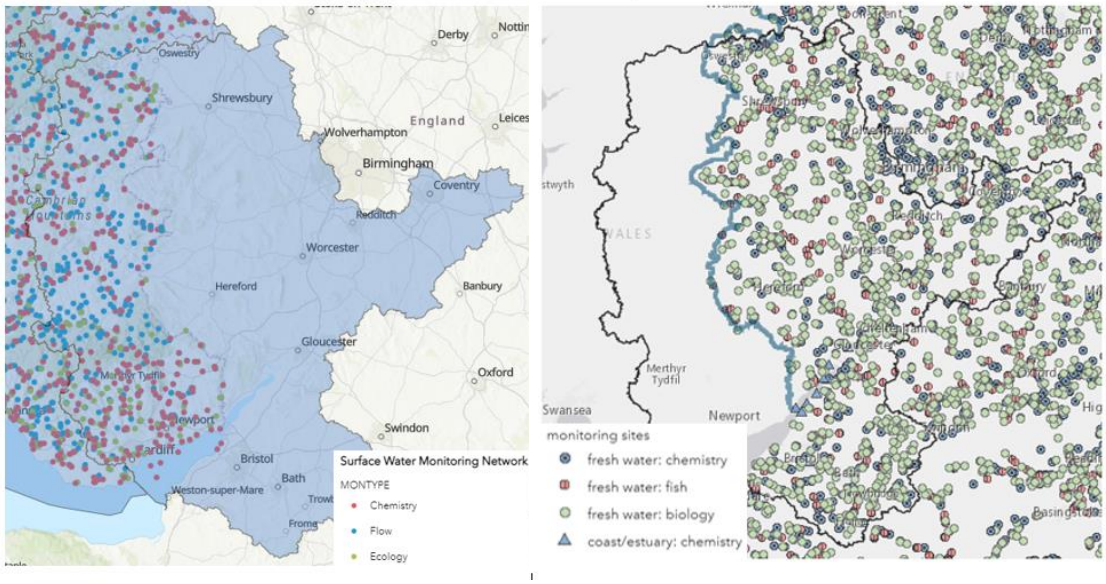
[116] Solway Tweed River Basin Management Plan - GOV.UK (www.gov.uk)

[117] Available at: Location | River Basin Management Plan: maps (arcgis.com)

[118] Available at: Water Watch Wales (naturalresourceswales.gov.uk)

provide a dataset of classification results at the waterbody level and the main elements that drive the overall result,[119] but a dataset that shows a breakdown of the parameters measured at each waterbody was not located in the public domain.

Figure 5.1 Surface monitoring sites in Wales on the left (dashed grey line is the country border) and England on the right (blue line is the country border)



It is not clear from the information in the third RBMPs for England, if there are processes in place to coordinate and standardise the collection and analysis of data from monitoring sites in the shared RBD. It is also not clear to what extent the information collected in the shared RBD is shared between the EA and NRW.

It is stated in the Severn RBMP that differences between chemical status classification results can be seen in cross border catchments for uPBTs and the differences are attributed to differences in the evidence that is available. It is stated that the EA and NRW work closely together on chemical classification, and that each organisation has developed an approach that makes the best use of available evidence.[120]

The RBMP includes some specific examples of cross border partnership working. An example of co-ordination of monitoring in the Severn RBD is the work that the EA and NRW are doing to address water quality issues in the river Wye and high nutrient levels in the Wye and Lugg catchments.[121] Part of this programme of work includes enhancing monitoring at high-risk locations and establishing a citizen science monitoring programme to assist with the identification and prioritisation of measures to reduce pollution. The EA states that there is a recognition of the need to have a coordinated approach to data analysis and monitoring across the Wye / Lugg catchments and that discussions are underway with NRW to develop a suitable programme.[122] An example of this already in place is a coordinated approach between the EA, NRW and Dŵr Cymru Welsh Water (DCWW) for modelling phosphorous source apportionment data in the Wye catchment.[123] It is encouraging to see that in areas where water quality issues have been identified, work is being done to coordinate on data analysis and monitoring.

[119] available at: Natural Resources Wales - Citrix FileShare (sharefile.eu)

[120] Severn River Basin Management Plan summary and cross border catchments (England and Wales) - GOV.UK (www.gov.uk)

[121] Background Info & Current Situation | Engage Environment Agency (engagementhq.com)

[122] FAQs | Background Info & Current Situation | Engage Environment Agency (engagementhq.com)

[123] Further information available at: e839791b6730b5d026e687cddade3225_Wye_SAGIS_phosphate_data_update.pdf (amazonaws.com)

Dee RBD

As noted for the Severn RBD, the maps of surface water monitoring show that there is some alignment in terms of how the monitoring network is presented. As was the case for the Severn RBD, using the Water Watch Wales and the Catchment Data Explorer for England, some monitoring sites in cross-border areas for the Dee RBD can be seen on both maps. For example, the chemistry monitoring site (SITE_ID: 927) can be seen and is labelled the same on both data viewers.

Solway Tweed RBD

The 2021 Solway Tweed RBMP states that SEPA and the EA work jointly to ensure consistency in their approach by sharing monitoring and classification results. For example, the fish populations in the Border Esk, are monitored by the EA and this data is used by SEPA to classify the river. Data is also exchanged when it is appropriate to help with management decisions in the context of each country's legislative frameworks.[124]

Likewise with the Severn RBMP, it is stated in the Solway Tweed RBMP that differences in the chemical status classification results of uPBTs in cross-border catchments are seen. This is particularly the case for PBDEs and mercury. It is also stated that the differences are attributed to differences in the evidence that is available and that the EA and SEPA work closely together on chemical classification, and that each organisation has developed an approach that makes the best use of available evidence.[124]

5.2.1.2 Coordination of Programme of Measures

England and Wales

There are strategic measures which usually apply to the whole of Wales, England and Wales, or the UK. In general, these set the legislative, policy or strategic approach and support, or are critical to local delivery and environmental outcomes. For example, a national ban on using a particular chemical or a national strategy for prioritising and funding the remediation of abandoned mines.

During the second cycle, new priorities and / or opportunities for England meant that some actions in the PoMs were reviewed to reflect the needs of the environment at the time. The new approaches and measures included new arrangements to work across areas and with key organisations such as the Welsh Government. These include the Wales Land Management Forum agriculture subgroup, Wales Water Management Forum, and Wales Fisheries Forum.

Severn RBD

As stated in the Severn RBMP,[125] the EA and NRW coordinate on measures to control some of the main challenges in the Severn RBD cross-border including the following:

- Working together to manage water levels and flows, including working on drought groups, any potential Severn Drought Order and on abstraction licence consultations;
- Licencing previously exempt surface water and groundwater extractions and ensuring the demand for water is more sustainable for the future;
- Working to eradicate non-native species on the River Wye;
- Looking to develop joint protocols that reduce the risk of accidental transfers of invasive non-native species during work on cross border rivers;

[124] 211221-final-rbmp3-solway-tweed.pdf (sepa.org.uk)

[125] Severn River Basin Management Plan summary and cross border catchments (England and Wales) - GOV.UK (www.gov.uk)

- Improving fish passage and removing barriers to fish migration;
- Addressing issues associated with how land and livestock are managed and exercising their pollution control powers to address pollution; and
- Water quality modelling to address pollution from water industry wastewater.

The RBMP also states that measures to address uPBTs in the water environment are comparable in England and Wales, and are driven by national legislation.

The RBMP states that actions planned from 2021 are expected to improve the status of water bodies in both the Welsh and English parts of the Severn. There are also catchment partnerships[126] and local measures case studies[127] that show coordination to deliver improvements in the Severn RBD. An example can be seen in the Severn Uplands where one of the partnership priority actions and measures for 2022 to 2027 is 'cross border working – work with NRW to address failing catchments that cross the Anglo Welsh border'. The reason listed for this measure is to 'control or manage rural diffuse pollution' and the delivery mechanism is 'other local funding'.[128] The measure is labelled as 'confident' which we assume means they are confident they will achieve it. This tells us that there has been work done to identify and plan to address transboundary areas of concern as well as acknowledgement of the need to coordinate to address them. This information was found through websites linked to the RBMP but not directly in the RBMP meaning it was not straightforward to find but does show evidence of transboundary coordination. Without talking to those involved in the project is difficult to draw further conclusions on the success or failure of such coordination.

Dee RBD

The 2021 - 2027 PoMs for the Dee RBD set out the actions over this planning cycle and also for forward planning. It includes statutory objectives for Protected Areas and local actions. In particular, local actions for Wales include Opportunity Catchments and for England the Catchment Based Approach will be one of the key programmes to be taken forward over the next six years with a focus on collaborative working and the delivery of multiple benefits for people and wildlife.

In the Dee RBMP,[129] it is stated that NRW have a robust monitoring programme for emerging chemicals to identify emerging risks and those that may require additional regulation and measures. The RBMP indicates that the UK regulators are working together to identify emerging chemicals and to regulate those that pose a significant risk. This may lead to national source control and / or may mean working closer with health boards, pharmacists and Public Health Wales to reduce the amount of pharmaceuticals used in society and therefore entering the water environment.

Solway Tweed RBD

One of the first principles on the Environment Agency website for implementing the programme of measures in the Solway Tweed RBD is taking a collaborative based approach and aligning initiatives on water and pooling resources to achieve more than partners can achieve alone.[130] The Solway Tweed RBMP identifies the need for England and Scotland to work collaboratively on flood risk.[131] Likewise with the Severn RBD, it is stated that the measures to reduce uPBTs in the water environment are comparable in England and Scotland.[131]

There is also a Scottish appendix of a summary of the PoMs, but this is high level rather than specific to the Solway Tweed RBD.[132] There is a lot of narrative around working in partnership and SEPA

[126] Catchment Partnership Pages | Catchment Data Explorer
[127] River basin planning: local measures case studies - GOV.UK (www.gov.uk)
[128] Severn Uplands | Catchment Data Explorer
[129] Dee RBMP 2021-2027 Summary (cyfoethnaturiol.cymru)
[130] Summary of the Solway Tweed River Basin Management Plan in England - GOV.UK (www.gov.uk)
[131] 211221-final-rbmp3-solway-tweed.pdf (sepa.org.uk)
[132] Appendix 8 2021 final links.pdf (sepa.org.uk)

and the EA having a shared vision, however, it is difficult to find information that specifically demonstrates coordination of the PoMs.

5.2.1.3 Significant Water Management Issues

Severn RBD

The challenges to be addressed by the third Severn RBMP include the biodiversity crisis, changes to water levels and flows, chemicals, climate change, invasive non-native species, plastics, physical modifications, pollution from agriculture and rural areas, pollution from towns, cities and transport and pollution from water industry wastewater.

As mentioned in the monitoring section there are water quality issues in the river Wye and high nutrient levels in the Wye and Lugg catchments in the Severn RBD.[133] This is leading to the deterioration of water quality, damaging ecology and causing algae blooms. Severe algal blooms have resulted in sections of the Wye having reduced visibility and a change of the water colour to from clear to green at certain times of the year.

Dee RBD

In the Dee RBMP, it acknowledges status deterioration in the second RBMP cycle in England and Wales. In the English side, this refers to a potential deterioration in one surface waterbody and one groundwater body. If the surface water deterioration is confirmed, it is stated that the cause will be identified and measures to restore the waterbody will be put in place. The groundwater deterioration is being investigated by Hafren Dyfrdwy and actions to reverse deteriorations will be investigated and developed in Asset Management Plan 8 (AMP8). As this groundwater is in England, but is being investigated by Hafren Dyfrdwy, this is indicative of a collaborative effort to address deterioration.

Solway Tweed RBD

The issues impacting joint water bodies in the Solway Tweed are:

- Pollution from agriculture and rural land management;
- Changes to water levels and flows;
- Modifications to physical condition, including man-made barriers to fish migration (it is noted that when a barrier to fish migration is identified for easement and removal that it takes time to work with partners and landowners to scope the options and agree the design); and
- Invasive non-native species.

There are several things in place to help address these issues. For example, SEPA has developed a ‘priority catchment initiative’ to help tackle rural diffuse pollution and this has begun in parts of the Tweed catchment and will be extended to include parts of the Border Esk management catchment. Catchment Sensitive Farming that takes place in the Till management catchment are managed by Natural England.[134]

SEPA and the EA are committed to working with groups such as Galloway Fisheries Trust, Tweed Forum, Solway Firth Partnership and on the Border Esk and Liddel to ensure there is a catchment wide assessment and targeted management of invasive non-native species.[135]

[133] Background Info & Current Situation | Engage Environment Agency (engagementhq.com)
[134] RBMP2 Scotland (sepa.org.uk)
[135] RBMP2 Scotland (sepa.org.uk)

Additionally, the Solway Estuary does not meet good ecological status due to elevated nutrient levels. The EA is leading on a study into the issues in both the Solway and Tweed Estuaries to better understand the causes of the nutrient levels and how best to manage them.[136]

There is limited information indicating if issues are arising or being made worse due to a lack of transboundary cooperation.

5.2.1.4 Good practice

Severn RBD

There are catchment partnerships active in the Severn Uplands, Teme, and Wye that are helping to coordinate work across the England and Wales border. The aim of the catchment approach is to work collectively for the benefit of the whole catchment, rather than a piecemeal approach.

The Severn RBMP provides an overview of the collaborative efforts between the EA and NRW. This includes the development of new products and collaborative working with various partners and stakeholder groups at the local and catchment scale. It states that the projects will target priority areas. It identifies a series of aims that will be achieved through the use of a catchment-based approach which include reduced flood risk, water quality improvements, protection of water resources and habitat improvements.

The RBMP identifies existing actions at the cross-border level. These include natural flood management pilot projects. These also include land management interventions to improve soil health with resultant benefits including a reduced risk of surface water run-off and associated diffuse pollution from agricultural sources that is currently driving many of the water quality failures, particularly for phosphate.[137]

In the Wye Waterway Plan 2017-2022, a policy paper on navigation on the Rivers Wye and Lugg, it is stated that the EA and NRW have a Memorandum of Understanding to ensure effective transboundary coordination on the River Wye.[138]

Dee RBD

The Dee RBMP states that there has been a 7% improvement in the quantity of elements used in status classification to be at good or better status between the second and third RBMP cycles. It states that the overall view of status at the element level is positive and attributes this to the efforts that NRW, the EA and partners have contributed to protecting and improving the status of the water environment.[139]

Joint projects such as the LIFE Dee River project, a £6.8m project to transform the Dee River and its surrounding catchment by restoring them to their natural state, provide an example of coordination. This project will run until December 2024.[140]

Solway Tweed RBD

In the water environment challenges document for Solway Tweed, it acknowledges collaborative working between SEPA and the EA which includes working with groups such as Galloway Fisheries Trust, Tweed Forum, Solway Firth Partnership and on the Border Esk and Liddel to ensure there is a catchment wide assessment and targeted management.[141] In the Solway Tweed RBMP 2021

[136] 211221-final-rbmp3-solway-tweed.pdf (sepa.org.uk)

[137] Severn River Basin Management Plan summary and cross border catchments (England and Wales) - GOV.UK (www.gov.uk)

[138] Wye Waterway Plan - GOV.UK (www.gov.uk)

[139] Dee RBMP 2021-2027 Summary (cyfoethnaturiol.cymru)

[140] Natural Resources Wales / LIFE Dee River

[141] RBMP2 Scotland (sepagnificant .org.uk)

updates document,[142] it is stated that partnerships working with farmers, land managers, advisory services and water companies (United Utilities and Scottish Water) has improved compliance with the relevant legislation and adoption of good practices to reduce pollution and environmental impacts. A 2019 report states that the collaborative catchment management and targeted actions to alleviate specific issues have ensured that the condition of the Solway Tweed water environment continues to improve.[143]

Restoring rivers and removing man-made barriers to fish migration is an example of where transboundary cooperation is occurring. SEPA and the EA are jointly investigating barriers to fish migration in the Border Esk to identify priorities for action. During the third RBMP they are aiming to remove or ease 244 impassable man-made barriers.[144]

5.2.1.5 Areas of improvement

Severn RBD

The Severn RBMP states that the EA and NRW are continually improving the way they work together to increase effectiveness.[145] The Seven Uplands catchment data explorer has a section on partnership development plans. It states that work is being done to improve partnership working and representation across the border of Wales and England, get better joint funding, develop the Severn RBD catchment partnership and engage more effectively at a strategic level.[146] This information shows an example of the focus for areas of improvement for the Severn RBD.

Dee RBD

Since the 2015 plans were published, NRW and EA have carried out a programme of investigations in the Dee RBD to find out why many water bodies are not at good status or potential and plan measures to achieve good status or potential. The knowledge and understanding of the issues affecting water bodies has said to have increased significantly and will continue to develop through the third cycle. As a result, EA and NRW say they are now in a better position to work with partners to identify where the greatest environmental improvements can be made, which will provide the most benefit to everyone.[147]

Solway Tweed RBD

The Solway Tweed RBMP indicates there is a joint ambition to address the issues and challenges that are still faced.[148] There is limited information on whether the transboundary cooperation could be working better to improve delivery in the water environment.

[142] 211221-final-rbmp3-solway-tweed.pdf (sepa.org.uk)
[143] RBMP2 Scotland (sepa.org.uk)
[144] 211221-final-rbmp3-solway-tweed.pdf (sepa.org.uk)
[145] Severn River Basin Management Plan summary and cross border catchments (England and Wales) - GOV.UK (www.gov.uk)
[146] Severn Uplands | Catchment Data Explorer
[147] Dee RBMP 2021-2027 Summary (cyfoethnaturiol.cymru)
[148] 211221-final-rbmp3-solway-tweed.pdf (sepa.org.uk)

5.3 Northern Ireland

5.3.1 Where a river basin sits across a national or international border does the approach taken allow the RBMP to effectively cover transboundary issues, and align with the approach taken in the neighbouring country or region?

5.3.1.1 Introduction

The two international RBDs that cross the Republic of Ireland and Northern Ireland are the North Western and the Neagh Bann.

5.3.1.2 Monitoring and classification

Freshwater monitoring, classification and reporting in shared waterbodies in Ireland and Northern Ireland is covered by the North South Rivers and Lakes Group. It is a technical group that includes attendees from the Irish Environmental Protection Agency (EPA), NIEA, the Agri-Food and Biosciences Institute (AFBI), the Loughs Agency and Inland Fisheries Ireland. The key purpose of the group is to ensure proper alignment and consistent reporting for the classification of cross-border waterbodies.[149] It states in the draft third RBMP for Northern Ireland that there are approximately 70 shared waterbodies.[150]

There are 55 cross border river bodies, 29 of which are monitored solely by NIEA and 13 solely by the Irish EPA. The two agencies exchange the status assessments for these river water bodies. The 13 remaining cross border river water bodies are jointly monitored by NIEA and the EPA. Four cross border surveillance lakes are also monitored by both jurisdictions. The two agencies meet to discuss and agree the status of jointly monitored waterbodies before either agency publishes the information.[151]

The methods used to assess the status of Biological Quality Elements (BQE) in rivers and lakes in Northern Ireland and Ireland are summarised in Table 5.1. As seen in the table, the two jurisdictions use different BQE assessment methods for macroinvertebrates in rivers and phytoplankton in lakes. These tools have been intercalibrated and it is acknowledged by the NIEA that there are some differentiations between sampling methods and that the reported data is collected over different time periods at different frequencies. As a result, any differences identified at the element level are accepted if they do not impact on overall ecological status and reasons for the differences are recorded.

The one-out-all-out principle is applied when there are differences in overall ecological status.[152] The NIEA has noted that there are technical documents on the coordination of agreed status for cross water bodies being jointly drafted with the EPA that can be shared when they are available. The NIEA and EPA also work together to agree the status for the Carlingford Lough and Lough Foyle, which are both transboundary estuarine waterbodies.

[149] https://www.gov.ie/pdf/?file=https://assets.gov.ie/199144/7f9320da-ff2e-4a7d-b238-2e179e3bd98a.pdf#page=null

[150] Draft 3rd cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027). Page 25. Note: It is not clear from the information provided in the RBMP if this 70 includes both surface water and groundwater.

[151] This information was received from the NIEA in response to an OEP request.

[152] This information was received from the NIEA in response to an OEP request.

Table 5.1 Biological Assessment methods used to assess ecological status in rivers and lake

Rivers		
Biological Quality elements (BQE)	**NIEA Rivers**	**EPA Rivers**
Macroinvertebrates	River Invertebrate Classification Tool (RICT)	Quality Rating System (Q-value)
Macrophytes (Aquatic Plants)	Mean Trophic Rank (MTR) LEAFPACS	Mean Trophic Rank (MTR) LEAFPACS
Phytobenthos (Diatoms)	Trophic Diatom Index (TDI)	Trophic Diatom Index (TDI)
Fish	Fish Classification Scheme 2 Ireland (FCS2)	Fish Classification Scheme 2 Ireland (FCS2)
Macroinvertebrates	River Invertebrate Classification Tool (RICT)	Quality Rating System (Q-value)
Lakes		
Biological Quality elements (BQE)	**NIEA Lakes**	**EPA lakes**
Macrophytes (Aquatic Plants)	Free Macrophyte Index	Free Macrophyte Index
Phytobenthos (Diatoms)	Lake Trophic Diatom index	Lake Trophic Diatom index
Phytoplankton	Phytoplankton Lake Assessment Tool with Uncertainty Module (PLUTO)	IE Lake Phytoplankton index
Fish	Fish in Lakes 2 (FIL2)	Fish in Lakes 2 (FIL2)

Groundwater body status is determined according to the UKTAG guidance that was developed jointly by the UK and Ireland. The NIEA and the EPA groundwater colleagues meet before publishing groundwater body status to compare the most recent status information. Together they verify any differences and using available data agree the same status for transboundary groundwater bodies.

5.3.1.3 Co-ordination of programme of measures

The Northern Ireland draft third RBMP identifies some of the ways in which Northern Ireland and Ireland are working collaboratively to achieve the objectives of the plans. The Northern Ireland Environment Agency (NIEA) is a member of the Border Region Operational Committee, which

provides a forum to enhance interagency networking. For cross-border catchments, the RBMP acknowledges that this committee allows operational staff to share knowledge and experience and seek opportunities to maximise outcomes for cross-border rivers.

In the draft PoMs within the RBMP, there are several measures where cross-border cooperation is identified in the mechanism. For example, both Northern Ireland Water and Irish Water are identified as owners of a measure related to the construction or upgrades of wastewater treatment plants. A further example is for the protection of fisheries, where ongoing consultation and engagement with cross border partners on transboundary issues is part of the mechanism to address the issue.[153]

5.3.1.4 Significant water management issues

In the second RBMPs, to help address significant water management issues, Northern Ireland and the Republic of Ireland jointly developed structured plans to receive INTERRAG VA funding. The INTERRAG VA Programme was designed to help overcome issues that occur as a result of a border.

A number of projects were funded to address environmental issues and assist with the implementation of Key Target Measures (KTMs). For example, The Shared Waters Enhancement and Loughs Legacy (SWELL) project has invested approximately 35 million euros to make improvements to sewage treatment works in Lough Foyle and Carlingford Lough. For the third RBMP, the cross-border INTERREG VA Programme will be replaced by new EU cross-border programme called PEACE PLUS. Bids that will be prepared under PEACE PLUS include funding for catchment interventions to reduce loading of chemicals and pesticides in raw water.[154] Further information on the role of PEACE PLUS can be found online[155] and water quality (catchment management and waterbodies) are identified as key themes and investment areas.

5.3.1.5 Good practice

The draft third RMBP for Ireland states the Republic of Ireland and Northern Ireland are required under the WFD to co-ordinate their efforts in relation to international RBDs. Each jurisdiction carries full responsibility for ensuring implementation of all aspects of the Directive in their national territory, including any part of an International River Basin District.

A tradition of coordination has been maintained for many years in relation to cross-border water quality management. Before the introduction of the Water Framework Directive, this coordination was less structured and formalised, but it included arrangements on the notification of and responses to pollution incidents. During the early 1990s water quality management strategies were jointly developed for the Foyle and Erne catchments.[13]

The first cycle RBMPs (2010-2015) were developed separately but in close co-operation with the relevant authorities in Northern Ireland and as a result all the water environments in Ireland plus those shared with Northern Ireland were assessed in unison. The second cycle (2016-2021) plans for Ireland and Northern Ireland were produced under differing timelines, however coordination still occurred in terms of the implementation of the plans. Coordination is ongoing during the development and implementation of the third cycle (2022-2027).[156]

NIEA continue to work with the UKTAG to ensure WFD is implemented as consistently as is appropriate within the devolved administrations across the UK. UKTAG is a partnership of the UK environment and conservation agencies. It also includes partners from Ireland.

[153] Draft 3rd cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027)

[154] Draft 3rd cycle River Basin Management Plan for Northern Ireland 2021-2027_0.PDF (daera-ni.gov.uk)

[155] Available at: https://www.seupb.eu/PEACEPLUS

[156] https://www.gov.ie/pdf/?file=https://assets.gov.ie/199144/7f9320da-ff2e-4a7d-b238-2e179e3bd98a.pdf#page=null

The responsible bodies in Northern Ireland and Republic of Ireland are coordinating their water management actions through a North-South Working Group on Water Quality. This group is supported by the North-South Technical Advisory Group and North-South Rivers and Lakes Group. NIEA also participates in the Irish Environmental Protection Agency's National Implementation Group for Water Framework Directive, which will provide a mechanism for cross-border catchment initiatives.[157]

NIEA and the Loughs Agency are members of the Border Region Operational Committee, which provides a forum to enhance interagency networking, develop relationships and work together to help achieve objectives set out in RBMPs to benefit both the local community and the environment. In terms of cross-border catchments this committee provides an opportunity for operational staff to share knowledge and experience and seek opportunities to maximise outcomes for cross-border waters.[158]

5.3.1.6 Areas of improvement

The draft third RBMP for Northern Ireland states that uncertainty regarding funding for INTERREG VA projects and agri-environment schemes hindered the implementation of the PoMs in the second cycle. The Irish draft third RBMP states that, following the UK's exit from the EU, challenges may occur for Ireland and Northern Ireland with potential regulatory divergence and more complex arrangements for cross-border cooperation and consultation.[159]

[157] Neagh Bann River Basin Management Plan summary - Dec 2015 (daera-ni.gov.uk)

[158] https://www.gov.ie/pdf/?file=https://assets.gov.ie/199144/7f9320da-ff2e-4a7d-b238-2e179e3bd98a.pdf#page=null

[159] https://www.gov.ie/pdf/?file=https://assets.gov.ie/199144/7f9320da-ff2e-4a7d-b238-2e179e3bd98a.pdf#page=null

6 Lessons from WFD implementation

6.1 Introduction

This section presents an overview of the lessons learnt from WFD implementation. This draws from the assessments in Sections 1-5 as well as the experience of the report's authors of working in different aspects of WFD implementation in the UK and EU.

6.2 What already works well, or could be made to work well in the delivery of the WFD regulations and RBMPs?

The principles which underpin the WFD constitute a good framework for water protection. It has driven significant clarity in the understanding of the nature of the challenge and the gap to solutions. The waterbody scale assessments have allowed focus on specific challenges on sections of river. Table 6.1 discusses these issues in more detail.

Table 6.1 What already works well, or could be made to work well in the delivery of the WFD regulations and RBMPs?[160]

Component	Further detail
Public access to data on the water environment	These online mapping portals[161] provide a clear record of water body status, and how this has evolved through the three RBMP cycles to date. The user interface of both portals is different and has been improved through the WFD cycles, but it is biased towards technical users. In an updated versions more graphics / key indicators could be used to help technical and non-technical users understand waterbody health, objectives and measures. Of the portals, the CDE contains the most accessible data tables and waterbody attributes.
Emphasising the importance of hydromorphology to overall river healt	The WFD has (in particular) elevated the importance of the hydro-morphological health of rivers, particularly in the various planning processes (Environmental Impact Assessment, Water Company etc.). It provides a solid legislative / regulatory basis for a discussion around derogation and mitigation measures for hydromorphology in a way which is not supported by any other regulatory instrument.
Enhanced public debate around river health	The information in the press around the RBMP progress (or perceived / actual lack of), and the debate around failures of chemical status are indicators that the RBMP process has elevated the public awareness and debate around water quantity and quality issues. Though it is acknowledged that this debate tends to be issue based and is not supported by a fully mature understanding / discussion of what is driving pollution pressures and does not always drive cohesive action, it is nonetheless evidence of the effectiveness of communication in the planning process. A more productive debate would be less single issue based and acknowledge the more holistic challenges faced, and their ultimate drivers, a number of which are based around patterns of public consumption. This would require cross-political support and investment from regulators and stakeholders in debates which support the reaching of consensus and positive action.

[160] The ordering of the issues in the table is not a ranking of importance

[161] Catchment Data Explorer / Map explorer / NIEA Catchment Data Map Viewer

Component	Further detail
A nationally consistent planning process which looks at all waterbodies	The RBMPs have forced a nationally consistent regulatory consideration of the state of the water environment, and supported the development of an action plan (in the PoMs) to help address perceived issues. They have also been effective in driving national programmes, such as WINEP, to focus on waterbody health, even when that waterbody is not a designated site (such as a Natura 2000 site, or a Site of Special Scientific Interest (SSSI)). In this way the WFD assessment process has also highlighted potential issues around ordinary watercourses[162] which otherwise may not have had a driver for investigation. There is, however, significant room for improvement in the PoMs process – more clarity on the actions at a waterbody level (or how these will be developed and then accessed) and the timings of such actions would help in the understanding of what will (and what will not) be delivered for any given catchment.
The "no deterioration" principle	The "no deterioration" principle has driven action to mitigate the reduction of potential risks to the water environment. An example of this is the EA's move to cap licences[163] to removed unused "headroom" through reduction of licensed volumes to actual use, and the moves to remove "licences of right" from the water abstraction regime (though it is noted that this move is not without controversy, as stated in the workshop of 13 March 2023 by representatives of the water and agricultural industries). Without the no-derogation principle, the driver for actions such as these would have been weaker.
Co-operation across national borders	The RBMP process seems to be supported by a reasonable process of transboundary co-operation across national and international borders, and Section 5 provides some good examples of this. However (as set out in Section 5) there do seem to be some variations in monitoring approaches and reporting which dilute the clarity around status and measures in transboundary waters. It is not clear (from the information which is available for this report) whether this actually impedes the right action being taken in any given waterbody by the responsible regulators.
The "one out all out" (OOAO) principle	The "one out all out" principle has proved controversial. This can be seen in the wider conversations on this issue in the EU Fitness Check of the WFD (2019) and the debate in the UK. It is perceived as a positive mechanism in that it speaks to overall river health – focusing efforts on a more holistic approach to measures rather than a focus on just individual elements (low hanging fruit). It is perceived as a negative indicator in that it hides the progress that can be made at an element level. The conclusion of the Fitness Check was to maintain it as an overall reporting mechanism, primarily because of its value in enforcing the "no deterioration" principle, but develop (at a national level) better indicators to show progress to improve communication with stakeholders and the general public. These could be around improvements in the status of individual elements and improvements within the status band for the overall and individual status.

[162] Main rivers are usually larger rivers and streams, designated as such, and shown on the Main River Map. The Environment Agency carries out maintenance, improvement or construction work on main rivers to manage flood risk. Other rivers are called 'ordinary watercourses'.

https://www.gov.uk/government/publications/designation-of-main-rivers-guidance-to-the-environment-agency#:~:text=Main%20rivers%20are%20usually%20larger,are%20called%20'ordinary%20watercourses'.

[163] Licence capping is permitted under the Environment Act (Section 88 - https://www.legislation.gov.uk/ukpga/2021/30/section/88/enacted) and its purpose is described (https://www.gov.uk/government/publications/water-abstraction-plan-2017/water-abstraction-plan) as "preventing increased abstraction from damaging the environment". The principle is the removal of the unused licence quantity (unused is the difference between the abstraction quantities reported to the Environment Agency (over a set period of time) and the total maximum permitted abstraction volume.

Component	Further detail
	Consideration of these additional indicators would increase the understanding of the effectiveness of the regulations and help focus action and debate. The one-out-all-out principle was discussed at the stakeholder event held in Belfast. The issue of its masking of progress was discussed, but a point was also raised that it can act as an incentive to focus efforts on the element that is causing the failure.

6.3 Are there particularly effective elements in this regime which should be retained or built upon to protect and improve the water environment or could be applied as principles or good practice to other areas of environmental policy beyond water?

Both the EIP 2023 and the draft Environment Strategy for Northern Ireland reference achieving good status in 75% and 70% of waterbodies respectively. It is inferred from this that the definition of good status in these documents is the same as that in the relevant WFD regulations. However, it is noted that those areas focused on for specific targets in these documents do not include all WFD elements, e.g. hydromorphology, and the nuance of the relationship between quantity / quality challenges and solutions.

The genesis of the WFD was to fill a gap in EU water law, where it was felt that there was too much fragmentation in the area of water policy and a more overarching framework was needed to give proper priority to the protection of aquatic ecosystems.[164] In looking to develop UK specific water policy it is important not to take a backwards step in this regard which might allow water policy to become piecemeal or driven by a series of unconnected or only loosely connected targets.

The WFD framework offers up a holistic framework of action identification which should be retained. Some key elements are as follows (there is a degree of overlap between these and what has worked well):

- A sound framework for addressing the conceptualisation of Driver-Pressure-Status-Impact-Response (DPSIR) at a waterbody level.
- The inclusion of all waterbodies[165] in the same framework (rivers, transitional, coastal and groundwaters).
- The integration of hydromorphology as a key indicator of river health and as a factor for consideration in planning permissions (to ensure WFD compliance) and the integration of a requirement to fulfil the Regulation 19 tests as a part of the planning application for any new development which involves modification of the river corridor. This has been effective in highlighting the importance of this element for river health.
- The ability to justify different objectives based on natural conditions, technical feasibility or disproportionate costs in a standardised assessment framework.

[164] https://fwrinformationcentre.co.uk/html/wfd---a-summary.html

[165] Some small river waterbodies which drain directly to the sea are not designated as WFD waterbodies, however the RBMP guidance states the following “The WFD Regulations cover all bodies of surface water. Where a stretch of water is too small to be formally identified as a water body, or is too small to show up on a map of the water body, it is still protected by law from pollution, modification and abstraction and can still be improved where local actions and assessments deem it to be a priority.” https://www.gov.uk/guidance/river-basin-planning-process-overview/3-defining-and-describing-the-water-environment

- The Catchment Data Explorer and NIEA Catchment Data Map Viewer are regularly updated, geographically referenced, dashboards of indicators for the health of the water environment. These provide transparency of waterbody condition, health and objectives.
- A consistent[166] assessment framework for assessing status and framing action across national and international borders.
- A framework for the regular reporting of the state of the water environment and the actions to improve overall health, facilitating the engagement of the wider public and press in these issues and increasing understanding outside of the immediate technical community.
- Use of indicators which address environmental health, which are based on a more technical than political conceptualisation of environmental importance.
- Maintenance of nationally consistent technical datasets which are reasonably robust and subject to similar quality assurance approaches, and supporting moves towards the elimination of regional variations in the reporting of data.

Areas which could have relevance beyond water policy are:

- Nationally consistent and regularly updated datasets.
- Consistent indicators of progress across multiple planning periods.
- The focus on local state and outcomes (rather than a purely strategic focus). Linked to this is the development of the Catchment Based Approach groups to drive local action.
- Thinking about how to implement actions based on the cause of the problem, not just which mitigate its impacts.
- Integration of planning with sectoral plans (e.g. water company planning).

6.4 Overall, does the river basin management planning process and associated legislative and institutional framework provide an effective basis to protect and improve the water environment and achieve the outcome intended? If not, why not, and what would need to be done to address this?

6.4.1 Introduction

The WFD as a regulatory instrument provides a good framework for the protection of the water environment. It was developed at the end of the 20th Century by the European Commission, Council and Parliament, with significant inputs from UK based experts,[167] and establishes a good framework for measuring and improving the status of the water environment. The associated legislative and institutional framework has the correct aims and objectives for the effective delivery of outcomes, however it has fallen short in actuality. Though there has been improvement in understanding,

[166] Though there are some differences in the details of monitoring these are known and managed around. It is fair to say that the framework that is worked within in consistent.

[167] This is an anecdotal point, however it is generally understood that UK experts were important contributors to the original form of the Directive, alongside experts from other Member States. It should be noted that when the Directive was formulated the EU only comprised 15 countries.

planning and some outcomes, the original targets in the WFD will not be fully met. Therefore, there are obviously challenges in implementation which need to be addressed. These are discussed in more detail below.

6.4.2 Challenges to the implementation of RBMPs

The RBMP process (at its best) should drive an action plan to improve waterbody health. Challenges with implementation (both regulator resources and stakeholder management), as well as funding mean that this potential is not being fully realised through the current process and more could be done to reduce the administrative burden of the planning process, while providing more clarity on the intended actions at a local level. The sections below list some of the key challenges. Some of these are unique to the UK and others are common to other jurisdictions where the WFD is implemented.

6.4.2.1 The administrative task of Plan production

The production of the physical plan documents has been a significant administrative burden on regulators. The planning, consultation and finalisation process can take many years, which is a challenge in a six yearly planning cycle. An alternative approach could be a longer planning cycle for more detailed plans which look fully across the DPSIR framework and require consultation, and shorter-term updates on key progress indicators around status and measures. The online data portals could be key to facilitating this.

6.4.2.2 Certainty in funding streams

Funding streams for the implementation of measures are associated with some uncertainty and rely on a number of different mechanisms. Uncertainty in funding of measures is apparent in the PoMs for the third cycle in England. The summary PoMs for England confirm that funding is in place for measures, but often the funding source is not specified for individual measures.

6.4.2.3 Taking action in the face of uncertainty

There is evidence of a lack of action where there is a lack of certainty in the level of change which would be delivered by a specific set of measures. This trend is partially evidenced in the "low certainty" given to measures in the third RBMPs, where there is lack of certainty in the measures which would be implemented. This could be, in part, due to a lack of funding, but could also be due to a focus on "no regrets"[168] measures. This can be a barrier to the implementation of measures which have some risk of regret either through lack of effectiveness or negative impact.

The RBMP process has driven a significant investigatory programme (through WINEP, for example), but these programmes can sometimes be slow to effect actual change due to a quest for more accurate data and modelling. It can take more than one AMP cycle for a WINEP action to be evidenced. Accurate data and modelling are valuable and important, but it is possible that in some areas they are a barrier to more pragmatic action. This was a topic of discussion at the London Stakeholder workshop on the 13th of March.

6.4.3 Improving links between drivers, pressures and measures

More could be done to fully implement the DPSIR framework. The implementation has placed a strong focus on the Status of waterbodies, but it is less easy to understand the causal links between Drivers, Pressures, Impacts and related Responses (in line with the DPSIR framework).

[168] No regrets measures are those which have no downsides – they are cost effective and will not lead to future policy and implementation compromises.

To be clear, this is not to say that these links have not been made, but that further improvement could be made on the causal links. In particular actions (Response) are hard to understand at a waterbody level, in terms of what will be delivered on the ground. There is a strong dependency on national plans and programmes. This is fine from a strategic perspective in a national plan, but can make it harder to engage local practitioners (e.g. the agricultural community) in delivering benefits aligned with WFD compliance.

In the EC's compliance assessment of the second RBMPs, a recommendation was made to state clearly for all RBDs, to what extent, in terms of area covered and pollution risk mitigated, measures will contribute to achieving the WFD objectives. The PoMs include columns for the catchments and waterbodies the measures apply to, the environmental objectives that the measures contribute to and the challenge / pressure that the measure is designed to address. However, for the majority of measures, the information provided in these columns is described as 'multiple' or 'various'. Therefore, a breakdown of the waterbodies to benefit from the measure and the pressure(s) the measure is addressing is not specified for most measures.

The lack of detail in the PoMs makes it difficult to understand exactly what will be done, and what will be delivered. It is understood that the reality is that the detail of a lot of measures is still to be developed as a part of the delivery mechanism (e.g. WINEP). However, greater transparency into the envisaged delivery mechanism at a waterbody or catchment level would provide improved clarity. Not all national plans are applicable for all river systems, and understanding which are judged to be valid through the RBMP process will help inform action, and accountability, for delivery of outcomes.

6.4.4 Targets and indicators

The WFD provides a framework and a set of indicators to monitor the progress of waterbody health. These have been valuable in public communication and understanding high level progress. However, as noted elsewhere in the report, there are some challenges with reflecting the detail of the progress made using the current framework (see commentary on the on-out-all-out principle in Section 6.2). The current set of indicators should be retained. However, thought should be given to an additional set of indicators which allow further insight into the type of progress being made. Examples of these are:

- Indicators which show progress within band – so how the "gap to good status" is being closed.
- Indicators of action taken. An example is action to reduce nitrate pollution in groundwater – where the results of the action will not be seen for some time because of the residence time of previous pollution in groundwaters.
- Indicators of an increase in confidence in result. This could be as a result of the detailed measures being developed and / or funded for a specific catchment / waterbody.

6.4.5 A more integrated planning and policy environment

As noted in Section 3.2, there are some obvious challenges to implementation, associated with a lack of progress. Though there is a large amount of regulation, policy and guidance there is a lack of overall progress. It is judged that this is, in part, due to the complex regulatory / legislative environment, capacity in those who are regulated and being regulated, the number of plans which are produced (see Table 7.1) and the multiplicity of voices. Change may be needed in order to drive more effective and efficient planning. This could be:

- Synchronising the various plans better to allow for the streamlined development of actions. This includes those plans listed in Table 7.1 and relevant local authority plans.

- A single position on the detail of environmental targets / guidance for each catchment / waterbody. This will allow clarity in the development of appropriate measures and the identification of the sectors / regulators responsible.
- A combination of the regulatory voice on environmental protection for the water sector – currently this is undertaken in partnership between Ofwat and the Environment Agency, however a combination of resources, staff and expertise in this area could yield additional capacity for regulation.
- The catchment-based approach (CaBA) groups could have a bigger role to play in delivery. They are already a valuable forum for local delivery, but more integration of those groups into formal target setting and action planning could yield a more detailed set of local actions. The CaBA National Support Group has expressed a view[169] that the RBMPs are a valuable tool, but need to be better integrated with other policy initiatives and more grounded in local action to yield results. This is undoubtably true. More integrated use of the CaBA groups (in a series of specific actions, rather than general intentions) could yield this.

6.4.6 Climate change adaptation

Climate change is a key challenge to the protection of the water environment. The current regulatory and legislative framework does address the issue of climate change, but the implications of adaptation are not as fully developed / integrated as they need to be in the relevant targets, plans and policies which seek to protect the water environment. The challenge is not that these issues are not known, but that the development of holistic solutions which would allow sustainable adaptation of the natural environment and sustainable water use, has not yet been achieved.

There are some difficult conversations to be had around how patterns of human use (both domestic and commercial) may need to change to protect our ecosystems and, conversely, the change that we may need to accept in our environment. Some examples of this are:

- The movement of some species northwards, and the need to provide connected green and blue corridors to allow for this.
- The loss of dilution potential (through lowering of summer flows) for urban wastewater treatment plant (UWWTP) discharges could result in a decrease in water quality and ecosystem health from the status quo with the current regulatory permissions. This could result in a significant need for investment, including new infrastructure and associated embodied carbon. Changing rainfall patterns is a partial cause of the current issues with more frequent sewage spills – though increased population pressures, increased hardstanding, regulatory behaviour and investment all have a part to play.
- The concept of “good status” requires measurement of deviation from a natural benchmark which may no longer be attainable. We may find ourselves inadvertently seeking to try and protect environments which would no longer be supported by natural conditions. We are already seeing changes to what we would consider the natural benchmark in our river flow profiles, and this will impact other indicators of river health. New benchmarks may need to be developed which represent ecological changes in response to changes in precipitation, seasonality, temperature and groundwater ingress. This does not invalidate targets around the reduction of pressure (e.g. nutrient pollution), or the overarching desire to achieve “good status” but it could impact the

[169] August 2022 blog from Rob Collins, CaBA Chair https://www.wcl.org.uk/river-basin-management-plans-a-levelling-up-opportunity.asp

ecological indicators which are used to define what good status can look like for our water environment.

- Changing climatic patterns could also invalidate the basis of some models used for flow modelling, which support abstraction and discharge permit regulation. In England, the EA have run various scenarios through their National Framework modelling looking at the potential impact of climate change on water availability and abstraction. This is feeding into the water company planning process. This indicates some potentially large reductions in abstraction quantities, which in turn feed requirements for a more efficient use, storage and transport of water.
- Delivery of the WFD is reliant on water consumption decreasing in line with other plans and policies, however the mechanisms for achieving this are not yet fully in place.

7 Opportunities to improve delivery in the water environment

7.1 Introduction

This section presents a view on the synergy between the RBMPs and the six Building Blocks of environmental stewardship identified by the OEP as key factors for driving environmental improvement. Opportunities for improving delivery in the water environment that have been identified through the assessment of the RBMPs and from stakeholder insight are discussed.

7.1.1 Building Block 1: Understanding environmental drivers and pressures

The RBMPs for England provide a good level of detail on the challenges facing the water environment. This is provided in the challenges dataset which provide data at the waterbody level[170] and in an overview series of reports which provide narratives on the challenges facing the water environment.[171]

The RBMPs also provide a detailed classification dataset[172] which provides classification data at various levels (e.g. overall classification, ecological / chemical / quantitiative classification and element classification). Under the DPSIR (Driver-Pressure-State-Impact-Response) framework, these two datasets can be used to understand driver, pressure, state and impact data at the waterbody level. An area of improvement could be to create a more explicit link with the England_challenges dataset with the **response** (i.e. the measures) required at the waterbody level to mitigate the problem.

A series of reports[173] on the challenges facing the water environment accompany the RBMPs. These provide information on the pressures and mechanisms for improvement for complex, multi-sectoral challenges. The challenges documents do provide a clear overview of the key issues facing the water environment and are accessible to non-expert readers.

The challenges reports cover the following key issues: agriculture and rural land management; biodiversity; chemicals; the climate emergency; cypermethrin; drinking water protected areas; European site protected areas; faecal contamination; fine sediment; invasive non-native species; mercury; mine waters; nitrates; polycyclic aromatic hydrocarbons (PAHs); polybrominated diphenyl ethers (PBDEs); perfluorooctane sulfonate (PFOS); phosphorous; physical modifications; plastics; pollution from water industry wastewater; towns, cities and transport; and water levels and flows.

Some of the challenges documents provide a detailed narrative of the problem consistent with the DPSIR framework. Taking phosphorous[174] for example, it details the following:

- Drivers: agriculture and wastewater treatment;
- Pressure: data on phosphorus loading in freshwaters;

[170] England_challenges dataset for England at https://environment.data.gov.uk/catchment-planning. Accessed February 2023.

[171] Available at: https://www.gov.uk/government/collections/river-basin-planning-challenges-for-the-water-environment

[172] England_classification dataset for England at https://environment.data.gov.uk/catchment-planning. Accessed February 2023.

[173] Available at: https://www.gov.uk/government/collections/river-basin-planning-challenges-for-the-water-environment

[174] Available at: Phosphorus-challenges-for-the-water-environment.odt (live.com) (Date of report: December 2022)

- State: eutrophication which is assessed in river, lakes and reservoirs;
- Impact: failed phosphorous standard and waterbody not at good ecological status; and
- Response: measures to address phosphorous pollution including water industry measures, agricultural measures and a measure related to detergent.

The phosphorous report links increased future risk of phosphorous to climate change and increased agricultural demands to meet a growing population. The required phosphorous reductions are discussed in relation to statutory targets and relevant stakeholders are described.

Reports covering other key challenges present a less well-established link between the DPSIR framework. For example, the report on towns, cities and transport acknowledges existing issues in identifying the source of pollution and establishing an effective response:[175]

- Drivers: urbanisation and transport. However, it is stated in the report that there is a difficulty in identifying the source of this type of pollution or those responsible, it is also stated that there is inadequate data on the causes of the problem and highlights that the number of drainage outfalls carrying road run-off is unquantified;
- Pressure: pollution by various contaminants including hydrocarbons, metals (including zinc, cadmium and copper), plastics, nutrients (including phosphate), ammonia, pathogens and sediment;
- State: water quality reduction;
- Impacts: decreased environmental and recreational value of waterbodies, waterbody not at good status; and
- Response: the report states that there is no one body or organisation responsible for addressing the causes of this pollution, but describes some initiatives underway to address urban diffuse water pollution and drainage issues. It also states that the powers of the EA to influence urban and transport development and management are limited.

The example provided above highlights an issue in trying to address the challenge when there is a break in the DPSIR framework. In this case, data on the drivers is not clear and there are difficulties in establishing a coordinated response. An opportunity for improvement in the water environment in this case would be to increase efforts to better understand and quantify the sources of the problem.

7.1.2 Building Blocks 2 and 3: (2) Creating a vision and (3) Setting Targets

Building blocks 2 and 3 have been considered under one heading as there are common themes in how the setting of targets and creating a joint vision could be more aligned.

The EIP23, the Environment Act 2021 and the draft Environment Strategy for Northern Ireland and the RBMPs do set out a vision which identifies key issues affecting the water environment and the targets aimed at mitigating these. Two of the long-term targets under the Environment Act 2021 relate to reducing phosphorous pollution. It is acknowledged that phosphorus pollution is the most common reason a water body fails to meet good status under the WFD regulations, with this being a main reason in establishing these two targets.[176] This shows a link between data generated under the RBMP process and resultant statutory targets.

[175] Available at: Towns-cities-transport-challenges-for-the-water-environment.odt (live.com) (Date of report: October 2021)

[176] Environment Act 2021 targets consultation. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1125278/Environmental_targets_consultation_summary_of_responses_and_government_response.pdf#page=16&zoom=100,72,142

The EIP23 sets out a target to restore 75% of water bodies to good ecological status as soon as is practicable. The draft Environment Strategy for Northern Ireland sets a target of 70% of waterbodies to be at good status by 2027. This appears different to the objective of the WFD Regulations, which aims for all waterbodies to be at good status by 2027 (unless a derogation has been applied).

The EIP23 target of improving 75% of waters to close to their natural state as soon as is practicable is rather open ended and 'as soon as is practicable' creates room for interpretation. An area of improvement could be to create a better coherency or consistency of language between the WFD Regulations and the EIP23 targets, so they do not have good status objectives that can be interpreted differently.

In the EIP23, it sets out a strategy for 'Goal 3: clean and plentiful water'. However, there is no signposting to the RBMPs and its role in delivering the goal. There is one mention of the RBMPs in the EIP23, where it is stated that water policy and flood policy could be better integrated, by reforming RBMPs and FRMPs to maximise multiple benefits[177]. The draft Environment Strategy for Northern Ireland references the RBMPs and highlights some measures from the PoMs that will help deliver improvements towards the targets and visions set out in the strategy.

The environmental objectives within the RBMPs are to: prevent deterioration of waterbodies; aim to achieve good status for all waterbodies; reverse significant and sustained upward trends of pollutants in groundwater; cessation of priority hazardous substances into surface waters; and reduce pollution of groundwater. For the England RBMPs, there is a considerable amount of 'low confidence' that ecological and groundwater good status by 2027 objectives will be met. In the Northern Ireland RBMP, it is stated that it is highly unlikely that all waterbodies will be at good status by 2027. This suggests that there is somewhat of a misconnection between the objectives set out for the RBMPs and the ability of the RBMPs to achieve them.

The RBMPs draw attention to the issues expected to hinder the achievement of the objectives which relate to issues or uncertainties surrounding the implementation of the measures. Under Regulation 34(4) of the WFD Regulations, an interim report on describing the progress in the implementation of the PoMs must be made publicly available.

For England, a progress report[178] is available which provides information on the number of actions taken and the delivery mechanisms. It does not inform on issues that may be hindering the implementation of the PoMs. The progress report could include details of planned actions where there may have been implementation issues to draw attention to such challenges and then focus efforts to improve this.

For Northern Ireland, information on the implementation of the measures from the second cycle is provided in the draft third cycle RBMP. This provides information on key measures and projects which are now underway. It also draws attention to some of the issues that initially slowed implementation of Key Target Measures such as uncertainties surrounding funding for INTERREG VA projects and agri-environment schemes.

7.1.3 Building Blocks 4 and 5: (4) Coherent strategy and policy and (5) Governance

Building blocks 4 and 5 have been considered under one heading as there are common themes around the recommendations under these building blocks; namely coherence, integration, evaluation, accountability and responsibility, and applying the environmental principles.

[177] EIP23. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf#page=97&zoom=100,0,0

[178] Available at: River basin management plans, updated 2022: progress report - GOV.UK (www.gov.uk)

The coherency between the RBMPs and implementation at the local level could be improved. This was raised during the consultation of the plans. For example, the importance of a catchment / partnership approach to implement PoMs was raised. It was also raised that there is a difficulty in searching for data at the local level.

The RBMPs list various plans and strategies that are informed by the RBMPs.[179] These are shown below:

- Spatial development strategies;
- Water company; WINEP, water resources management plans, drought plans, drainage and wastewater management plans, drought plans, and water resources regional plans;
- local nature recovery strategies;
- flood risk management plans;
- marine plans; and
- the chalk stream restoration strategy.

The WINEP is a series of actions set out by the EA regarding the water industry's contribution to delivering the wider national objectives for the natural environment as set out in the RBMPs and other statutory plans. The RBMPs set out the statutory environmental objectives (good ecological status or sotential and Protected Area objectives) which need to be delivered through the PoMs. The WINEP is the water industry's contribution to the PoMs. The WINEP is therefore closely tied to the RBMPs and actions that go into WINEP are influenced by the content of the RBMPs.[180] The RBMP PoMs contain several WINEP measures. The next WINEP programme will be for the period 2025 – 2030. This means there is a time lag between the update of the RBMP and the update of the WINEP. A recent consultation has taken place to obtain views on whether the WINEP cycle should be better aligned with the RBMP (and FRMP) planning cycles.[181] In the summary of the responses it describes the comments reflecting the need for strong links between plans, but a recognition of the complexity of aligning the strategic plans. This complexity related to the different timescales, scales, objectives and priorities of the various plans.[182]

An area of improvement could be to more closely align the cycles of statutory planning frameworks such as Water Resource Management Plans and Drainage and Wastewater Management Plans. This would allow more efficient / effective use of planning time from those who need to author, review and implement these plans and allow for a more joined up and coherent water planning policy. The FRMPs are on a cycle in line with the cycle of the RBMPs and coordination is described on the FRMP planning guidance. It is stated that FRMPs should make sure that proposed measures do not cause deterioration or harm in water bodies and do not prevent future improvement, and that they should identify opportunities to meet the WFD regulations.[183] A summary of various water management and environment plans and their cycles is shown in Table 7.1.

[179] https://www.gov.uk/government/publications/river-basin-management-plans-updated-2022-introduction/river-basin-management-plans-updated-2022-introduction#background

[180] https://consult.environment-agency.gov.uk/environment-and-business/review-of-the-winep/user_uploads/draft-water-industry-national-environment-programme-methodology.pdf

[181] Information available at: Review_of_the_water_industry_national_environment_programme__consultation_document.odt (live.com)

[182] Further information available at: Review of the Water Industry National Environment Programme (WINEP) - Environment Agency - Citizen Space (environment-agency.gov.uk)

[183] https://www.gov.uk/guidance/flood-risk-management-plans-frmps-how-to-prepare-them

Table 7.1 Water management plans and their cycles

Plan	Cycle length (years)*	Current cycle	Cycle number
River Basin Management Plan (RBMP)	6	2021 -2027	3rd
Water Resources Management Plan (WRMP)	5	2019 - 2023	3rd
Flood Risk Management Plan (FRMP)	6	2021 - 2027	2nd
Drainage and Wastewater Management Plan (DWMP)	5	2023 - 2027	1st
Water Asset Management Plan (AMP)	5	2020 - 2025	7th
Drought Plan	5	2022 - 2026	6th (according to Anglian Water 2022 drought plan)
Nitrate Vulnerable Zones (NVZ)	4	2021 - 2024	2nd (based on earliest data on .gov.uk website being from 2017).
Nutrient Action Programme (NAP) (Northern Ireland)	4	2019 – 2022	1st (but replaces the previous Nitrates Action Programme 2015-2018 and incorporates the previous Phosphorus (Use in Agriculture) Regulations (NI) 2014).
Environmental Improvement Plan (EIP23)	5	2023 – 2028	1st (but updates the 25-Year Environment Plan which was published in 2018).
Draft Northern Ireland Environment Strategy	5	Not finalised yet. The Strategy will become NI's first EIP when the strategy is published.	1st

* Note: there are differences in how the various plans state the cycle length from the cycle years.

7.1.4 Building block 6: Monitoring

7.1.4.1 Approach to monitoring

The PoMs are accompanied by Topic Action Plans, which are a summary of strategic actions designed to protect and enhance the water environment in key priority areas. Monitoring is identified as one of the key priority areas. Monitoring is necessary to provide evidence relating to the current state of the water environment and for tracking improvement and deterioration. It does, however, come at a significant cost.

The monitoring activity that informs river basin management planning is partly funded by government and in recent years this funding has reduced.[184] It is not stated in the Topic Action Plan why the funding has reduced or by how much. Monitoring was also a key issue in the public consultation phase of the plans for England, with requests including more funding for monitoring and a wider range of sources for monitoring.

Following the consultation phase, the EA agreed that monitoring and data collection should use a wider range of sources, including citizen science. This could provide an opportunity to increase monitoring data, but appropriate data quality checks would need to be in place. The Topic Action Plan states that citizen science[185] programmes will be implemented as a short-term action. Over the long term, the aim is to modernise the approach to monitoring, using innovative tools and techniques and unite learning and recommendations from ongoing research and development programmes.[186]

7.1.4.2 Monitoring of smaller units

Under Schedule 1 of the WFD regulations, a surface waterbody is defined as a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water. Though a waterbody is often shown as a line or a polygon on a map the WFD applies to all elements within the catchment shown. The unit of assessment is the catchment, not a discrete stretch of river, though monitoring and assessment is more often focused along the main river stretches to give a picture of the primary condition of the waterbody.

In WFD terms waterbodies in England and Northern Ireland are fairly small in area (compared to those found in other European countries). Nonetheless it is possible to have significant differences in state within any one waterbody, due to the location of a specific pressure (such as a barrier on a tributary of the main stretch). This is not a reason to reduce waterbody size further, but an acknowledgement that sometimes there can be a need to work at a different scale. This can often be picked up through work on improving the condition of designated sites (SSSI or similar).

There are some waterbodies that are considered 'small waterbodies' and are too small to be formally identified as a surface waterbody, these are generally small freshwater catchments which flow directly to the sea. Small waterbodies are still protected by law from pollution, modification and abstraction and can still be improved where local actions and assessments deem it to be a priority.[187]

Where these issues occur the monitoring network could be expanded to cover it on a temporary or permanent basis.

7.1.4.3 Reporting of monitoring

Regarding the reporting of data, excel files for classification, challenges and objectives can be downloaded. These present a large amount of data which is a useful source of information for seeing results at the waterbody level across cycles. However, to make this data more easily understandable and accessible to a general reader, these could include an accompanying information sheet to detail what data is being presented and explain what different columns and data points mean.

[184] https://www.gov.uk/guidance/river-basin-management-plans-updated-2022-summary-programmes-of-measures/5-topic-action-plans (Section 5.1.2 Monitoring)

[185] Though citizen science is an excellent initiative it is not a replacement for technical monitoring and sampling programmes, carried out to the corrected standards and by certified practitioners. It should be used as an opportunity to augment the regulated monitoring network, not to further reduce it.

[186] https://www.gov.uk/guidance/river-basin-management-plans-updated-2022-summary-programmes-of-measures/5-topic-action-plans

[187] https://www.gov.uk/guidance/river-basin-planning-process-overview/3-defining-and-describing-the-water-environment

8 Summary

8.1 Introduction

This section consolidates the key findings of the review. A summary is presented of the targeted questions that were used to capture information from the RBMPs and an overview of the conclusions that have been drawn. This is presented in Table 8.1 for England and in Table 8.2 for Northern Ireland.

8.2 Summary of review of RBMPs

8.2.1 England

Table 8.1 Summary of the review of the RBMPs for England

Question	Summary of response
Are the plans robust and appropriate?	Each RBMP is comprised of webpages providing narratives on various aspects of the plans, the catchment data explorer, the map explorer and downloadable Excel data files. The narratives of the plans are the same across RBDs and information specific to each RBD is presented in the catchment data explorer and in the downloadable Excel files. In the narratives, the same text is used across RBDs making the plans look more like a national strategy rather than plans tailored at the level of the RBD. There are some difficulties in navigating the various links that make up the plans. A more detailed contents page would help in the navigation of the plans. At the level of the waterbody, the RBMPs present detailed information on current status. The catchment data explorer presents the status data of the waterbody and of the various elements that are used in the classification assessment, The catchment data explorer also shows this data from the previous cycles, allowing the user to track progress at the waterbody and element level. The map explorer provides a good visual presentation of status change between the second and third cycle at the national, RBD and waterbody level. In the catchment data explorer, summary data tables are shown at the national level and RBD level for the third cycle but an area for improvement would be for the RBMPs to also show data summary tables at the RBD level for the first and second cycles.
Are the conclusions and assessments in the Plans realistic?	The plans have highlighted that there is a gap between the objectives set under the WFD Regulations and the ability of the plans to achieve them. This is reflected in the number of waterbodies where there is 'low confidence' that the 2027 good status objectives will be met. This raises a question over whether the plans can realistically deliver substantial improvements in the water environment between now and 2027. It does however, also provide some transparency, in that the RBMPs are not hiding the fact that there are expected issues regarding whether the measures will be implemented soon enough and exactly which waterbodies will benefit from them.

Question	Summary of response
What types of models and analyses are the Plans based on and are they appropriate?	Waterbody classification is based on classification principles set out by the European Union and UKTAG. Methodologies are included to assess risk to the water environment in nine key areas. These have not been updated since 2015. Further methodologies could be included such as the methods used to assess nutrient pollution from agriculture.
What level of environmental improvement would the 2021-2027 RBMPs deliver if their Programme of Measures (PoMs) are implemented?	If the PoMs are successful in delivering improvements that would allow the waterbodies with a 'good by 2027' status objective achieve this goal, then this would create a large increase in the number of waterbodies being at good status. For ecological status in surface water, this would be a 61% increase. However, as there are a large number of waterbodies where there is low confidence that they will achieve good status by 2027, and if by 2027, these waterbodies have not achieved good status, the increase in the number of waterbodies being at good status in this cycle will be just 2%. For quantitative status in groundwater, if the waterbodies with a 'good by 2027' status objective achieve this goal, this would result in a 17% increase in the number of groundwater bodies at good quantitative status. If the waterbodies where there is low confidence in achieving the good status objective do not achieve this goal, this would result in an 8% increase. For chemical status in groundwater, if the waterbodies with a 'good by 2027' status objective achieve this goal, this would result in a 36% increase in the number of groundwater bodies at good chemical status. If the waterbodies where there is low confidence in achieving the good status objective do not achieve this goal, this would result in an 7% increase.
How does this compare to what the WFD regulations require?	Regulation 27 of the WFD Regulations refers to Annex VII, Part A, paragraph 7 of the WFD (2000/60/EC) regarding the inclusion of the PoMs in the RBMPs. A PoMs should be provided which includes the ways in which the environmental objectives are to be achieved. The RBMPs include a summary PoMs Excel file, a potential additional PoMs Excel file and a series of Topic Action Plans providing a descriptive narrative on some measures. The summary PoMs include a column on the environmental objective that each measure contributes to. The information provided is useful but does not allow for an understanding of how actions are being implemented in response to pressures at a catchment or waterbody level.
How does it compare with the 25 year Environment Plan goals and proposed Environment Act Targets?	The summary PoMs include measures that are aligned with the aims of the EIP23 and the Environment Act targets. Such measures include those to reduce nutrient pollution and pollution of harmful metals from abandoned mines. The EIP23 has a target to restore 75% of water bodies to good ecological status as soon as is practicable, which is less stringent than the objective of the WFD Regulations for all waterbodies to be at good status at the end of the third RBMP cycle.
Are the supporting regulatory regimes, policies and guidance that are relied on to achieve the required improvements coherent and comprehensive or are there important gaps?	Several of the measures in the PoMs are delivered through a regulatory mechanism. Other mechanisms to deliver measures include advice schemes; education and targeted information; financial incentives; guidance and process; non-regulatory; partnerships; and shared learning and research. There is a large body of regulations which supports the implementation of the plans, and no significant gaps in the legislative framework were identified, however there were some challenges noted

Question	Summary of response
	including variation in targets, challenges in cohesive implementation and uncertainties on the outcomes that the multiple frameworks will deliver.
Insofar as delivery will or may not achieve the headline WFD targets, what derogations are being relied on?	The derogation used most often is Regulation 16 to extend the deadline to achieve the chemical status objective in surface water, under 'natural conditions' reasons due to the presence of uPBTs. Following this, the most used derogation was Regulation 17 to set a less stringent objective for ecological status in surface water, with disproportionate costs cited as the most used reason. Regulation 16 and 17 have also been used for quantitative and chemical status in groundwater.
Based on what approach to justification, and backed up by what evidence?	The derogations have been set following EU Common Implementation Strategy Guidance and the ministerial guidance for River Basin Planning. At the waterbody level, the RBMPs provide the overarching reason(s) for setting alternative objectives. For example, under the headline reason of 'technically infeasible', the data will include a sub-reason(s) such as 'practical technical constraints prevent implementation of the measure by an earlier deadline', 'no known technical solution is available and / or 'cause of adverse impact unknown'. To explore the reasons further, the RBMP provides a narrative for setting of the derogations. This narrative is not provided at a level specific to the waterbody, but aims to provide an overview of the circumstances in which the various reasons have been used to set derogations.
How do these derogations and their justifications compare with what is allowed in the WFD regulations?	The headline reasons for setting derogations are in line with those set out in the regulations. These relate to natural conditions, disproportionate costs and technical feasibility. Explanations for some sub-reasons such as 'good status prevented by A/HMWB designated use/Action to get biological element to good would have significant adverse impact on use' is not provided in the general narrative of the RBMPs, so it is not clear if this is in line with what is allowed in the WFD Regulations.
Is this being transparently and objectively set out in RBMPs to the appropriate level of detail?	The RBMP provides information on the derogation use at the waterbody level in an objectives dataset. However, it does not explicitly say that a Regulation 16 or 17 derogation has been applied, the user has to check multiple columns (objective status, year and the reason for an alternative objective) in the Excel file. An improvement would be to state whether Regulation 16 or 17 has been applied and then state the reason. The RBMPs could also include a summary table of the derogations used. Furthermore, the RBMPs do not provide a dataset that explicitly links the drivers and pressures that have resulted in the use of a derogation at the waterbody level.
Where a river basin sits across a national or international border does the approach taken allow the RBMP to effectively cover transboundary issues, and align with the approach taken in the neighbouring country or region?	England and Wales provide a similar mapping platform to show monitoring points within the region. In the Severn RBD, England and Wales coordinate on measures to control key challenges in the RBD. England, Wales and Scotland use comparable measures to address uPBT pollution.

8.2.2 Northern Ireland

Table 8.2 Summary of the review of the RBMPs for Northern Ireland

Question	Summary of response
Are the plans robust and appropriate?	The RBMP reviewed for Northern Ireland is in the draft stage at the time of this assessment. Therefore, it is expected that more information will be available when the plans are finalised. Key aspects that could not be reviewed were objectives and derogation data at the waterbody level and PoMs at the RBD-level. This also means that during the public consultation of the plans, consultees were not presented with detailed information on these aspects.
Are the conclusions and assessments in the Plans realistic?	The RBMP is upfront in that it states that is does not expect to meet the target of all waterbodies at good status by 2027. This is linked to an implementation gap of the measures. The RBMP also includes an approach where 'working targets' sit alongside the objectives of the WFD Regulations. This is to aid in the prioritisation of waterbodies for action to provide a system for allocating limited resources. The RBMP presents chemical status of surface waterbodies in three sub-groups to allow a meaningful comparison between the chemical status from the last cycle (when uPBTs were not included in the assessment).
What types of models and analyses are the Plans based on and are they appropriate?	The monitoring and assessments used the RBMP are based on guidelines developed by the WFD UKTAG. It was noted that catchment modelling research is still in its early stages compared to other parts of the UK and Ireland.
What level of environmental improvement would the 2021-2027 RBMPs deliver if their Programme of Measures (PoMs) are implemented?	The RBMP does not include objectives data at the waterbody level in the draft stage. Therefore, it is not known how many waterbodies are expected to reach good status by 2027. The RBMP is clear in that it does not expect to reach the target of all good by 2027. It has a working target of achieving 70% of waterbodies at good status by 2027. This would equate to a 38% increase in the percentage of waterbodies being at good status between the start and the end of the third cycle.
How does this compare to what the WFD regulations require?	It is not fully clear how the working target approach sits alongside the objectives of the WFD Regulations which aims for all waterbodies to be at good status. Some waterbodies will have a working target that is less than good. The data is not available to understand if these waterbodies will have a Regulation 17 (less stringent objective) applied.
How does it compare with the Environment Strategy for Northern Ireland goals and proposed Environment Act Targets?	The draft Environment Strategy for Northern Ireland references the RBMP and a series of measures to help achieve the 'Water Resources: Quality & Quantity' strategic environmental outcome. The measures referenced are agriculturally focused. The strategy has a goal of 'by 2027: 70% of waterbodies at good status', the working target in the RBMP states this same goal.
Are the supporting regulatory regimes, policies and guidance that are relied on to achieve the required improvements coherent and comprehensive or are there important gaps?	A number of the measures in the summary PoMs are delivered through regulatory mechanisms. The draft RBMP is however, limited in its detail, therefore it is more challenging to conclude on the adequacy of the regime in Northern Ireland. The RBMP acknowledges the difficulties in reaching targets and attributes this 'to a lack of shift towards system thinking' indicating that there could be better cohesion of the multiple regulatory regimes and frameworks to align goals and deliver towards them.

Question	Summary of response
Insofar as delivery will or may not achieve the headline WFD targets, what derogations are being relied on?	Derogation uses at the waterbody level is not yet available for the draft third RBMP. The draft RBMP states in the narrative that extended deadlines due to natural conditions will be taken into account. In the second RBMP Article 4(4) under the WFD 2000/60/EC was applied (Regulation 16 equivalent) for reasons of technical feasibility and natural conditions. One Article 4(7) (Regulation 19 equivalent) was used in the second RBMP.
Based on what approach to justification, and backed up by what evidence?	Limited information is provided in the third draft RBMP regarding the justification of derogations. In the second RBMP, the approach to setting derogations followed UKTAG guidance.
How do these derogations and their justifications compare with what is allowed in the WFD regulations?	Detailed derogation data and justifications are not available for Northern Ireland's third cycle in the draft plan therefore a comparison with the WFD Regulations for this cycle could not be made. In the second RBMP the reasons used were due to natural conditions and technical feasibility which are in line with the reasons permitted under the WFD 2000/60/EC.
Is this being transparently and objectively set out in RBMPs to the appropriate level of detail?	The use of the derogations is not set out in the draft third RBMP. More information is expected once the plans have executive approval and are finalised. Derogation data from the second cycle RBMP shows that the headline reason (e.g. 'natural conditions' or 'technical feasibility' for a derogation use was shown at the waterbody level, but information on the sub-reason was not included.
Where a river basin sits across a national or international border does the approach taken allow the RBMP to effectively cover transboundary issues, and align with the approach taken in the neighbouring country or region?	Information is shared between Northern Ireland and the Republic of Ireland for assessment of waterbody status. There are cross-border initiatives and committees to help jointly deliver improvements to the water environment in the cross-border regions. These include the PEACE PLUS programme and the Border Region Operational Committee.

8.2.3 Summary of Lessons from WFD implementation

A summary of the lessons from implementation is set out in the Table below

Table 8.3 Summary of Lessons from WFD implementation

	Further detail
What has worked well?	• A nationally consistent planning process which looks at all waterbodies. • The one-out all out principle as a mechanism for driving action. • Public access to data on the water environment as a way to convey state and change. • The "no deterioration" principle and its integration into the permitting process. • Emphasising the importance of hydromorphology to overall river health. • Enhanced public debate around river health.

	Further detail
	• Co-operation across national borders using a common framework.
What particularly effective areas should be retained?	• A sound framework for addressing the conceptualisation of Driver-Pressure-Status-Impact-Response (DPSIR) at a waterbody level. • An integrated framework for all waterbody types (surface and groundwater). • A framework for the justification of objectives and a structured use of derogations. • The use of indicators which address environmental health. • Regular maintenance and updating of national consistent data (linked to the above).
What learning could have relevance to other policy areas?	• Thinking about how to implement actions based on the cause of the problem, not just which mitigate its impacts • Consistent indicators of progress across multiple planning periods. • The focus on local state and outcomes (rather than a purely strategic focus). Linked to this is the development of the Catchment Based Approach groups to drive local action. • Nationally consistent and regularly updated datasets. • Integration of planning with sectoral plans (e.g. water company planning)
Does the RBMP process provide an effective basis for protection?	• The WFD is a good framework. • Implementation has been challenging and it has not delivered on its original aims. This is not because the aims were unrealistic when they set in 2000 or that the WFD does not provide a good framework for the setting of assessment and measures, but that the challenge of implementing the actions, requiring complex multi sectoral actions has been too great for full compliance. In addition, the emergence of new chemical pollutants during the implementation period has made the scale of the task significantly harder. Future frameworks should look to address the core issue of the realisation of measures.
What could be changed about the RBMP process to improve it?	• Better certainty on funding streams – and clear conversations about what can be afforded and by when. • The administration of the production of the RBMPs could be streamlined, with potentially a longer period between the more formal plans and more frequent updates on action to allow more time to focus on action. • Taking more “uncertain” action rather than waiting for detailed investigations to ensure certainty. • Improving the links between drivers, pressures and measures, and more clarity in the local problems (and types of solutions). This needs to be balanced against the point above. • Additional targets and indicators which allow better transparency of progress and action, rather than just binary indicators around pass / fail of targets. • A more integrated planning and policy environment. Moving towards a “single voice” on targets and guidance. • Better integration of climate change adaptation and understanding of the environmental change which will need to be accommodated. Integration of this thinking into targets and measures.

8.2.4 Summary of opportunities to improvement delivery in the water environment.

Some key areas for improvement identified from the assessment are listed below:

- Improvements could be made in better establishing the DPSIR framework within the plans. England provides a dataset on the challenges at the waterbody level, but also states that there is uncertainty surrounding which waterbodies will benefit from measures and this lowers the confidence in achieving the objectives. An area for improvement is to increase efforts to link the response to address pressures at the waterbody level.
- Efforts could be made to address knowledge gaps that hinder the ability to deliver in the water environment. One such example is related to pollution from road run-off. In the RBMPs for England, it is acknowledges that there is inadequate data on the extent of the problem and there are difficulties in pin-pointing responsibility and focusing measures. This highlights the difficulty in addressing the problem when there is not a coherent DPSIR framework in place. This also highlights the importance of monitoring.
- Clearer alignment of targets would create a more coherent vision for water management. There are some differences in how the targets are articulated in the EIP23 and the draft Environment Strategy for Northern Ireland against the targets of the WFD Regulations.
- The RBMPs could provide more detail on the stagnation of status and the difficulties encountered in achieving the environmental objectives. RBMPs for both England and Northern Ireland are upfront about the lack of confidence in achieving the objectives for 2027. The RBMPs could provide more information on why there is a gap between the environmental objectives and the ability of the plans being able to meet them within the required timeframe. This could include an assessment of the challenges related to the implementation of measures.
- It was raised in the consultation of the plans (for England) that there could be better integration of RBMPs with other statutory plans.
- Opportunities could be explored to increase monitoring capability. For example, this could include widening the data collection sources, such as using citizen science data and in the long term, modernising the data collection methods. The plans (for England) addressed some issues around monitoring and a recent decrease in funding.

Appendix A
Summary of the regulations

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 can be found at https://www.legislation.gov.uk/uksi/2017/407/contents/2020-12-31

The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 can be found at https://www.legislation.gov.uk/nisr/2017/81/contents/made.

The Water Environment (Water Framework Directive) (Solway Tweed River Basin District) Regulations 2004 can be found at https://www.legislation.gov.uk/uksi/2004/99/contents.

The Water Environment (Water Framework Directive) (Northumbria River Basin District) Regulations 2003 can be found at https://www.legislation.gov.uk/uksi/2003/3245/contents.

A summary of the 2017 regulations for England and Northern Ireland is shown in the Tables below

Table A.1 Summary of 2017 Regulations for England and Wales

Part 1 Introduction 1.Citation, commencement, extent and application These Regulations are to be cited as the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017; they extend to England and Wales; and apply only to RBDs identified under regulation 4. 2.Interpretation Provides definitions for terms used in the regulations and abbreviations in full. 3.Duties on ministers and regulators Places a duty on the Secretary of State, the Welsh Ministers, the Agency and NRW to secure compliance with the requirements of the WFD, the EQSD and the GWD when exercising their 'relevant functions'.
Part 2 River basin districts and water bodies 4.Map of river basin districts States the river basin districts as being those set out in the official map published by the Environment Agency. 5.Characterisation of river basin districts An analysis of the characteristics and a review of the impact of human activity on the status of surface water and groundwater of each river basin district must be undertaken and periodically reviewed every six years. This must be included in the RBMP. 6.Classification of water bodies The status of waterbodies must be classified according to the Water Framework Directive. 7.Economic analysis of water use in river basin districts An economic analysis must be undertaken every six years in accordance with the economic analysis set out in the Water framework Directive.
Part 3 Protected areas 8.Bodies of water used for the abstraction of drinking water Drinking water protected areas must be established for waterbodies that are used for abstraction of water intended for human consumption and provide more than 10 m^3 of such water per day as an average or serve over 50 people. The Programme

of Measures must include measures to reduce deterioration in water quality in each drinking water protected area.

9.Designation of shellfish waters

Any area of coastal or transitional water may be designated as a shellfish protected area, however, it may not be included unless it is considered necessary or desirable in order to protect or develop economically significant shellfish production.

10.Register of protected areas

A register of protected areas must be kept up to date. Protected areas include:

- Drinking water protected areas
- Areas or waterbodies designated or otherwise identified as requiring special protection under any EU instrument providing for the protection of surface water and groundwater or for the conservation of habitats or species, for example:
  - Shellfish water protected areas
  - Recreational waters
  - Designated areas where the maintenance or improvement of water tatus is an important factor in the protection of species.

Part 4 Monitoring

11.Monitoring programmes

Monitoring programmes must be established and reviewed to have a comprehensive overview of water status. For surface water, this must include ecological status and potential, chemical status, and the volume and level or rate of flow to the extent relevant to ecological status and potential and chemical status. For groundwater, the monitoring must include chemical and quantitative status. For protected areas, the monitoring must include monitoring required by EU legislation under which the area is protected, monitoring for drinking water protected areas for those providing more than 100m³ per day of drinking water intended for human consumption; and for shellfish protected areas undertake an assessment of whether the objectives in regulation 13(4) have or will be achieved.

Part 5 Environmental objectives and programmes of measures

12.Procedure for setting environmental objectives and programmes of measures

The appropriate agency must set Environmental objectives (in accordance with regulation 13) and a programme of measures to achieve them (in accordance with regulation 20). This must take into account the economic analysis of water use. A consultation must be held on the proposed objectives and programme of measures with the general public and people likely to be interested in or affected by the appropriate agency's proposals. The appropriate authority will consider them and approve, approved with modifications or reject some or all of the proposals with reasons provided. The environmental objectives and Programme of Measures must be reviewed every six years. Any new or revised measures must be made operational within three years of that updating.

13.The environmental objectives

The environmental objectives are as follows:

- For surface water – prevent deterioration of status, protect, enhance and restore with the aim of achieving good ecological status, ecological potential and chemical status by 2021. Reduce pollution from priority substances and cease or phase out releases of priority hazardous substances.
- For shellfish water protected areas – objectives must aim to improve or protect shellfish water protected areas in order to support shellfish.
- For groundwater – prevent deterioration of status, prevent or limit pollutions into groundwater, protect, restore and enhance groundwater with the aim of achieving good chemical and quantitative status by 2021.

- Reverse significant upward trends in the concentration of pollutants resulting from the impact of human activity.
- For protected areas (other than water shellfish protected areas), the objective is to achieve compliance with the standards or objectives required **of** the EU instrument under which the area is protected.

If two or more objectives within the above regulations apply to the same waterbody, the most stringent objective applies.

14. Environmental objectives: application of regulations 15 to 19

This sets out that regulations 15 to 19 must be applied in a way to ensure they do not impact the achievement of environmental objectives for another waterbody in the same river basin district, are not inconsistent with other retained EU law and ensure the same level of protection for waterbodies as the EU instruments repealed by Article 22 of the WFD.

15. Artificial or heavily modified water bodies

A waterbody may be designated as heavily modified or artificial if the changes necessary to achieve good ecological status would have significant adverse effects on the wider environment; navigation or recreation; water storage; water regulation, flood protection, land drainage; or sustainable human development activities and the beneficial objectives served by the artificial or modified characteristics of the water body cannot, for reasons of technical feasibility or disproportionate cost, reasonably be achieved by other means which are a significantly better environmental option. Designations for artificial or heavily modified water bodies must be included in the River Basin Management Plan.

16. Extended deadlines for environmental objectives (derogation)

The deadline to achieve the environmental objectives may be extended under the following conditions:

- No further status deterioration occurs

And for at least one of the following reasons:

- The necessary improvements can only be achieved over an extended timeline due to reasons of technical feasibility
- Completing the improvements within the timescale would be disproportionately expensive
- Natural conditions do not allow the timely improvement of status

For extensions beyond the year 2027, the reason must be due to natural conditions (except in relation to certain priority substances).

The RBMP must set out the reason for the extended deadline, a summary of measures applied to bring the waterbody closer to the required status, and reasons for any significant delay in implementing the measures. The following RBMP must include a review of these measures.

17. Setting less stringent environmental objectives (derogation)

Less stringent environmental objectives can be set if the waterbody is so affected by human activity or natural conditions, the achievement of the environmental objectives set would be infeasible or disproportionately expensive. The following conditions must also apply: the environmental and socio-economic needs served by such human activity

cannot be achieved by other means which are a significantly better environmental option not entailing disproportionate costs; for surface water, the highest ecological and chemical status possible is achieved; for groundwater, the least possible changes to good groundwater status occur; and no further deterioration occurs.

18. Natural causes or force majeure (derogation)

A temporary deterioration in waterbody status due to the following: circumstances of natural cause or force majeure, circumstances due to accidents that could not have been reasonably foreseen.

19. Modifications to physical characteristics of water bodies

Failure due to achieve good groundwater status, good ecological status or potential due to the result of new modifications to surface water or alterations to groundwater level if the failure is the result of new sustainable development activities, practical steps are in place to mitigate adverse effects; and a significantly better option cannot be achieved due to technical feasibility or disproportionate costs.

20. Content of programmes of measures

The Programme of Measures must include basic measures, and where necessary supplementary measures. The basic measures are a series of measures to promote the achievement of the environmental objectives; protect drinking water protected areas; control abstraction; control artificial recharge of groundwater; control point and diffuse pollution; measures to address any other significant adverse impacts on water; prohibit direct discharges of pollutants in groundwater (with some exceptions); measures to eliminate pollution of priority substances; and measures to prevent significant losses of pollutants from technical installations, and prevent or reduce the impact of accidental pollution incidents. Basic measures may include detection and warning systems and appropriate measures to reduce the risk to aquatic ecosystems from accidents.

21. Charges for water services

Water pricing policies must provide adequate incentives to use water resources efficiently and an adequate contribution by industry, households and agriculture, and such other sectors appropriate to recover the costs of water services. The appropriate authority must take account of environmental and resource costs and the polluter pays principle and regard the social, environmental and economic effects of the cost recovery taking into account geographical and climatic conditions.

22. Further programmes of measures in relation to certain priority substances

A further Programme of Measures must be produced to address the issues caused by certain priority substances with the purpose of achieving good chemical water status by 2027 and preventing chemical status deterioration.

23. Action in relation to plant protection and biocidal products

Omitted (31.12.2020)

24. Implementation of programmes of measures

The implementation of the Programme of Measures must not lead to increased pollution of marine waters or surface waters. This does not apply if compliance with these would result in increased pollution of the environment as a whole.

25. Action where environmental objectives are unlikely to be achieved

If environmental objectives are unlikely to be achieved, causes of the possible failure must be investigated; permits and authorisations must be reviewed and adjusted; monitoring programmes must be reviewed and adjusted; necessary additional measures to achieve objectives must be included in the Programme of Measures.

Part 6 River basin management plans

26. Application of this Part

27. River basin management plans: content

This sets out the provisions of the WFD, GWD and EQSD that are to be included in the RBMP.

28. Review of river basin management plans

RBMPs must be reviewed and updated and submitted to the appropriate authority.

29. River basin management plans: public participation

Sets out the public participation associated with the RBMPs.

This includes: consultation measures; a summary of the significant water management matters; publication of statement, summary or draft updated plan; and publication of notice. Opportunities must be provided for participation with public and organisations including: the appropriate authority; Water Services

Regulation Authority; local, planning, and National Park authorities in the RBD; Food Standard Agency where shellfish water protected areas are present I the RBD; harbour authorities; navigation authorities; water and sewerage undertakers; inshore fisheries and conservation authorities; other persons the appropriate agency thinks fit; and other persons the appropriate authority may direct. Representations must be taken into account relating to a statement, summary or draft updated plan.

30. River basin management plans: submission for approval
    Submitted plans must be made accessible to the public free of charge. A statement must be provided on the public participation outcome and a summary of the representations referred to.
31. River basin management plans: approval
    The appropriate authority will consider the updated plan and will then either approve it in whole, approve it in part, approve it with modifications, or reject it. Actions are specified following an approved or rejected plan.
32. Supplementary plans
    Supplementary plans may be prepared for example for a particular description of body of water; a particular catchment or geographical area; a particular matter relating to, or aspect of, the water environment; a particular description of user of water resources. Consultation also applied to these.
33. River basin management plans: duties on public bodies
    Public bodies must in exercising their functions so far as affecting a river basin district, have regard to the RBMP and supplementary plans.

Part 7 General

34. Publication of information
    Information must be publicly accessible relating to: characterisation of river basin districts; maps of waterbodies; register of protected areas; results of monitoring programmes; environmental objectives and Programme of Measures; supplementary plans; and economic analysis of water use. An approval notice must be published. Within three years of an updated RBMP, an interim report on the implementation of each planned Programme of Measures.
35. Provision of information and assistance
    Public bodies must provide information to the appropriate agency that has been reasonably sought in connection with the function of these regulations. Information and assistance in connection with the control of pollution under the Water Resources Act, has effect as if functions under these Regulations were functions under the water pollution provisions of that Act.
36. Directions
    Summarises applications of relevant sections of the Environment Act 1995, Articles under Natural Resources Body for Wales (Establishment) Order 2012. The appropriate authority may give guidance on the practical application of these regulations and the WFD.
37. Revocation
    2003 Regulations revoked.
38. Transitional provision
    Anything done under the 2003 Regulations, and has not been superseded by the time of the 2017 Regulations, continues to have effect and is taken to have been done under the 2017 Regulations. Examples of what this applies to are included.
39. Consequential amendments
    The consequential amendments in Schedule 4 have effect.

Table A.2 Summary of the 2017 regulations for Northern Ireland

Part 1 Introduction 1.Citation, commencement and application May be cited as the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 and shall come into operation on 22nd May 2017; and shall apply only in relation to river basin districts identified in accordance with regulation 4(1).2. 2. Interpretation Provides definitions for terms used in the regulations and abbreviations in full. 3.Duties on departments Places a duty on the Department and the Department for Infrastructure to secure compliance with the requirements of the WFD, the EQSD and the GWD when exercising their 'relevant functions'.
Part 2 River basin districts and water bodies 4. River basin district and international river basin districts States the river basin districts as being those set out in the official map produced and published by the Department. 5. Characterisation of river basin district and international river basin districts An analysis of the characteristics and a review of the impact of human activity on the status of surface water and groundwater of each river basin districts must be undertaken and periodically reviewed every six years. This must be included in the RBMP. 6.Classification of water bodies The status of waterbodies must be classified according to the Water Framework Directive. 7.Economic analysis of water use in river basin districts and international river basin districts An economic analysis must be undertaken every six years in accordance with the economic analysis set out in the Water framework Directive.
Part 3 Protected areas 8.Bodies of water used for the abstraction of drinking water Drinking water protected areas must be established for waterbodies that are used for abstraction of water intended for human consumption and provide more than 10 m^3 of such water per day as an average or serve over 50 people. The Programme of Measures must include measures to reduce deterioration in water quality in each drinking water protected area. 9.Designation of shellfish waters Any area of coastal or transitional water may be designated as a shellfish protected area, however, it may not be included unless it is considered necessary or desirable in order to protect or develop economically significant shellfish production. 10.Register of protected areas A register of protected areas must be kept up to date. Protected areas include: • Drinking water protected areas • Areas or waterbodies designated or otherwise identified as requiring special protection under any EU instrument providing for the protection of surface water and groundwater or for the conservation of habitats or species, for example: ○ Shellfish water protected areas ○ Recreational waters ○ Designated areas where the maintenance or improvement of water tatus is an important factor in the protection of species.

Part 4 Monitoring

11.Monitoring programmes

Monitoring programmes must be established and reviewed to have a comprehensive overview of water status. For surface water, this must include ecological status and potential, chemical status, and the volume and level or rate of flow to the extent relevant to ecological status and potential and chemical status. For groundwater, the monitoring must include chemical and quantitative status. For protected areas, the monitoring must include monitoring required by EU legislation under which the area is protected, monitoring for drinking water protected areas for those providing more than 100m³ per day of drinking water intended for human consumption; and for shellfish protected areas undertake an assessment of whether the objectives in regulation 13(4) have or will be achieved.

Part 5 Environmental objectives and programmes of measures

12.Procedure for setting environmental objectives and programmes of measures

The Department must set Environmental objectives (in accordance with regulation 13) and a programme of measures to achieve them (in accordance with regulation 20). This must take into account the economic analysis of water use. A consultation must be held on the proposed objectives and programme of measures with the general public and people likely to be interested in or affected by the appropriate agency's proposals. The Department must ensure that the environmental objectives and Programme of Measures must be reviewed every six years. Any new or revised measures must be made operational within three years of that updating.

13.The environmental objectives

The environmental objectives are as follows:

- For surface water – prevent deterioration of status, protect, enhance and restore with the aim of achieving good ecological status, ecological potential and chemical status by 2021. Reduce pollution from priority substances and cease or phase out releases of priority hazardous substances.
- For shellfish water protected areas – objectives must aim to improve or protect shellfish water protected areas in order to support shellfish.
- Four groundwater – prevent deterioration of status, prevent or limit pollutions into groundwater, protect, restore and enhance groundwater with the aim of achieving good chemical and quantitative status by 2021.
- Reverse significant upward trends in the concentration of pollutants resulting from the impact of human activity.
- For protected areas (other than water shellfish protected areas), the objective is to achieve compliance with the standards or objectives required **of** the EU instrument under which the area is protected.

If two or more objectives within the above regulations apply to the same waterbody, the most stringent objective applies.

14.Environmental objectives: application of regulations 15 to 19

This sets out that regulations 15 to 19 must be applied in a way to ensure they do not impact the achievement of environmental objectives for another waterbody in the same river basin district, are not inconsistent with other retained EU law and ensure the same level of protection for waterbodies as the EU instruments repealed by Article 22 of the WFD.

15. Designation of bodies of surface water as artificial or heavily modified bodies of surface water

A waterbody may be designated as heavily modified or artificial if the changes necessary to achieve good ecological status would have significant adverse effects on the wider environment; navigation or recreation; water storage; water regulation, flood protection, land drainage; or sustainable human development

activities and the beneficial objectives served by the artificial or modified characteristics of the water body cannot, for reasons of technical feasibility or disproportionate cost, reasonably be achieved by other means which are a significantly better environmental option. Designations for artificial or heavily modified water bodies must be included in the River Basin Management Plan.

16. Extended deadlines for environmental objectives

The deadline to achieve the environmental objectives may be extended under the following conditions:

- No further status deterioration occurs

And for at least one of the following reasons:

- The necessary improvements can only be achieved over an extended timeline due to reasons of technical feasibility
- Completing the improvements within the timescale would be disproportionately expensive
- Natural conditions do not allow the timely improvement of status

For extensions beyond the year 2027, the reason must be due to natural conditions (except in relation to certain priority substances).

The RBMP must set out the reason for the extended deadline, a summary of measures applied to bring the waterbody closer to the required status, and reasons for any significant delay in implementing the measures. The following RBMP must include a review of these measures.

17. Setting less stringent objectives

Less stringent environmental objectives can be set if the waterbody is so affected by human activity or natural conditions, the achievement of the environmental objectives set would be infeasible or disproportionately expensive. The following conditions must also apply: the environmental and socio-economic needs served by such human activity cannot be achieved by other means which are a significantly better environmental option not entailing disproportionate costs; for surface water, the highest ecological and chemical status possible is achieved; for groundwater, the least possible changes to good groundwater status occur; and no further deterioration occurs.

18. Natural causes or force majeure

A temporary deterioration in waterbody status due to the following: circumstances of natural cause or force majeure, circumstances due to accidents that could not have been reasonably foreseen.

19. Modifications to physical characteristics of water bodies

Failure due to achieve good groundwater status, good ecological status or potential due to the result of new modifications to surface water or alterations to groundwater level if the failure is the result of new sustainable development activities, practical steps are in place to mitigate adverse effects; and a significantly better option cannot be achieved due to technical feasibility or disproportionate costs.

20. Content of programmes of measures

The Programme of Measures must include basic measures, and where necessary supplementary measures. The basic measures are a series of measures to promote the achievement of the environmental objectives; protect drinking water protected areas; control abstraction; control artificial recharge of groundwater; control point and diffuse pollution; measures to address any other significant adverse impacts on water; prohibit direct discharges of pollutants in groundwater (with some exceptions); measures to eliminate pollution of priority substances; and measures to prevent significant losses of pollutants from technical installations, and prevent or reduce the impact of accidental pollution incidents. Basic measures may include detection and warning systems and appropriate measures to reduce the risk to aquatic ecosystems from accidents.

21. Implementation of programme of measures

The implementation of the Programme of Measures must not lead to increased pollution of marine waters or surface waters. This does not apply if compliance with these would result in increased pollution of the environment as a whole.

22. Action where environmental objectives unlikely to be achieved

Where monitoring or other data indicates that the environmental objectives set for a water body are unlikely to be achieved the Department must ensure the causes of the possible failure are investigated; any relevant permits and authorisations are examined and reviewed as appropriate; such additional measures are necessary to achieve the objectives (subject to application of regulations 15-19) are included in the programme of measures

Part 6 River basin management plans

26.Application of this Part

This part in relation to the most recent version of each RBMP prepared and updated in accordance with the 2003 Regulations; and any subsequent version of such a plan updated in accordance with regulation 26.

27.River basin management plans: content

This sets out the provisions of the WFD, GWD and EQSD that are to be included in the RBMP.

28.Review of river basin management plans

RBMPs must be reviewed and updated and submitted to the Department.

29.River basin management plans: public participation

Sets out the public participation associated with the RBMPs.

This includes: consultation measures; a summary of the significant water management matters; publication of statement, summary or draft updated plan; and publication of notice. Opportunities must be provided for participation with public and organisations including: water undertakers, the Utility Regulator for Northern Ireland, the Council for Nature Conservation and the Countryside, each district council any part of whose area is within a RBD, harbour authorities, the Department for Infrastructure, the Food Standards Agency in Northern Ireland where shellfish water protected areas are present in the RBD.

The Department must take into account any representations relating to the statement, summary or draft updated plan which are received by the Department within a period of six months beginning with the date of publication of the document or such longer period as the Department may allow.

30. River basin management plans: publication

Submitted plans must be made accessible to the public free of charge. A statement must be provided on the public participation outcome and a summary of the representations referred to.

31.Supplementary plans

Supplementary plans may be prepared for example for a particular description of body of water; a particular catchment or geographical area; a particular matter relating to, or aspect of, the water environment; a particular description of user of water resources. Consultation also applied to these.

32.River basin management plans: duties on public bodies

The Department and each public body must, in exercising their functions so far as affecting the RBDs have regard to the river basin management plan for that district; and any supplementary plan published in accordance with regulation 29.

Part 7 General

31.Publication of information

Information must be publicly accessible relating to: characterisation of river basin districts; maps of waterbodies; register of protected areas; results of monitoring programmes; environmental objectives and Programme of Measures; supplementary plans; and economic analysis of water use. An approval notice

must be published. Within three years of an updated RBMP, an interim report on the implementation of each planned Programme of Measures.

32.Provision of information and assistance by public bodies

A public body must, on being requested to do so by the Department, provide the Department with such information in its possession or under its control and such assistance as the Department may reasonably seek in connection with the exercise by the Department of any of its functions in accordance with these Regulations.

33. Guidance to public bodies

The Department may give guidance to any public body on the implementation of the Directive, and the body to whom guidance is issued must have regard to it.

34.Revocations

The 2003 Regulations are revoked.

35. The Surface Waters (Shellfish) (Classification) Regulations (Northern Ireland) 1997 are...

The Surface Waters (Shellfish) (Classification) Regulations (Northern Ireland) 1997 are revoked(1).

36. The Surface Waters (Shellfish) (Classification) (Amendment) Regulations (Northern Ireland) 2009...

The Surface Waters (Shellfish) (Classification) (Amendment) Regulations (Northern Ireland) 2009 are revoked(1).

37.Transitional provision

Anything done under the 2003 Regulations, and has not been superseded by the time of the 2017 Regulations, continues to have effect and is taken to have been done under the 2017 Regulations. Examples of what this applies to are included.

39.Consequential amendments

The consequential amendments in Schedule 4 have effect.

Appendix B
Table of contents for the RBMPs

Table B1 Table of contents for the English RBMPs (example used is South East RBMP)[188]

Table of Contents

[188] South East river basin district river basin management plan: updated 2022 - GOV.UK (www.gov.uk)

Table of Contents
16. South East RBD data explorer (RBD specific)
17. South East RBD map explorer (RBD specific)
18. River basin planning process overview 19. Introduction 20. River Basin management plans 21. Defining and describing the water environment 22. Updating objectives
23. Progress report 24. Introduction 25. Changes in the state of the water environment since 2015 26. Compliance with the environmental objectives in the 2015 plan 27. Measures implemented since 2015 28. Changes in evidence since 2015 29. Changes to protected areas and water bodies since 2015 30. Changes to legislative, policy and economic landscapes since 2015
31. South East river basin management plan, updated 2022: habitats regulations assessment report (RBD specific)

Table B.2 Table of contents for the second Northern Irish RBMP[189]

Table of Contents	Summary
Executive Summary	• An overview of the North Eastern River Basin District Plan, progress in terms of water body status and updates since the first publication and subsequent consultation.
1. Section 1 Introduction 1.1. The update to the River Basin Management Plan 1.2. Supporting plans and programmes 1.3. Assessing the impacts of the Plan	• An explanation of the background to the plan and what the plan contains. • An explanation of the wider context of other strategies and initiatives such as the Long Term Water Strategy. • An explanation of changes that have occurred over time such as new measures and requirements.
2. Section 2 Economics 2.1. Funding and cost of the Programmes of Measures	• Outlines funding and affordability issues and highlights that key pressures will be prioritised, and that some measures may not be taken forward as a result. A cost benefit of 4 options moving forward are detailed.

[189] North eastern river basin management plan 2015 to 2021 | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

Table of Contents	Summary
2.2. The economic value of our water environment 2.3. Cost recovery of water services and water efficiencies	• Outlines the sectors of strategic importance to Northern Ireland that have close links to the water environment such as agriculture and the water industry. • Explains the different regulatory and financial structure such as water pricing for agriculture and industry and households.
3. Section 3 About the North Eastern River Basin District	• An explanation of the context and important attributes of the river basin.
4. Section 4 Water Bodies in the North Eastern River Basin District 4.1. Surface water bodies 4.2. Groundwater bodies 4.3. Protected areas	• This section includes tables that illustrate the number of surface water bodies and HMWBs and the type and location of protected areas.
5. Section 5 Assessing the State of Our Water Environment 5.1. Changes to classifying the state of our water bodies 5.2. Current state of our water bodies: 2015 classification 5.3. Progress to date against our current objectives and reasons for not meeting good status	• Provides information about methods of classifying water bodies and any changes/updates to assessment methods. • Current state of surface water bodies, rivers, lakes, marine and groundwater (noting 20% of surface water bodies are not achieving good status due to the one out all out rule). • Provides information on significant issues and pressures, timescale for recovery and deterioration.
6. Section 6 What we plan to achieve by 2021 and beyond 6.1. Our starting point 6.2. Exemptions to the environmental objectives 6.3. Protected area objectives 6.4. How we set our objectives 6.5. What we plan to achieve by 2021 and beyond	• Sets out the environmental objectives and how Northern Ireland plan to achieve the set water status for surface water bodies and groundwaters. • Includes maps and tables illustrating the objectives over time for the river basin.
7. Section 7	• This section outlines the review of the draft programme of measures published in 2014 and summarises the failing elements that have resulted

Table of Contents	Summary
Measures we will use to achieve environmental objectives Significant Water Management Issues Programme of Measures 7.1. Agriculture (Diffuse and point source pollution) 7.2. Sewage & industry (Diffuse and point source pollution) 7.3. Forestry (Diffuse and point source pollution) 7.4. Sediment (Diffuse and point source pollution) 7.5. Urban Catchment (Diffuse and point source pollution) 7.6. Quarries & mines, including oil and gas exploration (Diffuse and point source pollution) 7.7. Waste & contaminated land (Diffuse and point source pollution) 7.8. Chemicals (Diffuse and point source pollution) 7.9. Abstraction & flow regulation (Water quantity & flow) 7.10. The physical condition of the water environment (Morphology) 7.11. All sectors (Invasive alien species) 7.12. Fisheries (All pressures)	in water bodies in the district not reaching good status. • The following sections then go through the key sectors and the type of pressures they face.
8. Section 8 Climate Change in Northern Ireland 8.1. Our Changing Climate 8.2. Measures to address the implications of climate change on the water environment	• This section outlines the climate projections for Northern Ireland in 2050 and a summary of the main pressures and environmental implications. • Table 18 in this section lists some of the planned measures to address the relevant impacts of climate change on the water environment as identified in the NI CCRA.
9. Section 9 Working together to implement the Plan 9.1. Partnership working 9.2. Local Management Areas	• This section outlines the initiatives that exist to encourage partnership working. • For the second cycle River Basin Management Plans a new approach to operational delivery has been implemented. All the water related functions carried out by NIEA have been aligned on a RBD

Table of Contents	Summary
9.3. A new Operational Delivery Framework	basis, including regulation, enforcement, compliance, inspections, pollution response and catchment management.
Appendix Key Documents to Support the River Basin Plans 2015 – 2021 Available on the Website	• Outlines the key supporting documents that are available. • Freshwater (Rivers and Lakes) (4), Marine (Transitional and Coastal) (4), Heavily Modified (4), Groundwater (12), Objectives (1), Programme of Measures (15), Assessing the Impact of the Plan (3), Economics (2), Others (3).

Appendix C
Further information on the response to the draft consultation

This appendix contains further information on the response to the draft consultation.

Section C.1 – England

C.1.1 Local and National measure suggestions in response to consultation Question 3

Local measure suggestions:

- Anglian RBD: strategic Fens and Lowlands policy review;
- Severn and Humber RBDs: collaborative working with partners to further engage with businesses and local communities to improve awareness and promote action that delivers multiple benefits;
- Humber RBD: aligning strategies and plans;
- Thames RBD: Anchor Sluice Refurbishment and Medway navigation fish passage project. Re-vitalising chalk rivers;
- South East RBD: Sussex Kelp Restoration Project – multi partner (Sussex Wildlife Trust led); and
- South West RBD: Catchment Monitoring Cooperative and citizen science.

National measure suggestions:

- A range of solutions for achieving good chemical status;
- Inclusion of research into microplastics in road run off;
- Highlighted that flood and coastal erosion risk management and maintenance work and local flood schemes were missing from the programmes of measures;
- Reservoir management strategies and High Speed 2 mitigation measures were missing;
- High level engagement programmes by water companies with farmers around drinking water protected area work could be included;
- Need more measures around educating people on the value of nature and nature-based solutions;
- Suggested assessments and litter monitoring carried out in the Marine Programme of Measures National Strategy should be included;
- Addition of a measure on groundwater infiltration into sewers;
- Proposed national strategy action plans for certain invasive non-native species such as mink and signal crayfish;
- Suggested that climate related changes in invasive non-native species risk could be better captured; and

- Suggested there are some uses of heavily modified water bodies missing.

C.1.2 Overview of the Environment Agencies summary of key responses by river basin district[190]

RBD	Summary of responses
Anglian	• Noted that Internal Drainage Board engineers are an untapped resource that have potential but are constrained by funding and prioritisation of more populated areas. • Missing some current challenges on diffuse pollution and abstraction.
Humber	• Asked for monitoring of the Warfe at regular intervals and more investment in monitoring. • Collaborative and advice led (rather than regulatory) measures for farmers and land managers were supported. • 'Good ecological status' is not good enough for some species such as the freshwater pearl mussel.
Northumbria	• The agriculture sector needs significant support to implement measures – collaborative rather than regulatory are considered the most valuable. • Restoration must be balanced with food production, especially in high quality lowland areas.
North West	• Supportive of taking future and emerging risks into account when producing updated RBMPs. • Suggested including United Utilities' compensatory measures in the River Ehen and St. Johns Beck where they are removing redundant assets. • Noted that measures in the draft RBMP do not appear to have any funded measures for the Alt and Crossens catchment which is a priority catchment for water resources. • There was concern and frustration raised from local experience of sewage overspilling onto farmland.
Severn	• There were concerns about nutrient pollution from intensive agricultural practices along the River Wye and tributaries and it was felt that this is not sufficiently addressed through diffuse pollution regulations and the Nutrient Management Plan for the Wye. • Wanted to see additional government funding for the Environment Agency and Natural Resources Wales to carry out inspections of all intensive poultry units and anaerobic digestors to ensure Manure Management Plans and Nutrient Runoff Mitigation Plans are approved and implemented within the required timescales. • Said that the Environment Agency needs to make it easier to develop water storage reservoirs as areas such as the Vale of Evesham and Stratford upon Avon currently have irrigation issues.

[190] Draft river basin management plans consultation: summary of responses - GOV.UK (www.gov.uk)

South East	• Offered to work with the Environment Agency to implement a range of measures, for example the Solent Plastics pollution hub offered to collaborate on the Preventing Plastic Pollution (PPP) project in the Solent catchment - education campaign targeting the fishing industry. • The sustainable abstraction reductions and all the options being assessed in the South East Regional Planning process to increase supply infrastructure are temporary solutions at best if high water consumption is not addressed.
South West	• Wanted measures around bathing water and shellfish water compliance to be included in the in the Programme of Measures. • Concerned that the sectoral measures outlined in the river basin plans do not directly address urban pollution such as road run off and misconnections and would like this to be addressed.
Thames	• It was noted that the rate of development and growth across Hertfordshire is currently in discord with creating a sustainable catchment. • Felt the Sustainable Abstraction Reductions and all the options being assessed in the South East Regional Planning process to increase supply infrastructure are temporary solutions at best if the roots of water consumption are not addressed. • Suggested that less water, that is more polluted, in an increasingly urbanised catchment due to (effectively unregulated) development, means that it is likely that the full ambitions of the RBMP and WFD will not be achieved. • Said HS2 enhancements are largely not included in the Programme of Measures and projects need to be captured across its route.

Appendix D
Risk Assessment methods

Table D1: Risk assessments published by the Environment Agency alongside the 2015 RBMPs for England

Pressure	Water category	Aim	Methodology	Limitations
Abstraction and flow	River lakes, estuaries	Assessment of the risk of not achieving status objectives and risk of deterioration from current status	The EA currently uses a national Water Resource GIS network model (WRGIS) to assess compliance of each river water body with the environmental flow indicator (EFI) defined at a low flow statistic Future forecast 2027 source pressure abstraction rates have been applied to estimate compliance with EFI at various flow statistics -This aims to provide the best estimate of what the Q95 flow compliance will be in 2027, this can be used as an indicator of risk to ecology Method has been based off the regulatory approach - Draft results from the assessment of risks has been through three phases of quality assurance (e.g. Environmental Agency experts and water companies) - Where local information has been provided the results have been amended	The risk at medium and high flows have not been considered Effects of pressures other than abstraction are not taking into account Heavily Modified Water Bodies (HMWB) and 'normal' water bodies are treated the same When a surplus over natural flow is forecast, a 'no risk' deterioration is assumed Assumed that EFI will remain static within the scenario's timeline Growth in public water supply abstraction was simulated up to 2027 - some of these published forecast values will now be out of date Assessment point is the downstream end of each water body, it's assumed that calculations at this point will represent conditions of the water body in question
	Groundwater	The impact of groundwater abstraction on the risk of not achieving status objectives and risk of deterioration from current status - Source pressure: the volume of water abstracted from surface water and groundwater - Exposure pressure: changes in groundwater availability relative to natural	**Groundwater Quantitative Assessment** - "Worst case" classification from the five chemical tests is reported as the overall chemical status - "Worst case" classification from the four quantitative tests is reported as the overall quantitative status - E.g. if any one test result is "poor" then the overall classification will be poor Four quantitative tests are used as part of the assessment: - Water balance test - Dependent surface test - Groundwater dependent ecosystems (GWDTE) test - Saline and other intrusions Methodology is based off the same approach used in the 1st RBMP (exception is the GWDTE which has a changed methodology) - Draft results from the assessment of risks has been through three phases of quality assurance (e.g. Environmental Agency experts and water companies) - Where local information has been provided the results have been amended	There is no trend analysis in groundwater quantitative classification and risk assessment (other than saline and other intrusions which is assessed within the chemical classification) No consistent methodology for assessing the impact of climate change on groundwater recharge The risk assessment does not take into account planned measures that would reduce the source pressure The risk at medium and high flows have not been considered Effects of pressures other than abstraction are not taking into account Assessment point is the downstream end of each water body, it's assumed that calculations at this point will represent conditions of the water body in question
Chemicals and metals	Rivers, coasts and estuaries	Risk assessment to determine the likelihood of river, transitional (estuaries) and coastal waters failing to achieve the Water Framework Directive objective of good status post 2015 due to designated chemicals	The EU and UK have devised acceptable environmental limits (Environmental Quality Standards EQSs) for these substances to enable their management in the environment. These limits are under regular review 3 categories of designated chemicals substances	Assumption for each species that the biological tools will detect any ecological impact of INNS There is associated uncertainty over the true ability of the biological tools used to detect INNS impacts Risk of deterioration covers all biological elements

			Method uses a combination of modelling, monitoring data and operational judgment: ken with the SAGIS model (Source Apportionment nation System) nd CIP ge from mining experts Recognised that data is variable in quality and quantity and so the certainty will vary with each chemical Noted in RA that monitoring undertaken in 2014 after the completion of the RA is not included in the assessment on confidence e used to improve assessment in poor and uncertain Other data used (e.g. imposex data in TRaC) is used with low confidence nts the best understanding of available data at the time	
Faecal indicator organisms (FIO)	Bathing Water and Shellfish Water Protected Areas	Risk of deterioration from faecal bacteria	1. Analysis of the current monitoring data and assessment of baseline level of compliance 2. The probability of each protected area being compliant in any one reporting year was calculated 3. Final outcome is to attribute each protected area to a risk class (e.g. high, medium, low and not risk of deterioration by 2030 and 2050 from a 2011 baseline The degree of confidence in the risk assessment was judged for each water based on the quality of evidence for baseline compliance, source apportionment, and effect of planned mitigation measures	Noted the National Risk Assessment is only a guide to numbers of waters that may be at risk of future deterioration from current class ojected changes in pressure from faecal bacteria It is recognised that this National Risk Assessment is not suitable for planning of actions at priority bathing and shellfish waters or for schemes for the PR14 National Environment Programme Phases 1 – 5 not detailed enough It is recommended that National Risk Assessment data Regions should apply their own knowledge to sense check regional /RBD results.
Groundwater – Chemical pressures	Groundwater	Assessment to consider the likelihood of not achieving the WFD objective of good status	**Groundwater chemical pressures** Based on five classification tests: ssessment sions ndent ecosystems (GWDTE) test ected areas vaters Weight of evidence approach, with monitoring data combined with expert knowledge The assessment methods are based on guidance published by the European Common Implementation Strategy working group (CIS 2010) reviewed this guidance and published its own UKTAG 2011, 2012) then been finalised for use in England and Wales by the cy Risk characterisation and classification statuses are reported as the worst result on a 'one out, all out' basis	Expected changes in activities and associated pressures are not taken into account
Invasive non-native species (INNS)	Rivers, Lakes, Estuaries and Coasts	Risk of deterioration from current status, due to invasive non-native species for rivers, lakes, estuaries and coastal water bodies. - Describes the risk posed by 30 high impact species (defined by UKTAG)	This was developed with input from experts from within the Environment Agency and the GB non native species secretariat - Local override methods to increase risk are included within the method Method has also been developed with peer reviewed evidence and readily available information sources Expert groups have assigned confidence based on available evidence	Assumed that for each species, the biological tools used in the methods will detect any ecological impact of INNS - However there is recognised uncertainty on the ability of the tools to detect INNS impacts Risk of deterioration covers all biological elements - Impacts were not determined at the individual element level Barriers to passage (e.g. removal and addition have not been considered) - But there is potential local override of risk in certain circumstances
Phosphorus from sewage treatment	Rivers	To identify waterbodies where increased loading from sewage works discharges is likely to	Risk categories defined as at risk, probably at risk, probably not at risk and not at risk	Noted that it is highly uncertain to know where growth was likely to occur Estimates of future changes will be at broad geographic scales, not appropriate for where specially impacts will be felt

works (STW)		cause a deterioration in status		
Physical modification	Rivers	Assess the risk to river water bodies from pressures that are likely to have an impact on river morphology Also includes methods to identify provisional Heavily Modified Water Bodies (pHMWBs) and provisional Artificial Water Bodies (pAWBs – drainage channels)	Criteria that is used to define pressures in this risk assessment are guided by UKTAG reports and available datasets Levels of pressures within water bodies are assessed Individual pressures are then given an appropriate risk score (High, Moderate, Low or No) A final morphological risk score is calculated based on the summation of results from each individual pressure assessment Confidence scores are also provided (High, Moderate and Low) based on quality of data and methods used Once risk scores and confidence are established, a combined UKTAG risk class is determined Noted that the process for identifying pHMWBs and pAWBs have no formal pedigree, but the method has developed from UKTAG morphology drafting group meetings and method developers	Noted that the link between pressure and the impact of that pressure on river morphology is not well understood - The thresholds used to define pressure is based off expert judgement alone - No quantitative analysis has been undertaken Currently this risk assessment does not: - Use morphology impact data to assess levels of risk from morphological alternations - Differentiate between different river types - Form explicit links between the extent of physical modification and consequent impacts to ecology All water bodies are assumed to have the same level of sensitivity to all pressures and no account is made to spatial links between upstream and downstream water bodies Thresholds used to define risk class are considered largely arbitrarily – it is recognised that more information about relationships between pressures and morphological impact are required before thresholds with greater certainty are established Difference in spatial scale between the water bodies and the data used to define pressures may influence the results - Scale differences are recognised to exist between the three Land Cover Map 2000 datasets and the urban dataset
Sanitary pollutants from STWs	Rivers	2021 deterioration risk from 2009 status due to sewage treatment works within permit growth	Increasing populations and associated house growth increases amount of sewage that needs to be treated Sewage discharges are controlled by permits (limits the volume and quality of effluent that can be discharged) Risk categories defined At Risk, Probably at risk, Not at risk Identification of sies where sewage discharge loads are expected to grow The certainty in the estimate of future growth was categorised according to UK Water Industry Research (UKWIR) guidance as Certain, Probable, Possible or Unlikely.	
Sediment	Rivers	Assessment of risk to river bodies from siltation and sediment delivery from a range of anthropogenic activities - Can establish if impacts are causing biological impact or decline in river biology - Indicate the most significant activities causing the impact		It is assumed that data used in the model are representative and that model predictions are representative of relative sediment pressure - Any poor correlation with observed data is at least partially due to inadequate observed data and a lack of representation of in-stream processes in our model An omission of data representing channel bank erosion and morphological alterations is a significant limitations to the assessment - This is due to their contribution to the ADAS model and frequency of occurrence in the Reasons for failure database respectively Mapping cycle 1 bodies to cycle 2 also adds a degree of uncertainty

Table D2: Methodology supporting documents provided by DEARA for the third RBMP

Assessment	Aim	Methodology	Limitations
Groundwater Classification		Groundwater quality assessed through collection of water samples from boreholes and springs -Monitoring frequency and what is monitored follows UKTAG guidance	

(consists of five tests, see below)		Monitoring from the Drinking Water Inspectorate (DWI) can also be used	
Surface water chemical test	Evaluates whether chemicals (e.g. phosphorus) contained in the groundwater baseflow contribute to the status failure of that surface water body.	For purposes of the classification method, only phosphorus was assessed This method is derived from the UKTAG guidance for chemical classification, updated for the second RBP cycle (UKTAG, 2012) Method uses surface water monitoring points rather than the combined result from a surface water body (due to monitoring points can be better attributed to contributing groundwater) UKTAG have developed new standards that are bespoke to each monitoring point (UKTAG 2013) Each station was monitored was analysed twice a year for phosphorus	
Drinking water protected area test (DWPT)	Determines whether significant portable sources are being seriously impacted by groundwater pollution Compromised of two basic elements 1) An assessment of whether existing untreated water quality exceeds a threshold 2) Whether there is a deterioration that could result in the need for new or additional purification treatment Monitoring data from the Drinking Water Inspectorate (DWI) can also be used as an additional evidence	All groundwater bodies in Northern Ireland are classified in 2020 - This has been done utilising monitoring data for the past 6 years (January 2014-December 2019) - Given "good" or "poor" status - Status is also divided into qualitative and quantitative status and the numbers of tests carried out In NI, all groundwater bodies are defined as drinking water protective areas, except one Chemical classification has been derived from UKTAG guidance, this was updated in the 2nd RBMP cycle The trend assessment software used includes forward projection capability to predict concentration levels for next RBMPs	
General chemistry test (GCT)	The aim of the General Quality test is used to assess if the impact of groundwater pollution is sufficiently widespread to compromise the use of the groundwater resource both currently and in future	Utilises data from the groundwater monitoring network - 6 years of data - Determines if the monitoring concentrations exceeds the relevant screening value to determine if the body is at "good" or "poor status" Method is derived from UKTAG guidance for chemical classification, updated for the 2nd RBMP cycle (UKTAG 2012) New threshold values for classification were introduced by UK Technical Advisory Group in 2012 [1] Threshold values for classification detailed in the Groundwater (Amendment) Regulations (Northern Ireland) 2014 [1]	
Saline intrusion test	This test assesses if abstraction(s) of groundwater is leading to the intrusion of poorer quality water into a water body 2 Considered both chemical and quantitative pressure	Used for the assessment is: - the scale of abstraction in relation to freshwater recharge - the analysis of chemical monitoring data from the groundwater abstractions The chemical monitoring is considered more reliable so greater emphasis is used in this Method is derived from UKTAG guidance for chemical classification, updated for the 2nd RBMP cycle (UKTAG 2012) Noted in NI due to the dominant fractured bedrock hydrogeology in NI that abstraction of groundwater is limited	
Groundwater Dependant Terrestrial Ecosystems (GWDTE) Test	To assess whether ecosystems that are dependent on groundwater are under pressure 3 GWDTEs are designated Special Areas of Conservation (SACs)	NIEA Natural Environment Division (NED) review all SAC sites and identify candidate GWDTE sites 4 A series of steps is undertaken to establish if there is an unfavourable assessment indicative of groundwater impact Threshold values determined by UKTAG 2012 An improvement to the method has been outlined 5 ecologists from NED considered all SAC sites based on their own field experience of undertaking condition assessment surveys 6 additional support provided from The Geological Survey of Northern Ireland (GSNI) Condition assessments is undertaken at each SAC site every six years A groundwater quality assessment is also done, noted nitrate is the only chemical parameter to be considered	
Water balance test		The method for water balance classification is derived from the UKTAG guidance for quantitative classification, updated for the second River Basin Planning (RBP) cycle (UKTAG, 2012) Abstracted volumes for each groundwater body are compared with the estimated recharge values for each groundwater body	Noted that estimating groundwater is complex 7 It is dependent upon various factors (including rainfall, soil thickness, evaporation etc.

Surface Water Quantitative Classification	Aim is to evaluate whether an abstraction or set of abstractions are likely to lead to a deterioration in status of a surface water body -Abstracting groundwater will reduce the volume of water that discharges into surface waters	Method used is derived from the UKTAG guidance for quantitative classification, updated for the second RBP cycle -Using LowFlows Enterprise, identify all surface bodies of less than "good" quantitative status -For those found above, identify the catchments where greater than 50% of the allowable abstraction can be attributed to groundwater	
Invasive alien species (IAS)	To assess the risk posed by IAS	Noted that Ireland is a separate Ecoregion (Ecoregion 17) from Great Britain (Ecoregion 18) 8 two separate lists of High Impact Alien Species for each region have been produced 9 These are updated at least once every River Basin Cycle by experts in the field of IAS in their Ecoregion Procedure for assessing IAS is from UKTAG (2011)	IAS was not required for assessing surface water status rivers or lakes in WFD 2018 (rivers and lakes) and WFD 2020 (lakes) Noted issue is further downgrading from "good" to "moderate" due to availability of scientific evidence on the impact of an IAS in an environment
Special protection areas (SPAs)/Special areas of conservation (SACs)	To identify Surface Water Dependant Sites within the UK National Site Network that are in unfavourable condition due to water related impacts 10 This is applied to sites that are designated Special Areas of Conservation (SACs)	Condition assessments are undertaken on each SAC to assess if the habitat and species interests of a designated site are meeting the objectives for which the site was declared 11 Undertaken every 6 years	
Selection of donor river water bodies	To classify river water bodies that do not have a monitoring station	These river water bodies have been classified using results generated by the Pressures and Impacts database Characteristics established for all river water bodies (e.g. Typology, Altitude and Area were collated) River bodies with similar characteristics can be potentially extrapolated	

[1] https://www.legislation.gov.uk/nisr/2014/208/made

Appendix E
List of Schedule 2 Regulations

Section E.1 England

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
Statute	Water Act, 2014	The Act introduces measures to improve the resilience of water supplies, increase competition in the water market, and protect the environment.	Yes - in PoMs, mentioned frequently across key targeted (e.g. 6. point source discharges or abstraction and impoundment of water)	Areas that the Water Act support on the RBMPs include in water resource management, abstraction reform and increased resilience (e.g. new and improved infrastructure) E.g. in the PoM of abstraction and impoundment of water reform, this regulation provides formal mechanisms for the control abstraction and impoundment of water
Statute	Part 4 of the Water Industry Act 1991 (sewerage services)	This part covers the provision of sewerage services, including the duties and responsibilities of sewerage undertakers, sewer connections, and the regulation of sewage discharges.		
Statute	Sections 3, 4, 10, 81 and 83 of the Water Act 2003 (abstraction and impoundment; duties to conserve water)	These sections cover abstraction and impoundment licensing reforms and the duties of relevant authorities to conserve water resources. The Act also addresses issues related		

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
		to water supply, water quality, and environmental protection.		
Statute	Section 61 of the Water Act 2014 (regulation of the water environment)	Section 61 deals with the regulation of the water environment and amends various parts of the Water Industry Act 1991 and the Water Resources Act 1991. It aims to enhance the resilience of water resources, improve environmental protection, and promote competition in the water industry.		
Statute	Environmental Act, 2021	Aims to improve air and water quality, protect wildlife, increase recycling and reduce plastic waste. This Act is part of a new legal framework for environmental protection in the UK post-Brexit	Yes - Frequently mentioned in the PoMs e.g. Cross cutting legislation for protecting water and many of the PoM key sections	Noted changes have been made post-Brexit including new measures that have been designed with environmental improvement as a key objective. Mentioned as a key mechanism for delivering the vision set out in the 25 Year Environment Plan
Statute	The Environmental Targets (Water) (England) Regulations 2023	These Regulations set the long-term targets in respect of four matters within the priority area of water under section 1 of the Environment Act 202	No	Whilst not specifically referred to, the environmental targets include agriculture, wastewater, abandoned metal mines water targets and water demand target. All of which are relevant for areas of the RBMPs with relevant PoMs

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
Statute	Section 2(2) of the European Communities Act 1972	This Act provides the UK Government with the power to implement European Union (EU) legislation into UK law by making regulations or orders	No	This allows European Union legislation to be implemented, for example the Water Framework Directive
Statute	The Salmon and Freshwater Fisheries Act 1975	Regulation, conservation, and management of salmon and freshwater fisheries in England and Wales. It contains provisions related to fishing licenses, protection of fish stocks, and enforcement against illegal fishing activities.	Yes - Mentioned in PoMs with regards to fishing and fish stocking	This regulation is mentioned as a formal mechanism in the RBMPs in the PoMs section for the management of freshwater and migratory fisheries in England
Statute	Parts 2 and 2A of the Environmental Protection Act 1990 (waste on land and contaminated land)	This Act addresses waste management on land and the regulation of contaminated land in the UK	Yes - Mentioned in PoMs with regards to 15. Waste operations	Mentioned in this PoMs section that this regulations prohibits deposit of waste or knowingly causing or permitting such waste to be deposited in or on any land except in accordance with an appropriate environmental permit
Statute	Parts 2 to 5 and 7 to 9 of the Water Resources Act 1991 (water resources management; control of pollution of water resources; flood defence; general control of fisheries; land and works powers; information provisions;	This Act deals with various aspects of water resources management, such as water abstraction and impoundment licensing, pollution control, flood defence, fisheries management, and information provisions. It also grants	Yes - Mentioned in PoMs with regards to fishing and fish stocking	This regulation is mentioned as a formal mechanism in the RBMPs in the PoMs section for the management of freshwater and migratory fisheries in England

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
	miscellaneous and supplemental)	powers to relevant authorities for land and works related to water resources.		
Statute	The Land Drainage Act 1991	This Act provides a framework for land drainage and flood defence management, outlining the responsibilities of various authorities, landowners, and other stakeholders in maintaining and improving land drainage systems.	No	In the programmes of measures, mentions potential measures for sustainable drainage systems and drainage mapping
Statute	Part 4 of the Marine and Coastal Access Act 2009 (marine licensing)	Part 4 establishes a marine licensing system for various activities in the UK marine area, aiming to protect the marine environment and promote sustainable development in the marine and coastal areas.	Yes - Mentioned in PoMs with regards to 15. Waste operations Also mentioned in the "Marine and Coastal Access Act 2009" in the cross cutting legislation for protecting water	Mentioned in this PoMs waste section with regards to the waste operations in estuarine and marine waters are controlled by the Marine Management Organisation through marine licensing under the Marine and Coastal Access Act 2009. Also includes the introduction of the national Marine Protected Areas known as Marine Conservation Zones that protect a range of habitats and species.

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
Statute	The Flood and Water Management Act 2010	Aims to improve the management of flood and coastal erosion risks, enhance the sustainability of water resources, and modernize the legislation related to reservoir safety. It also introduces provisions for sustainable drainage systems (SuDS) and promotes a more integrated approach to water management.	Yes	Mentioned in new government initiatives: Establishing a Nature Recovery Network to improve landscape's resilience to climate change, and to provide natural solutions including managing flood risk Programme of measures include flood defence structures and using natural flood management measures to slow, store and filter floodwater
Subordinate instrument	The Sludge (Use in Agriculture) Regulations 1989	The Sludge (Use in Agriculture) Regulations 1989: These regulations set quality standards for the use of sewage sludge in agriculture to prevent harmful effects on soil, vegetation, animals, and humans.	Yes -in PoMs 7. Diffuse source pollution	Provides formal mechanisms for managing agricultural diffuse pollution are as follows.
Subordinate instrument	The Urban Waste Water Treatment (England and Wales) Regulations 1994	The Urban Waste Water Treatment (England and Wales) Regulations 1994: These regulations implement the Urban Waste Water Treatment Directive, setting standards for the collection, treatment, and discharge of urban wastewater.	Yes - in PoMs 6. Point source discharges	Provides a formal mechanism for controlling discharges and identifiable point sources by limiting of preventing pollutants entering the water

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
Subordinate instrument	The Urban Waste Water Treatment (England and Wales) (Amendment) Regulations 2003	The Urban Waste Water Treatment (England and Wales) (Amendment) Regulations 2003: These regulations amend the 1994 regulations, updating the requirements for urban wastewater treatment and introducing new standards for certain industrial sectors.	Yes - in PoMs 6. Point source discharges	Provides a formal mechanism for controlling discharges and identifiable point sources by limiting of preventing pollutants entering the water
Subordinate instrument	The Water Protection Zone (River Dee Catchment) (Procedural and Other Provisions) Regulations 1999	The Water Protection Zone (River Dee Catchment) (Procedural and Other Provisions) Regulations 1999: These regulations provide procedural provisions for the designation and management of a Water Protection Zone within the River Dee Catchment to protect water resources from pollution.		
Subordinate instrument	The Control of Pollution (Oil Storage) (England) Regulations 2001	The Control of Pollution (Oil Storage) (England) Regulations 2001: These regulations aim to prevent pollution from oil storage facilities by setting requirements for the design, construction, and maintenance of oil	Yes - PoMs 13. Pollution incidents	Provides the mechanism to prevent or reduce the impact of accidental pollution incidents

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
		storage containers and associated equipment.		
Subordinate instrument	The Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003	The Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003: These regulations outline the process for conducting Environmental Impact Assessments (EIAs) for certain water resources projects, such as abstraction, impoundment, and transfer of water.		
Subordinate instrument	The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009	The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009: These regulations implement the EU Environmental Liability Directive in Wales, establishing a framework for preventing and remediating environmental damage caused by certain activities.	Yes - Mentioned in PoMs in 13. Pollution incidents	Provides the mechanism to prevent or reduce the impact of accidental pollution incidents

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
Subordinate instrument	The Eels (England and Wales) Regulations 2009	The Eels (England and Wales) Regulations 2009: These regulations aim to protect and conserve eel populations by establishing measures for the management of eel fisheries, the passage of eels through water infrastructure, and the monitoring of eel stocks.	Yes - Mentioned in PoMs with regards to fishing and fish stocking	This regulation is mentioned as a formal mechanism in the RBMPs in the PoMs section for the management of freshwater and migratory fisheries in England
	The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010	The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010 & (Wales) Regulations 2010: These regulations set requirements for the storage and handling of silage, slurry, and agricultural fuel oil to prevent water pollution.	Yes -in PoMs 7. Diffuse source pollution	Provides formal mechanisms for managing agricultural diffuse pollution are as follows.
Subordinate instrument	The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (Wales) Regulations 2010		Yes -in PoMs 7. Diffuse source pollution	Provides formal mechanisms for managing agricultural diffuse pollution are as follows.
Subordinate instrument	The Natural Resources Body for Wales (Establishment) Order 2012	The Natural Resources Body for Wales (Establishment) Order 2012: This order establishes Natural Resources Wales, a body responsible for managing and protecting Wales's		

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
		natural resources, including water, land, and biodiversity.		
Subordinate instrument	The Bathing Water Regulations 2013	The Bathing Water Regulations 2013: These regulations implement the EU Bathing Water Directive, setting quality standards for designated bathing waters and requiring monitoring and public information on water quality.	Yes - PoMs in "Cross cutting legislation for protecting water"	Protected area compliance and objectives: Bathing waters mentioned as protect areas for priority action as a body of water designated as recreational waters Measures in rural land management include preventing livestock from freely accessing watercourses, particularly where there is a risk of polluting bathing waters
Subordinate instrument	The Keeping and Introduction of Fish (Wales) Regulations 2014	The Keeping and Introduction of Fish (Wales) Regulations 2014 & (England and River Esk Catchment Area) Regulations 2015: These regulations set requirements for the keeping and introduction of fish to protect native fish populations and prevent the spread of diseases and invasive species.	Yes - Mentioned in PoMs with regards to fishing and fish stocking	This regulation is mentioned as a formal mechanism in the RBMPs in the PoMs section for the management of freshwater and migratory fisheries
Subordinate instrument	The Keeping and Introduction of Fish (England and River Esk Catchment Area) Regulations 2015		Yes - Mentioned in PoMs with regards to fishing and fish stocking	This regulation is mentioned as a formal mechanism in the RBMPs in the PoMs section for the management of freshwater and migratory fisheries
Subordinate instrument	The Control of Major Accident Hazards Regulations 2015	The Control of Major Accident Hazards Regulations 2015: These regulations aim to prevent	Yes - Mentioned in PoMs in 13. Pollution incidents	Provides the mechanism to prevent or reduce the impact of accidental pollution incidents

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
		major accidents involving dangerous substances and limit their consequences for human health and the environment.		
Subordinate instrument	The Nitrate Pollution Prevention Regulations 2015	The Nitrate Pollution Prevention Regulations 2015: These regulations apply to England and set out measures to reduce nitrate pollution from agricultural sources, including the designation of NVZs and implementation of action programs.	Yes -in PoMs 7. Diffuse source pollution	Provides formal mechanisms for managing agricultural diffuse pollution are as follows.
Subordinate instrument	The Environmental Damage (Prevention and Remediation) (England) Regulations 2015	The Environmental Damage (Prevention and Remediation) (England) Regulations 2015: These regulations implement the EU Environmental Liability Directive in England,	Yes - Mentioned in PoMs in 13. Pollution incidents	Provides the mechanism to prevent or reduce the impact of accidental pollution incidents

Type of legislation	Supporting regulatory regimes to the PoMs	Description	Regulatory regime directly mentioned in RBD?	Example of relevance in the RBMP to regulatory regime
Subordinate instrument	The Environmental Permitting (England and Wales) Regulations 2016	These regulations consolidate and streamline the environmental permitting system in England and Wales, covering a wide range of activities that can impact the environment, including waste management, water discharge, groundwater activities, and industrial emissions. The regulations establish a single permitting framework to simplify the process and improve environmental protection and compliance.	Yes - Mentioned in PoMs e.g. 6. Point source discharges, 13. Pollution incidents and 15. Waste operations	Mentioned in this PoM section that the protection of human health and the environment against harmful effects caused by collection, transport, treatment, storage and disposal of waste is controlled under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) for land based operations Also provides a formal mechanisms for controlling discharges from identifiable point sources by limiting or preventing pollutants entering the water through prior authorisations, general binding rules and emission control

Section E.2 Northern Ireland

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
The Lough Neagh Drainage Acts (Northern Ireland) 1955 and 1970(1).	These acts established the framework for the drainage and maintenance of Lough Neagh and its surrounding areas, including the construction and maintenance of works, canals, and channel	No	Existing plans and projects which are key for the third cycle RBMP - e.g. Living with Water Programme, including a 'Strategic Drainage Infrastructure Plan' for Belfast
Fisheries Act (Northern Ireland) 1966(2).	This act regulates the conservation, management, and development of fisheries in Northern Ireland, including licensing, fishery districts, and protection of fish stocks.	Yes - in the key sectors: abstraction, fisheries and morphology	A key targeted measure for the protection of fisheries is mentioned as "robust enforcement of the Fisheries Act"
Section 2(2) of the European Communities Act 1972(3).	This section allows UK ministers to implement EU legislation into domestic law through secondary legislation, ensuring compliance with European directives and regulations.	No	This allows European Union legislation to be implemented, for example the Water Framework Directive
The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009(25).	These regulations implement the European Union Floods Directive in Northern Ireland. They establish a framework for the assessment and management of flood risks, aimed at reducing the adverse consequences of	Yes - in flood risk management plans	The department of Infrastructure has published the draft Flood Risk Management Plan 2021-2027 for public consultation in 2020, this plan is acknowledged as important step for implementing this regulation. This plan sets out the objectives and measures for the 2nd 6-year cycle between 2021 and 2027

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
	flooding on human health and the environment.		
The Drainage (Northern Ireland) (Order) 1973(4).	This order provides the legal framework for the construction, maintenance, and improvement of drainage works in Northern Ireland to prevent or alleviate flooding.	No	Existing plans and projects which are key for the third cycle RBMP - e.g. Living with Water Programme, including a 'Strategic Drainage Infrastructure Plan' for Belfast
Part II of the Food and Environment Protection Act 1985(5).	This part of the act regulates the deposit of substances and articles in the sea and related areas to prevent marine pollution and protect the marine environment.	No	In additional measures introduced since the last RBMP, in urban development there has been the development of an Integrated Ecosystem Model which has been designed to analyse the complete catchment considering all inputs, both point and diffuse sources, within the freshwater and marine environment.
Part II of the Waste and Contaminated Land (Northern Ireland) Order 1997(6).	This part addresses the regulation and management of waste disposal, contaminated land remediation, and pollution prevention in Northern Ireland.	No	Key sector is the "non native invasive species, forestry, waste and contaminated land", a number of measures relate to precenting pollution from waste and contaminated land

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
The Water (Northern Ireland) Order 1999(7).	This order provides a framework for the management and regulation of water resources in Northern Ireland, including water quality, abstraction, and pollution control.	Yes - in the regulation of private sewage services	Mentioned that discharges to the water environment, mainly consisting of domestic consents and industrial consents, are regulated under this act, furthermore the charging schemes are made under this act and are updated on a yearly basis in line with NIEA policy
The Environment (Northern Ireland) Order 2002(8).	This order establishes the Northern Ireland Environment Agency (NIEA) and outlines its powers and responsibilities in relation to environmental protection and regulation.	No	Whilst not specifically referred to, this framework establishes NIEA who are a key stakeholder in the implementation of the RBMP, e.g. through the role of enforcement and monitoring, environmental monitoring and reporting and conservation and management
The Water and Sewerage Services (Northern Ireland) Order 2006(9).	Provides the framework for the provision of water and sewerage services in Northern Ireland. It outlines the functions and responsibilities of the Department for Infrastructure and Northern Ireland Water (NI Water)	No	Whilst the regulation isn't specifically mentioned, NI water are mentioned as the sole provider of drinking water and sewage services in Northern Ireland.
The Sludge (Use in Agriculture) Regulations (Northern Ireland) 1990(10).	These regulations set standards for the use of sewage sludge in agriculture, ensuring that its application does not harm human, animal, or plant health or the environment.	No	Whilst not specifically referred to, to support the PoMs, it's highlighted that efforts to ensure synergies between different policies, including agricultural policy, will be focused on. It's noted a revised Agricultural Policy is being developed to incorporate key principles and approaches to ensure consistency with existing global, UK and local environmental objectives and commitments

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations (Northern Ireland) 1996(11).	Regulations (Northern Ireland) 1996: These regulations classify surface waters used for the abstraction of drinking water, ensuring that water quality standards are met to protect human health.	No	Whilst not specifically referred to, drinking water protected areas (DWPA) is mentioned with regards to enhancing the safety of drinking water supplies. Furthermore, "Drinking water, chemicals and pesticides" is one of the key sectors in the draft PoMs too, e.g. by implementing drinking water protection measures such as the establishment of safeguard zones, buffer zones etc
The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (Northern Ireland) 2003(12).	These regulations aim to reduce water pollution from agricultural sources by establishing rules for the storage and handling of silage, slurry, and agricultural fuel oil.	No	Whilst not specifically referred to, a key measure relating to reducing nutrients include reducing the nutrient content in concentrate feed to lower the nutrient concentrate in slurry/manure, and in the PoMs there are several key targets referring to the reduction of nutrient pollution from agriculture (e.g. supporting the development of innovative technologies for manure/slurry processing
The Anti-Pollution Works Regulations (Northern Ireland) 2003(13).	These regulations provide a framework for the prevention and remediation of water pollution incidents, including the powers of the Northern Ireland Environment Agency to require anti-pollution works	No	Whilst not specifically referred to, this legislation supports the RBMPs with regards to pollution prevention and control to help achieve the water quality objectives in the WFD
The Landfill Regulations (Northern Ireland) 2003(14).	These regulations set technical and operational standards for landfill sites to minimize the environmental impacts of waste disposal, including measures to prevent	No	Mentioned in chapter 6 - pressures, as an example of a pressure as a result of human land use activities

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
	groundwater pollution and control landfill gas emissions.		
The Waste Management Licensing Regulations (Northern Ireland) 2003(15).	These regulations establish a licensing system for waste management activities, such as the treatment, storage, and disposal of waste, to ensure environmental protection and compliance with waste legislation.	No	Whilst this is not specifically referred to, there are key targeted measures in the PoM to prevent pollution from waste and contaminated land (e.g. carrying out an assessment of the environmental impacts of high risk legacy waste sites on the water environment)
The Protection of Water Against Agricultural Nitrate Pollution Regulations (Northern Ireland) 2004(16).	These regulations aim to reduce water pollution caused by nitrates from agricultural sources by requiring the establishment of nitrate vulnerable zones and action programs	No	Nitrate vulnerable zones are recognised as one of the protected areas under the WFD. It is noted that Northern Ireland has a total territory approach with regards to nitrates (e.g. all agricultural land in Northern Ireland must comply with the nutrients action programme
The Water Resources (Environmental Impact Assessment) Regulations (Northern Ireland) 2005(17).	These regulations set out the requirements for conducting environmental impact assessments for certain water management projects, such as abstraction, impoundment, and reservoir construction, to ensure that potential	No	Whilst not specifically referred to in the RBMP, it is mentioned in chapter 10 - summary of consultation questions and how to respond, that there is a section on screening documents and impact assessments. This included the rural needs impact assessment.

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
	environmental impacts are considered and mitigated.		
The Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2006(18).	These regulations establish a licensing system for the abstraction and impoundment of water resources to ensure sustainable water management and prevent adverse effects on the environment and other water users.	Yes - mentioned in the regulation of private abstractions	Abstractions can be for agricultural, industrial and for recreational purposes, and The Water Abstraction and Impoundment (Licensing) Regulations (Northern Ireland) 2009 (Fees and Charges), gave powers to NIEA for the setting of fees and annual charges, in order to recover all of the costs associated with this regulation
The Urban Waste Water Treatment Regulations (Northern Ireland) 2007(19).	These regulations implement the EU Urban Waste Water Treatment Directive in Northern Ireland, setting standards for the collection, treatment, and discharge of urban wastewater to protect the environment and water quality.	Yes - in relation to urban wastewater sensitive areas	Sensitive areas need to be identified under the Urban Waste Water Treatment Regulations (Northern Ireland) 2007 SR 2007/187

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
The Water Supply (Water Quality) Regulations (Northern Ireland) 2007(20).	These regulations set water quality standards for public water supplies in Northern Ireland, ensuring that drinking water is safe and clean for human consumption.	Yes - In drinking water protected areas (DWPA)	This regulation along with the Private Water Supplies Regulations (Northern Ireland) 2017 implement a risk based approach to the regulation of drinking water quality
The Quality of Bathing Water Regulations (Northern Ireland) 2008(21).	These regulations implement the EU Bathing Water Directive in Northern Ireland, setting standards for bathing water quality to protect public health and the environment.	Yes - In relation to urban wastewater sensitive areas	Mentioned in the context that sensitive areas need to be identified under the Urban Waste Water Treatment Regulations (Northern Ireland) 2007 SR 2007/187
The Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009(22).	These regulations implement the EU Environmental Liability Directive in Northern Ireland, establishing a framework for the prevention and remediation of environmental damage caused by specific activities and operators.	No	Whilst not specifically referred to in the RBMP, in the key sector "non native invasive species, forestry, waste and contaminated land" one key targeted measure is the Remediation of contaminated sites (historical pollution including sediments, groundwater, soil)
Part 4 of the Marine and Coastal Access Act 2009 (marine licensing)(23).	Part 4 of this act establishes a marine licensing system for activities carried out in UK marine waters, ensuring the sustainable use and protection of marine resources and the environment.	No	In additional measures introduced since the last RBMP, in urban development there has been the development of an Integrated Ecosystem Model which has been designed to analyse the complete catchment considering all inputs, both point and diffuse sources, within the freshwater and marine environment.

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
The Private Water Supply Regulations (Northern Ireland) 2009(24).	These regulations set standards for the quality and monitoring of private water supplies in Northern Ireland, ensuring that water from private sources is safe and clean for human consumption.	Yes - In drinking water protected areas (DWPA)	This regulation along with the Water Supply (Water Quality) Regulations (Northern Ireland) 2007(20) implement a risk based approach to the regulation of drinking water quality
The Groundwater Regulations (Northern Ireland) 2009(26).	These regulations provide a framework for the protection of groundwater resources in Northern Ireland by preventing or controlling the discharge of hazardous substances and limiting the input of non-hazardous pollutants to groundwater.	Yes - in chapter 3 - changes and updates since the last River Basin Management Plans	It is mentioned that there has been changes to this regulation since the first river basin management planning
The Control of Pollution (Oil Storage) Regulations (Northern Ireland) 2010(27).	These regulations aim to prevent water pollution from oil storage facilities by setting minimum standards for the design, construction, and maintenance of oil storage containers and associated equipment.	No	Control of pollution related to oil storage not specifically mentioned but there are various measures in the PoM to reduce pollution more generally
The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013(28).	These regulations establish a framework for controlling and reducing pollution from industrial activities. They set emission limits, monitoring requirements, and best available	No	Control of pollution related to oil storage not specifically mentioned but there are various measures in the PoM to reduce pollution more generally

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
	techniques for preventing and minimizing emissions and waste.		
The Nitrates Action Programme Regulations (Northern Ireland) 2014(29).	Sets out the Nutrients Action Programme 2019-2022 for the protection of waters against pollution caused by agricultural sources.	Yes - in the section Nutrients Action Programme - total territory approach	Mentions the Regulations contain a range of controls on manures and chemical fertilisers, which includes a limit on the amount of nitrogen (N) from livestock manure that can be applied to land
The Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014(30).	These regulations aim to reduce water pollution from phosphorus in fertilizers and manures by setting limits on phosphorus application rates and requiring the maintenance of phosphorus management plans for agricultural land.	No	To support the Programme of Measures, it's highlighted that efforts to ensure synergies between different policies, including agricultural policy, will be focused on. It's noted a revised Agricultural Policy is being developed to incorporate key principles and approaches to ensure consistency with existing global, UK and local environmental objectives and commitments
The Water Framework Directive (Classification, Priority Substances and Shellfish Waters) Regulations (Northern Ireland) 2015(31).	These regulations transpose the Water Framework Directive into Northern Ireland law, establishing a framework for the classification of surface waters and groundwater, setting environmental quality standards for priority	Yes - in chapter 3 - changes and updates since the last River Basin Management Plans	It is mentioned that there has been changes to this regulation since the first river basin management planning

Supporting regulatory regimes to the PoMs	Description	Directly referred to in third RBMP by name	Example of relevance in the RBMP to regulatory regime
	substances, and designating shellfish waters for protection and improvement.		

wsp.com