

# **Welsh part of the Severn River Basin Management Plan (2021-2027) Summary**

**December 2022**

## **Natural Resources Wales**

Natural Resources Wales' (NRW) purpose is to pursue sustainable management of natural resources in all of its work. We've produced a [booklet to introduce you to our new way of working](#). Welsh Government has issued [statutory guidance on NRW's general purpose](#). The Environment (Wales) Act 2016 sets out our general purpose.

In the exercise of its functions NRW must:

1. pursue sustainable management of natural resources in relation to Wales, and
2. apply the principles of sustainable management of natural resources in the exercise of its functions, so far as consistent with their proper exercise.

We also have a duty under the Well-being of Future Generation (Wales) Act 2015 to maximise our contribution to the seven well-being goals, through sustainable management of natural resources. We do this by setting well-being Objectives, and ensuring our work contributes across our objectives.

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# Acronyms

Acronym	Meaning
ALS	Abstraction Licensing Strategies
A/HMWB	Artificial/Heavily Modified Water Body
AMP	Asset Management Plan
CSO	Combined Sewer Overflow
DCWW	Dŵr Cymru Welsh Water
DrWPA	Drinking Water Protected Area
EA	Environment Agency
EU	European Union
FRM	Flood Risk Management
FRMPs	Flood Risk Management Plans
GBNNSS	GB Non-Native Species Secretariat
GHG	Green House Gases
HEP	Hydro-electric Power
HMWB	Heavily Modified Water Body
HRA	Habitats Regulation Assessment
INNS	Invasive Non-Native Species
LLFA	Lead Local Flood Authority
NEP	National Environment Programme
NFRM	Natural Flood Risk Management
NGO	Non-Governmental Organisation
NHS	National Health Service
NRP	Natural Resources Policy
NRW	Natural Resources Wales
NVZ	Nitrate Vulnerable Zone
PBDE	Polybrominated Diphenyl Ether
RBD	River Basin District
RSPB	Royal Society for the Protection of Birds
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SFP	Sustainable Fisheries Programme
SSSI	Site of Special Scientific Interest
SMNR	Sustainable Management of Natural Resources
SMS	Sustainable Management Scheme
SOAF	Storm Overflow Assessment Framework
SoNaRR	State of Natural Resources Report
SPA	Special Protection Area
SuDs	Sustainable Drainage System
TRAP	The River Arrow Project
UKCIP	UK Chemicals Investigation Programme
UKFS	UK Forestry Standard
UKTAG	UK Technical Advisory Group
uPBT	ubiquitous, persistent, bioaccumulative and toxic

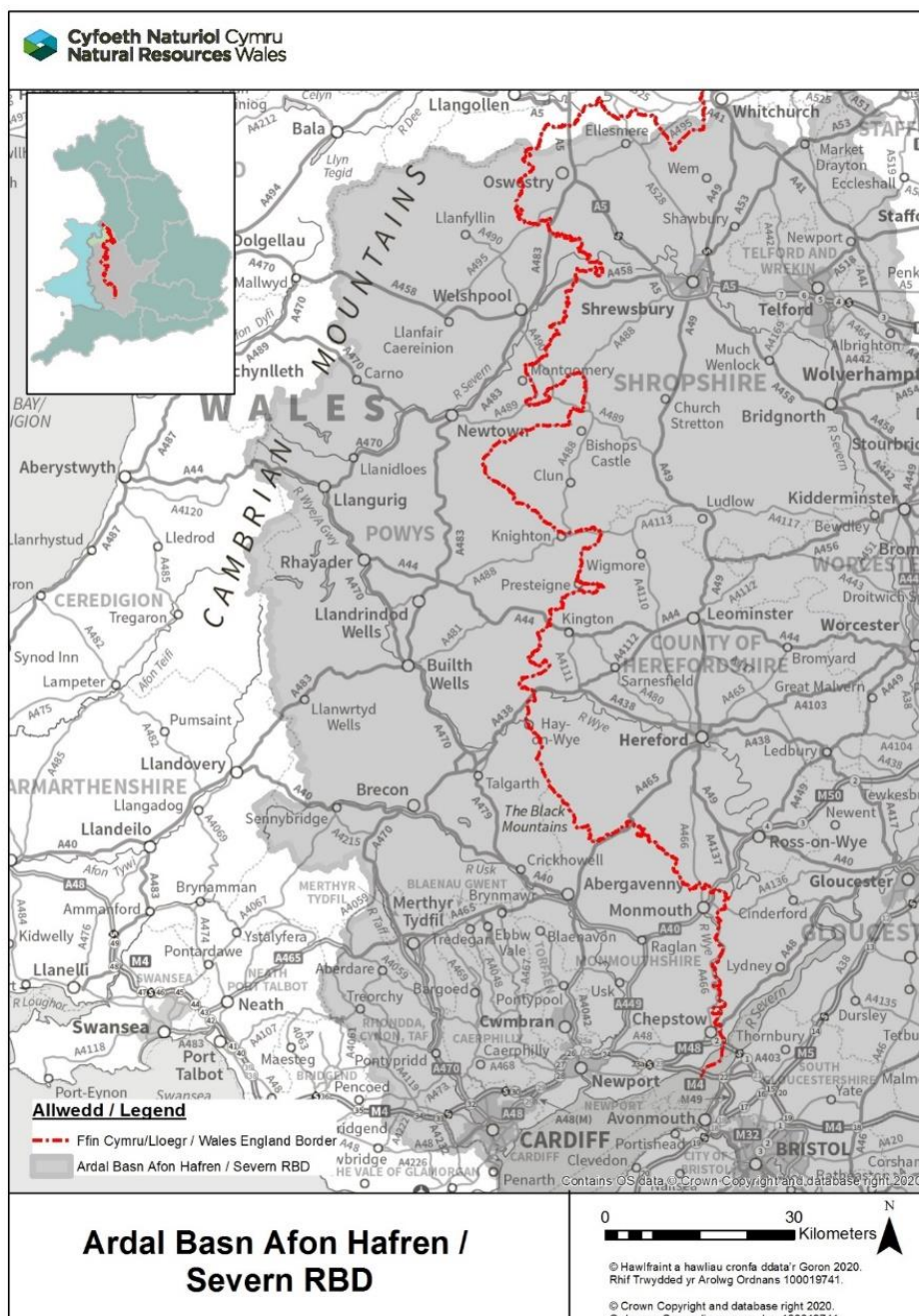
<b>Acronym</b>	<b>Meaning</b>
WFD	Water Framework Directive
WFF	Wales Fisheries Forum
WGWE	Welsh Government Woodland Estate
WLMF	Wales Land Management Forum,
WMAAG	Wales Marine Advisory and Action Group
WRW	Water Resources West
WUF	Wye and Usk Foundation
WWMF	Wales Water Management Forum
WwTW	Waste water treatment works

# 1. Planning for the future

## 1.1 Introduction

Under the Water Environment (Water Framework Directive (WFD) (England and Wales) Regulations 2017 (referred to as the WFD Regulations 2017) a management plan is required for each River Basin District (RBD). The Severn River Basin Management Plan (RBMP) was first published in 2009 and updated in 2015. This document is part of the latest update to that plan and **relates to the Welsh part of the Severn RBD only** as shown in Figure 1.

Figure 1 The Welsh part of the Severn River Basin District



Responsibility for coordinating the planning of the future of waters in Wales lies with NRW and in England lies with the Environment Agency (EA). However, NRW and the EA work jointly in the Severn RBD. Some waters in the RBD form the boundary between Wales and England, or cross from Wales into England or England into Wales. Joint working on the cross border waters is therefore essential to ensure the water environment is protected and improved. The aim is to achieve this through collaborative working with the land managers and local groups.

Working together with partners increases the understanding of the priorities for action and helps to ensure that the appropriate measures are carried out. Where possible the same approach has been used to produce this plan. In some areas government direction or local policy has resulted in different methods to reach the same outcome. Where this is the case, it is clearly explained.

The plan sets the objectives for rivers, lakes, estuaries, and ground waters. Although we are responsible for developing the plans, the outcomes and the actions needed to achieve them are for everybody. This plan outlines the actions we believe are needed to improve the environment, the benefits they could achieve and who is best placed to deliver them. River basin management is a continuous cycle of planning and delivery (see Figure 2).

Figure 2 River Basin Management Planning Cycles



The environmental objectives in this plan are legally binding and have been approved by the Minister for Climate Change (in Wales) and Secretary of State for Environment, Food and Rural Affairs (in England). The plan fulfils the requirements of the WFD Regulations 2017 and statutory guidance from government. It replaces the plan published in 2015, except for the economic analysis of water use in Wales. Further detail can be found in Section 3.6 of the **Planning Overview Annex (Wales)**.

The plan includes information on:

- Classification of water bodies – The baseline status in each water body. This enables us to understand the current condition of the water bodies including all the quality elements. Preventing deterioration from this baseline is a key objective of this plan, and also one of our greatest challenges in protecting the water environment.
- Summary of Programme of Measures to achieve statutory objectives – These include statutory objectives for Protected Areas. The programme sets out the actions over this planning cycle and forward planning. It includes local actions, in particular Opportunity Catchments which 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.

- Statutory objectives for water bodies – Objectives have been set for each quality element in all water bodies, including an objective for the water body as a whole. The default objective is to aim to achieve good status or potential by 2027. However in some circumstances, we have extended the deadline or set an objective of less than good where this is justified on the basis of natural conditions, ecological recovery time, technical feasibility or disproportionate cost.

This plan has been influenced by the feedback from the consultations that were held over the last four years, further detail can be found in the **Planning Overview Annex (Wales)**.

Many lessons have been learnt in the planning and delivery since the WFD was introduced in 2000 and transposed into law in England and Wales in 2003 by the Water Environment (Water Framework Directive) Regulations 2017. The key lessons learnt include that early engagement with our partners is crucial; environmental improvements take time and may not be noticeable in the classification within a cycle; and making commitments on allocating resources on a six-year cycle is difficult. Since the first cycle our understanding of good status/potential requirements has evolved, and improved monitoring techniques and standards have been reflected in the classification. The Well-being of Future Generations (Wales) Act 2015 and Environment (Wales) Act (2016) give us an opportunity to build on the foundations WFD provided in developing a place-based approach.

### **1.1.1 Finding your way around the Welsh part of the Severn River Basin Management Plan**

RBMPs are strategic documents. Whilst the best intentions have been made to ensure this plan is accessible, this document forms part of the Severn RBMP to meet the statutory requirements of the WFD Regulations 2017. For Wales, a glossary of terms is included in the **Planning Overview Annex (Wales)**. If you are unable to find the information you require, please contact [WFDWales@naturalresourceswales.gov.uk](mailto:WFDWales@naturalresourceswales.gov.uk) and we will help you.

#### **Welsh part of the Severn River Basin Management Plan 2021 – 2027 Summary (this document)**

For Wales, this describes the current condition of the RBD and what we have achieved since 2009, the Programme of Measures for improving the water environment by 2027, water body objectives and implementation for the third cycle.

#### **Planning Overview Annex (Wales)**

Provides the technical detail for Wales behind the decision making which has shaped the third RBMP. It refers and provides links to a number of supporting documents for the more technical information and guidance.



## **Water Watch Wales – data, maps and Opportunity Catchments**

Much of the information referred to in this document is best presented in map or spreadsheet format. Information on the current state of the water environment, measures and objectives for improving it can be found on Water Watch Wales. This is an interactive spatial web-based tool that provides supporting information and data to assist partners. It enables the user to navigate to their area of interest and review the available information about that specific area.

### **Protected Area Register**

The register of the Protected Areas lying within the RBD in Wales, has been reviewed and updated. It provides information on each protected area including: Drinking water protected areas (surface water and groundwater), nutrient sensitive areas and water dependent European sites.

#### **1.1.1.2 Supporting documents**

##### **Strategic Environmental Assessment (SEA) screening report**

The [SEA screening](#) required to comply with the Environmental Assessment of Plans and Programmes Regulations 2004 was undertaken by the EA. The EA concluded that the requirement for SEA of the review of the Severn RBMP could be screened out under the justification of minor modification to the existing plans.

##### **Habitats Regulations Assessment (HRA)**

The EA is the lead competent authority for the Severn RBMP and has published its [Habitats Regulations Assessment](#). At the level of detail in the RBMP, there is confidence, that the measures can be implemented without having a likely significant effect on European sites alone or in combination. In Wales, before any measures in the plan are implemented they must be subject to the requirements of the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations (2017)).

#### **1.1.2 Exit from the European Union**

The United Kingdom (UK) left European Union (EU) on 31<sup>st</sup> January 2020 and entered a period of transition until 31<sup>st</sup> December 2020. During the transition period the UK continued to apply EU legislation, transposed any EU legislative changes and remained under the jurisdiction of the Court of Justice of the European Union (CJEU).

The requirements of WFD were already enshrined within UK law through the WFD Regulations 2017. The Regulations form part of retained EU law in accordance with the European Union (Withdrawal) Act 2018. To ensure the WFD Regulations can function post EU-Exit, statutory instruments to correct Brexit-related deficiencies were introduced in Parliament and the Senedd, namely the Environment (Legislative Functions from Directives) (EU Exit) Regulations 2019 and the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019. These amendments do not impact on the way we carry out the RBMP process.

### **1.1.3 Covid-19**

During 2020 and 2021, the Global Covid-19 pandemic and public health response resulted in lockdowns and restrictions in order to limit the spread of the Covid-19 virus. The Welsh Government exercised its legal powers to make Regulations imposing restrictions or requirements on people with the purpose of preventing, protecting against and controlling or providing a public health response to the incidence or spread of Covid-19 in Wales. Similar restrictions were also applied in England by the UK government.

This impacted on all organisations in Wales and England. For NRW and the EA this meant we had to halt our monitoring programme, postpone or cancel some of our improvement projects and reduce the engagement with some of our stakeholders who had to furlough staff. It also impacted on the timing of the earlier consultation which was delayed. We do not yet know the scale of impact the virus and subsequent restrictions had on our work programme for the third cycle. Covid-19 has also opened broader opportunities in terms of society's connection to nature. People started exploring local outdoor spaces more during this period, which is a behavioural change that NRW should utilise and build on in the future.

## **1.2 Welsh part of the Severn River Basin District**

This document relates to the Welsh part of the Severn RBD only and Figure 1 above shows the boundary.

Collectively, the approach and actions set out in this plan will have an effect on all types of water across the catchments that make up the management plan, this includes rivers, lakes, canals, surface water transfers, groundwater, wetlands and estuaries. The plan aims to be integrated at the catchment scale ensuring a connection across the wider environment for people and wildlife, from source to sea.

In Wales, we aim to improve the environment through continued collective action. There are already many good examples of partnership working and we need to build on these. We need to ensure that the objectives for RBMPs are integrated in other plans and policies. In particular this must involve our natural resource planning, Flood Risk Management Plans, Shoreline Management Plans and the Wales Rural Development Programme.

We recognise that a changing climate will have an impact on the benefits our environment provides. Working in partnership, we aim to develop our understanding of local impacts and build climate resilience and adaptation into river basin management.

### **1.2.1 What has been achieved so far**

The Welsh part of the Severn RBD has benefited from investment over the past thirty years and beyond which has delivered improvements which benefit people, wildlife and the economy. Since the updated RBMP was published in 2015, we have continued to improve our understanding of the pressures on the water environment in Wales allowing us to target actions to manage them.

In 2015 for the Welsh part of the Severn 33% of water bodies achieved good or better overall status. The most recent classification shows that this has improved to 35%. The comparison is made using the standards, assessment methods and water bodies that

represent the best knowledge applied and therefore the most accurate view of the water environment at that time.

Many organisations (see Appendix 1) have worked together across the Welsh part of the Severn RBD on a range of projects. These are groups of organisations with an interest in improving the environment in their local area. The partnerships work on a wide range of issues, including the water environment but also to address wider issues that are not directly related to river basin planning.

## 1.2.2 Who manages the Welsh part of the Severn River Basin District

There are many organisations which are responsible for managing the RBD. These organisations are often grouped into sectors and are summarised in Table 1.

Table 1 Sector groups involved in river basin management

Sector	Examples
Agriculture and rural land management	Includes arable, livestock, forestry and horticulture.
Angling and Conservation	Includes angling and conservation groups
Central Government	Includes UK and Welsh Government and arms-length bodies (including NRW and the EA)
Domestic/General public	Includes individuals and community groups
Energy	Includes renewables and hydropower groups
Health	Includes Public Health Wales
Industry, Manufacturing and other Business	Includes chemicals, construction, food and drink, paper, textiles and metals
Local Government	Includes Local Authorities and National Park Authorities
Mining and Quarrying	Includes coal mining, non-coal mining and quarrying
Navigation	Includes inland water ways groups, port and harbour authorities
Non-Governmental Organisations (NGOs)	Includes environmental NGOs (including wildlife and river trusts) and other NGOs

Sector	Examples
Recreation	Includes ramblers, canoeists and amenity groups
Universities	Includes evidence gathering and interpretation
Urban and Transport	Includes air, road, railways and urban
Waste treatment, transfer, storage and disposal	Includes landfill, biowaste, waste treatment and transfer
Water Industry	Includes water supply, water and sewage treatment

Examples of plans and strategies related to water management by organisations represented by the above sectors are summarised in the **Planning Overview Annex (Wales)**.

In Wales we communicate and work with these sectors through our external stakeholder forums. The Wales Water Management Forum (WWMF) provides an opportunity for the forum's membership organisations to share evidence and explore opportunities for working together to achieve the sustainable management of water - from source to sea. It is chaired by a NRW Board Member and meets biannually, meeting dates and records of minutes are [published on our website](#). The forum also explores opportunities to develop, support and communicate shared messages and recommendations on the Sustainable Management of Natural Resources (SMNR). WWMF works with the Wales Land Management Forum (WLMF), Wales Fisheries Forum (WFF) and the Wales Marine Advisory and Action Group (WMAAG). The WLMF Agriculture Sub Group was tasked with undertaking root cause analysis to achieve a common understanding of the causes of agricultural pollution. The group looked at the ways in which these are currently addressed through investigation, agreement, reporting and delivery on potential solutions, taking an integrated approach, working across organisations. The group produced a report in April 2018 on [tackling agricultural pollution](#).

### 1.2.3 Scale within the Welsh part of the Severn River Basin District

This plan refers to three management units: RBDs, management catchments and water bodies. The RBD is the largest and is the entire area to which this plan relates. RBDs are divided into smaller management catchments which enable more localised decision making and water bodies are the individual or parts of rivers, lakes, canals, estuaries, coastal waters or groundwaters which we monitor and report on the quality.

Managing the water environment is not always best co-ordinated at the RBD scale. Under the Environment (Wales) Act 2016 boundaries covered by Area Statements have been published (see Figure 5 on page 16) which will be a new way of working and rely on collaboration with partners and stakeholders. Catchments are still important and will be managed as part of working across Area Statement boundaries.

NRW is able to make some significant improvements through our own activities for example:

- Managing the Welsh Government Woodland Estate
- Operating flood management and hydrometry assets
- Managing National Nature Reserves

NRW is a regulator, ensuring that legislation to protect the environment is applied fairly in accordance with our regulatory principles. We also work with local and national partners to deliver projects and initiatives to improve the water environment. Examples of this include developing our approach to SMNR, Metal Mines Strategy for Wales and the Marine Protected Area Management Action Plan. Other strategies are at a UK level and include the [UK Marine Strategy](#) and the UK [strategic approach to tackle risks from harmful chemicals in UK waters](#).

## 1.3 Taking a Place-Based Approach

The Environment (Wales) Act 2016 states that NRW must prepare a report containing its assessment of the state of natural resources in relation to Wales.

The second [State of Natural Resources Report \(SoNaRR\) for Wales 2020](#) report builds on the evidence base in the first [State of Natural Resources report 2016](#) illustrating some of the key pressures, impacts and opportunities for action. SoNaRR2020 draws on a number of Welsh, UK and global assessments of the status and trends of natural resources and looks at the risks those trends pose to our ecosystems and the well-being of Wales as defined in the [Well-being of Future Generations \(Wales\) Act 2015](#).

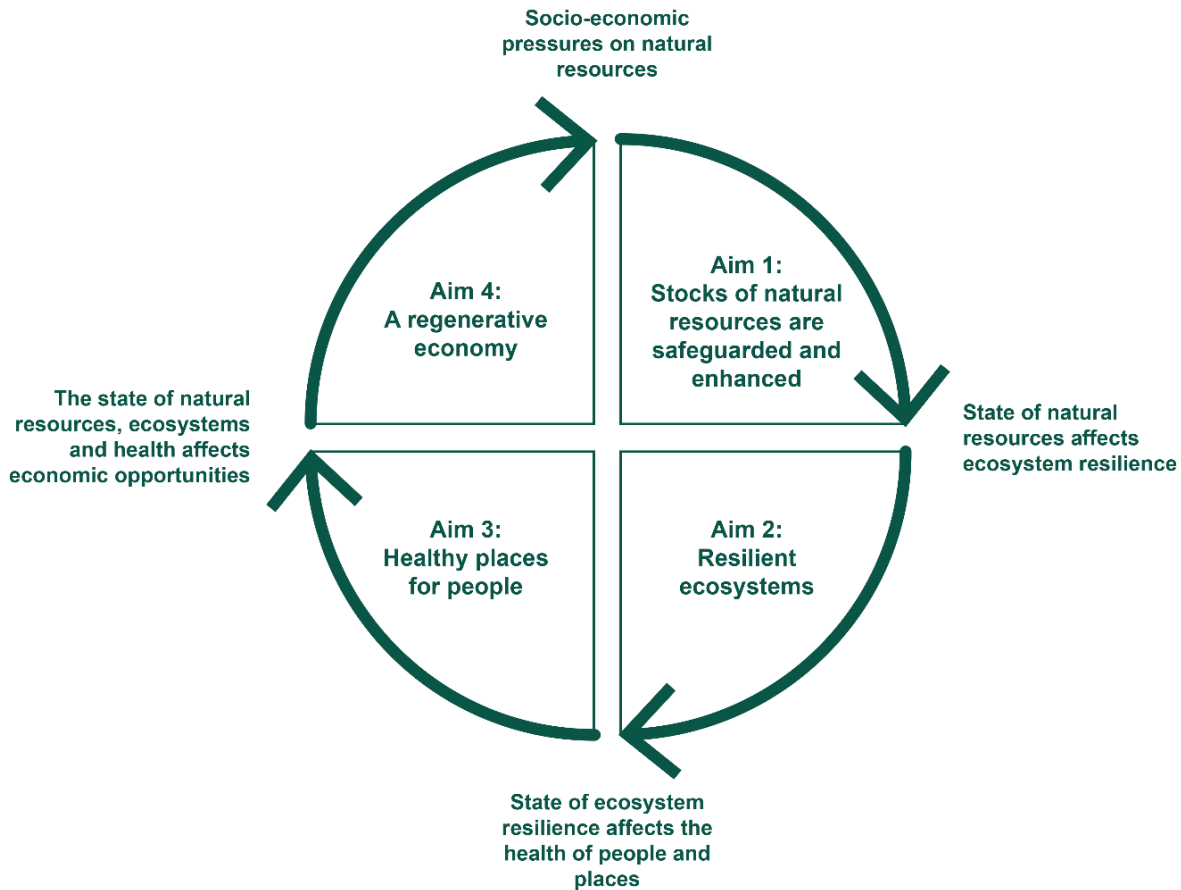
The eight broad ecosystems and a number of cross-cutting themes are used in SoNaRR2020 to assess SMNR. These are the building blocks of NRW's overall assessment. The key issues within the [Freshwater](#) chapter are climate change, physical modification, pollution, decline in freshwater biodiversity, lack of connectivity between rivers and their flood-plains and invasive non-native species (INNS). The chapter presents evidence of the state of freshwater ecosystems and the pressures affecting their health and the opportunities for achieving SMNR for freshwater ecosystems. The key pressures and opportunities for marine and transitional ecosystems are identified within the [Coastal margins](#) and the [Marine](#) chapters of SoNaRR2020.

Since the publication of the first SoNaRR the [four long-term aims of SMNR](#) have been agreed which guide the assessments that underpin SoNaRR2020. The four aims of SMNR are:

- Stocks of Natural Resources are safeguarded and enhanced
- Ecosystems are resilient to expected and unforeseen change
- Wales has healthy places for people, protected from environmental risks
- Contributing to a regenerative economy, achieving sustainable levels of production and consumption

Wales' progress towards SMNR within SoNaRR2020 is assessed individually against the four aims although they are also inseparable from each other. The diagram in Figure 3 shows the linkages and cyclical nature of the four aims of SMNR.

Figure 3 Linkages and cyclical nature of the four aims of SMNR, SoNaRR2020



The SoNaRR 2016 report formed an important evidence base for Welsh Ministers to consider in the preparation of the [Natural Resources Policy \(NRP\)](#), for NRW when preparing [Area Statements](#) and for local planning authorities when refreshing local development plans. Under the [Environment \(Wales\) Act 2016](#), there is a requirement for Welsh Government to publish the NRP which sets out the national priorities, challenges, and opportunities in Wales. The NRP was prepared taking into consideration the findings of the SoNaRR 2016 report. The Environment (Wales) Act 2016 outlines the policy framework to enable the environment to be managed in a more proactive, sustainable and joined up way. It includes a duty for NRW to produce Area Statements to help implement the priorities set out in the Welsh Government's NRP. There are seven areas or 'places' in Wales, including the marine environment. Each area has a live [Area Statement document](#) summarising the challenges and opportunities relevant to that area, which was first published in April 2020. The delivery of Area Statements requires a new way of working and relies upon successful collaboration with partners and stakeholders.

The [Well-being of Future Generations \(Wales\) Act 2015](#) made it a requirement for all public bodies to work towards the seven Well-being Goals and think about how their decisions will affect people living in Wales now and in the future. The Act puts in place a [Sustainable Development Principle](#) which tells organisations how to meet their duty under the Act. There are 5 things the public bodies need to think about to demonstrate they've

applied this principle: Long term, Prevention, Integration, Collaboration, and Involvement. The Act establishes Public Service Boards (PSBs) for each local authority area in Wales. PSBs are responsible for publishing an Assessment of Local Well-being and a [Local Well-being Plan](#). Water ecosystems provide important ecosystem services including water supply, renewable energy production, flood management, recreation and fisheries. Balancing the use of these services with one another and the sustainable management of catchments is a significant challenge.

For the third cycle of the RBMP, we aim to take a place-based SMNR approach to catchment prioritisation which delivers water quality and physical habitats outcomes and improvement plus wider benefits to the environment and people. This would include delivery of flood risk management benefits, benefits for freshwater, coastal and marine ecosystems and species aligned with well-being benefits for people. Partnership projects such as [Greener Grangetown](#) help to enhance local biodiversity and wildlife, deliver water quality improvements in the River Taff and present opportunities for people to enjoy recreation close to where they live and work.

Catchments as a whole are an important factor and will help opportunities for working across Area Statement boundaries. By taking a more holistic approach to catchment management, better outcomes can be achieved for the environment and the well-being of people.

The Environment (Wales) Act 2016 introduced nine principles to help provide a method and a guide for considering SMNR, which are shown in Figure 4 below. The principles of SMNR are how we embed the four aims of SMNR. Involvement of partners and stakeholders in the Area Statements process is an important step to support implementation of the priorities, challenges and opportunities outlined within each.

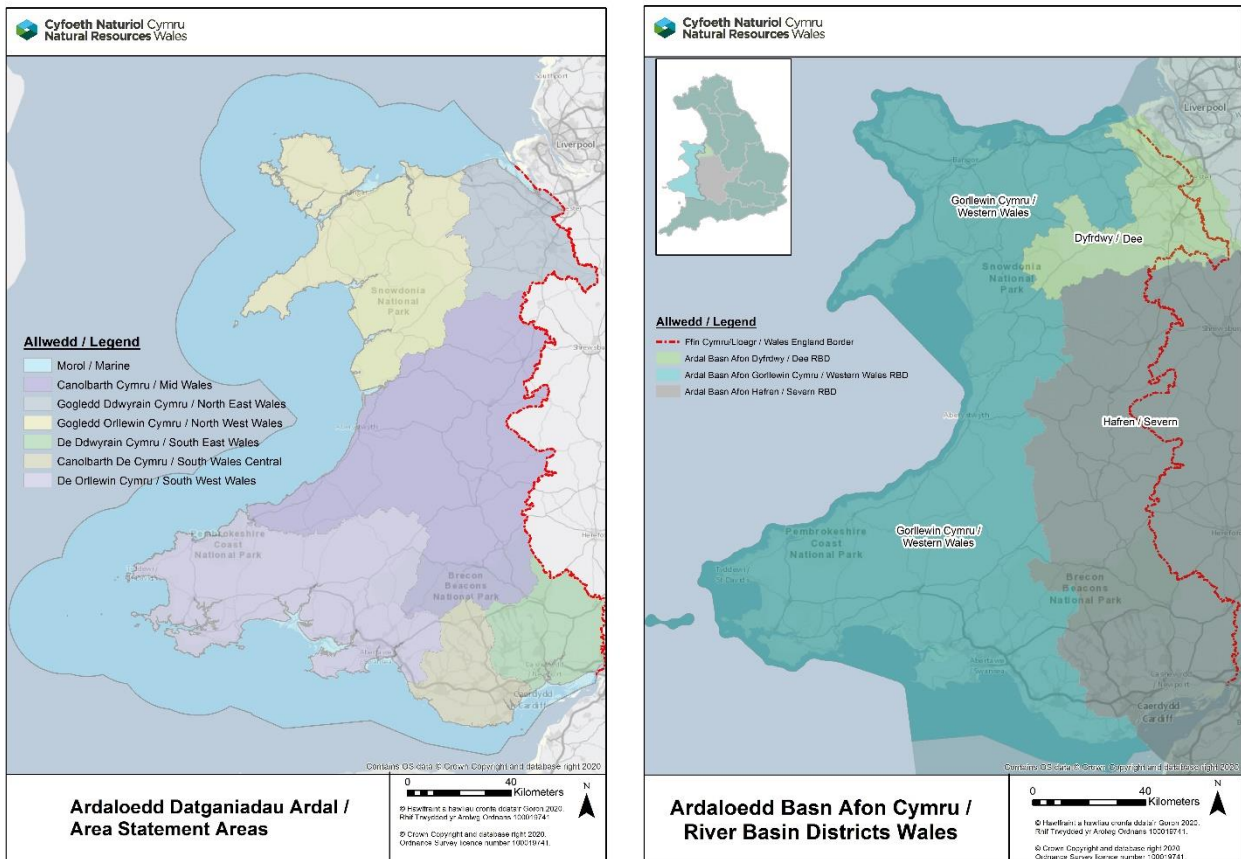
Figure 4 Nine principles of SMNR



Area Statements include information about the natural resources in that place, the benefits provided, and the priorities, risks and opportunities that need to be addressed by all to achieve sustainable management within that area. Area Statements will also be used to shape NRW's business planning and partnership working including projects linked to outcomes for our water bodies. They are used to influence a range of public plans and policies to help integrate sustainable water management across other delivery mechanisms including land use planning, land management, flood risk and water company planning.

Area Statements are therefore both an evidence base and a prioritisation tool to help us all understand the opportunities to deliver sustainable management at an appropriate scale right across Wales. Figure 5 below shows a map of the Area Statement areas and the RBDs in Wales for comparison. The Mid, South East and South Central Area Statement boundaries are within the Severn RBD. The Severn Estuary is included in the Marine Area Statement as shown in Figure 5.

Figure 5 Maps of Area Statement Areas and RBDs in Wales



## 1.4 Evidence Needs

NRW is an evidence informed organisation with its evidence activities defined as:

- Strategic research/investigations
- Surveillance, monitoring, and data capture



- Analysis
- Tactical research/investigations

NRW has developed a [water evidence needs paper](#) which seeks to address emerging issues such as chemicals and identifies opportunities for collaborative research projects relating to the water environment in Wales. Additionally, in SoNaRR2020 each of the eight broad ecosystem chapters have their own associated evidence needs list which are included within the overall [evidence needs table](#), the marine and coastal evidence needs are also listed within the [Welsh Marine Evidence Strategy](#).

## 2. The Welsh part of the Severn River Basin District

### 2.1 How we determine baseline classification

Classification is an assessment of the quality of our surface waters and groundwaters undertaken at a point in time. It includes monitoring data required by the classification tools which vary from 3 to 6 years prior to the publication. It is based on operational routine monitoring points within a water body that is risk based. This classification and information on the pressures and risks to waters is the basis for planning each cycle.

In each cycle of the RBMPs, we collate all the evidence, historic and current, and produce a baseline classification. Classification is the process by which the data collected in our water monitoring programmes is turned into the evidence we need to advise, regulate and manage the water environment. We have a statutory duty to assess and report on the status of every classified water body in Wales, but the benefits of classification are far wider. It is used to inform many other areas including water industry investment plans, set permit limits, inform environmental impact assessments of proposed projects and activities and management. Classification is also a key evidence source for SoNaRR and a national indicator for the Well-being and Future Generations (Wales) Act 2015.

We use the term water bodies to help understand and manage the water environment. A water body is part, or the whole, of a river, canal, lake, ground water, transitional (estuary) or coastal water. Water bodies are reporting units and are indicators of the health of the wider water environment. We assess the condition of these water bodies through monitoring or modelling which produces a classification. The legal requirements set out in the WFD Regulations 2017 apply to all bodies of water in a RBD, not just the water bodies that are shown on maps. During the first RBMP cycle (2009-2015) the classification was updated annually. However, it is now updated once every 3 years for surface waters. The most up to date classification is the 2021 classification and this is available on [Water Watch Wales](#). The number and type of water bodies are shown in Table 2 below setting the baseline for the third cycle. Note the river category also includes 5 canal waterbodies and 1 surface water transfer.

Table 2 Number and types of water bodies baseline third cycle RBMP (2021-2027 for the Welsh part of the Severn RBD

<b>Number of water bodies</b>	<b>Natural</b>	<b>Artificial</b>	<b>Heavily Modified</b>	<b>Total</b>
Rivers	202	11	23	<b>236</b>
Lake	4	0	32	<b>36</b>
Coastal	0	0	0	<b>0</b>
Estuarine	1	0	2	<b>3</b>

Number of water bodies	Natural	Artificial	Heavily Modified	Total
Groundwater	9	n/a	n/a	9
<b>Total</b>	<b>216</b>	<b>11</b>	<b>57</b>	<b>284</b>

### 2.1.1 Changes for the third cycle

The data and information used in the management of the water environment is regularly reviewed and improved. We use a set of data, standards and tools that help us complete the classification.

For the third cycle of RBMPs some water bodies have been amended across Wales. Further detail on the changes listed below can be found in Appendix B of the **Planning Overview Annex (Wales)**. The main changes are:

- Correction of errors, for example, where a water body is named incorrectly or associated with the wrong operational catchment
- Revisions made to some of the second cycle Artificial/Heavily Modified Water Bodies (A/HMWB) designations and/or uses and new Heavily Modified Water Body (HMWB) designations
- De-designated water bodies that were no longer being used for the designated use as Drinking Water Protected Areas
- Designation of Cwmtillary Reservoir as a Drinking Water Protected Area

For the third cycle RBMPs the classification has also been reviewed based on improved science, better understanding of the environment, policy and **directions from UK or devolved Governments**. The changes between the second and third cycle RBMPs are not considered to be major and include:

- Monitoring networks
- Environmental standards, for example Nitrogen standards for lakes, river acidity standards
- Changes to classification tools based on advice from UK Technical Advice Group (UKTAG) and other technical experts, for example Estuarine Fish Classification Tool
- Invasive non-native species
- Number of chemicals assessed
- Classification of ubiquitous, persistent, bioaccumulative and toxic chemicals (uPBT)

Further details of these changes are in **Planning Overview Annex**.

## 2.1.2. Surface waters - Status

For rivers, lakes, canals, surface water transfers and estuarine water bodies, the classification is based on the ecological and chemical condition of the water body. We collect biological and chemical data, which are combined to give an **overall status** of high, good, moderate, poor or bad, based on the lowest reported class from the different elements monitored.

**Ecological status** is determined from a combination of data for biological, physico-chemical and specific pollutants.

**Chemical status** is assessed by compliance with environmental quality standards for chemicals.

Many of our waters have been changed by human activity for a specific use such as navigation, flood management or water storage. In some cases, this change may mean that it is impossible to achieve good ecological status whilst allowing the human use to continue. For example, maintenance dredging for port activities will not allow good status to be achieved for benthic invertebrates in a harbour water body. In these cases, the water body is designated as artificial or heavily modified and has an objective to achieve good ecological potential. This is a measure of the best ecology the water body could achieve given the constraints required by the human use.

There are 275 surface water bodies in the Welsh part of the Severn RBD, including river, canal, surface water transfer, lake and estuarine waters. Table 3 and Table 4 below shows the number of water bodies in each status class using the most recent (2021) ecological and chemical classification data. Note the rivers category includes canals and a surface water transfer.

Table 3 Most recent (2021) ecological classification for surface waters (assessed water bodies) in the Welsh part of the Severn RBD

Number of water bodies	Bad	Poor	Moderate	Good	High
River	5	26	114	91	0
Lake	0	1	32	3	0
Coastal	0	0	0	0	0
Estuarine	0	0	3	0	0
<b>Total</b>	<b>5</b>	<b>27</b>	<b>149</b>	<b>94</b>	<b>0</b>

Table 4 Most recent (2021) chemical classification for surface waters (assessed water bodies) in the Welsh part of the Severn RBD

Number of water bodies	Fail	Good
River	17	219
Lake	0	36
Coastal	0	0
Estuarine	1	2
<b>Total</b>	<b>18</b>	<b>257</b>

### 2.1.3 Groundwaters - Status

For groundwater, the quantitative and chemical status are combined to provide a single final classification; good or poor status. A groundwater is at poor quantitative status if there could be adverse impacts on rivers and wetlands or it is not certain that the amount of groundwater taken will be replaced each year by rainfall. Poor chemical status occurs if there is widespread diffuse pollution within the groundwater body, the quality of the groundwater is having an adverse impact on wetlands or surface waters, there is saline intrusion due to over abstraction, or the quality of water used for potable supply is deteriorating significantly.

Of the 9 groundwater bodies in the Severn RBD all achieve good quantitative status and 6 achieve good chemical status. The 2021 classification has identified 1 groundwater body with a significant rising trend in chemical status, requiring further investigation. Tables 5 and 6 below show the most recent (2021) classification of quantitative and chemical classification for groundwater.

Table 5 Most recent (2021) classification of quantitative classification for groundwater in the Welsh part of the Severn RBD

Number of water bodies	Poor	Good
<b>9</b>	0	9

Table 6 Most recent (2021) classification of chemical classification for groundwater in the Welsh part of the Severn RBD

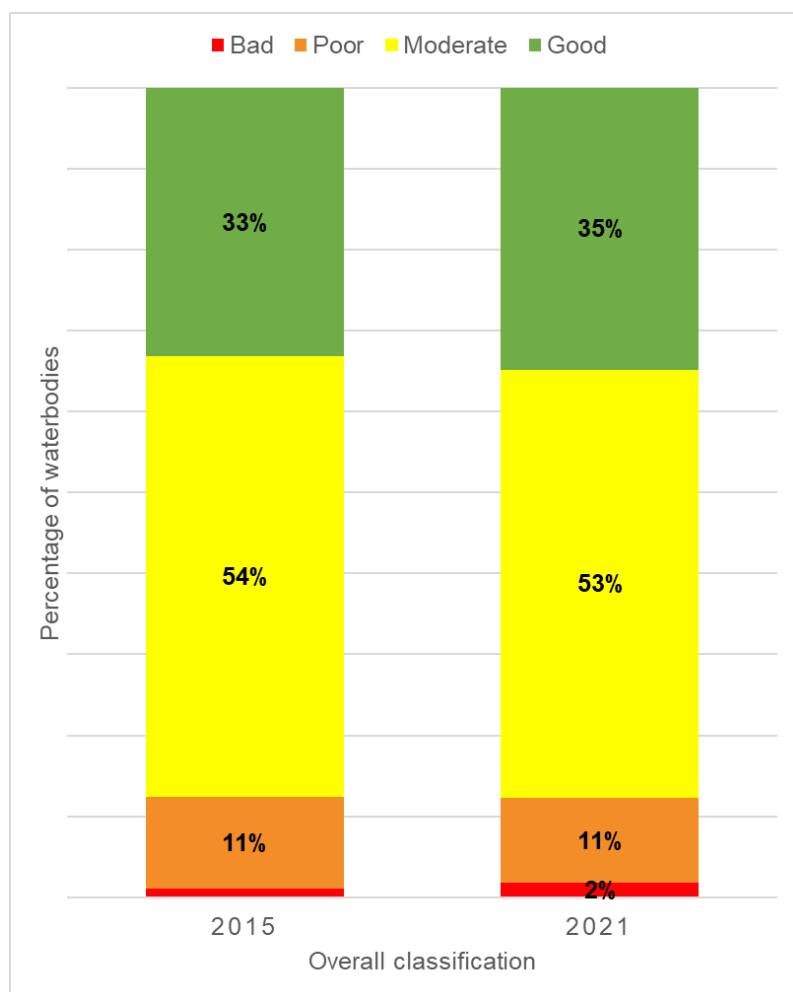
Number of water bodies	Poor	Good
9	3	6

## 2.1.4 Changes to classification since 2015

### 2.1.4.1 Overall status

In 2015, 33% of water bodies in the Welsh part of the Severn RBD achieved good or better overall status. We predicted that this would rise to 39% by 2021. The most recent classification results indicates that 35% of water bodies achieved good or better overall status (Figure 6). The comparison is made using the standards, assessment methods and water bodies that represent the best knowledge applied and therefore the most accurate view of the water environment at the time of classification.

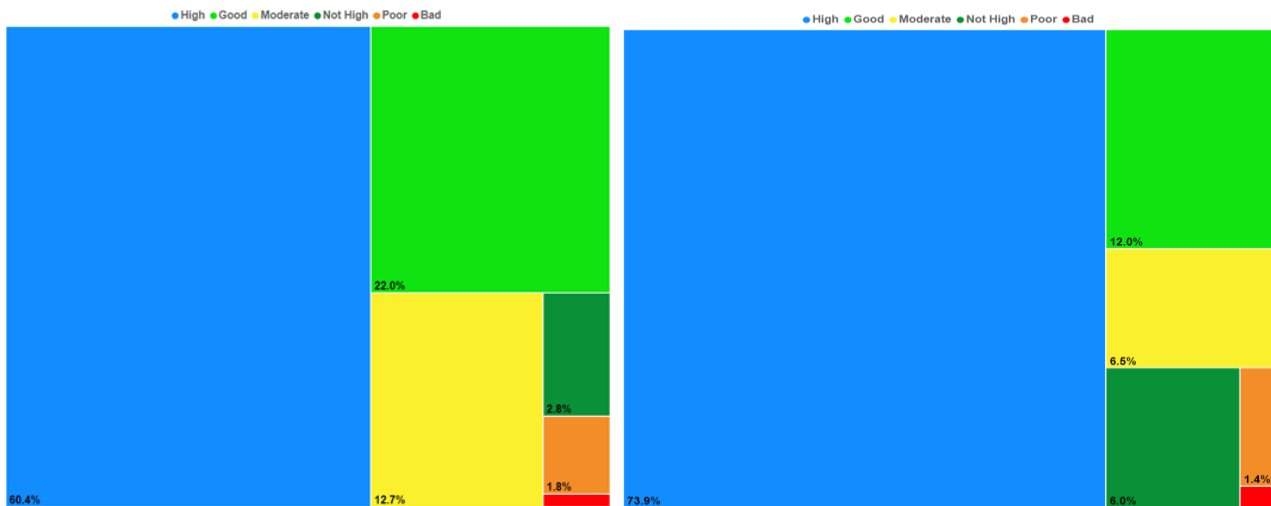
Figure 6 Comparison of the overall baseline classification in the Welsh part of the Severn RBD in 2015 with the most recent classification in 2021



### 2.1.4.2 Element level status

For each water body the overall water body classification is made up from several different chemical, biological and physical elements (e.g. mercury, benthic invertebrates, dissolved oxygen). Classification requires that the overall status should be the lowest of all the individual elements. The one out all out rule does not reflect the improvements and significant compliance at the element level. To provide further detail it is useful to view compliance at an element level basis that gives a better holistic view of environmental status. **Error! Reference source not found.** represent a summary of the element level data for each of the five classes using the most up to date information compared to 2015. The area of each category in the charts below is proportional to the result of each class. In the Welsh part of the Severn RBD 86% of elements assessed individually are at good or better status in 2021 compared to 82% in 2015 demonstrating an improvement at an element level over this period.

Figure 7 Welsh part of the Severn RBD element level 2015 (left) and 2021 (right)



Looking at the data for the different types of water bodies in the Welsh part of the Severn RBD, in 2021, 86% of elements are at good or better status in rivers (not including canals and surface water transfer), 86% for lakes, 80% for transitional waters, 74% for canals, 80% for surface water transfers and 96% for groundwater. The overall view of status at an element level is positive and demonstrates the effort that NRW and partners have contributed to protect and improve the status of the water environment.

By assessing the status of the different elements for each water category we can also identify elements that have proportionally more water bodies at less than good which may require greater focus on over the third cycle. In rivers, the elements that have the most failures are phosphate, mitigation measures assessment and fish. In lakes, total phosphorus, macrophytes and mitigation measures assessment are elements that have a significant proportion at less than good status. In transitional waters mitigation measures assessment and dissolved inorganic nitrogen are the primary elements causing water bodies to be at less than good status. Nutrients and mitigation measures in HMWBs are key elements to improve and focus on over the third cycle in order to achieve good overall potential which are discussed more in Chapter 3.

### 2.1.4.3 Deterioration

A comparison between the start and end of the second cycle classifications using the same standards and water body network shows that 53 elements require further investigation to understand the causes of a deterioration in status e.g. from good to moderate. These causes may be due to monitoring changes, data anomalies or real environment change as a result of pressures on the water environment. We will investigate these as soon as practically possible and where a deterioration is confirmed as a result of real environmental impact then we will put a programme of measures in place to restore the element back to its previous status.

Further investigations identified a potential phosphate deterioration of the Afon Chwefru (from the first cycle assessment period). The probable cause is considered to be pollution from diffuse agriculture and rural land management. Measures required to address this include riverine habitat restoration work and farm visits, the Wye and Usk Foundation already undertook around 2km of river habitat restoration work in 2020. A total phosphorus deterioration was also confirmed in Claerwen Reservoir for the same assessment period. It could not be determined whether the cause was an artefact of limited samples for the initial 2009 classification or due to surrounding rural land management. A partnership project between NRW and Elan Valley Trust has restored 70 hectares of peatland, while the primary aim was to improve habitat for wildlife and store carbon, it may also provide wider benefits to water quality with reduced peak flows, a longer water retention time and slower run off rates.

## 2.2 Chemicals including those that are ubiquitous, persistent, bioaccumulative and toxic (uPBTs)

Chemicals can impact on the aquatic ecosystem in the following ways:

- Aquatic life (fish, plants and invertebrates) from exposure to chemicals in UK waters
- Human health and higher wildlife predators from chemicals that may accumulate via the aquatic food chain
- Surface water and groundwater sources where chemical contamination may compromise their on-going use to supply water for domestic or food production purposes

NRW manage chemicals in the water environment within the framework of a [strategic approach to tackle risks from harmful chemicals in our waters](#). Chemicals in the environment are derived from a variety of sources. Some chemicals are ubiquitous and are best managed at a national scale whereas others are particular to an activity and their management should be focused at a local scale. Many chemicals are banned from production and/or use but are persistent in the environment for long periods of time and continue to be monitored to demonstrate that existing controls are adequate, and concentrations are decreasing. Managing chemicals will ensure that we minimise the impact on aquatic life and human uses of water.

As new chemicals are manufactured and used, and our assessment of chemicals improves to better manage any risks, the range of chemicals and the way they are assessed has evolved since the first RBMP. The WFD Regulations 2017 identifies a



subgroup of chemicals which are uPBT that require special consideration for monitoring and presentation of classification results. These uPBTs are reported in full for the first time in this RBMP. The risk assessments are explained in section 4.4.3 of the **Planning Overview Annex (Wales)** and are based on best available evidence and show a significant risk of failing the standards for Polybrominated Diphenol Ethers (PBDEs) and mercury. The chemical fact sheets are in Appendix C of the **Planning Overview Annex (Wales)** which show that these chemicals have been phased out of use and further measures would not be practicable. However, because of the persistence of these chemicals in the environment it is likely that there will not be widespread compliance with standards in the next planning periods.

Because of the bioaccumulative nature of uPBTs we are now directed to monitor these chemicals in the tissue of fish and shellfish. We cannot sample the environment for these chemicals as widely as we do with water samples and we will only sample fish and shellfish when we are confident, we are not impacting on natural populations. This limits the number of water bodies we assess for these kinds of chemicals in Wales and so NRW is actively investigating other methods and techniques to assess the risk to higher trophic levels that uPBTs pose.

The UK regulators continue to work closely together on the subject of chemicals classification. We have each developed an approach that makes best use of the evidence available to us. Whilst the approaches to classification may differ, the measures applied to reduce uPBTs in the water environment are broadly comparable across the administrations and driven from national and international legislation, and monitoring the reduction of these chemicals in the environment will continue to ensure that measures are appropriate.

Emerging chemicals, including some pharmaceuticals, are of increasing concern in the water environment. NRW have a robust monitoring programme for emerging chemicals which is used to identify emerging risks and therefore those that may require additional regulation and measures. Following EU Exit, the UK regulators are working together to identify emerging chemicals and to regulate those that pose a significant risk. In some cases that may result in national source control, in other cases this 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.

## 2.2.1 Emissions Inventory

Under the WFD Regulations 2017 there is a requirement to publish an inventory of emissions, discharges and losses of priority substances for each RBD. The inventory was compiled and [published](#) by the Environment Agency for the whole River Basin District using environmental monitoring and point source effluent discharge data. In the longer term the inventory is intended to track the effectiveness of control measures on priority substance discharges at a national level.

## 2.3 Protected Areas

There are a number of areas in the Welsh part of the Severn RBD where the water environment is particularly important. Protected Areas defined by WFD Regulations 2017 and listed in our Protected Area Register have legal protection under a range of UK Regulations (Section 3.1.2 **Planning Overview Annex (Wales)**). Protected Areas can have

different objectives for compliance. Where the standards required for doing this are more stringent than those required to achieve good ecological status, we must endeavour to achieve those more stringent standards.

The number and type of Protected Areas are shown in Tables 7 to 9 below. Note that where a Protected Area crosses the boundary of more than one RBD, we report in the RBMP which holds the majority of the area in order to avoid duplication. See **Planning Overview Annex (Wales)** for further details and links to sources of compliance data for different types of Protected Areas.

There are no Bathing Water or Shellfish Water protected areas in the Welsh part of the Severn RBD.

The Nitrate Pollution Prevention (Wales) Regulations (2013) have been revoked and replaced by the Water Resources (Control of Agricultural Pollution)(Wales) Regulations 2021. Measures to protect the environment from pollution by nitrates from agricultural sources will now apply to the majority of holdings in Wales after the transition periods (these apply to holdings not previously in a Nitrate Vulnerable Zone). Nitrate Vulnerable Zones in Wales previously included on the Protected Area Register have been removed.

Table 7 Drinking water protected areas (DrWPA)

Water body type	Number of drinking water protected areas	Number 'at risk'
Surface water	57	27
Groundwater	9	0

Table 8 Nutrient Sensitive area protected areas

Nutrient Sensitive area protected areas	Number of sensitive areas	Length (km)/Area (km <sup>2</sup> ) designated
Eutrophication in rivers	2	143.2 km
Eutrophication in canals	n/a	n/a
Eutrophication in lakes or reservoirs	n/a	n/a
High nitrate in surface fresh water	n/a	n/a

Table 9 European site protected areas

For the purposes of the RBMP water dependent Special Area of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites have been called "European sites".

European site protected area	Total Number
Water dependent SACs	20
Water dependant SPAs	2
Ramsar sites	2

In Wales the condition of designated habitats and species features in SACs and SPAs are reported over six-year cycles. In Wales NRW has undertaken [marine indicative condition assessments for all the marine SPA and SAC features](#) in 2018. This included the [Severn Estuary SAC indicative condition assessment report](#) and the Severn Estuary SPA bird features were covered in the [Welsh SPA report](#).

NRW's [Freshwater and Terrestrial Protected Sites baseline assessment \(2020\)](#) used existing evidence to derive, where possible, 'indicative' feature condition assessments across the range of freshwater and terrestrial feature condition assessment across the range of freshwater terrestrial features on protected sites in Wales. The baseline assessment includes water dependant SACs including the River Wye and Usk.

In January 2021 NRW published an evidence report on '[Compliance Assessment of Welsh River SACs against Phosphorus Targets](#)'. The evidence review shows that overall, phosphorus breaches are widespread within the Wye and Usk SACs against the revised tightened targets set. Further information is available in Section 3.2.4.1

### 2.3.1 Changes to some of the Protected Areas between second and third cycles

No changes to the nutrient sensitive areas have been made under the Urban Wastewater Treatment (England and Wales) Regulations 1994 between the second and third cycle in the Welsh part of the Severn RBD.

The Nitrate Pollution Prevention (Wales) Regulations (2013) have been revoked and replaced by the Water Resources (Control of Agricultural Pollution)(Wales) Regulations 2021. While the requirements of the Nitrate Regulations only applied to those holdings within a designated Nitrate Vulnerable Zone (NVZ) the majority of measures under the Water Resources (Control of Agricultural Pollution) (Wales) Regulations will apply to all holdings in Wales after the initial transition period.

### 2.3.1.1 Drinking water (surface and groundwater)

We have reviewed all of the surface water Drinking Water Protected Areas (DrWPA). A number of DrWPAs have been removed from the Protected Area Register for the Welsh part of the Severn RBD (listed in Table B2 in Appendix B **Planning Overview Annex (Wales)**).

### 2.3.1.2 European sites (water dependent SAC, SPA and Ramsar sites)

Post EU Exit, SACs and SPAs in the UK no longer form part of the EU's Natura 2000 ecological network. The Habitats Regulation 2017 as amended have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs and SPAs and new SACs and SPAs designated under these Regulations.

Maintaining a coherent network of protected sites with overarching conservation objectives is still required in order to fulfil the commitment made by government to maintain environmental protections and continue to meet our international legal obligations, such as the Bern Convention, the Oslo and Paris Conventions (OSPAR), Bonn and Ramsar Conventions.

Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the national site network. Many Ramsar sites overlap with SACs and SPAs and may be designated for the same or different species and habitats. All Ramsar sites remain protected in the same way as SACs and SPAs.

The [Protected Areas Register](#) for Wales has been updated and is published as part of the third RBMP and maps updated on [Water Watch Wales](#).

## 2.4 Delivery of actions 2015-2021

Actions taken during the second cycle have collectively contributed to the protection and improvement of the water environment. The actions related to all types of water bodies; rivers, lakes, canals, wetland, groundwater, estuaries and coastal waters including those in Protected Areas. A number of examples including case studies and many of the partnership actions are set out in Appendix 1.

### 2.4.1 Preventing deterioration

All measures and many of the day-to-day activities of NRW and many of our partners contribute to preventing deterioration of the water environment. Through our collective knowledge, we are able to identify which water bodies are specifically at risk and set out the measures, where possible, to prevent or mitigate those risks.

For example, the NRW local staff cover a range of activities, including regulatory, enforcement, incident management and advisory, to protect water, land and air. This contributes to preventing deterioration in many water bodies across the RBD. Examples of this work include:

- targeted farm visits, which can be regulatory for cross-compliance, groundwater and NVZ work or provision of advice and guidance on best practice to protect the water environment.
- audits of hydro-electric power (HEP) installations for compliance with permit conditions.
- audits of waste water treatment works – water company, trade or private.
- pollution prevention visits to permitted sites for example poultry units and other major industrial sites including food and drink sector.
- pollution prevention visits to non-permitted sites including industrial estates, house build sites and new road schemes. This work includes tackling misconnections with water companies and local authorities.
- water related INNS management if it affects protected sites features or NRW assets.
- attending incidents to stop polluting discharges and where required follow up with a regulatory response where environmental offences have occurred. This can reduce the impacts and prevent future issues occurring.
- pre-application advice and technical input to new permits including hydro-electric power and planning applications including new agricultural storage facilities.
- monitoring land spreading deployments.

## 2.4.2 Programme of Measures

The majority of national measures have been implemented, 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. They included the Water Industry Investment Programme and local measures for the targeted water bodies. For further detail of the target water bodies see Section 2.4.2.1.

The exact measures to be put in place are subject to change over time. Changes in the types of measures needed occur for a variety of reasons including new evidence, changes in water body status, changes in pressure (e.g. cropping patterns), funding availability, Government policy changes, development impacts and climate change. Opportunities to deliver more, or test novel techniques have been acted upon as appropriate for example the Slurry Separator Project which was supported by the WFD Implementation Fund during the second cycle.

Across Wales through the Water Industry Investment Programme Dŵr Cymru/Welsh Water (DCWW) allocated £65m to achieving the objectives of the WFD Regulations 2017 in their 2015-20 business plan (Asset Management Plan AMP6), including:

- installing Event Duration Monitoring at all Combined Sewer Overflows (CSOs)
- monitoring as part of the UK Chemicals Investigation Programme (UKCIP)
- WFD Regulations 2017 and Drinking Water Protected Area investigations
- monitoring of flows at Waste Water Treatment Works (WwTWs)

The evidence base is being used to inform investment decisions and to influence changes to land use policy in Wales.

#### 2.4.2.1 Target water bodies

To focus on improving water body status in the second cycle a number of water bodies were targeted for the implementation of local measures. NRW prioritised improving compliance with good overall status in 17 water bodies that were at moderate/poor status and improve 12 water bodies that were at poor status to moderate and 1 from bad to poor in the Welsh part of the Severn RBD. A total of 74 measures were identified for the 30 target water bodies to address diffuse and point source pollution from both urban and rural areas, to improve fish passage and to improve degraded habitat. We predicted that the water bodies meeting good or better overall status by 2021 would rise from 33% in 2015 to 39%. The analysis above shows that in 2021, 35% achieved good overall status which is below what we hoped to achieve. Reasons for this are complex. Many of the measures that were put in place with the aim of achieving good status by 2021 may not be realised in the classification until the water quality and ecology has had time to recover, be monitored and classified. Further details of the actions taken are set out in Appendix 1.

#### 2.4.2.2 Investigations

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

#### 2.4.2.3 Additional new measures

The Programme of Measures requires regular review to ensure the right actions are being delivered in the right place. During the second cycle new priorities and/or opportunities meant that some actions were reviewed to reflect the needs of the environment at that point in time.

The following new approaches and measures were introduced:

##### **Working with other organisations to protect and improve our water quality**

Since the publication of the second cycle plans, new arrangements have been put in place to work with key organisations, including Welsh Government, and across work areas to protect and enhance our water environment. These include:

- **Wales Land Management Forum agriculture subgroup** was tasked with undertaking root cause analysis to achieve a common understanding of the causes of agricultural pollution and the ways in which these are currently addressed through the investigation, agreement, reporting and delivery on potential solutions, taking an integrated approach, working across organisations.

- **Wales Water Management Forum** purpose is to provide an opportunity for membership organisations to share evidence and explore opportunities for working together collaboratively towards the sustainable management of water in Wales.
- **Wales Fisheries Forum** represents a range of stakeholders with an interest in the freshwater and diadromous fisheries resources of Wales and the work of NRW and others to maintain, improve and develop migratory and freshwater fisheries in Wales.

### **Measures for agriculture**

In April 2021 [The Water Resources \(Control of Agricultural Pollution\) \(Wales\) Regulations 2021](#) were introduced to reduce losses of pollutants from agriculture to the environment.

Transitional periods for some elements of the regulations are in place to allow farmers time to adapt and ensure compliance. The timetable introduced and enacted within the regulations includes the following measures:

- Nutrient management planning
- Nutrient applications restricted to crop limits
- Closed periods for spreading manufactured and organic nitrogen fertilisers
- Storage capacity for slurry and storage of organic manure

### **WFD Implementation Fund**

Welsh Government provided the River Basin Liaison Panels with an opportunity to deliver actions which would 'achieve or contribute towards a measurable improvement in water quality in the respective RBDs. The fund was a total of £220K over 2 years. Projects included producing guidance of management of septic tanks and a project to prioritise improvements in physically modified rivers. It should be noted that the Liaison Panels in Wales have been replaced by the WWMF.

### **Welsh Government Capital funding**

Nearly £10M Welsh Government Capital funding was made available in 2020-21 and £9.5M in 2021-2022 for water quality improvements. This included water quality improvements (such as fencing, chemicals passive monitoring and river restoration), our mine waters programme and fisheries habitat programme.

Work continues to explore river restoration opportunities in the Ely River and Nant Dowlais. This work includes identifying existing physical modifications and pressures plus measures to reduce their impact to restore natural processes. Renaturalisation options include floodplain lowering, riparian and buffer zone creation and increasing channel sinuosity.

### **The Environment (Wales) Act 2016 and the Well-being of Future Generations (Wales) Act 2015**

See section 1.3 on taking a place-based approach in Wales on details of the overarching aims of the Environment (Wales) Act 2016, [Natural Resources Policy](#) and Area Statements and also for the Well-being of Future Generations (Wales) Act 2015.

## 2.5 Challenges in the Welsh part of the Severn RBD

In April 2019, the Welsh Government declared a '[Climate Emergency](#)' in Wales with the intention of prompting “a wave of action at home and internationally. From our own communities, businesses and organisations to parliaments and Governments around the world.” On the 30<sup>th</sup> of June 2021 the Welsh Government also declared a nature emergency. [The Welsh Government programme of aspirations](#) sets the commitment to embed our response to the climate and nature emergency in everything we do; plus commitments linked to water quality improvement. Further information on how to adapt to climate change, and how to reduce emissions, is provided in the **Planning Overview Annex (Wales)**.

Since the second cycle RBMP was published in 2015, we have continued to improve our understanding of the pressures, impacts and risks that the water environment faces. There continues to be many challenges for the water environment and the integration of this work will be key during the third cycle.

We have:

- Investigated failures to achieve standards to identify the underlying reason for failure.
- Assessed the risk of deterioration or of failing to achieve standards in this and future plans.
- Consulted the public on our findings through the Challenges and Choices consultation and consultation on the draft third cycle plan.
- Considered current and emerging challenges in particular those that have been identified by stakeholders. These have been used to inform the updated programme of measures to address a broad range of challenges including phosphorous in SAC rivers, spills from storm overflows and taking a more integrated approach for catchments from source to sea.

We have reviewed the list of the most important issues we believe threaten the current and potential future uses of the water environment. We have grouped the pressures under a number of issue headings known as the Significant Water Management Issues (SWMIs) (note that these are not in order of priority), more detail can be found in the **Planning Overview Annex (Wales)**. We have focused on those issues where more action is needed to achieve status objectives.

- **Physical modifications.** Man made changes to the natural habitat, for example poorly designed or redundant flood defences and weirs, and changes to the natural river channels for land drainage and navigation and shellfisheries on estuaries and in coastal waters. These modifications can cause changes to natural flow levels, excessive build-up of sediment, and the loss of the habitat that wildlife needs to thrive.
- **Pollution from sewage and wastewater.** Wastewater can contain large amounts of nutrients (such as phosphorus and nitrates), ammonia, bacteria and other damaging substances.
- **Pollution from towns, cities and transport.** Rainwater running over manmade surfaces and carrying pollutants into waters, toxic substances from contaminated



land, atmospheric pollution causing acidification and sewage from houses misconnected to surface water drains rather than sewers.

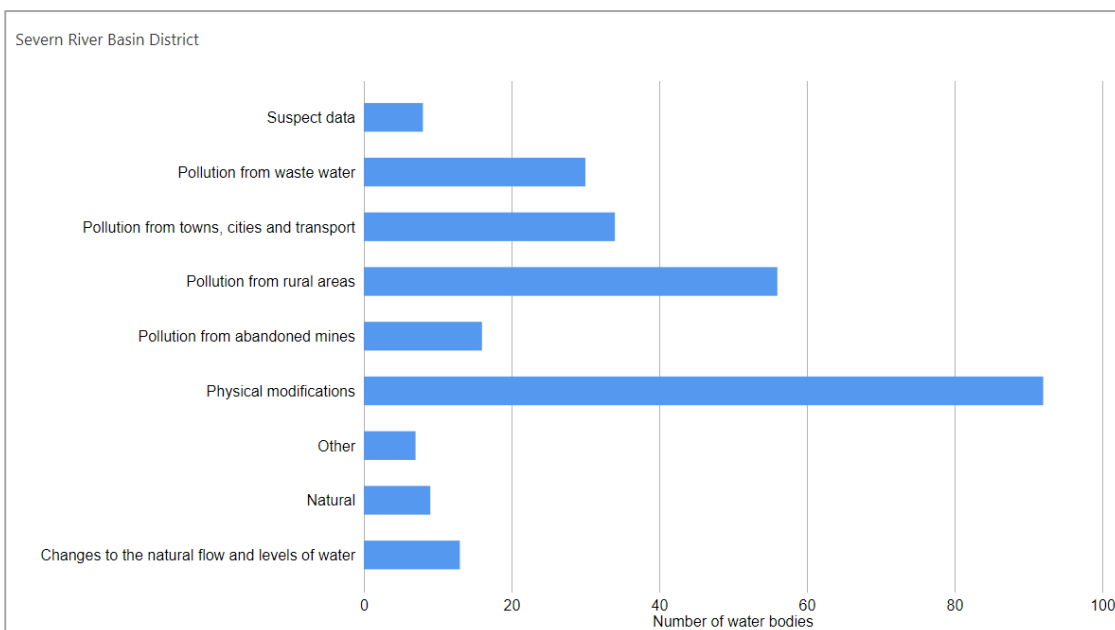
- **Pollution from rural areas.** Poor agricultural practice and forestry can result in nutrients and sediments affecting the water environment (also known as diffuse rural pollution).
- **Pollution from mines.** Contaminated water draining from mines, most of which are now abandoned.
- **Changes to the natural flow and levels of water.** Taking too much water from rivers lakes and underground causes problems for wildlife and reduces the water available for people to use. Releasing too much or not enough water from a reservoir to a river could also cause problems for wildlife.
- **Invasive Non-Native Species.** The presence of invasive non-native plants and animals in our watercourses poses a threat to biodiversity, increases flood risk, affects the state of our water environment and costs the economy billions per annum.

### 2.5.1 Reasons for not achieving good status/potential

Since 2015, NRW has carried out several investigations in the Welsh part of Severn RBD to increase our understanding of the issues affecting water bodies. As a result, we are now in a better position to work with our partners to deliver sustainable improvements.

Figure 8 below provides an indication of the types of pressures acting on our water bodies, which in turn highlight the issues or challenges preventing water bodies achieving good status or potential in the Welsh part of Severn RBD. This figure represents a snapshot in time, as further investigations are undertaken, and measures completed on the ground, the dataset is updated. The July 2022 data shows that the main reasons for not achieving good status in descending order: physical modifications, pollution from rural areas pollution from towns, cities and transport, pollution from wastewater and changes to the natural flow and levels of water.

Figure 8 Reasons for not achieving good status/potential 2021



NOTE: There are failures due to ‘suspect’ data which we are working to resolve. Other failures can include things like the time needed for the ecology to recover after intervention and where natural barriers such as waterfalls limit fish movement. There are also some unknowns reasons for not achieving good where we are unable to identify the reason for failure or the investigation was incomplete at the time of writing (these have not been included in the graph).

## 2.6 Risk assessments

We have reviewed water quality data and information on the types and magnitude of pressures affecting water bodies in the RBD with the objective of:

- Assessing how susceptible water bodies are to those pressures and in particular:
- Estimating the likelihood of water bodies failing to meet their environmental quality objectives in the future, or deteriorating from their current condition.

The methodology for each [risk assessments \(arcgis.com\)](http://arcgis.com) was tailored to the specific pressure, but in general, it was an assessment of the scale of the pressure and the sensitivity of the water body. The risk assessments are available for the pressures presented on Table below, and are valid until 2027, including those last reviewed in the second cycle in 2014 which were assessed over a longer term so did not require updating.

Table 10 List of available risk assessments per pressure type and water category

Environmental pressure	Water category	Latest review
Phosphates	Rivers and lakes	2019, updated 2021
Chemicals and metals	Rivers, lakes, groundwater, estuarine and coastal waters	2019 (2014 for chemicals and metals in groundwater)
Dissolved inorganic nitrogen	Estuarine and coastal waters	2019
Dissolved oxygen and ammonia	Rivers	2019
Physical modification	Rivers	2022
Faecal indicator organisms	Shellfish and Bathing Water Protected Areas	2014
Acidification	Lakes, rivers	2014
Abstraction and flow	Rivers, groundwater	2014

<b>Environmental pressure</b>	<b>Water category</b>	<b>Latest review</b>
Invasive non-native species	Rivers, lakes, estuarine and coastal waters	2014
Sediment	Rivers	2014

We use the risk assessments to:

- Identify areas and pressures where more data is needed to develop and prioritise our monitoring strategy. Support the development of national programmes of measures, particularly for pressures where classification data is missing.
- Support the development of national programmes of measures, particularly for pressures where classification data is missing.

# 3. Measures and Objectives

## 3.1 Summary of the Programme of Measures

This section summaries the main Programme of Measures to deliver the statutory objectives:

- **Prevent deterioration in status** - Water body status will not be allowed to deteriorate.
- **Achieve the objectives for Protected Areas** - Achieve the standards set by the relevant legislation under which they were designated. For water dependent European sites we will continue to work towards achieving conservation objectives. Achieving good status by 2027 will contribute towards meeting those objectives.
- **Aim to achieve good overall status/potential for surface waters and ground waters** - Implement measures to achieve good overall status where they are technically feasible and not disproportionately costly.

To do this will require combinations of measures which are delivered across many sectors as well as by the general public – we all have a role to play. The RBMPs considers the measures that are necessary and the mechanisms by which they are delivered, further details on these mechanisms can be found in the **Planning Overview Annex (Wales)**. These measures enable us to address the challenges that threaten current and future uses of the water environment and to maintain and enhance the water environment.

In this document, a summary of strategic measures and water body (local) actions that are planned for delivery includes:

- Strategic measures - these usually apply to the whole of Wales, England and Wales, or the United Kingdom. In general these set the legislative, policy or strategic approach and support, or are critical to local delivery and environmental outcomes. They also include some of the main delivery programmes which are summarised in Section 3.2. For example, a national ban on using a particular chemical or a national strategy for prioritising and funding the remediation of abandoned mines. More detail is available on [Water Watch Wales](#).
- Local actions - those actions that have been identified locally that are required to deliver WFD Regulations 2017 outcomes, wider benefits to the water environment and contribute to well-being goals. Many of the local actions will be associated with the strategic measures for example, progressing recommendations set out within River Restoration Plans, fish passage improvements under AMP and securing regulatory compliance within the agricultural sector. Opportunity Catchment actions are included here and form a significant area of work for the RBMPs. Actions for A/HMWBs are a specific set of mitigation measures dependent on use for example, removal of a culvert for urbanisation use. More detail specifically for Opportunity Catchments is available on [Water Watch Wales](#).

Local actions have been categorised as:

- Local Actions (Committed) – these are those actions that aim to deliver WFD Regulations 2017 objectives, wider benefits to water and/or for people where there is certainty around funding, resources, partnerships and/or timelines.
- Future Aims (Potential Local Action) – the Future Aims are more aspirational, flexible measures where there is less certainty around implementation. These will be reviewed within the third cycle and will evolve during 2021-2027. Progress against these aspirational measures will depend on such things as securing adequate funding, developing the right partnerships etc and may change should further evidence or information come to light. The **Planning Overview Annex (Wales)** contains more detailed information on the approach taken and what is different for the third cycle.

## 3.2 Main Delivery programmes

The Programme of Measures and environmental outcomes they aim to achieve will be delivered through a number of existing programmes and mechanisms. The following section provides a summary of the main programmes. Further detail on all the mechanisms is within the **Planning Overview Annex (Wales)**, further supporting documentation will also be used for the implementation of the RBMPs to support tracking.

The main programmes in this document include:

- Welsh Governments Water Strategy for Wales
- NRW's WFD Regulations 2017 driven programme
- Catchment scale improvements, River Restoration and Sustainable Fisheries opportunities
- Protected Areas including the SAC Rivers Project
- Flood and coastal risk management
- Water Industry Investment Programme including the storm overflow roadmap
- Water resources sustainability measures
- Sustainable land management – agriculture
- Sustainable land management – woodland and forestry
- Welsh Government Capital Fund
- Opportunity Catchments

We will take a catchment to coast based approach in integrating these programmes to maximise the opportunities we can gain from the source of our rivers to the sea. Working in place-based way enables this approach, but we hope to develop this further through the delivery of the RBMPs.

### 3.2.1 Welsh Government Water Strategy for Wales

The Water Strategy for Wales was launched in May 2015. The vision is to ensure that Wales continues to have a thriving water environment which is sustainably managed to support healthy communities, flourishing businesses and the environment. The strategy

sets out the direction for long term water policy in the context of the Environment (Wales) Act 2016 and Well-being of Future Generations (Wales) Act 2015. The Welsh Government is working closely with key stakeholders in identifying the areas which require an update and revision. The review, with stakeholder input is expected to be progressed in 2022. This will take into account more recent scientific, social and political changes which affect the water environment and our water sector.

The existing strategy is accompanied by an action plan with milestones up to 2025 (and beyond). The policy priorities are:

- supporting the development of the area based approach to natural resource management.
- ensuring access to fair and affordable water and sewerage services.
- devolution of all matters relating to water and sewerage.
- a more focused approach to sewerage and drainage management and development and implementation of legislation to support sustainable drainage solutions.
- reform of the abstraction licence system in Wales to ensure sustainable management of our water resources now and in the future.
- review and where appropriate change current practices and regulatory approaches to tackle diffuse pollution.

### **3.2.2 NRW's WFD Regulations 2017 driven programme**

NRW is committed to delivering statutory objectives through an integrated approach to natural resources and catchment management across its functions. For 2021-2027, we have worked to develop an affordable Programme of Measures, based upon our current understanding of existing resources.

There will be a focus on:

- Preventing deterioration in all water bodies – through the NRW core activities, including incident response.
- Identifying where element level improvements will be achieved during the cycle, but where further measures will be required to deliver an overall ecological status change.
- Continuing to develop our approach to natural resource management by working at a local catchment level and capturing the wider benefits delivered for WFD Regulations 2017 through Opportunity Catchments.
- Targeting actions locally in an integrated way to deliver environmental improvements in water bodies and Protected Areas, including areas protected for water dependent habitats and species through Area Statements and SMNR.

### 3.2.3 Catchment scale improvements, River Restoration and Sustainable Fisheries opportunities

NRW is currently developing an integrated River Restoration Programme to bring together related work across Wales. The aim is to take a nature-based approach to restore characteristic river habitat for the benefit of hydromorphology, water quality, biodiversity, fisheries and flood regulation. The focus of this work can be defined as: the re-establishment of natural physical processes (e.g. variation of flow and sediment movement), features (e.g. sediment size and river shape) and physical habitats of a river system (including submerged, bank and floodplain areas).

There are several strands to the River Restoration Programme including prioritisation of water bodies for restoration works, production of a series of strategic river restoration plans for priority rivers including the Wye and Usk SAC rivers, collation of activity data and development of best practice case studies. There are strong links to Opportunity Catchments, Area Statements and the Fisheries Habitat Restoration Plans which focus on physical habitat constraints to fish populations.

More information about River Restoration is available in section 2.2.5 of the **Planning Overview Annex (Wales)**.

In addition to the River Restoration Programme, the Sustainable Fisheries Programme (SFP) covers several different, but related objectives for fish stocks and fisheries. These include:

- the SFP itself which is a small fund provided by Welsh Government to deliver a range of outcomes including fish habitat improvements and fishery promotion;
- a programme of alternative mitigation providing river habitat improvements as an alternative to migratory salmonid artificial rearing and stocking initiatives that NRW has now ceased;
- occasional other sources of funding for delivery of fish habitat restoration.

These initiatives are supported and managed by NRW and aim to continue previous works (delivered in RBMP cycles one (2009-2015) and two (2015-2021)), initiating new projects across Wales to improve fish stocks and habitat. NRW works closely with Afonydd Cymru and the family of six Rivers Trusts in Wales, as described in the Memorandum of Understanding between the parties, to develop and deliver the Sustainable Fisheries Programme.

There are continuing concerns around the numbers of salmon and sea trout returning to many of our rivers. In response to the salmonid emergency, NRW has developed a [9 point plan of action](#) that sets out how we are addressing the multiple pressures that fish stocks face. Following consultation by NRW and the EA, one of the actions taken by both organisations has been to implement catch control bye-laws on the River Wye and Severn to ensure that all rod caught salmon are released safely to the wild.

### 3.2.4 Protected Areas

We want to ensure that Protected Areas meet the standards and objectives that apply to them. Some projects and measures have been developed specifically for Protected Areas not currently meeting their objectives.

The Programme of Measures includes a wide range of measures to protect and improve:

- Drinking Waters
- Nutrient sensitive areas (Urban Waste Water Treatment Regulations)
- European sites

More detail is available in the **Planning Overview Annex (Wales)**.

Additional information on the measures and objectives for European sites can be found in the [core management plans](#) and the [Regulation 37](#) marine equivalent.

### 3.2.4.1 SAC Rivers Project

In January 2021 NRW published an evidence report titled [Compliance Assessment of Welsh River SACs against Phosphorus Targets](#). The evidence review shows that overall, phosphorus breaches are widespread within the Wye and Usk river SACs against the revised tightened targets. The Court of Justice of the European Union (CJEU) judgment on the 'Dutch Nitrogen' cases affects the assessment of plans and projects under the Habitats Regulations. As a result of the decision the scope for authorising new development that will lead to additional nutrient loading is likely to be limited where the conservation status of the SAC is unfavourable due to nutrient standards being exceeded.

NRW has created a SAC Rivers Project to focus on the water quality issues in our designated rivers. We are working alongside partners in Welsh Government, Planning Authorities, Land Managers, Water Companies and others to determine the best way of addressing the situation nationally through the Welsh Government Oversight Group and Planning sub-group. In addition locally there is a Nutrient Management Board for the Wye SAC and more recently a Catchment Partnership for the Usk SAC has been established. The role of the Boards is to identify and deliver actions that deliver water quality improvements in the river SACs. In the first instance this will focus on the phosphate conservation targets. Membership on the Boards will vary according to local needs, but typically will include; Local Authorities, NRW, DCWW and the National Park Authorities. The primary mechanism for achieving this will be through the delivery of a Nutrient Management Plan.

Six workstreams have been set up to undertake the work required which include;

- providing planning advice and position statements
- water quality targets and compliance assessments
- water quality improvements
- monitoring and evidence
- permitting
- materials to land

For further information about the work see our web site; [Natural Resources Wales / Water quality in river Special Areas of Conservation](#).



### 3.2.5 Flood and coastal risk management

Flood Risk Management (FRM) activity contributes to NRW's overall purpose by managing the risk of flooding to the people and communities of Wales and increasing community resilience, both for the present day and for the future.

The NRW FRM Service as a whole, includes all activity carried out by NRW in accordance with duties and responsibilities assigned by Welsh Government and legislation. At a high level FRM activities are considered to include;

- Management of flood risk assets
- Delivery of the Hydrometry and Telemetry service
- Community Engagement and Resilience
- Understanding and analysing flood risk
- Advising planners, consenting and enforcement
- Providing strategic advice and oversight
- Reservoir regulation

FRM activity seeks to reduce flood risk to the communities of Wales through reduction of inappropriate development within at risk areas, prevention of flooding using defences and the management of catchments and watercourses, and moving people and property to safety at times of extreme weather by making communities more aware and resilient before, during and after flooding. The above activities come together to deliver these outcomes and therefore none in isolation address the risk of flooding entirely for any community at risk.

Through NRW's Flood and Coastal Risk Management capital investment and routine maintenance programmes we manage flood risk in several ways:

- By building new flood alleviation schemes and other structures such as sluices and pumping stations
- By maintaining defences and structures once built, keeping them in good condition, and repairing or improving them if and when required
- By maintaining main river watercourses, removing obstructions, vegetation and silt or gravel, to keep water flowing and remove significant flooding risks
- Work on habitats to mitigate and compensate for the detrimental impacts of flood defences

Each of these activities are underpinned by our efforts to understand flood risk through our flood risk mapping and modelling work. We undertake our flood risk maintenance and capital work by having regard to climate change, the Well-being of Future Generations Act 2015 and the Environment (Wales) Act 2016. We integrate SMNR, nature based solutions and natural flood management into our schemes to deliver sustainable schemes which maintain or where possible improve ecological status or potential.

### 3.2.5.1 The Flood Risk Regulations

The purpose of the Flood Risk Regulations is for NRW and Lead Local Flood Authorities (LLFAs) to understand what is at risk of flooding and to plan what is needed to be done to manage the risk. This involves assessing what water courses and coastlines are at risk of flooding (the Preliminary Flood Risk Assessment), map the flood extent, assets and humans at risk in these areas (Flood Hazard and Flood Risk maps) and to take adequate and coordinated measures to reduce the risk (Flood Risk Management Plans (FRMP)) on a six year cycle.

We are currently drafting the second cycle FRMPs, once complete, will sit alongside the third cycle RBMPs. Both plans will jointly include measures that aim to improve the water environment in Wales.

### 3.2.6 Water industry investment programme

In DCWW's 2020-25 business plan (AMP7), £218M has been allocated to delivering their statutory environmental requirements aiming to deliver 418km of river improvements across their operating area. The programme includes, investigations and targeted investment to reduce the impacts of high spilling CSOs, UK Chemicals Investigation Programme third phase (UKCIP3), and further investment at WwTWs to meet Urban Wastewater Treatment (England and Wales) Regulations 1994 requirements. Evidence from AMP7 investigations will inform investment decisions and development of the Company's new Drainage and Wastewater Management Plan which will be published in draft for consultation in 2022.

In the Severn RBD, for the third cycle DCWW aim to deliver:

- Schemes to meet European site protected area objectives
- Schemes to meet WFD Regulations 2017 no deterioration requirements
- Schemes to contribute to delivering WFD Regulations 2017 good status
- Investigation and targeted improvements to reduce the impacts of assets on fish passage
- Biodiversity partnership project at Elan Valley Woodlands SAC
- Improvement schemes to meet Urban Waste Water Treatment (England and Wales) Regulations 1994 flow requirements
- Investigation drivers utilising the 'Storm overflow assessment framework' (SOAF) based on a prioritisation tool directed investment in late AMP7
- Application of Nature Based Solutions encouraged through partnership working and being brought in with SOAF and fish pass delivery
- Monitoring as part of the UK Chemicals Investigation Programme (UKCIP)
- Monitoring of flows at WwTW
- Joint nutrient source apportionment modelling for cross border rivers including the Wye and Usk

NRW and DCWW are currently working on developing the 2025-2030 business plan (AMP8), this will include delivery of Opportunity Catchment local actions. These will require funding through the sector's Periodic Review process.

DCWW is actively pursuing moving from the carbon intensive 'grey' concrete type solutions to nature-based solutions such as wetlands where these can be accommodated, for example at small WwTWs which require nutrient reductions to be made. These will form part of their SMNR approach.

### 3.2.6.1 Storm overflow roadmap

NRW, Welsh Government, Ofwat, DCWW and Hafren Dyfrdwy (the partner organisations) have established a taskforce to investigate and evaluate the current approach to the management and regulation of storm overflows in Wales. Afonydd Cymru and Consumer Council for Water are providing independent advice to the taskforce, offering key insight and challenge from a stakeholder and customer perspective.

The goal is to:

- Reduce the adverse impact of any overflow discharges on the environment, taking regulatory action where required to deliver improvements
- Gather greater evidence of the impact on our rivers, estuaries and coastal waters through improved monitoring of both the discharge and the receiving water
- Work with the public and stakeholders to improve the understanding and role of overflows in Wales

### 3.2.6.2 Water Resources Planning

Water Resources West (WRW) is one of five regional water resources planning groups set up in England. WRW is a joint partnership between United Utilities, South Staffs Water, Severn Trent Water, Hafren Dyfrdwy and DCWW with advisory support from NRW and the Environment Agency. The aim of WRW is to provide strategic oversight and co-ordination of water resources matters across the river catchments of the West of England and the cross-border river basins with Wales. They are working with a range of stakeholders to ensure enough water is available to meet demands for people, environment and adapting to climate change.

One water supply scheme, a transfer of water from the River Severn to River Thames is being investigated, as part of regional water resources planning, to re-deploy the current abstraction by United Utilities from Lake Vyrnwy so that water is released from the lake into the River Vyrnwy and on into the River Severn for subsequent re-abstraction near Gloucester to provide resilient public water supply. Water companies are undertaking an investigation into the environmental impact of this proposal. More information on this scheme is available at this link [RAPID - Ofwat](#).

### 3.2.7 Water resources sustainability measures

An abstraction licence is needed before abstraction of water of more than 20 cubic metres a day per source of supply can take place (unless exempt from licensing). An

impoundment licence is needed where flow is impeded or obstructed (impounded) by the construction, alteration, repair or removal of an impoundment (unless exempt from licensing). These licences are regulated in Wales by NRW. NRW maintains a register of all abstraction and impoundment licence applications and subsequent decisions which can be viewed externally via the public register.

Water resource availability assessments will continue to be updated and improved so that the most up to date water resource availability picture is available to customers wishing to apply for an abstraction licence, in the form of published Abstraction Licensing Strategies (ALS). ALS will continue to underpin our abstraction and impoundment licence determination decisions.

Where older abstraction licences are found to be failing to meet statutory objectives, a review of the licence is undertaken by NRW and/or EA. Measures to mitigate, revoke or reduce that abstraction or catchment management measures are then put in place to comply with a minimum objective of no deterioration, as required by the WFD Regulations 2017.

Since 1 January 2018, most previously exempt water abstractors (if taking over 20 cubic metres a day per source of supply) require a licence to continue legally abstracting water. Between 1 January 2017 and 31 December 2019 NRW offered a simpler transitional application process for previously exempt abstractors. NRW must determine all transitional applications by 31 December 2022. Some abstractions and impoundments that are considered low risk remain exempt.

NRW is responsible for checking compliance on a risk basis with licences, providing advice and guidance and taking protective responses including issuing notices, civil sanctions or enforcement action. Compliance of abstractions will support the SMNR and enhance resilience of the environment to meet statutory objectives.

Sustainable management of water resources face challenges to flow regimes as a result of climate change, more intensive rainfall and longer drier periods, mean that some existing licences are likely to become problematic in the future as surface water courses and groundwater levels fall, [UK Climate Change Risk Assessment - A Summary for Wales 2017](#).

In future, abstractions will be regulated under the Environmental Permitting (England and Wales) Regulations 2016. This reform of the licensing system provides the opportunity to build in long term flexibility to deal with current and future challenges of climate change, population and economic growth, and to build water efficiency measures into water use across all sectors.

The UK Climate Change Risk Assessment Summary for Wales 2017 projects increased frequency and intensity of extreme weather events. Existing pressures on water resources, demand due to population growth and urban development, are also likely to increase as well as the carbon footprint for treatment and supply of water. A major tool to mitigate these pressures is to improve the efficient use of water across all sectors.

The Wales Water Efficiency Group and the UK Water Efficiency Strategic Steering Group work collaboratively to promote consistent messaging and water efficiency initiatives across the UK, raising awareness of the need to conserve water.

### 3.2.8 Sustainable land management - agriculture

NRW continues to work with the sector to co-produce a strategic approach in line with our regulatory principles and our principles to deliver SMNR to tackle agricultural pollution. This has produced an approach which has five themes which in combination will be far more effective than if any theme is taken forward in isolation, more detail is available in the **Planning Overview Annex (Wales)**. These are Regulation; Voluntary actions; Advice, Guidance, Knowledge; Skills and experience development; Investment and innovation. These are reflected in the approach developed by the [WLMF Sub-Group on Agricultural Pollution](#) in their progress report [Tackling Agricultural Pollution](#).

The Agriculture (Wales) Bill will form the primary, long term legislation foundation for Welsh agriculture and sustainable land management policy and regulation, replacing the Common Agricultural Policy and UK Agriculture Act 2020. The Bill and subsequent secondary legislation provide an opportunity to make provision for a number of important areas in relation to the themes.

### 3.2.9 Sustainable land management - Woodland and forestry

Well maintained culverts, effective silt traps, roadside drains separate from any natural watercourses, riparian zones and appropriate water management within the forest are essential to prevent deterioration in status in water bodies linked to the Welsh Government's Woodland Estate (WGWE).

NRW are committed to constantly improving the environmental quality of WGWE. We are continuing to address pressures on water quality and quantity through compliance with the UK Forestry Standard (UKFS) published in 2017 (and supporting practice guides "Managing forestry operations to protect the water environment" and "Managing forests in acid sensitive water catchments"). All harvesting, restocking and engineering work on the WGWE requires a Water Management Plan.

Forest Resource Plans set out the 25-year vision and a 10-year plan of operations for a forest. They present the opportunity to enhance the water environment through designating riparian zones which will become permanent features, identifying areas for management under Low Impact Silvicultural Systems through a progressive thinning regime, and assessing areas of deep peat to determine whether they are suitable for restoration.

Forest Resource Plans are implemented through Coupe Plans, produced to manage forest operations. This is the stage when Water Management Plans are drawn up, to ensure the work has no significant impact on water quality. All work must comply with the UKFS.

In addition, where additional funding is identified, projects provide excellent opportunities to improve the water environment, such as river restoration.

### 3.2.10 Welsh Governments Capital fund

The priority areas for the Welsh Government Capital Programme for Water are Metal Mines, Water Quality, Peatlands and Fisheries. The Welsh Government capital delivery programme for water quality in 2022-23 tackles some of the key issues that threaten the water environment and prevent Wales from achieving its WFD Regulations 2017

objectives. These issues are physical modification, pollution from sewage and wastewater, pollution from towns, cities and transport, pollution from rural area and pollution from mines.

In addition to taking action to achieve WFD Regulations 2017 objectives, the programme is underpinned by the legislative requirements of The Environment (Wales) Act 2016 and also considers our duty under the Well-being of Future Generation (Wales) Act 2015. The aim is to deliver projects that have clear, measurable capital outputs that will contribute to the protection and improvement of the wider water environment including benefits to wildlife and people in these key areas:

- Opportunity Catchments
- River Restoration Programme
- Water Quality improvements in Protected Areas (including Wye and Usk SAC Rivers)
- National Projects

Overall, the Water Capital Programme for 2022-23 reflects NRW's commitment to achieving SMNR for Water in Wales. As this is a long-term objective, NRW's approach will be to continue to deliver capital projects that benefit the water environment and people beyond 2022/23.

### **3.2.11 Opportunity Catchments**

For the third cycle RBMPs we aim to achieve a place-based approach to catchment prioritisation that also delivers WFD Regulations 2017 outcomes. We have not selected targeted water bodies solely for the purpose of delivering outcomes under WFD Regulations 2017 but have identified ten catchments that represent the best suite of opportunities to deliver sustainable management for water and contribute to the well-being goals. The Area Statement engagement process was central to the selection of these Opportunity Catchments. In addition, the Area Statement process will continue post 2027 and therefore integration will bring WFD Regulations 2017 benefits for the longer term. Ten opportunity catchments have been identified that represent the strongest mix of opportunities for delivering SMNR for water within each place using a catchment to coast approach.

Opportunity Catchments will focus staff resource across NRW's functions to support partners to deliver integrated catchment management solutions. Partners operating within the Opportunity Catchments will also be able to contribute towards improvements within these areas. NRW will continue to work with partners in other catchments that are not selected as an Opportunity Catchment including focussing on addressing physical modifications, fisheries restoration plans, metal mine remediation and pollution from wastewater, and rural and urban areas.

The ten Opportunity Catchment areas are shown in Figure 9 and are:

- Dee (Wales only)
- Clwyd
- Conwy

- Anglesey
- Teifi
- Taff/Ely
- Cleddau/Milford Haven
- Swansea Bay
- Central Monmouthshire
- Ithon

Figure 9 Map of Wales' ten opportunity catchments

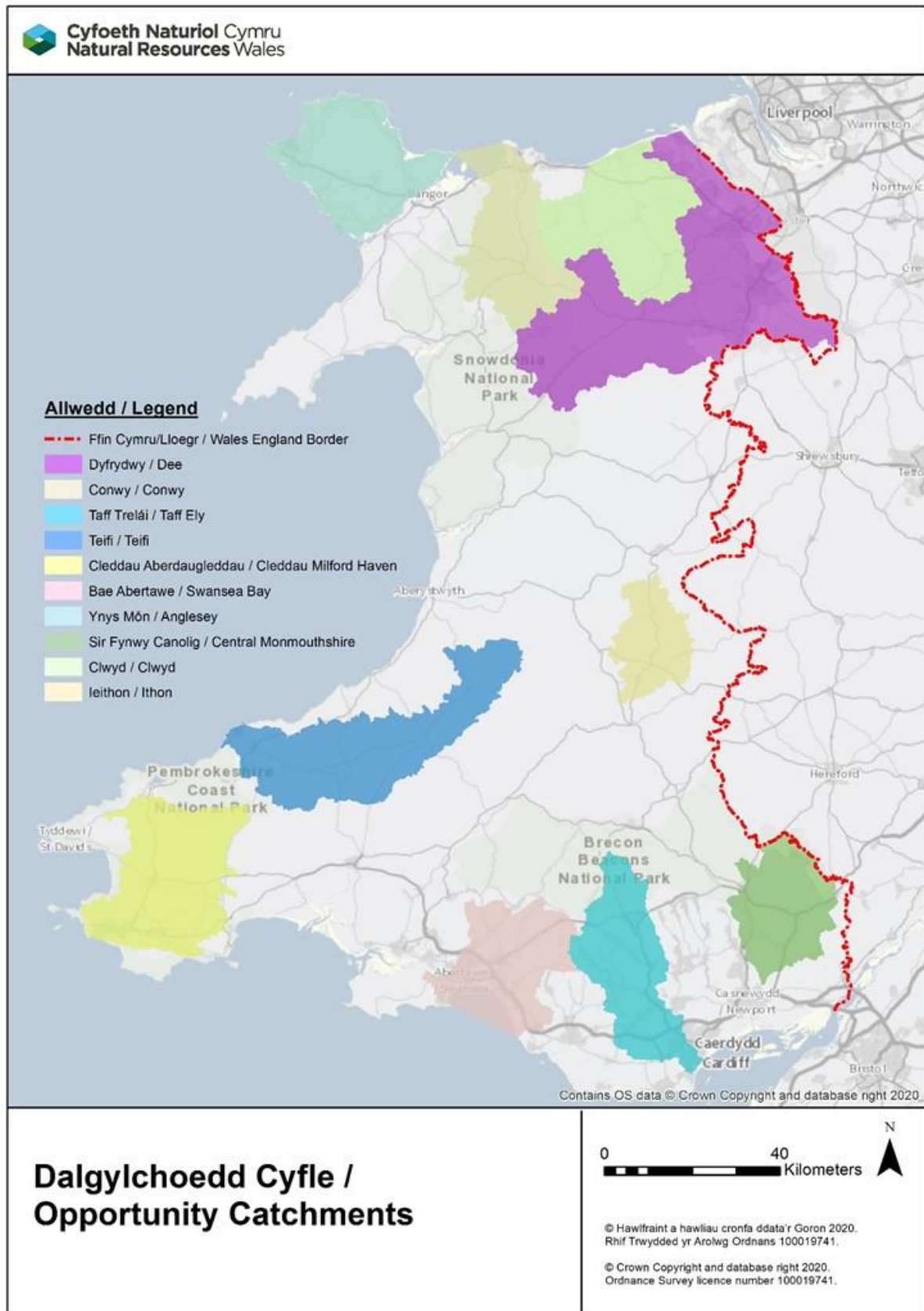




Table 11 Percentage of water bodies in each Opportunity Catchment meeting good overall status by water body type (2021 classification data)

Opportunity Catchment Name	River, canals and surface water transfers	Lake	Coastal	Transitional	Groundwater	All
Taff/Ely	19	0	n/a	n/a	80	22
Central Monmouthshire	33	0	n/a	n/a	50	33
Ithon	50	n/a	n/a	n/a	0	47

### 3.3 Opportunity Catchments in the Welsh part of the Severn RBD

There are 3 Opportunity Catchments in the Welsh part of the Severn RBD which are Central Monmouthshire, Ithon and Taff/Ely.

#### Summary of the Central Monmouthshire Opportunity Catchment

The Central Monmouthshire Opportunity Catchment aligns with one of six “[landscape profiles](#)” that were collaboratively developed for the [South East Area Statement](#). The [Central Monmouthshire Landscape Profile](#) describes what is special about the landscape, what is driving management, the ecosystem services provided, key threats, and opportunities to build ecosystem resilience. Priorities for the Opportunity Catchment flow from this and other recent evidence bases that describe key pressures on the water environment. Partnerships such as the [Gwent Green Grid Partnership](#) aims to improve and develop green infrastructure which describes the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities as well as providing green job opportunities within the area.

The Opportunity Catchment is predominantly a rural, agricultural landscape, comprising enclosed farmland with hedge-bound fields used for sheep, dairy, arable and poultry farming. It is of high agricultural value and vital for food production both locally and across the UK. This land-use creates pressures that impact on resilience and ecosystem services but can also bring opportunities and solutions for safeguarding and enhancing the environment and for delivering wellbeing benefits.

Areas rich in wildlife are recognised through national and international designation. The rivers Usk and Wye, two of the largest in Wales, are both designated as SAC’s and both support populations of protected fish species and otter. The landscape’s numerous Sites of Special Scientific Interest (SSSIs) protect a variety of high-quality habitats including

significant areas of woodland and scattered blocks of semi-natural grassland. In general however habitats of high ecological value are infrequent and fragmented, and so ecosystem resilience is considered poor.

There is a need to take a collaborative approach with partners and landowners to improve water quality. One of the priorities being to address nutrient inputs arising from land management activities often associated with sediment inputs; these reduce water and habitat quality, which in turn impact fish populations, biodiversity, and natural processes. Other pressures include pollution from point source wastewater and urban drainage and physical modifications such as weirs, culverts, and bank reinforcement.

Identified opportunities for the [South East Area Statement](#) include river restoration, access to water, nature based solutions and catchment management.

### Summary of the Ithon Opportunity Catchment

The River Ithon is one of the main tributaries that form part of the River Wye SAC. This European site is designated for water dependent and floodplain habitats and species including Otter, Atlantic Salmon and aquatic plants such as Water Crowfoot. The rich biodiversity supports the economic value of tourism and related employment.

The Ithon Opportunity Catchment area is primarily rural which has attracted a high density of intensive livestock farming units, especially poultry and more recently pig production. There is a need to take a collaborative approach with partners and landowners to improve water quality and reduce pollutants within riverine and floodplain habitats. Progressing opportunities to manage land and water sustainably across the catchment through water, carbon, climate and nature initiatives help to maintain agricultural productivity and improve ecosystem resilience.

There is a balance needed between the economic goals of thriving communities and managing our environment in a more sustainable way. Initiatives such as DCWW [PestSmart](#) project aims to encourage people to consider 'smarter' ways of weed, pest and disease control that do not impact on people, water or wildlife. Working with farmers, growers, landowners and gardeners across Wales, DCWW are helping people and communities consider the way they manage their land to help safeguard the drinking water protected area.

Identified opportunities for the Ithon Opportunity Catchment in the [Mid Wales Area Statement](#) includes river restoration, access to water, nature-based solutions and catchment management.

### Summary of the Taff Ely Opportunity Catchment

The principle theme is 'People', and the role that the water environment can play in wellbeing and regeneration in this highly urban environment. With an estimated 20% of the Welsh population living in this catchment, there is unique opportunity to explore people's connection to the water environment. It is also an opportunity to explore the significant pressures on the water environment that result from both the area's industrial past, new development and existing urban pressures and to improve ecosystem resilience and maximise the associated well-being benefits.

This Opportunity Catchment will act upon the ambition set out in the [South Central Area Statement: Working with Water theme](#) and [Building Ecosystem Resilience](#). At the foundation of our approach will be restoring ecological resilience, to contribute to the nature and climate emergencies so that the freshwater environment is healthy and resilient for nature and the communities which live within these catchments. As a guide we will build on the opportunities and tackle the pressures reducing or inhibiting a resilient catchment as identified in the in the South Wales Central Freshwater ecological resilience assessment.

Across South Central Wales there are challenges around the urban environment; it has ageing infrastructure, urban diffuse pollution impacts and high flood risk. It is also subject to significant pressure from new development with significant growth particularly around the Cardiff area. The legacy of the industrial past present challenges which affect water quality but also the physical form of the river, impacting the movement of sediments and shoal and fish migration. There is also challenge from new physical modifications from the pressure of new development and upgrading aging infrastructure. This causes further alteration to hydromorphology and disrupted natural processes.

Changes in land management throughout the catchment have altered natural processes, having chronic impacts upon water quantity and quality. There are also more localised effects from management of the land, having local biodiversity and physical impacts on the freshwater ecosystems. In addition to legacy issues there are development pressures and the direct and indirect pressures from development are reducing ecological resilience within the water environment.

The Taff/Ely Opportunity catchment key focus is to build resilient relationships and through partnership working to trial new ways of working to deliver catchment restoration at a meaningful scale. At an appropriate scale; we will look to address many longstanding environmental impacts resulting from the historic land use, managing the pressures associated with new development and urbanisation and seeking opportunities to improve ecosystem resilience and deliver associated well-being benefits.

The [South Central Wales Area Statement](#) and [Mid Wales Area Statement](#) have identified opportunities for the water environment that link to the Taff Ely Opportunity Catchment and include river restoration, access to water, nature based solutions and catchment management.

### 3.4 Setting Objectives for the third cycle

This plan sets out what we intend to achieve by 2027. This is identified by setting an objective for each water body. The detailed outcomes of this information can be accessed at [Water Watch Wales](#) and a more detailed description of our approach is provided in the **Planning Overview Annex (Wales)**.

As required under the WFD Regulations 2017 we aim to implement measures to achieve good overall status/potential for surface and groundwaters by 2027. Alternatives to that objective are allowable which may result in 2 additional options:

- an objective of less than good by 2027 (less stringent objective) due to technical infeasibility (no known technical solution is available) or disproportionate cost (unfavourable balance of costs and benefits)

- or an extended deadline of good status/potential beyond 2027 for reasons of natural conditions (ecological recovery) or technical infeasibility for a small number of chemicals

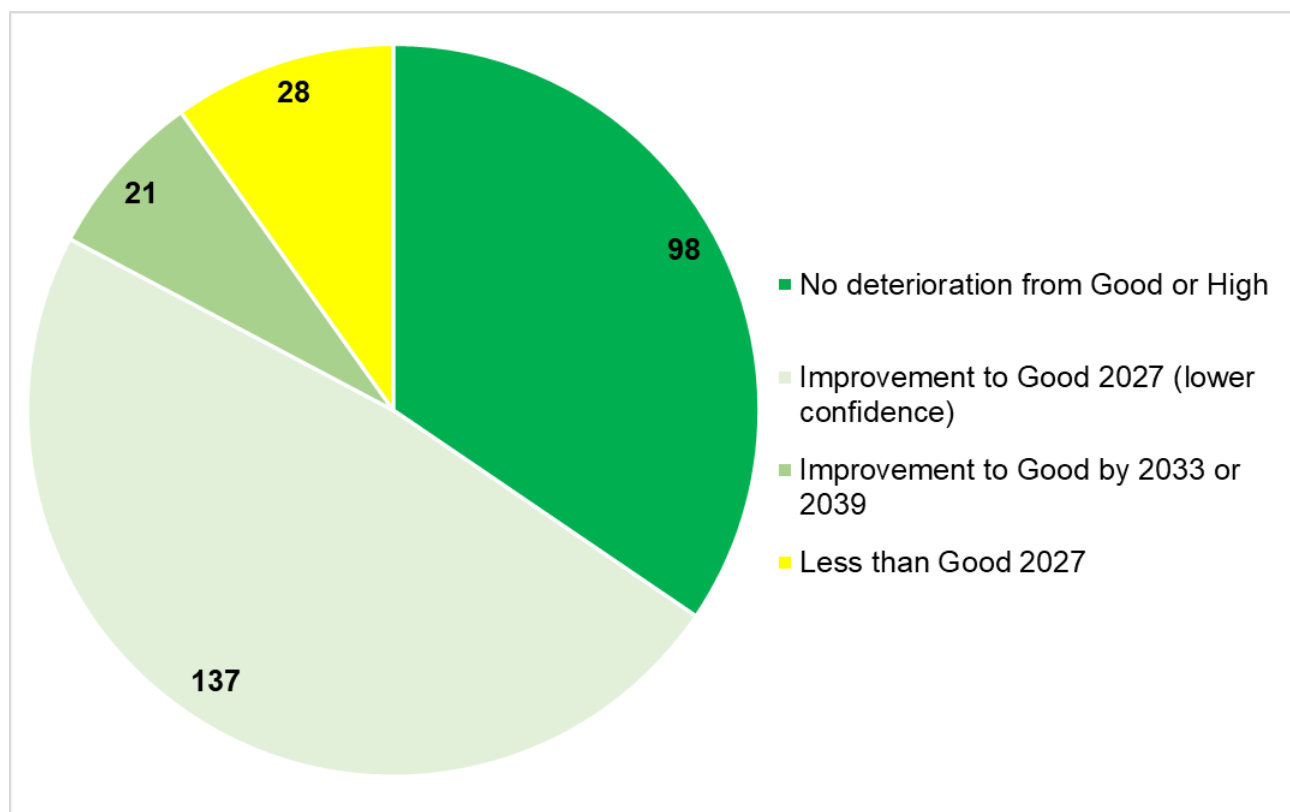
We continue to apply the same methodology for setting objectives for the third cycle that we did for the first two cycles, i.e. predict what will be achieved by the end of the cycle. However, in the third cycle there are limitations which specify that an extended deadline may only be justified for reasons of natural conditions (with the exception of a small number of priority substances).

For each Protected Area, other than shellfish water protected areas, the objective is to achieve compliance with any standards/targets and objectives required by the relevant Regulations for which the area or body of water is protected. For European sites the objective is to achieve favourable condition. Where two or more objectives apply to the same body of water, or the same part of a body of water, the most stringent objective applies. When setting a WFD Regulations 2017 objective for a water body that is at less than good status, it is not acceptable for the WFD Regulations 2017 objective to undermine those of other protected areas such as European sites.

For the third cycle, where there is spatial/physical overlap between the river line, transitional, coastal, lake and water dependent European sites (including marine sites) we have considered these to be co-located. For these water bodies we have not set less stringent than good status or potential for reasons of technical feasibility or disproportionate cost. We recognise that activities that occur within water bodies that are upstream, but outside of the designation area of water dependent European sites, can have downstream effects. NRW has an ongoing programme of work to establish the contribution of the wider catchment effects on water dependent European sites and we anticipate that in following iterations of RBMP's we will amend objectives in the wider catchment accordingly. Such activities including discharges and abstraction will be subject to the requirements of the Habitats Regulations 2017 as amended.

All objectives must be reviewed for every planning cycle as new evidence and measures to resolve environmental pressures become available. Figure 10 shows that of the 284 water bodies in the Welsh part of the Severn RBD, 98 are at good or better status and therefore have an objective of no deterioration over the third cycle. 21 water bodies will improve by 2033 or 2039 as a result of the measures already in place or planned in the next cycle. 137 other water bodies are currently at less than good status, and have an objective of good status but it is believed that the reasons for not achieving good are yet to be confidently identified or the measures may not be in place by 2027. This results in 235 water bodies (83%) having an objective of good status by 2027, however at present we are only confident that 98 will achieve or remain at good status or potential. It is intended that the investigations programme will help provide more definitive objectives for these water bodies for the third RBMP. Finally, 23 water bodies outside the geographic extent of water dependent European sites, have an objective of less than good status or potential on the basis of them being disproportionately costly, or technically infeasible to improve to good status over the third cycle. In all 23 water bodies some national and local measures may be taken to improve the water quality and contribute towards SMNR values but it is unlikely that they will be sufficient to result in a classification status change and available resources may be better focused elsewhere. No deterioration remains an objective for these 23 water bodies.

Figure 10 Proportion of water bodies and objective categories for the Welsh part of the Severn RBD



The disproportionate cost assessment has been made on 98 water bodies which we have been able to collate costs for. There are a number of water bodies and types of pressure which we have yet to be able to cost for this plan but intend to update in the future. Since publication of the second RBMP, the Environment (Wales) Act 2016 and Well-being of Future Generations (Wales) Act 2015 allows us to consider benefits of improvement in water quality that the benefits valuation for the WFD Regulations 2017 may not include, such as using mine water remediation to heat local homes. For this reason, measures in water bodies that are calculated to be disproportionately costly for the WFD Regulations 2017 requirement may still be prioritised if it is demonstrated that there are wider and significant SMNR values that would be accrued. Figure 11 shows the 98 water bodies considered for economic assessment which are ranked on the x axis from the most cost beneficial to improve to the least cost beneficial to improve. There are 14 water bodies which have a cost benefit ratio of less than 1. Some of these 14 waterbodies are associated with European site features and so retain an objective of good status. The overall cost of improving the water bodies for which we have costs for is £319 million of which £199 million is associated with improvements to sewerage and waste water disposal. The actual cost of improving all water bodies is likely to be significantly larger, however the estimated cost to improve those water bodies which are not disproportionately costly is £222 million. To improve these water bodies also requires other factors such as access and regulatory tools to be available, and that the pressures are also technically feasible to be resolved.

Figure 11 Economic assessment of improving water bodies to good status or potential.



## 4. Implementation and where we want to be by 2027

The focus for the third RBMP is to continue to protect and improve the quality of water in Wales, including Protected Areas. This will depend on a number of factors including funding levels from both public and private finances, commitment to delivery and availability of delivery mechanisms. The Programme of Measures will address multiple issues across Wales which will progressively reduce the number of elements failing in water bodies and will improve the overall condition of water bodies over time. The objective across Wales by 2027 is to improve overall condition of water bodies where possible, prevent deterioration and, where resources allow, ensure that even those water bodies that do not achieve good status will be under the least pressure possible.

By 2027 we will:

- Deliver projects funded by the Welsh Government capital funding programmes
- Deliver the Opportunity Catchments within the Welsh part of the Severn RBD and complete local actions
- Seek to address catchment scale improvements through river restoration and sustainable fisheries opportunities
- Deliver the planned investigations programme to inform our understanding of the problem so that appropriate actions can be taken through existing measures and local actions, maximising on opportunities that arise during this third cycle

- Continue to address current and emerging challenges to address a broad range of pressures including phosphorous in SAC rivers, spills from storm overflows and taking a more integrated approach for catchments from source to sea
- Deliver the outcomes of the water related LIFE projects in the RBD (listed in Appendix 1)
- Finalise mitigation measures assessments in some of the HMWBs

We will take an SMNR approach for the third cycle plans to deliver more integrated catchment benefits in line with the priorities for water identified within Area Statements applying the source to sea approach to catchment management. The Programme for Government also makes a commitment to begin designation of Wales' inland waters for recreation and strengthening water quality monitoring. Improving water quality is a key driver of this commitment which also offers opportunities for supporting the wellbeing of Wales' citizens and a more diverse use of our waterways by local communities.

NRW cannot deliver on the RBMP alone and therefore we need to build on existing partnerships to deliver solutions to the environmental pressures.

## 4.1 Where do we want to be by 2027?

This section includes a summary of the programmes and activities to address the significant issues alongside the economic appraisal and objectives and where we want to be by 2027. In many instances, bundles of measures will be required to tackle multiple pressures within the RBD. All require collective action.

### 4.1.1 Physical Modifications

Key programmes and activities include:

- Flood Risk Management activities
- Shoreline Management Plan policy for coastal defence management
- National Habitat Creation Programme
- Sustainable Fisheries Programme
- The Agenda for Change for Fisheries
- Barriers to fish passage
- River Restoration Programme

### **Economic appraisal and objectives for water bodies not achieving good:**

The remediation of physical impacts have been difficult to cost and it is hoped that an improved calculation will be made in the future. The total cost to improve fish passage and habitat and reduce the impact of physical modification in 33 water bodies which we have been able to generate costs for is £27 million. However the cost throughout the RBD is likely to be much greater. In combination with the cost of remediating other pressures, 6 water bodies are considered to be disproportionately costly to improve however because 1 is associated with a water dependent European site it remains a priority and it maintains an objective of Good Status by 2027.

**Where we want to be by 2027:**

- Where modifications to the water environment are essential to society, for example navigation, public water supply, coastal defence or flood management, we want to mitigate harmful impacts as far as possible while protecting those uses
- Deliver the 5 year river restoration programme
- Future modifications do not cause deterioration
- We want to increase the extent of buffer zones and river side corridors alongside inland waters to make them more resilient to other pressures, including climate change

**4.1.2 Managing pollution from sewage and wastewater**

Key programmes and activities include:

- Water Company Programme (2020 -2025): Delivery of AMP7 commitments, development of the Drainage and Wastewater Management Plans and investment to meet phosphate standards for SAC Rivers
- Water Company Programme (2025- 2030): Developing the 2025-2030 business plan (AMP8), subject to funding through the sector's Periodic Review process this will include delivery of local actions within the Opportunity Catchments
- Storm overflow roadmap
- SAC Rivers Project
- Misconnections
- Sustainable Drainage Systems (SuDs)

**Economic appraisal and objectives for water bodies not achieving good:**

The economic analysis shows that to resolve the wastewater pressures to bring the status of 30 water bodies back to good status results in a total cost of £240 million of which almost all is associated with upgrades to wastewater treatment discharges. In combination with other costs of improvement, 14 of these water bodies are calculated to be disproportionately costly to improve, however many are associated with European sites and so will remain a priority and have an objective of Good status by 2027. There are several water bodies in the Wye and Usk catchments that pass WFD Regulations standards but have potential WwTW AMP7/8 schemes due to Habitats Regulations Common Standards Monitoring drivers. Further consideration of the wider catchment plans and SMNR values should be taken into consideration when planning improvement to pollution from sewage and waste water in water bodies not collocated with European sites that have been calculated to be disproportionately costly.

**Where we want to be by 2027:**

- All sewerage systems including CSOs, are maintained or improved so they operate effectively and their impacts on the water environment, from source to sea are minimised



- Solutions to CSO problems that deliver multiple benefits are embedded in planning and development across Wales (e.g. water sensitive urban design, sustainable drainage schemes)
- Storm overflow roadmap in place
- SAC rivers project - Continue to identify opportunities and deliver interventions to improve water quality through the Wye Nutrient Management Board and Usk Catchment Partnership
- Increase public awareness of the impacts of misconnections and disposal of harmful substances into sewerage systems (e.g. paint, oil, fats and garden chemicals)
- Delivery of agreed AMP schemes, including those for the Usk and Wye SAC rivers to improve water quality
- Work collaboratively with water companies to support the delivery of sustainable improvements to the water environment, through both the delivery of their statutory environmental requirements (i.e. NEP) and the development of innovative solutions

### 4.1.3 Manage pollution from rural areas

Key programmes and activities include:

- Sustainable land management themes
- SAC Rivers Project
- Welsh Governments Woodlands for Wales Strategy
- Awareness and implementation of the UK Forestry Standard Guidelines (including “Forests and Water” Guidelines), and Practice Guides

#### **Economic appraisal and objectives for water bodies not achieving good:**

The total cost of resolving agricultural pressures according to current legislation in 57 water bodies that we have been able to cost has been calculated at £30 million. Many of these lowland water bodies also required improvements in wastewater discharges to allow good status to be achieved and when total costs of improvement are considered 7 are considered to be disproportionately costly to improve to good status. Many of these 7 waterbodies deemed to be disproportionately costly to improve are also in protected areas such as the River Wye and so retain an objective of good status by 2027.

Water bodies not achieving good status due to pollution from rural areas are widespread, occurring in all of the management catchments (Severn, Wye, Usk, South East Valleys). Additionally the [compliance assessment](#) with respect to phosphorus targets for river SACs (where targets have been substantially tightened), have showed that in the Wye and Usk SACs, while WFD Regulations standards are largely met, the conservation targets have widespread failures. Further source apportionment work is underway to establish the contribution from different sectors.

#### **Where we want to be by 2027:**

- We want to strengthen regulatory, financial and operational mechanisms to support a sustainable agricultural sector that protects the water environment, from source to

sea, and helps deliver the full range of ecosystem services that provide financial, social and ecological benefits to Wales.

- SAC rivers project - Continue to identify opportunities and deliver interventions to improve water quality through the Wye Nutrient Management Board and the Usk Catchment Partnership.
- Appropriate new woodland creation and forestry management that benefits the water environment, people through outdoor recreation and delivers ecosystem services such as reduced diffuse pollution, reduced flood flows, clean drinking water, habitat for fish and wildlife, and shade in river margins to mitigate the impacts of climate change.
- For those groundwater dependent wetlands that are in a poor ecological condition as a result of high nutrient groundwater inputs we will encourage local changes in catchment.
- Use the results of the source apportionment work when available to focus local measures with the agricultural sector where appropriate.
- We will manage our Welsh Government Woodland Estate to meet the UK Forest Standard Forest & Water Guidelines as a minimum and tackle metal mine pollution with innovative approaches to remediate the toxic discharges associated with these sites that are on the estate.
- We are identifying and acquiring land for new woodland creation on the WGWE. This is needed to maintain the area of woodland cover on the NRW Estate, between c500ha and 1,800ha is needed over the next 10 years. This is to compensate for woodland area lost from the estate due to renewable energy developments, and the reversion of woodland to valuable open habitats and to ensure that NRW has a net positive contribution to Wales' woodland creation targets.

#### 4.1.4 Managing pollution from mines

Key programmes and activities include:

- Metal Mine Strategy for Wales
- Coal Authority programme of work

#### **Economic appraisal and objectives for water bodies not achieving good:**

The total cost of improving 11 water bodies which are failing due to metal mine discharges is estimated at £22 million. The majority of those costs are for the metal mine remediation and treatment of discharges, however there are some costs that have not been accurately identified. In particular, the metal mines in the Welsh part of the Severn RBD have been studied less than elsewhere in Wales and significant investigation would be required before any further investment made. To put these costs into context, the funding made available to NRW from Welsh Government to remediate metal mines in financial year 2020 to 2021 was £4.5 million across Wales. Prioritisation of metal mines remediation is made on a national basis and takes into account wider practical matters than the cost benefit assessment for WFD Regulations 2017 alone.

#### **Where we want to be by 2027:**

- We want to mitigate the impacts of abandoned mines on the water environment through a strategic work programme across Wales. It will take decades to address all the issues and we will prioritise actions that deliver the best ecological, social and economic outcomes for society's investment.

#### **4.1.5 Manage pollution from towns, cities and transport including the impacts of acidification**

Key programmes and activities include:

- Diffuse Water Pollution Plan including Pollution Prevention work
- Water Sensitive Urban Design
- Misconnections
- Contamination from historic industrial and waste sites
- UK Forestry Standard Guidelines (including "Forests and Water" Guidelines), and Practice Guides

#### **Economic appraisal and objectives for water bodies not achieving good:**

The cost of improving 16 waterbodies in the upper Wye for acidification is £18 million of which is mostly through upland restoration and some sustainable woodland and forest management. All waterbodies are associated with European sites and therefore not subject to the outcome of disproportionate cost assessment. 19 waterbodies would benefit from resolving misconnections, predominantly in the heavily urbanised South East Valleys management catchment, at a cost of £2.6 million.

#### **Where we want to be by 2027:**

- We want to minimise the negative impact of historic and future development on the water environment via our role as a land quality consultee in the planning process or, where the planning process is not applicable, by providing advice and assistance to local authorities with their contaminated land inspection strategy.
- We want to put SMNR at the centre of urban design and planning. By using SuDs, restoring the areas around rivers and coasts including the river banks, floodplain and the intertidal area, providing public green spaces, raising awareness and changing behaviour to improve the quality of life in the urban areas of Wales.
- We want land use practices to contribute to sustainable, long term recovery to natural pH conditions in areas where ecological processes are compromised by acidification. We will continue to regulate emissions of acidifying pollutants to allow the water environment to recover.

#### **4.1.6 Changes to the natural flow and levels of water**

Key programmes and activities include:

- Welsh Government National Peatland Restoration Programme
- Flood Risk Management activities

- HMWB mitigation measure review
- Multi-Sector demands project for water saving measures
- Waterwise work on reducing water consumption

An accurate economic appraisal of changes to natural flow and level of water has not been possible.

**Where we want to be by 2027:**

- We want to continue to deliver the Welsh Government National Peatland Restoration Programme
- We want to encourage sustainable land use patterns in urban and rural environments that reduce runoff from rainfall including nature based solutions
- We want to deliver interventions such as in-channel habitat improvement that mitigate the impacts of abstraction on the water environment
- We want to better understand the water demands across sectors
- We want to improve water use efficiency to reduce the need for additional abstraction in the future
- We want to support the delivery of the Welsh Government National Peatland Restoration Programme

### 4.1.7 Managing INNS

Key programmes and activities include:

- Implementing the updated GB strategy on invasive species
- Working with partners and support the development of new and innovative solutions, such as AquaWales and Aquainvade led by Swansea University
- Continue using and promoting mechanisms such as online and smart phone recording systems

An accurate economic appraisal of managing INNS has not been possible.

**Where we want to be by 2027**

- We want to prioritise actions to slow down or prevent the spread of existing invasive species and eradicate these or new introductions where possible to do so
- We also want to minimise the risk posed by INNS generally through improved biosecurity and improved local information on INNS distribution and impact

# 5. Practical actions that we can all take

There are several steps and practical actions we can all take in our daily lives and at home to collectively protect and potentially improve the quality of our water environment. Some of these are summarised below.

## Prevent pollution to our rivers, lakes, groundwater and sea

- Check that household appliances are connected to the foul sewer, not the surface water drain.
- Bin your litter or take it home with you keeping lakes, canals, rivers and our seas free of litter including plastics.
- Adopt-a-beach to help keep beaches clean and stop litter at source.
- Ensure household oil storage is in good condition, with an up-to-date inspection record.
- Ensure septic tanks or private sewage treatment plants are well maintained and working effectively.
- Put cotton buds, wipes and other litter in the bin, not down the toilet. It may end up in the sea or on your local beach where it can harm wildlife.
- Take waste oil and chemicals such as white spirit to a municipal recycling facility: don't pour them down the sink or outside drains.
- Use kitchen, bathroom and car cleaning products that don't harm the environment, such as phosphate-free laundry detergents, and use as little as possible. This helps prevent pollution at source.
- When you see pollution or fly-tipping in Wales, report it on 0300 065 3000.

## Protect our marine environment

- Eat fish from sustainable sources, caught using fishing methods that don't cause damage to marine wildlife and habitats.

## Save water in your garden

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

## Save water in your house or office

- Purchase low energy and low water use appliances
- Ask water companies to fit a meter. On average, this can reduce household water consumption

- Fix dripping taps, and lag pipes to avoid them bursting in freezing weather
- Hand wash cars
- Consider installing rainwater harvesting systems in your home, block or workplace. This can save one third of domestic mains water usage
- Install a 'hippo' or 'save-a-flush' in toilet cisterns
- Install a low-flush toilet, put flow regulators on your taps and showers, and install waterless urinals at work
- Run dishwashers or washing machines with a full load on economy setting, and boil the minimum amount of water needed in kettles or saucepans
- Turn off the tap when brushing teeth, and take short showers rather than baths
- Wash fruit and vegetables in a bowl rather than under the running tap - and use the remainder on plants
- Ensure extensions or conservatories have their roof water draining into a soakaway or sustainable drainage system and are not connected to the combined sewer
- Ensure that any off-road parking or patio around the house use permeable materials so rain can soak into the soil

## Help tackle the threat of INNS

- Find out how you can get involved in national campaigns ([Check, Clean, Dry and Be Plant Wise](#)) to help to reduce the spread of INNS, by checking out the [GB Non Native Species secretariat \(GBNNS\) website](#)
- Do not buy, plant or release INNS, access the most up to date advice about how to control INNS and dispose of them responsibly through the [GBNNS Website](#).
- You can find out about the location of INNS in Wales through the National Biodiversity Network Atlas Wales [INNS Portal](#)
- If you spot an INNS then please record it either online ([iRecord](#) or your local records centre), by downloading a recording app ([iRecord](#) and Local Environmental Records Centres Wales [LERC Wales](#)) or by contacting your [local records centre](#)
- Join an environmental group or organisation in your area that takes action to tackle INNS (e.g. wildlife organisations or rivers trusts), also check out the [GBNNS website](#) for the contact details of specific INNS local action groups in your area

# Appendix 1

## Examples of actions taken during the second cycle for the Welsh part of the Severn RBD

### Partnership Working

Lead	Action
Groundwork	<p>Healthy Rivers project is now firmly established at the forefront of river restoration in South East Wales. The Culvert of the Nant yr Aber River under the A468, Caerphilly is one such shining example.</p> <p>Working with our public and private sector partners, Keep Wales Tidy, Natural Resources Wales and Tesco (via the Bags For Help scheme). Healthy Rivers volunteers have been giving their time and energy to remove 50kg of rubbish so that a series of timber baffles could be installed through the culvert to aid in fish migration and replenishment. 480 square metres of habitat has been improved.</p> <p>More detail can be found on the <a href="#">Groundwork Wales</a> website.</p>
Wye and Usk Foundation (WUF)	<p>Weir removal/lowering in the Usk catchment. As part of a wider programme of works focused on conserving salmon in Wales, the WUF and NRW identified and evaluated a number of key barriers to fish migration in 2020. Subsequently, WUF have secured funds provided by NRW to undertake three weir easement projects to improve fish access to their upper spawning grounds.</p>
Severn Uplands Barrier Assessment Project - Severn Rivers Trust	<p>A report was produced for 15 barriers to fish migration looking at the feasibility of providing fish passage along with a review of wider implications for the fish community in each specific catchment. This included evaluation around each option and considered impacts on fluvial geomorphology, access issues and potential impacts on other protected species within the local riverine community such as crayfish, otters, birds and bats.</p>

Lead	Action
South East Wales Rivers Trust	<p>Mountain Ash</p> <p>This work involved modifications to the weir at the Cynon River crossing on the former Deep Navigation colliery site. The required easement was effected in partnership with NRW and used funds from the Taff and Ely Mitigation Fund. The improvement work at the site now makes a further 13.5km of river accessible; as far as the next remaining Cynon barrier at Station Road, Hirwaun.</p>
Severn Estuary Partnership	<p>The Severn Estuary Partnership (based in Cardiff and formed in 1995), works with NRW and the Environment Agency (along with local authorities, environmental groups, water companies, industry and the private sector) to develop a sustainable and integrated approach for the River Severn estuary. A new strategy was published in 2017 to provide a strategic policy framework for the Severn Estuary, inform and support decision making and to facilitate the Marine and Coastal access Act (2009) related to cross border integration and an ecosystem based approach to management.</p>
The Wye Catchment Partnership	<p>The Wye Catchment Partnership was formed in 2014. It brings together organisations, initiatives and individuals who have a shared interest in the Wye catchment. The collaboration of these partners delivers improvements in areas such as water quality, water quantity and wildlife.</p> <p>The partnership is hosted by the Wye &amp; Usk Foundation and NRW. It has a diverse membership with representatives from river, wildlife and conservation trusts, governmental organisations, private forestry, farming unions, water companies, local companies as well as individuals interested in the river.</p> <p>Much more information on the Wye Catchment partnership can be found <a href="#">here</a>.</p>

## Projects

### The Metal (Non Coal) Mine Programme – Research Development and Innovation

This is a collaboration between NRW and The Coal Authority. Completed work includes prioritisation of metal mines and development of a programme of work for remediation in water bodies that fail chemical and ecological quality standards.



The Wye and the Severn have several sites progressing through preliminary investigation and screening.

### **Welsh Government Sustainable Management Scheme (SMS) funding (2014-2020)**

aimed to support collaborative landscape-scale projects delivering action that improved our natural resources in a way that delivered benefits to farm and rural businesses and rural communities. It supported and facilitated co-ordination with other schemes to undertake the vital action needed to improve the resilience of farm and rural businesses and rural communities to climate impacts.

This funding brought wider benefits including for water, relevant projects for the Welsh part of the Severn RBD include:

- **Powys Moorland Partnership**

A landscape scale project to encourage moorland restoration through bottom up collaborative action driven by communities living and working on and around the moors.

- **South East Wales Resilient Uplands**

The upland landscape across Torfaen, Caerphilly and Blaenau Gwent faces a number of challenges from landscape crime, loss of habitats and key species to poor infrastructure and fragmented communities. The initial focus was on land management to improve soils and water quality, biodiversity, and carbon storage.

- **Taff Bargoed Catchment Restoration**

This project, aimed to deliver sustainable catchment management of the Taff Bargoed river in Merthyr Tydfil. In particular, the project sought to implement sustainable upland interventions which will: restore a popular amenity for local communities to use and enjoy; reduce siltation of the water environment; enhance biodiversity and ecological resilience; improve water quality; and reduce the flood risk to local communities.

- **Farming the Gwent Levels Sustainably**

This collaborative project included RSPB Wales, Natural Resources Wales and the Gwent Wildlife Trust working closely with farmers and other partners to develop the understanding, knowledge, skills and experience need to deliver the sustainable management of natural resources within the Gwent Levels.

- **Wye Ithon & Severn Ecosystems**

This collaborative project worked with an established catchment partnership, including landowners and local communities to improve the natural resources in four smaller and three larger catchments covering a large landscape travelling down a stretch of the Wye catchment. It aimed to improve soil quality in agricultural land, create woodland to maximise the potential for reducing flood risk, habitat improvement for better biodiversity and water quality and improved infrastructure on farmyards to reduce pollution.

- **Cain Valley sustainable land and water management project**

The project was led by a partnership including the farming community of the Cain Valley catchment and aimed to reduce diffuse pollution in the catchment to 'slow the flow', improve biodiversity, trial methods of invasive species removal, increase recreational

opportunity, improve farm business resilience and improve community engagement/education of the value of the natural resources in the area.

- **Camlad Valley Project**

This farmer led project aimed to deliver landscape scale management to improve ecosystem resilience and enable productive resilient agricultural businesses. The biodiversity of the Camlad Valley was enhanced through bottom-up collaborative action taken by those that live and work in the area. Landowners, farmers, communities and key stakeholders focused on restoration of traditional lowland wet grassland habitat to deliver a healthy, resilient and diverse ecosystem.

- **Irfon Catchment Resilient Freshwater Habitats**

Much of the Irfon catchment in Mid-Wales includes the River Wye SAC designated for its exceptional freshwater biodiversity. The project aimed to deliver actions to improve the water quality through a collaboration of local farmers, landowners, rural businesses, foresters, statutory organisations, specialist freshwater NGOs and the water industry. The project aimed to deliver practical measures to tackle diffuse and point source pollution in strategic locations by reducing pollutant runoff through farm soil and nutrient management, tree and woodland planting, reducing point source inputs and implementing natural flood risk management (NFRM) techniques.

- **Wild Skills Wild Spaces Project**

Utilising an innovative collaboration between the Welsh National Health Service (NHS) and the Montgomeryshire Wildlife Trust the project aimed to deliver a range of nature-based solutions to improve the health, skills and well-being of our local communities. New and existing habitats were created and managed with project groups to spend meaningful time understanding and managing areas of local wildlife value.

- **Restoration of Rhos Pasture**

This project was a collaboration of local farmers, land managers, tourism businesses, environmental groups and arts & culture businesses with the aim of landscape scale restoration of the iconic Welsh habitat of Rhos pasture in north Brecknock and west Radnorshire. The project delivered actions to restore the existing marshy grassland areas to be more resilient, diverse, species rich grazing land. The outcomes of this work will include decreasing soil compaction, improving soil structure and enhancing the capacity to store carbon and water, slowing run-off and erosion.

- **Nant Alan land management and climate resilience project**

The project aimed to improve biodiversity and make the Nant Alan valley and its catchment more resilient. Downstream from the catchment area suffers from flooding problems with consequences for businesses, farmers and their livestock. The project focused on activities to help tackle diffuse pollution, reduce surface water flow, and restore broadleaved woodland.

## Case Studies

### Case study 1: Salmon return to the Ebbw Fawr

The main Ebbw River is formed by the confluence of the two minor Ebbw rivers, Ebbw Fach, and Ebbw Fawr (the latter of which gives its name to Ebbw Vale).

The Ebbw Fawr is the latest river to see salmon return and successfully spawn in an area previously inaccessible due to man-made river barriers. This work has been managed via the Sustainable Fisheries Project in South East Wales over the past 10 years using direct funding from Welsh Government and EU Fisheries funding programmes.

Two large barriers in the lower Ebbw at Bassaleg and Abercarn were made passable. Another large weir was removed and a further weir modified to allow fish to migrate upstream. Monitoring of the juvenile fish populations undertaken by NRW in summer 2017 has shown that salmon have spawned in the Fawr upstream of Aberbeeg with salmon fry found at a routine monitoring site.

South East Wales Rivers Trust and Groundwork have been reinstating spawning areas with the installation of gravel traps.

### Case study 2: Removal of the weir at Merthyr Vale

The upper reaches of the River Taff at Merthyr Vale are failing to achieve good ecological status because of declining fish populations. Many fish passage improvements have taken place along the River Taff and tributaries in recent years.

The removal of the weir at Merthyr Vale sees the removal of the last significant barrier on the river to fish migration. This will provide better access to this stretch of the river and will help to boost the return of salmon and sewin to the upper reaches of the River Taff. Removing the weir will improve access to over 10km of good quality spawning habitat on the Taff Fechan and Fawr upstream of Merthyr Vale.

The removal of the weir will help to restore the health of the river to good ecological status. There are several community enhancement projects being developed as a result of the weir removal.

### Case study 3: Greener Grangetown, Cardiff

Surface water management in the urban environment is an important issue for the quality of our water. In low-lying urban areas, increased hard surfaces like roads and paved areas produce greater flows for combined sewer systems. This contributes to increased flood risk from rivers, seas and surface water flooding.

City of Cardiff Council, DCWW and NRW invested £2 million in 'Greener Grangetown', an innovative scheme to better manage rainwater in the Grangetown area of Cardiff. Using the Sustainable Drainage Scheme (SuDS) techniques, the scheme will catch, clean and divert rainwater directly into the River Taff instead of pumping it over 6 miles through the Vale of Glamorgan to the sea. This will significantly reduce the carbon footprint and costs associated with pumping the water through the existing network.

Attractive planted areas were created that will help to absorb the water, increase biodiversity whilst providing the community with more green spaces on their streets. More information on [Greener Grange town](#) is available.

## Case study 4: Weed Wiper Trial

Free Weed Wiper Trial for Farmers DCWW has been working in partnership with NRW and the farming industry to launch an innovative new campaign to tackle rising levels of the selective grassland herbicide MCPA (2- methyl-4-chlorophenoxyacetic acid) in Welsh rivers. Routine monitoring by DCWW has detected increased levels of MCPA in the rivers Wye, Teifi, Tywi, Wye, Dee and a reservoir on Anglesey.

## LIFE projects

### 4 Rivers for LIFE (LIFE20 NAT/UK/000100)

A large £9.1 million NRW led river restoration project across four river SAC rivers; the Teifi, Tywi, Cleddau (Western Wales RBD) and the Usk (Severn RBD) partly funded through LIFE funding with contributions from Welsh Government, DCWW, Brecon Beacons National Park Authority, the River Restoration Centre and the Woodland Trust. The project began in 2021 and will run for five years, carrying out a range of measures to address diffuse pollution across the four river catchments as well as increasing the resilience of the rivers by restoring natural processes and habitat features. These actions will contribute to improving the condition of the river habitats as well as protected species including salmon, sea and river lamprey, twaite and allis shad and freshwater pearl mussel.

### LIFEquaking bogs (LIFE19/NAT/UK/000888)

Starting in January 2021 and running to December 2025 this NRW led project with support from Pembrokeshire Coast National Park Authority and Snowdonia National Park Authority and National Trust at a cost of £4.6 million covers seven quaking bog SACs:

- Crymlyn Bog (Western Wales RBD)
- Corsydd Eifionydd (Western Wales RBD)
- Rhos Goch (Severn RBD)
- Northwest Pembs Commons (Western Wales RBD)
- Gweunydd Blaencledda (Western Wales RBD)
- Cors Caron (Western Wales RBD)

### New Welsh Raised Bogs project (LIFE16 NAT/UK/000646)

In October 2017 NRW, with support from Welsh Government and Snowdonia National Park was awarded a £4 million towards a project originally funded via EU LIFE programme to restore lowland raised bogs across seven sites in Wales, including Waun Ddu in the Severn RBMP. The 4-year pioneering and ambitious project aims to restore seven of the very best examples of raised bogs in Wales. Almost 4 square miles (over 900 hectares) will be restored to a better condition, working towards meeting Protected Area objectives

for 7 Special Areas of Conservation. This represents 50% of this wetland habitat in Wales and 5% in the UK.

### **Unlocking the Severn for LIFE - Shad Severn (LIFE15 NAT/UK/000219)**

Conservation and restoration of twaite shad in the Severn Estuary Special Area of Conservation. The Unlocking the Severn for LIFE project began in July 2016 and ends in October 2022. The project will improve access up and down the Rivers Severn and Teme for this species associated with the Severn Estuary Special Area of Conservation (SAC), directly impacting 57% of the UKs potential breeding stock and increasing access to favourable spawning and juvenile habitat through the removal of seven barriers to migration upstream of the Severn Estuary.

## **Target water body updates**

Out of the original 74 measures identified in 2015 for the Welsh part of the Severn RBMP target water bodies, 12 are reported as no longer needed/feasible or considered effective. Reasons for these include:

- Misconnections work which is now led by the Local Authority and DCWW and will be an ongoing day job activity.
- Barrier removal where it was either not technically feasible, or the easement would be complex and unlikely cost beneficial.
- Barrier removal where the spawning suitability above barrier was assessed as poor, therefore not cost beneficial to progress with any easements.

Actions to control or manage rural diffuse and point pollution were undertaken which included:

- NRW officers undertaking walkover surveys, farm visits including enforcement and water quality inspections; dairy farm project; Farming Connect workshops ( nutrient planning / sustainable production grant events / on farm events) targeted at several water body tributaries in the Severn Uplands, several Trothy water bodies, the upper Olway, Gavenny, Honddu, Ennig, often taking a wider catchment approach.
- Small scale capital interventions were also completed for example 0.45 hectares of tree planting in the Gavenny.

Fish easements and habitat improvement works undertaken included:

- NRW's Taff priority barrier remediation programme 2015-2020. On the Cynon priority barrier no. 1 (Penrhiwceiber sports field) was removed in 2015 and number 5 (Mountain Ash railway station) had baffles added in 2016. On the Taff Clydach priority no. 14 (Cwm Farm Railway Bridge) had a pre-barrage installed in 2016 and no. 13 (Glyn Street weir) had the weir notched and a flume installed to attract fish in 2018. On the Rhondda Fach priority no. 10 (Station Rd Ferndale) fish passage improvements were made in 2019.
- In 2016-17 WUF tackled the bottom 2 easements on the Ennig.
- 2016-2018 Fish Passage improvements were made on the Bargoed Rhydney by the Healthy Rivers Project.

- On the Ebbw Fach and Fawr fish habitat improvement works (revetments / gravel traps / gravel replenishment) were carried out with the Healthy Rivers project throughout the second cycle.
- In 2017 WUF completed a 1 year £65K Tarmac funded TRAP project to enhance the habitat of 6.5km of the Arrow and one of its tributary streams (the Gilwern Brook) with a combination of fencing, water gates, coppicing work undertaken of bank side trees, field gates installed to reduce stock pressure and pleaching of timber to protect exposed river banks and improve fish habitat.

The above works to improve fish status were complemented by actions to reduce urban diffuse pollution in the built up areas particularly in those water bodies located in the South Wales valleys. Actions consisted of NRW officers undertaking river walks, visiting/regulating industrial sites, undertaking industrial estate pollution prevention work and inspections of CSO's.

In addition to those measures undertaken in the target water bodies, many further improvement measures have been undertaken across wider locations by many organisations and individuals. Examples include:

- DCWW AMP6 WFD Investigations, with schemes to be delivered in current and future AMPs.
- WUF Llanpica weir fish passage work on the upper Arrow as part of Breathing Life Into Salmon Streams project.
- The first of several weirs was partially removed from the Cyfronydd brook in 2020 providing partial geomorphological connectivity and passage for fish.
- South East Valleys Groundwork 'Healthy Rivers' project fish passage and habitat improvement work.
- WUF gravelling the Elan project.
- WUF fish passage work on the Sor brook.
- NRW Taff barrier remediation programme and South East Valleys gravel replenishment.
- Fish Passage Improvement: The Sustainable Fisheries Programme has delivered over 60 fisheries improvements (including habitat improvements and fish easements) across the Welsh part of the Severn from 2015 – 2020.
- NRW 'Dairy Project' farm visits in the Severn Uplands, Wye, Usk management catchments. Since 2018, the Dairy Project has been ongoing across Wales to reduce agricultural pollution coming from the yards of dairy farms.

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