Cyfoeth Naturiol Cymru
Natural Resources Wales

Water for life and livelihoods

Western Wales River Basin District: Challenges and choices

Summary of significant water management issues

A consultation

On 1 April Natural Resources Wales brought together the work of the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales, as well as some functions of Welsh Government.

Our purpose is to ensure that the natural resources of Wales are sustainably maintained, used and enhanced, now and in the future

We will work for the communities of Wales to protect people and their homes as much as possible from environmental incidents like flooding and pollution. We will provide opportunities for them to learn, use and benefit from Wales' natural resources

We will work for Wales' economy and enable the sustainable use of natural resources to support jobs & enterprise. We will help businesses and developers to understand and consider environmental limits when they make important decisions.

We will work to maintain and improve the quality of the environment for everyone. We will work towards making the environment and natural resources more resilient to climate change and other pressures.

This consultation has been produced to comply with the requirements of The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003, Regulation 12(1)(b) to "…not less than two years before the beginning of the plan period, publish a summary of the significant water management matters … for consideration in relation to the river basin district".

Front page photo credit – Paul Edwards, Natural Resources Wales

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Foreword

The Western Wales River Basin District covers the entire western half of Wales from the dramatic cliffs of the Vale of Glamorgan in the south to the rugged coast of Ynys Mon, an Area of Outstanding Natural Beauty, and Vale of Clwyd in the north. It has some of the most dramatic scenery in the UK, is important for wildlife, has excellent fishing and is renowned as a tourist destination.

Since the first river basin management plan was published in 2009, much progress has been made to protect and improve the water environment in the river basin district, For example we raised the water level downstream of a bridge on the Afon Annell in the Tywi catchment which had stopped salmon from migrating freely. In 2012 the river was classified as achieving good ecological status and now salmon have now been found upstream of the bridge.

There are still many challenges to overcome; population growth, climate change and tough economic times mean that the natural environment remains under constant pressure. We will continue to work with individuals, communities and organisations to make sure that we protect and improve this water environment.

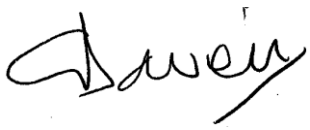
This consultation is an opportunity for everyone to have their say on what the biggest challenges are for the water environment in the Western Wales River Basin District and work together to make the right choices on how to tackle these challenges. This will benefit not only the environment, but also the economy and local communities.

Over the next six months we are consulting a wide range of groups and organisations interested in the water environment.

We'd like to find out **your** views on:

- The biggest challenges facing waters in the Western Wales River Basin District.
- The best way to tackle these issues and what should be done first.
- Who we should work with to achieve the environmental outcomes

I hope you will join the discussion and help map out a future to protect and improve the water environment to benefit people and wildlife, now and in the future.



Ceri Davies

Executive Director
Natural Resources Wales

Contents

1 Your views count

The best way to protect and improve the water environment is by everyone becoming actively involved. This consultation is an important step in managing the water environment issues in the Western Wales River Basin District and gives you the chance to influence the approach in your local area.

This is a public consultation and we, Natural Resources Wales, welcome everyone's views.

We'd like to find out your views on:

- The biggest challenges facing waters in the Western Wales River Basin District.
- The best way to tackle these issues and what should be done first.
- Who we should work with to achieve the environmental outcomes

This consultation describes the significant water issues in the Western Wales River Basin District and then focuses on these issues in each of the catchments. This offers you the opportunity to respond to this consultation at the level most appropriate to your expertise or interest.

If you want to respond to this consultation on a specific issue, such as pollution from rural areas or minewaters, then you may wish to just answer the questions for the issues section. If your focus is more on your local area, you may prefer to respond to the questions at the beginning of the catchment section and apply them to the area of your interest and expertise. You are, of course, welcome to do both.

Consultation questions

The significant issues (pages 13 – 20)

1 What do **you** consider to be the biggest challenges facing waters in the Western Wales River Basin District?

2 Do you agree with our description of how the significant issues are affecting the water environment and the local community? *Please specify which issue(s) your response refers to and provide relevant information to help explain your answer.*

3 How do you think these issues should be tackled, and what would you choose to do first? *Please specify which issue(s) your response refers to. Please consider any resource limitations.*

4. Who we should work with to achieve the environmental outcomes?

The catchments (pages 21 – 31)

5 How are the significant issues in the Western Wales catchment affecting the water environment and the local community? *Please specify which catchment(s) your response refers to and provide relevant information to help explain your answer*

6 How do you think the challenges affecting the catchments should be tackled and what would you do first? *Please specify which catchment(s) your response refers to. Please consider any resource implications..*

There are many ways to respond to this consultation (see page 33 for more details), but if you have any difficulties please call 0300 065 3000, or email ardalbasnafongorllewincymru@cyfoethnaturiolcymru.gov.uk / westernwalesrbd@naturalresourceswales.gov.uk

This consultation runs from 22 June to 22 December 2013.

We will issue a response document by March 2014. This will summarise the comments we received and what will happen as a result.

2 Supporting information

This consultation document is a summary of the information Natural Resources Wales and others have collected and analysed. Throughout this document you will be directed to other, more detailed sources of information.

To help you respond to this consultation you might like to read the *Western Wales River Basin District: Facts and Statistics* document. To view this, please visit our information page

To find out further information about river basin districts, catchments, water bodies and the river basin management planning process, please see the Environment Agency website at: http://www.environment-agency.gov.uk/research/planning/33106.aspx

There is also a supporting document 'Living Waters for Wales' which sets out the top ten issues across Wales. To view this, please visit our information page.

3 Water – a vital resource

Water is essential for life and livelihoods. The average person in the UK uses 150 litres of water every day in their home. If you include all the water used in growing and manufacturing the things used or consumed, each of us uses on average around 4,600 litres (over 1,000 gallons) of water per day, over 60% from sources in the UK.

Water allows the natural environment to flourish, and businesses, agriculture and the economy to grow and prosper. Rivers, lakes, estuaries, coastal areas, wetlands and ground water provide many different benefits to society – from supplying drinking water and supporting fisheries to providing an essential resource for business and agriculture, transport routes and a source of recreation that promotes wellbeing.

Healthy water environments also help protect the nation from floods and droughts and regulate the quality of the air and the climate. Everyone benefits from using water and enjoying the water environment, but it is essential that both are used and managed in a sustainable way. By doing this, the natural environment, business and economic growth will be protected and the long-term benefits to health and wellbeing improved.

Assessing the state of the water environment is now done in a comparable way across Europe, taking account of different natural conditions in each country's local geography. A target of good status is the long-term aim, which is defined as a slight deviation from natural conditions associated with limited impacts from human activity. In Wales, more than a third of surface waters currently have a good ecology, either as good status, or the slightly modified target of good potential, which applies to waters that have been extensively engineered

4 River basin management planning – the benefits

In December 2009, the Environment Agency Wales (now Natural Resources Wales) published the first Western Wales River Basin Management Plan. With our partners, we are now working to review and update it. We will publish the revised plan in December 2015, following approval by Welsh Ministers.

Understanding the benefits society gets from protecting and improving the water environment is at the heart of river basin management planning. Understanding and capturing information on these benefits will help determine the quality of the water environment society wants and how best to target investment.

The updated plan will explain how decisions affecting the water environment are made. The plan is important because it will show businesses, water users and organisations what they need to do. It will not be a full, detailed list of actions. Instead, it will provide the basis for agreeing detailed work plans. It will take into account the wider water issues such as flooding, climate change and drought.

5 The catchment based approach

Natural Resources Wales is constantly exploring better ways of involving people and organisations to make a difference to the health of all waters and habitats.

Following your feedback through the Working Together consultation, we understand that involving people at a catchment scale is often the most effective way of working. We have, therefore, included information on the catchments in Western Wales in this document.

A catchment is an area with several, often interconnected bodies of water, such as rivers, lakes, ground waters or coastal waters.

By working together at the catchment scale we aim to:

- Understand the issues in the catchment and how they interact.
- Understand how the issues are affecting the current local benefits and future uses of water.
- Involve local communities in making decisions by sharing evidence.
- Work out what issues to tackle as a priority.
- Build towards a 'catchment plan', a simple statement of how to manage the catchment. This will include the long-term aims for protecting and improving the environment.

To find out further information about river basin districts, catchments, water bodies and the river basin management planning process please see the Environment Agency website at http://www.environment-agency.gov.uk/research/planning/33106.aspx

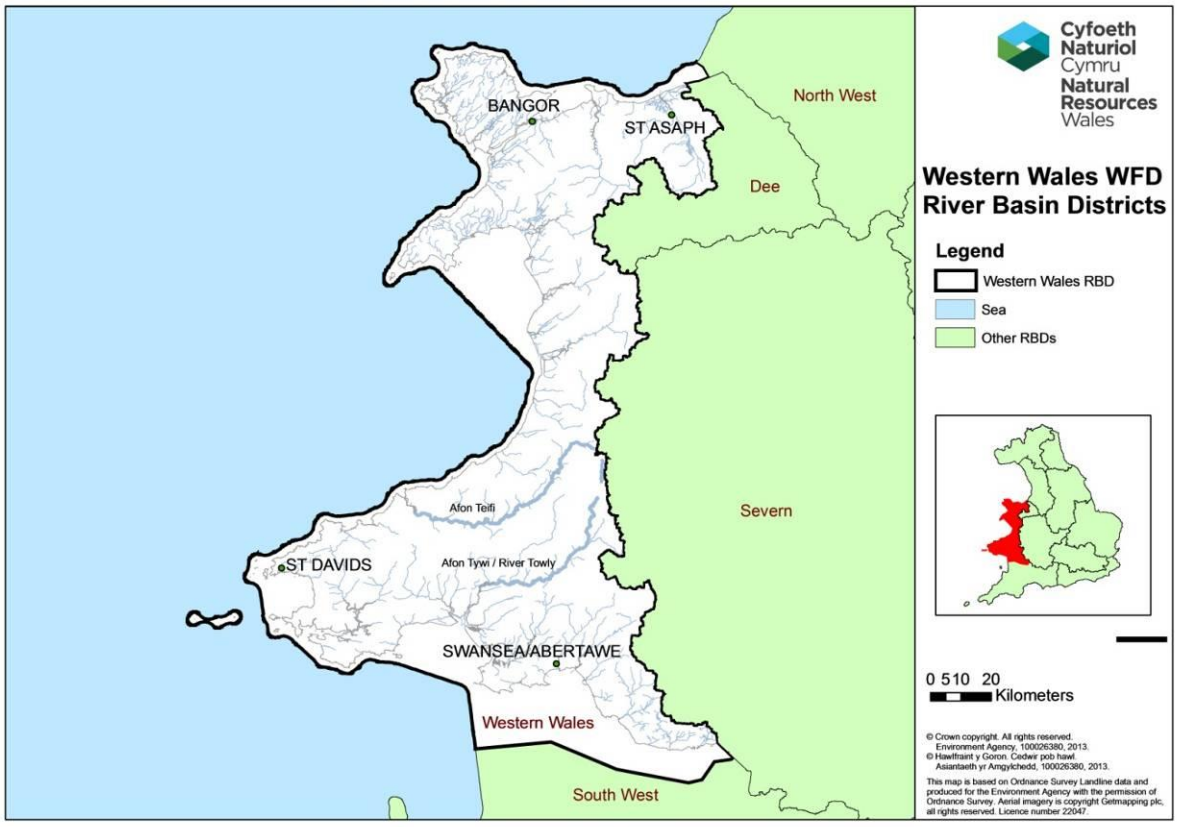
6 The Western Wales River Basin District

Overview

The Western Wales River Basin District (Fig 1) covers an area of 16,653 square kilometres. It extends across the entire western half of Wales, from the Vale of Glamorgan in the south to Denbighshire in the north.

The main centres of population are restricted to the coastal strip and the westernmost part of the South Wales valleys. The main urban centres are Swansea, Bridgend and Neath in the south, Aberystwyth in the centre on the coast and Bangor in the north. The river basin district is primarily rural, with land mainly used for agriculture and forestry. Swansea Bay and Milford Haven are centres of heavy industry with the Port Talbot steelworks and oil refineries and gas terminals that provide fuel for the nation.

Figure 1. The Western Wales River Basin District



The dramatic environment of the river basin district's coast, including its beautiful beaches, 100 of which are EC designated bathing waters, explains the importance of the coastal tourism industry, which contributes millions of pounds each year to the Welsh economy.

Compared to other river basin districts, the Western Wales River Basin District is not densely populated and has an above average rainfall each year. However, the coastal zone in particular experiences a large seasonal influx of visitors every summer, which puts additional pressure on the water environment and use of resources.

Current condition

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, lake, ground water or coastal water. We assess the condition of these water bodies through a monitoring process, which produces an annual ‘classification’ or healthy water rating. The classification is based on the biological and chemical condition of the water body and assesses how close it is to its natural state.

There are many pressures that can affect the condition of a water body. Controlling these pressures to make sure that there is no deterioration from the water body’s current condition, and the resulting benefits society gets from them, is the first priority of river basin management planning.

The health of the water bodies in the Western Wales River Basin District has improved since the first river basin management plan was published. There are 814 water bodies in the River Basin District and 35% of surface water bodies are in good condition compared to 29% in 2009. Our ambition is to achieve 50% by 2015.

For information on the latest classification results and other key statistics for the Western Wales River Basin District, see the Facts and Statistics document. To view, please visit our information page.

Protected areas

There are many areas in the Western Wales River Basin District where the water environment is particularly important. These areas include rare wildlife habitats, bathing waters and areas where drinking water is abstracted. Known as 'protected areas', these areas are given particular legal protection. Protected areas are a priority for action to make sure they meet their statutory conditions and can continue to provide their special uses.

The Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites are important at a European scale, and their habitats and species are protected under the Habitats Directive (92/43/EEC). Sites of Special Scientific Interest (SSSIs) are important at a national scale, and are protected under the Wildlife and Countryside Act 1981. The table below shows the number and breakdown of protected areas in the Western Wales River Basin District.

Protected areas in the Western Wales River Basin District

Protected area	**Number/area coverage**
Drinking Water Protected Area	87
Freshwater Fish Waters *	498
Shellfish Waters*	25
Bathing Waters	100
UWWTD Sensitive Areas	3
Water dependent Special Areas of Conservation (SACs)	60
Water dependent Special Protection Areas (SPAs)	12
Nitrate Vulnerable Zones (NVZs)	2%

* The Freshwater Fish Directive and the Shellfish Waters Directive will be repealed at the end of 2013 and after that it will be protected by the requirements of the Water Framework Directive.

More information about the protected areas is available in the *Western Wales River Basin District: Facts and Statistics* document. To view, please visit our information page.

7 The significant water issues

The Western Wales River Basin District liaison panel (a group of key partners) and Natural Resources Wales have developed a list of the most important issues we believe threaten the current and potential future uses of the water environment.

We assessed the pressures or potential issues caused by people **now** (for example, rivers polluted by farming or urban activities); **in the past** (rivers contaminated by mining); or **in the future** (abstracting more water to meet rising demand). We have only focused on those issues where more action is needed.

We developed a number of issue headings and have grouped the issues/pressures under these. (Please note that these are not in order of priority).

- **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 waste water** – waste water 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, and sewage from houses 'misconnected' to surface water drains rather than sewers.
- **Pollution from rural areas** – the negative effects of 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.
- **Invasive Non-Native Species** – The presence of invasive non-native species (plants, aquatic life forms and animals) in our watercourses pose threats to biodiversity, increase flood risk, affect the state of our water environment and cost the economy billions per annum.

This section describes each significant issue in turn; explaining what it is what's causing it and share what is currently being done, what more could be done and what the priorities for action might be. There are still some water bodies where the cause of the failure is not known, we are investigating them to find out why.

We will work with interested parties to look at the costs of possible action and the benefits of improving the condition of the water environment. In June 2014, we will consult on the results of this work and what it will mean for the long-term objective (or condition) for each water body.

As well as considering the current state of the water environment, it is also important to look at the future risks (potential impacts). Natural resources Wales and the Environment Agency have produced risk assessments for each pressure affecting the water environment. These risk assessments can be accessed from the 'Further information on the significant issues' section of this document. To view, please visit section 9.

We would like you to respond to the following questions on the significant issues in the Western Wales River Basin District:

Consultation questions

1 What do **you** consider to be the biggest challenges facing waters in the Western Wales River Basin District?

2 Do you agree with our description of how the significant issues are affecting the water environment and the local community? *Please specify which issue(s) your response refers to and provide relevant information to help explain your answer.*

3 How do you think these issues should be tackled, and what would you choose to do first? *Please specify which issue(s) your response refers to. Please consider any resource limitations.*

4. Who we should work with to achieve the environmental outcomes?

Physical modifications

People have always made changes to the natural form of rivers, estuaries and the coast for economic benefit or to protect people and property. The needs of industry, agriculture flood protection, urban development, transport links and land drainage have all had an impact on the water environment and its physical and ecological processes:

- Impoundments affect the natural flow of waters, the distribution of sediment and movement of fish.
- Flood protection and land drainage works can reduce bank side diversity or result in a significant reduction in biodiversity in culverted rivers.
- Embankments sever the natural connection of the river to its floodplain.
- Weirs and tidal sluices on the coast prevent fish from moving freely, encourage the build up of silt and stop fresh and salt waters mixing naturally.
- Shoreline reinforcements, sea defences and rock protection change the landscape and create 'coastal squeeze', preventing the natural migration of the shoreline, which is made worse by rises in sea levels.
- Shellfisheries on estuaries and in coastal waters can impact local ecology.
- Land reclamation within estuaries by constructing sea embankments has created massive changes in the local ecology.
- Converting saltmarsh to improved farmland leads to water levels being reduced by intensive drainage which can in turn increase the amount of nutrients and pesticides entering inshore waters.

Physical modifications are a widespread problem in Western Wales: 118 water bodies fail to reach good status because of them. Mainly due to barriers to fish migration such as weirs (57 water bodies), but also flood protection (4) and impoundments (16).

Some water bodies are designated as "heavily modified" where the modifications are such that they cannot be removed, for example for flood management or water supply. We are Investigating how the local ecology can be improved in these water bodies to achieve as near good condition as possible by 2027. We are taking action to remove, mitigate or reduce the negative aspects of modifications and we will work in partnership with a range of organisations to achieve this. We are currently working on a saltmarsh restoration programme, in partnership with Local Authorities and major landowners, to reduce the impacts of coastal squeeze.

There are many potential sites for small-scale hydropower schemes in Wales, over 100 new schemes are being developed in the Western Wales River Basin District. Most of these will need new impoundments, often on unspoilt upland streams. We will work with the developers to avoid unacceptable impacts on the water environment.

Local authorities are working with us through the development planning process to encourage removal of culverts to restore a more natural river environment in urban and rural areas. We encourage sustainable urban drainage systems (SuDs) and green infrastructure in new developments to manage water naturally.

Through our Salmon for Tomorrow project we have received £2.1million from Welsh Government and European Fisheries Fund for projects that have removed barriers preventing fish from migrating, including building 23 fish passes in the last three years and restoring in stream and riverside habitats.

Pollution from sewage and waste water

The day to day activities of society and industry rely on an effective sewerage network. This network includes both large scale treatment facilities and small private sewage systems. Huge investment has been made to ensure the networks function to meet today's standards but more remains to be done.

Sewage treatment works and the many properties outside of the main sewer catchments all contribute to the discharge of waste water in the river basin district. There are over 31,000 registrations for private sewage private sewage treatment systems that discharge treated effluent into the ground or surface waters. Where sewage works are not operated appropriately, they can cause local pollution and pose a risk to water quality and drinking water supplies. Intermittent discharges from combined sewer overflows and storm overflows operate during heavy rain, and are designed to protect sewage works from being overloaded and domestic properties from sewer flooding.

Increased nutrients caused by the discharge of sewage can lead to changes in water quality and the ecology of lakes, rivers and estuaries. The consequences of this can be severe, including excessive growth of algae, which can be poisonous; weeds choking navigable waterways; changes in fish populations, and a deterioration in the look of the area for those living close to, or visiting watercourses. Phosphorus is accepted as the main risk to river Water bodies from sewage discharges. In the West Wales River Basin District, 22 Water bodies are reported as failing for phosphorus due to significant contributions from Water Company final sewage effluent discharges. There are also two estuarine water bodies failing due to diffuse nutrients.

Environment Agency led modelling identifies a catchment non compliance load (i.e. load to be removed by the relevant Water Company to realise Good status) of circa 14 tons per annum. Improvements will initially be targeted at the 40 Sewage Treatment works that actually discharge into the failing Water bodies, though catchment solutions may address the compliance load at other works contributing significant loads upstream of the failing Water bodies where the Water Framework Directive targets are exceeded.

The bacteria which are found in sewage can cause bathing and shellfish waters to fail to meet their standards. This can affect the local economy by reducing the number of tourists that wish to visit. We have developed Shellfish Waters Pollution Reduction Plans and Bathing Water Action Plans to manage the risk. As well as improvements to Water Company treatment plants this includes local initiatives and campaigns such as river walks, pollution prevention visits and registrations of private waste water treatment plants.

Natural Resources Wales is developing a strategic plan for tackling diffuse water pollution in Wales. It identifies the need to address misconnections in the sewage networks of both industrial and domestic properties, when contaminated water is wrongly directed into surface water drains. It also identifies the need to tackle surface water drainage issues, where clean water enters the sewers and increases the volume of water directed to sewage treatment works. This can make treatment less effective and lead to more frequent discharges of pollutants from overflows.

The water companies produce five-year plans for improvement and investment to meet water quality targets. These programmes are paid for by customers through their water bills. Local water companies work closely with Natural Resources Wales to decide which environmental schemes should be included in future programmes, while trying to ensure that water bills are kept affordable for customers.

Having registered private sewage treatment systems in Wales, we will develop guidance for owners so that they manage their existing systems better. In some places, communities have asked for a public sewer to be provided to replace existing private systems.

Many of the local measures are already underway. However, the above issues will be made worse if increases in population in the catchment are not matched by improvements to discharges. Climate change may lead to more, heavy rainfall, causing more frequent

discharges from the sewer network. Sustainable urban drainage systems (SuDs) need to be used more both for new developments and in retrofitting, when and where possible.

Pollution from towns, cities and transport

Most people in the river basin district live in the urban centres along the coast. When water runs off the land in these areas it can carry pollution that harms the water environment and diminishes the quality of life for residents and visitors.

Impermeable surfaces prevent water from soaking into the ground, increasing surface water and river flood risk, delivers pollutants to drainage systems and rivers and increases the frequency and severity of combined sewage overflow discharges.

Modern drainage systems have separate systems for clean rainwater and foul water, including the waste water from kitchens, toilets and bathrooms. Misconnections due to poor design, installation or maintenance result in untreated foul water containing organic material, pathogenic bacteria, detergents, fats and oils, sanitary items, metals and organic chemicals entering the rivers or ground water.

Managing the impacts of industrial estates is difficult due to complex ownerships, ageing infrastructure and high occupancy turnover rates. The principal sources of pollution include poor oil and fuel storage, cleaning and maintenance activities, drainage misconnections, and construction work.

Emissions of atmospheric pollution have been reduced dramatically in recent decades because of action by industry and tightened standards. Despite this acidification problems persist in some upland catchments of Western Wales, and the emissions of transport, urban and industrial activities continue to contribute to it.

The actions required to ‘clean up’ and restore urban water environments do not just benefit fish and wildlife. They create green spaces, provide recreation opportunities and improve bathing waters, reduce flood risk associated with surface water over flow, improve the health and well being of citizens, and support economic regeneration.

Local authorities and Welsh Government are working with us to include Sustainable Drainage Schemes (SuDS) into urban renewal and development planning. Natural flow buffering features such as green belts, rain gardens and wetlands increase infiltration and remove sediments and pollutants. Local communities and local authorities are working with us to find and rectify misconnections in urban areas (for example the Clear Streams Swansea initiative) and with Keep Wales Tidy’s Yellow Fish Campaign is raising awareness of urban diffuse pollution. Dwr Cymru Welsh Water encourage SuDS by providing rebates to customers who install water storage and redirect roof gutter water from combined sewerage systems to their gardens. On Industrial Estates we encourage voluntary action through communicating good practice guidance Business Link Wales and take regulatory action when pollution occurs.

Pollution from rural areas

The river basin district is mostly rural, and the rural landscape provides important economic and cultural benefits to residents and visitors. However, rural land use associated with farming and forestry can pollute the water environment, harming its ecology and reducing the benefits it provides for wildlife and society. Agricultural activity can impact the water environment through a range of pollutants: nutrients, sediments, faecal bacteria, chemicals and fuels Forest operations can have an impact through sediment runoff and exacerbating the effects of acidification. Surface water runoff from roads can also add to the problem.

Agriculture and forestry feature prominently in Welsh Government's Rural Development Plan, which aims to support sustainable rural economies that deliver valuable ecosystem services such as recreation opportunities and drinking water. Improving agriculture and forestry practices will reduce the impacts of rural pollution, improve the water environment, and benefit society

Diffuse pollution from rural areas causes failures in approximately 122 water bodies in the Western Wales River Basin District. Of these 84 failures are from farming and 40 are from forestry.

Reducing the impacts whilst ensuring rural economies and communities are sustainable and vibrant is a complex challenge. We support voluntary initiatives by the farming industry. For example, the catchment based approach to planning and delivering solutions, and promote initiatives to help farmers benefit from relevant advice, capital grants, and payments for enhanced land management. All this activity is supported by targeted and proportionate regulatory activity.

Farmers, their representative bodies, and voluntary organisations are all working with us to reduce the impacts of agriculture on the water environment and improve farm profitability. Current programmes and approaches include:

- fencing riverside zones to exclude livestock from water courses and capture diffuse sediment and nutrient pollution
- adjusting numbers of livestock to reduce field erosion
- promoting the use of cover crops to reduce erosion and retain soil nutrients
- identifying and improving farmyard infrastructure - improving slurry storage, separating 'clean' and 'dirty' water, improving track design, developing nutrient management plans that save money and protect the environment
- reducing reliance on chemical fertilisers, pesticides and herbicides.

Forestry is being improved to minimise negative impacts and maximise the benefits woodlands can deliver to the water environment and society. Woodlands can reduce flood risk by increasing water retention in catchments; reduce erosion by improving bank stability; provide a natural filtering mechanism for rain and surface water abstracted for drinking supplies; provide habitat for fish and wildlife; and reduce water temperature by providing shade to streams. Natural Resources Wales is committed to achieving these outcomes for all forestry under its control by 2027.

Pollution from mines

Mining was at the heart of Wales' industrial development. This river basin district has a legacy of abandoned mines including the South Wales Coalfield, the Mid Wales lead and zinc orefield and Parys Mountain Copper Mine on Anglesey. Pollution from abandoned mines mainly comes from underground workings and the waste materials left on the surface of the mine (spoil).

The most obvious form of pollution is the orange staining of rivers downstream of coal or metal mines, which occurs when iron ochre forms a thick sludge on the river bed. This smothers the gravels, affecting invertebrate life and spawning fish. Not all mine water is rich in iron and because of this some rivers may look clean. However, the presence of other dissolved metals such as lead, copper, zinc and cadmium and, in some cases, acidic water

There are 74 water bodies that are failing to achieve good status because of abandoned mines in The Western Wales River Basin district. Ground water failures are also associated with the surface conditions.

Since 1999, owners of working mines have had to produce a closure plan, which states how the closed mine will be managed to prevent the water environment becoming polluted. For mines that were closed before this date no person can be held liable for the discharges.

The Coal Authority work with us across the UK, to manage pollution from abandoned coal mines http://coal.decc.gov.uk/en/coal/cms/environment/environment.aspx. They have built and now operate 8 mine water treatment plants in the Western Wales RBD.

Through the Metal Mine Strategy for Wales we are tackling metal mine pollution. We have conducted a number of studies to understand the impact and find solutions to the problem. We are working with academic partners to find new sustainable solutions to minewater treatment. We have focused on those abandoned metal mines causing the greatest impact on the environment. For this river basin district, this includes Parys Mountain copper mine and several gold, lead and zinc mines in Mid and North Wales.

River basin planning gives us the opportunity to review progress and set future priorities for a remediation programme for both metal and coal mine waters in Wales. There is no simple solution. Commitment will be needed to fund sustainable and cost effective long-term treatment for the most polluting mine waters.

The Afon Goch and Parys mountain copper mine discharge to the Irish Sea

Invasive non- native species

Invasive non-native species (INNS) are plants and animals that have been accidentally or deliberately introduced from outside the UK that threaten our native fauna or flora. Although they are not considered to be a significant issue in the Western Wales RBD, they do have a natural ability to thrive in new areas and pose a serious risk to achieving a healthy water environment by ousting or predating on native species, spreading disease or causing physical damage such as unstable river banks for example. INNS represent a significant challenge in terms of preventing waterbody deterioration which is a key requirement of the Water Framework Directive. Although there aren't any water bodies currently identified as failing because of INNS, they could potentially be a significant issue for Western Wales because of species such as the Topmouth Gudgeon and the Carpet Seasquirt, which are present in the RBD along with bank side plants such as Japanese Knotweed and Himalayan Balsam which are widespread.

Managing INNS remains a huge challenge with many groups including Rivers trusts, angling clubs, conservation bodies and others involved in helping to tackle the issue. Key INNS management priorities for Western Wales include slowing or preventing the spread of existing species or eradicating those where it is possible to do so, minimising the risk of new introductions and improving local data and information on INNS distribution and impact. We have developed the plant tracker website and application in partnership with the Nature Locator team at the University of Bristol and the Centre for Ecology and Hydrology to help anyone recognise and report 14 different invasive plant species.

While control / eradication actions can take time to achieve successful results and potentially be resource intensive this needs to be balanced against the overall INNS impact risk and annual cost of dealing with species once they become established.

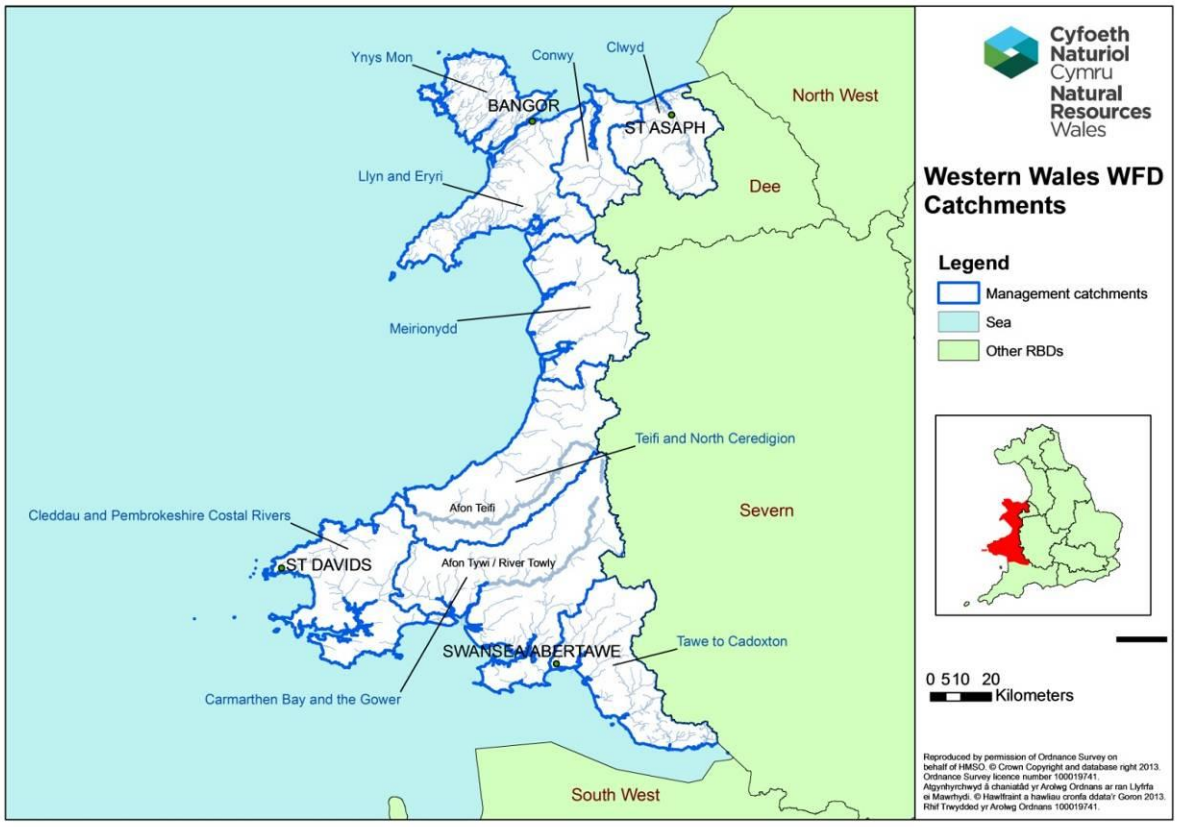
8 The catchments in the Western Wales River Basin District

The Western Wales River Basin District is a large river basin district covering the whole of western Wales; there are 814 water bodies which includes rivers, lakes, ground water and coastal waters. For the second cycle of river basin planning, the river basin has been split into nine management catchments (see below). This is to make sure that river basin management fit with other plans and provides a manageable catchment unit that will include associated coastal and ground waters (Fig 2).

Working at the catchment scale will enable us to act on the feedback from the *Working Together* consultation and allow people to get involved at a local level to bring about improvements.

- Clwyd
- Conwy
- Ynys Mon
- Lleyn and Efyri
- Meirionydd
- Teifi and North Ceredigion
- Cleddau and Pembrokeshire Coastal Rivers
- Carmarthen Bay and Gower
- Tawe to Cadoxton

Figure 2. The Western Wales River Basin District catchments



Responding to the consultation at catchment level

We would like you to answer the following questions on the catchment, or catchments, you are interested in from the section below:

Consultation questions

5 How are the significant issues in a catchment affecting the water environment and the local community? *Please specify which catchment(s) your response refers to and provide relevant information to help explain your answer*.

6 How do you think the challenges affecting each catchment should be tackled and what would you choose to do first? *Please specify which catchment(s) your response refers to. Please consider any resource limitations.*

Over the last two years, we have undertaken a comprehensive programme of investigations on our failing water bodies and those thought to be at risk of deterioration. The investigations include taking samples, analysing data and (most importantly) spending time in the field walking rivers, investigating failures and understanding what's impacting our water bodies. Some of our failing water bodies have complex issues with multiple reasons for failure; others may be failing due to a single reason.

Alongside our partners we are taking actions to address these issues and to maintain and enhance the ecological status of the water bodies. We prioritise the work so we can deliver the most environmental improvement in the most efficient way and will repeat surveys and monitor the water bodies until we see improvements. We still have a long way to go and a lot more work to do, so success in meeting the objectives of the Water Framework Directive will rely on partnership working and cooperation

The following sections detail some of the issues and actions we are taking to deal with them in each management catchment.

Clwyd

Agriculture dominates the largely rural Clwyd catchment. Mixed livestock rearing is a feature of the upper catchment along with areas of forestry such as at Clocaenog. Dairying and some arable crops are more common in the lower reaches. Populations are centred around Ruthin, Denbigh, St Asaph and Rhyl. Modified natural lakes provide public water supplies, and the main river Clwyd is supported by ground water augmentation when flows are naturally low. Tourism is important to the local economy, particularly in the coastal plain where there are EU designated bathing waters at Kinmel Bay and Rhyl. The catchment is important for salmon and sea trout fishing,

In the Clwyd management catchment there are 32 river water bodies, one lake and one estuarine waterbody, we have identified five water bodies that are failing because of **physical modifications**, mostly artificial barriers which prevent fish migrating and reaching their spawning grounds, including the Wheeler at Afon Wen, the Nant Mawr reservoir and a mineshaft on the Glanfyddion. There are a number of other partial barriers that could be improved. **Agricultural and rural land management** is identified as the reason for failure in 13 water bodies, mostly because of sediment and phosphate. **Discharges from Wastewater treatment works** probably contribute to phosphate failures in seven water bodies. Bathing waters are at risk from organisms that occur in waste effluent, originating from urban and rural runoff as well as discharges from wastewater treatment works.

Ongoing actions in this catchment include:

- Addressing land management issues to improve overall fish habitat, for example improving migration in the Clywedog and Gallen
- Denbighshire County Council is identifying environmental issues and ways to maintain and enhance the environment in the short and long term.
- Land owners and farmers are ensuring best practice to minimise the impact of farming and forestry activities on rivers, includes fencing schemes to create river corridors, soil testing and nutrient management plans
- Private dischargers and Welsh Water are ensuring appropriate treatment of sewage effluent, to minimise solids and nutrients entering the river system
- We are providing pollution prevention advice in several tributaries including the Bach, and Glanfyddion Cut

Bankside erosion at Plas yn Rhal

Algal Growth in a tributary of the Clwyd

Conwy

Agriculture and forestry dominate the Conwy catchment. Sheep are reared in the upper catchment, for example around Betws-y-Coed, with more mixed livestock in the lower sections. Betws-y-Coed, Llandudno and Conwy are the primary settlements. The catchment is an important salmon and sea trout fishery, though there are two natural barriers in the upper catchment: Swallow Falls and Conwy Falls. Recreation and tourism are important to the local economy, with visitors canoeing, walking, using the EU designated bathing water at Llandudno West Shore and sailing from the two large marinas in the lower estuary. The estuary contains two commercial shellfish beds. Present day heavy industry is limited to hydro electric power generation at Dolgarrog, but the catchment has a history of metal mining in the upper catchment.

In the Conwy management catchment there are 31 river water bodies, eight lakes and one estuarine waterbody.

Discharges from abandoned metal mines are thought to impact nine water bodies. Metal rich discharges adversely affect river biology, as well as being unsightly. The Pool adit at Parc mine contributes 20% of the dissolved zinc in the Conwy estuary. Part of the upper catchment around Llyn Conwy is acidic, which can cause toxic metals to leach from soils. **Physical modifications**, mainly because of impoundments for hydropower, affect six water bodies. **Diffuse pollution, both from agricultural and forestry sources** is an issue in four water bodies, sediment and nutrients are causing problems in rivers such as the Iwrch, Hiraethlyn and Lledr. In the lower catchment bacteria from waste water treatment pose a risk to shellfish beds which and could make them commercially unviable. They also pose a risk to the quality of the bathing waters.

Ongoing actions in the Conwy catchment include:

- Welsh Water and private sewage dischargers are working to ensure appropriate treatment of waste water.
- Bangor University is researching innovative solutions for issues with shellfisheries
- Natural Resources Wales is improving forest management to reduce the impact of acidification and protect rivers from sediment
- Land owners are minimising the impact of agricultural land management on rivers by controlling runoff, avoiding bank side erosion and encouraging best practice
- We are investigating the sources and solutions for abandoned metal mines including detailed catchment studies, flow reduction measures at Parc Mine and flow monitoring at Pandora mine

Parc Lead mine near Llanrwst

Ynys Môn

The landscape of Anglesey is dominated by agriculture. Tourism is of great economic importance to the island, and maintaining the quality of the general environment, bathing waters and associated water-based recreation is a high priority. The island has many sites designated for conservation and biodiversity purposes. The coastline of cliffs and sandy beaches has 12 EU designated bathing waters, as well as designated shellfish beds. There are several small industrial estates located near the main population centres such as Llangefni, and Holyhead with its ferry terminal. The west of the island is a nitrate vulnerable zone. A number of lakes on Anglesey have been modified for public water supply.

In the Ynys Mon management catchment there are 44 river water bodies, five lakes and three estuarine waterbodies.

Nutrient enrichment, particularly by phosphorous, affects five lakes and one river on the island, notaby Llyn Dinam, Llyn Alaw and Llyn Coron. This causes excessive algal growth, affecting other water uses including drinking water abstraction, angling, wildlife conservation and livestock watering. **Agricultural land management, urban diffuse pollution and discharges from wastewater treatment** are identified as the main sources. Landspreading of waste can also be a contributory factor, and there are several large scale intensive agricultural units on the island which routinely dispose of waste in this way. Discharges of acidic metal rich mine water from the **abandoned metal mine** at Parys Mountain have a significant impact on the Afon Goch Amlwch. Bacteria from **waste water treatment** and agricultural land present a risk to shellfish and bathing water quality.

Ongoing actions in the Ynys Mon catchment include:

- Land owners are working to minimise the impact of agricultural diffuse pollution by controlling runoff, avoiding bank side erosion and encouraging best practice
- Private sewage dischargers and Welsh Water are working to prevent or improve inappropriate point source sewage discharges, and consequently control excessive solids, bacteria and nutrients entering the river system.
- We are working towards a solution, and funding, to treat the minewater at Parys Mountain
- We are conducting pollution prevention campaigns in specific sub catchments, such as the Wygyr to tackle diffuse pollution impacting Cemmaes Bay beach.

Minewater in the Afon Goch Amlwch

Algal growth in Llyn Maelog

Lleyn and Eryri

The Lleyn and Eryri catchment covers the Lleyn Peninsula, extending south to the Glaslyn estuary and north eastwards to Dwygyfylchi and Snowdonia. The eastern half is mountainous upland, dominated by sheep farming. Further west the low lying land on the Lleyn Peninsula dairy farming is more common. Outside of Bangor, Caernarfon and Porthmadog, the population is generally scattered in small villages and isolated dwellings.

There are several EU bathing waters around the coastline and commercial shellfish waters in the Glaslyn estuary and along the Menai Strait. Tourism is of great economic importance to the area and maintaining the quality of coastal waters and inland rivers is a high priority. There are also many inland sites designated for conservation and biodiversity purposes, which are important in attracting tourists to the area, as well as Snowdonia National Park.

In the Lleyn and Eryri management catchment there are 84 river water bodies, 17 lakes and two estuarine.

Bacteria from **waste water treatment** pose a risk of bathing and shellfish waters failing to meet EC quality standards. **Physical modifications** for impoundments, hydropower or barriers to fish migration have an impact on 15 water bodies. The lower Leri is canalised and no longer natural. The Cefni and Glaslyn estuaries have been drastically reduced in size by construction of sea embankments. Eleven water bodies are impacted by **abandoned metal and slate mines** The Llyfni and Glaslyn have elevated levels of copper and zinc. Rivers in the Blaenau Ffestiniog area have elevated metals and also experience sediment flushes in heavy rainfall. **Acidification** due to atmospheric deposition, often exacerbated by natural conditions, mining and forestry is identified as a problem in five upland water bodies in the east of this area, including Llynnau Gamallt and Llyn Llagi. Acidification can cause toxic metals to leach out of the soils and enter rivers, which can cause problems to aquatic organisms. Nutrients from **agricultural land management, urban diffuse pollution and discharges from wastewater treatment** are identified as a problem in eight water bodies.

Ongoing actions in the Lleyn and Eryri catchment include:

- Private dischargers are tackling diffuse pollution to minimise pollution reaching the beaches around the Lleyn and northern coastline.
- Welsh Water and monitoring the performance of their assets to focus investment in improvements.
- Quarry operators in the Blaenau area are working to reduce pollution. Improvements have been made to onsite drainage and management of runoff, and this has helped reduce polluting emissions in to the Goedol catchment, including the Afon Barlwyd.
- Natural Resources Wales is improving forest management to reduce the impact of acidification and protect rivers from sediment
- The Afon Ogwen was damaged by drainage and canalisation in the 1960s, today; extensive restoration has restored fish and invertebrates to the river and removed unsightly rubble that was lining a kilometre of the river bank within the National Park.

Abersoch Bathing Beach

Afon Barlwyd in Blaenau Ffestiniog

Meirionydd

Agriculture and forestry are the predominant landuses in the Meirionydd management catchment which extends from Borth on the southwest coast to southern end of Llyn Trawsfynydd. The area covers the catchments of the Dyfi and the Mawddach, as well as the mountain range of Cader Idris and a long coastal strip extending south from Harlech. There are large areas of forestry in the Dyfi valley and to the north of Dolgellau, however elsewhere agriculture dominates, predominantly sheep farming in the upland areas. There are several EU bathing waters in this catchment and also large shellfish beds in the Dyfi and Mawddach estuaries. Tourism is of great economic importance to the area and maintaining the quality of bathing waters and inland rivers is a high priority. There are also many inland sites designated for conservation and biodiversity purposes, which are important in attracting tourists to the area.

In the Meirionydd management catchment there are 74 river water bodies, 11 lakes and four estuarine waterbodies.

Discharges from abandoned mines are a significant issue in this catchment particularly on the Dyfi and Mawddach.19 water bodies are identified as being impacted by this pressure and sources include the Dylife lead mine and Gwynfynydd gold mine. Bacteria from **waste water treatment** pose a risk of bathing and shellfish waters failing to meet EC quality standards around the Merionydd coastline. **Acidification** due to atmospheric deposition, often exacerbated by natural conditions, mining and forestry is identified as a problem in eleven water bodies. Acidification can cause toxic metals to leach out of the soils and enter rivers, which can cause problems to aquatic organisms

Ongoing actions in the Meirionydd catchment include:

- Welsh Water and private sewage dischargers are ensuring appropriate treatment of waste water.
- We have conducted pollution prevention campaigns in the Dyfi and Mawddach estuaries, sampling and visiting private properties and farms, to address diffuse sources of organic and bacterial pollution.
- We are monitoring the Mawddach to determine the extent of the pollution from the Copper Bog and Gwynfynydd Gold Mine, as part of work and develop feasible measures to address the issue.
- Natural Resources Wales Wales is improving forest management to reduce the impact of acidification and protect rivers from sediment and remove barriers to fish migration
- On the Dyfi floodplain, we are working to restore natural processes to manage flooding and restore water levels in wetlands. This will benefit the internationally protected Cors Fochno bog and remove the long-term need to restore the floodbanks, which are in poor condition.

Dyfi Estuary

Gwynfynydd Mine

Teifi and North Ceredigion

Rural in nature, the rivers and landscape of Ceredigion are dominated by agricultural land use. Sheep farming is in upland areas and dairy in the lowlands. Historically, metal mining was an important industry in this part of Western Wales. A legacy of this still exists today with some mines giving rise to elevated metal levels in rivers which directly affect ecological quality. The Rheidol is designated as heavily modified due to its use in generating hydroelectric power.

The Teifi is a particularly beautiful river and is designated as a Special Area of Conservation. It flows through Cors Caron, an upland raised bog with a distinctive plant community and aquatic invertebrates unique to the area. Many of the rivers in this area are productive and popular salmon, sea trout and brown trout fisheries. Angling and angling tourism is an important source of income to the area as are the 13 EU designated bathing waters dotted along the coastline. Tourism is worth £298 million in 2011 (Ceredigion County Council STEAM report, 2011) to the local communities.

In the Teifi & North Ceredigion management catchment there are 86 river water bodies, seven lakes and two estuarine waterbodies.

Our investigations have identified 16 river water bodies that are failing because of **abandoned metal mines,** these include water bodies in the Teifi, Ystwyth, Rheidol and Clarach catchments and another 10 that are very likely to be failing. **Agriculture and rural land management** is a reason for failure on 10 water bodies including Teifi, Melindwr, Aeron and Carrog and is very likely to be a reason for failure on 12 others**. Artificial barriers** which prevent fish migrating and reaching their spawning grounds are the reason for failure in two rivers including the Clettwr and Piliau and are very likely to be a reason for failure in the Arberth, Dulas and Mydyr**.**

Acidification from air pollution is a reason for failure in The Teifi Pools and in eight river waterbodies in the uplands of the Ystwyth and Rheidol. There are three water bodies in the Rheidol where coniferous forestry is a reason for failure because the plantations exacerbate acidification. **Discharges from wastewater treatment works** are identified as a reason for failure on four water bodies including the Drywi. Other rivers in the Teifi and Rheidol catchments are very likely to have this as a reason for failure. **Unsewered domestic wastewater** (septic tanks) have been identified on four water bodies including the Carrog, Camddwr and Ystwyth. This is a problem particular to this area of Wales where many villages and properties are not on the sewer network The Rheidol is a heavily modified water body and the surface water abstraction for hydropower is a confirmed reason for failure for the Castell and Hengwm.

Some examples of actions already under way include:

- Schemes to improve fish passage and habitat
- We are reviewing discharge permits and abstraction licenses to reduce the impact on the water environment
- Local authorities are working with us to find and resolve misconnections
- Natural Resources Wales is improving forest management to reduce the impact of acidification and protect rivers from sediment and remove barriers to fish migration
- Agricultural visits to provide advice and guidance. Our agricultural Catchment Officers work alongside landowners to improve land management for the benefit of the water environment.
- Minewater remediation schemes are, and will be key measures in the Teifi, Ystwyth, Rheidol and Clarach catchments.

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Cleddau and Pembrokeshire Coastal Rivers

Bordered on three sides by the sea, the water environment is one of Pembrokeshire's greatest assets. It is fringed by spectacular sandy beaches, rugged cliffs, and wooded estuaries and is home to 29 European Union designated bathing waters and the Pembrokeshire Coast National Park. The main rivers are the Eastern and Western Cleddau, which drain from the Preseli hills in the north through rural farmland to the estuary which comprises part of Milford Haven Waterway. As one of the deepest natural harbours in the world, Milford Haven Waterway is a busy shipping channel, used by ferries from Pembroke Dock to Ireland, oil tankers and pleasure craft. Since the 1950s, Petrochemical and liquid natural gas industries have developed along the Milford Haven Waterway are both a major contributor to the economy of Wales and a critical national infrastructure. Smaller coastal rivers, for example the Nevern and Brandy Brook are common and many drain to popular beaches, sometimes influencing the water quality of the bathing waters.

The river and estuary is a Special Area of Conservation as is approximately 75% of Pembrokeshire's 186 mile coastline. The un-spoilt natural landscape and healthy water environment attracts visitors and the local economy relies heavily on this tourism with £470 million in tourist revenue in 2011 (Pembrokeshire County Council STEAM report, 2011). Agriculture is also important to the local economy producing half of welsh potatoes and a quarter of Welsh milk. The land use is predominantly mixed agriculture including lowland dairy farming and arable crops.

In the Cleddau & Pembrokeshire Coastal Rivers management catchment there are 120 river water bodies, three lakes and two estuarine waterbodies.

Our investigations have identified six water bodies that are failing because of **agriculture and rural land management,** including the Nevern, Western Cleddau and Syfynwy and another 11 that are very likely to be failing due to this pressure. **Artificial barriers** which prevent fish migrating and reaching their spawning grounds are a reason for failure in three rivers including Westfield Pill, Pembroke River and Cartlett Brook**. Discharges from wastewater treatment** works is identified as a reason for failure on the Anghof, and four others including Narbeth Brook and Brandy Brook are very likely to have this as a reason for failure.

Actions already under way include:

- Schemes to improve fish passage at Westfield Pill and Canestn weir, East Cleddau
- Habitat improvements by Pembrokeshire Rivers Trust and Afonydd Cymru in collaboration with Natural resources Wales
- Farmers and landowners are working with our catchment officers to improve land management for the benefit of the water environment

Carmarthen Bay and the Gower

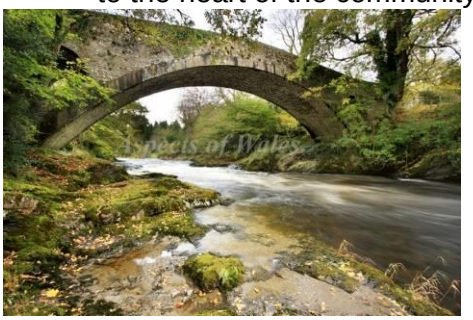
This predominantly rural area contains a wide variety of landscape types from well-wooded, steep valleys and low-lying river floodplains to the estuaries and coastal landscapes of Carmarthen Bay. With its fertile land and agricultural produce, Carmarthenshire is known as the "Garden of Wales". The land use is mainly agricultural with sheep farming in the uplands, mixed livestock rearing lower in the catchments. Intensive dairy farming is prevalent in the Taf catchment. There is extensive forestry in the uplands, especially in the Tywi catchment. Urban areas and industry are limited here. The Gower peninsula is rich in sandy beaches popular with tourists, seven are designated EU Bathing Waters. The Burry Inlet is an EU designated shellfish water and supports an important cockle fishing industry.

The Tywi is the longest river in Wales and is renowned as one of the best sea trout rivers in the UK. Parts of the Tywi are designated as a Special Area of Conservation. The headwaters of the rivers Tywi and Camddwr are dammed forming Llyn Brianne reservoir. The unspoilt natural landscape attracts visitors and this tourism is vital to the economy of this area with £355 million in tourist revenue in 2011 (Carmarthenshire County Council STEAM report, 2011 not including the Gower). In the Carmarthen Bay and Gower management catchment there are 126 river water bodies, five lakes and two estuarine waterbodies.

Our investigations identified eight water bodies that are failing because of **agriculture and rural land management**, including the Crychiau, Taf, Fernhill Brook, Cywyn and Cynin and ten others are very likely to have this as a reason for failure including the Lliw, Pennard Pill, Pibwr, Taf, Gwendraeth Fach, Dewi Fawr and the Bran and two esturine waters . The upper Tywi has five water bodies failing due to **acidification** from air pollution, exacerbated by coniferous forestry. **Artificial barriers** which prevent fish migrating and reaching their spawning grounds are a reason for failure in four rivers including the Loughor, Cothi, Crychiau and Tywi. **Abandoned mines** are responsible for the failure of four water bodies on the Upper Tywi, the Loughor and the Clyne. **Continuous discharges from wastewater treatment** works cause the Gwili and Gwendraeth Fawr water bodies to fail, and the Clyne, Lliw and Gwendreath Fawr also fail due to intermittent discharges**. Landfill leaching** is another reason for failure of the Clyne. The Dulais (Loughor) and Tre-Beddrod are failing because of **physical modifications** for flood protection purposes.

Actions already under way include:

- Schemes to improve fish passage
- Our agricultural Catchment Officers are working with landowners to improve land management for the benefit of the water environment.
- The Coal Authority operate several minewater treatment plants in this catchment and are investigating the feasibility of more, including on the River Clyne
- Natural Resources Wales is improving forest management to reduce the impact of acidification and protect rivers from sediment and remove barriers to fish migration
- In the Camddwr catchment farmers and voluntary organisations are improving slurry storage and installing drinking bays so livestock do not need to enter streams.
- The Clear Streams initiative. This initiative works with the local communities to improve the water environment in some of our urban catchments, restoring the river to the heart of the community.



Pont Dolauhirion, Afon Tywi

Nat-y-Bai at Nant y Mwyn lead mine

Tawe to Cadoxton

Urban developments and associated heavy industry characterise this area, shaping the way the water environment looks today. Despite this, most of the land use is rural with much of it used for agriculture. The main urban areas are Swansea, Port Talbot, Neath and Bridgend.

This area has a high conservation value with numerous designated sites including Special areas of Conservation and the Brecon Beacons National Park. Tourism is vital and visitors are attracted by angling, outdoor activities, national parks and the many EU designated bathing waters that can be found along the varied coastline. Bathing water quality is often impacted by organisms in waste effluent. In the east of the area rural diffuse pollution is one of the main sources, while the urban beaches of the west are impacted by urban diffuse pollution from misconnections and point sources from wastewater treatment works. Improving bathing water quality here is a priority.

In the Tawe to Cadoxton management catchment there are 71 river water bodies, five lakes and four estuarine waterbodies.

Our investigations have identified six water bodies within the Tawe, Kenfig, Neath and Afan catchments that are modified and failing because **artificial barriers** are preventing fish migrating and reaching their spawning grounds. The Kenfig catchment has three rivers which are likely to be failing as a result of **surface water abstraction** from industry. **Contaminated land** is a reason for failure in the Fendrod and the legacy from **coal mines** is very likely to be a reason for failure in the Pelenna. **Continuous discharge from wastewater** treatment works is a reason for failure in the Sychryd and is very likely to be a reason for failure in the Llynfi. **Intermittent discharges from wastewater** treatment works are very likely to be a reason for failure in the Llynfi, Fendrod and Dulais (Neath) catchment. The cumulative impact of misconnected wastewater drainage from housing and industrial estates are very likely to be a reason for failure in six water bodies in the Ogmore and Neath catchments.

Some examples of actions that are already under way include:

- Schemes to improve fish passage at Green Park Weir, Marcroft weir also Nant Cynon delivered by Afan anglers in collaboration with Natural Resources Wales.
- Habitat improvements in lower Ogmore delivered by Ogmore angling association in collaboration with Natural Resources Wales,. Also Gravel reinstatement on Upper Garw river.
- We are reviewing discharge permits and abstraction licenses to reduce the impact on the water environment
- Local authorities are working with us to find and resolve misconnections
- Businesses are working with us on industrial estates to improve their pollution prevention measures
- The Coal Authority operate several minewater treatment plants in this catchment and are building one at Aberbaiden colliery on the Kenfig
- The Clear Streams initiative to improve the water environment in the urban communities of Swansea and Maesteg. ‘Clear Streams - Maesteg’ involves two water bodies in the Llynfi catchment.

Sgwd Isaf Clun-Gwyn, Afon Mellte

9 Further information on the significant issues

This consultation provides an overview of what we, Natural Resources Wales, believe the significant issues in the Western Wales River Basin District are. We have used many different sources of information and evidence to create this document. Where possible, we have made this available to the public and provided links in the appropriate sections.

- **Western Wales River Basin District facts and statistics** – Further information on the statistics for the Western Wales River Basin District. This contains information such as water body classification results and reasons for being classified at lower than good ecological condition. It contains details on the protected areas that fall under special legal protection. To access the document visit our information page
- **Western Wales River Basin District Strategic Environmental Assessment** –To ensure the river basin management plans properly consider all aspects of the environment (for example how the plan affects the historic environment or landscape), the Environment Agency is carrying out a Strategic Environmental Assessment of each plan. There is a consultation on how we propose to approach this task in the Western Wales River Basin District, which is published alongside the Western Wales River Basin District Challenges and choices consultation and closes on 22 December 2013.
- **'Living Waters for Wales' -** is a supporting document that sets out the top 10 issues across Wales. To view this, please visit our information page.
- **Significant Water Management Planning evidence summaries** – containing more technical detail on the significant issues in England and Wales. These summaries do not necessarily match the headings used to describe these issues in this document; rather they look at the pressures that create these issues, such as 'Abstraction and flow' or 'Chemicals and metals'.
- **Risk assessments** – As well as considering the current state of the water environment it is also important to look at the future risks (potential impacts). Natural Resources Wales and the Environment Agency has produced risk assessments for each pressure affecting the water environment.
- **Water Framework Directive: Data Share** – This is a web service from which the public can download datasets that Natural Resources Wales uses to inform much of the analysis and work we do. Relevant datasets include detailed classification data and maps of the bodies of water in England and Wales. Note: much of the content on this site is technical and requires special software to view files. To access the Data Share, visit: http://www.geostore.com/environment-agency

10 Consultation information

Summary of consultation questions

Consultation questions
The significant issues (pages 13 – 20)

1 What do **you** consider to be the biggest challenges facing waters in the Western Wales River Basin District?

2 Do you agree with our description of how the significant issues are affecting the water environment and the local community? *Please specify which issue(s) your response refers to and provide relevant information to help explain your answer.*

3 How do you think these issues should be tackled, and what would you choose to do first? *Please specify which issue(s) your response refers to. Please consider any resource limitations.*

4. Who we should work with to achieve the environmental outcomes?

The catchments (pages 21 – 31)

5 How are the significant issues in a catchment affecting the water environment and the local community? *Please specify which catchment(s) your response refers to and provide relevant information to help explain your answer*

6 How do you think the challenges affecting each catchment should be tackled and what would you choose to do first? *Please specify which catchment(s) your response refers to. Please consider any resource limitations.*

How to respond

Natural Resources Wales would prefer you to respond by email at:
ardalbasnafongorllewincymru@cyfoethnaturiolcymru.gov.uk /
westernwalesrbd@naturalresourceswales.gov.uk

Please complete the questions proforma on our information page, this will allow you to make your comments more effectively, while helping us to gather and summarise responses quickly and accurately. However, if you want to respond in another way, please contact your regional contact for the Western Wales River Basin District below.

You can view the consultation documents and consultation questions online. But, if you would prefer a printed version of the document, please call 0300 065 3000,

Please return written responses by 22 December 2013 to:

Jill Brown
Natural Resources Wales
Ty Cambria
29 Newport Road,
Cardiff,
CF24 0TP

What Natural Resources Wales will use the responses for

Natural Resources Wales will use the responses from this consultation to shape the review and update the Western Wales River Basin Management Plan. Natural Resources Wales staff dealing with this consultation will see all responses in full. Other staff may also see the responses to help them plan future consultations.

A full summary of the responses will be published on the Natural Resources Wales website.

How Natural Resources Wales will use your information

Natural Resources Wales will make all comments (apart from personal information) publicly available on the Natural Resources Wales website. This includes comments received, by email, post or by fax, unless you have specifically requested that your response be kept confidential. Only names of organisations that respond and not individuals will be published.

If you provide an email address, you will receive an acknowledgement of your response. After the consultation has closed, a summary of the responses will be published on the Natural Resources Wales website. You will be contacted to let you know when this is available. You will also be notified of any forthcoming river basin consultations unless you request otherwise.

Under the Freedom of Information Act 2000, Natural Resources Wales may be required to publish your response to this consultation, but will not include any personal information. If you have requested your response be kept confidential, it may still be required to provide a summary.

If you have any questions or complaints about the way this consultation has been carried out, please contact:

Jill Brown
Natural Resources Wales
Ty Cambria
29 Newport Road,
Cardiff,
CF24 0TP