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Clwyd Management Catchment Summary

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1. Background to the Clwyd Management Catchment summary

This management catchment summary supports the 2015 updated **Western Wales River Basin Management Plan (RBMP)**. Along with detailed information on the Water Watch Wales (**WWW**) website, this summary will help to inform and support delivery of local environmental improvements to our groundwater, rivers, lakes, estuaries and coasts. Information on **WWW** can be found in Section 6.

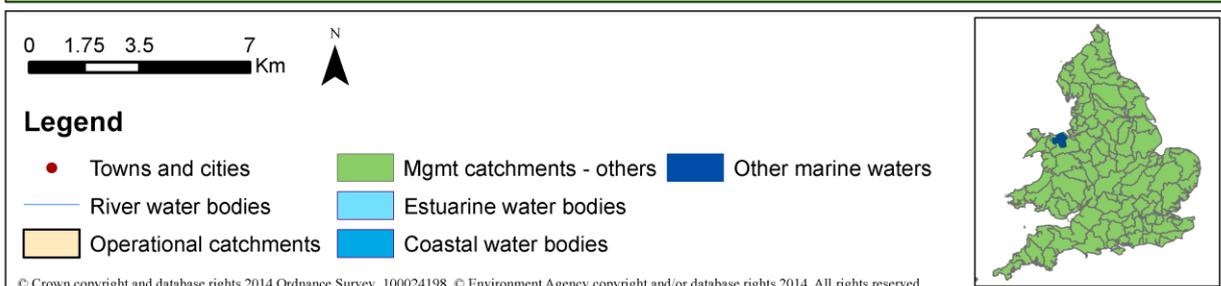
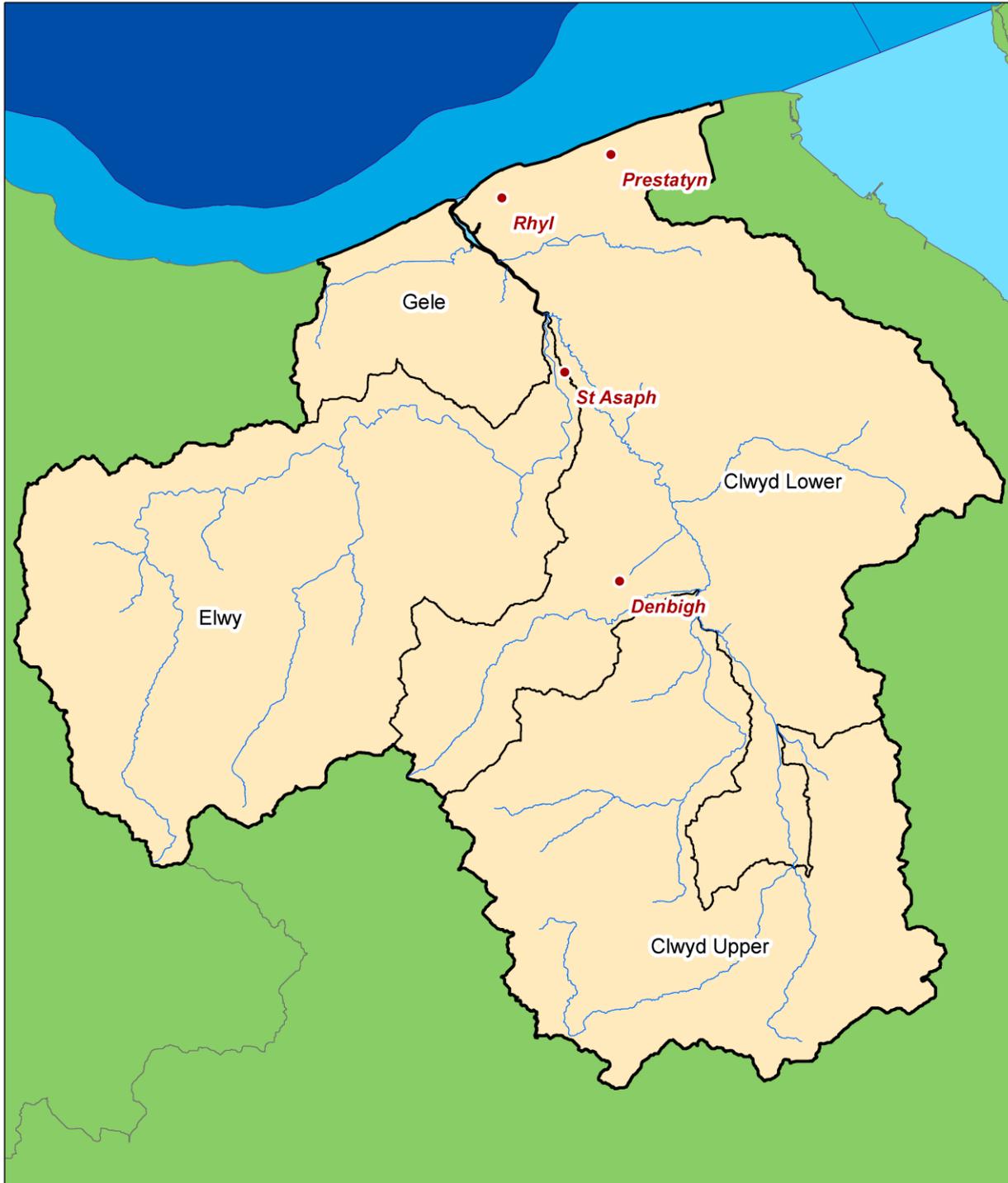
Natural Resources Wales has adopted the ecosystem approach from catchment to coast. This means being more joined up in how we manage the environment and its natural resources to deliver economic, social and environmental benefits for a healthier, more resilient Wales. It means considering the environment as a whole, so that all those with an interest in the catchment weigh up the evidence and set priorities for the many competing demands on our natural resources in a more integrated way and achieve our shared ambition for the place.

The Water Framework Directive (WFD) provides a major overarching framework for river basin management. The Floods Directive sets out a strategic approach to flood risk management planning. An updated Flood Risk Management Plan (FRMP) has been produced in parallel to the 2015 updated **Western Wales RBMP Summary**. The FRMP details how we propose to manage flood risk across the river basin district by prioritising those communities that are most at risk of flooding and detailing the measures we intend to take to manage their risk.

The FRMP and the RBMP together will shape important decisions, direct investment and action, and deliver significant benefits to society and the environment.

2. The Clwyd Management Catchment

Figure 1. Clwyd Management Catchment map



The Clwyd has its headwaters in Clocaenog forest and the Elwy, a major tributary, rises slightly to the west in the Hiraethog moors. 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 fertile lowlands. Part of the lower catchment is a nitrate vulnerable zone for both surface and groundwater. The lower part of the Clwyd was canalised in medieval times from Rhuddlan to the sea. Modified natural lakes provide public water supplies, and the main river Clwyd is supported by ground water augmentation when flows are naturally low. Populations are centred on Ruthin, Denbigh, St Asaph and Rhyl. Tourism is important to the local economy. The Clwydian range and Dee Valley Area of Outstanding Natural Beauty is a popular location for walkers and contains several Iron Age hill forts. The coastal plain has EU designated bathing waters at Rhyl, Prestatyn and Kinmel Bay. The catchment is also important for salmon and sea trout fishing.

In February 2014 a Clwyd catchment workshop was held at Glyndŵr University, St Asaph. During this event the benefits of the catchment were captured. These included;

- Tourism & recreation - bathing beaches, fishing, country parks, importance to local economy
- Food production - crops and livestock
- Carbon capture in the uplands
- Water supply - agriculture, drinking water both public and private supplies
- Forestry - multiple benefits e.g. timber, employment, flood control habitat creation, carbon sequestration
- Biodiversity - range of habitats and species, Clwyd particularly important for sewin (sea trout)
- Landscape value - visual amenity, designation as Area of Outstanding Natural Beauty

Natural Resources Wales continues to work in partnership with a range of partners and sectors in innovative ways so that we can achieve even more together. A flavour of some of the projects that have been delivered within this management catchment over the last 3 years together with projects in development are included below:

For further information on projects please refer to WWW

Table 1. Partnership projects in the management catchment

Project Name	Project Description	Partners	Funding sources
Glanfyddion Cut Rhuddlan	Tidal flap with eel pass	Afonydd Cymru	European Fisheries Fund
Elwy Habitat Project	Soft revetment and bank stabilisation	Coed Cymru, Conwy BC	Conwy County Borough Council, WFD TSO
Habitat restoration on the Afon Corris	Fencing to improve habitat on the Afon Corris near Cyffylliog	Afonydd Cymru	WFD TSO fund

Project Name	Project Description	Partners	Funding sources
Gallen fish pass	Construction of fish pass over man-made barrier	Landowner, Afonydd Cymru, Clwyd & Conwy River Trust	European Fisheries Fund

2.1 Key facts¹

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. The number and type of water bodies in the management catchment is shown in the table below

Table 2. Number and type of water bodies.

Number of water bodies	Natural	Artificial	Heavily Modified	Total
River*	24	0	6	30
Lake	0	0	1	1
Coastal	0	0	1	1
Estuarine	0	0	1	1
Groundwater	3	0	0	3
Total	27	0	9	36

*River water bodies includes canals and surface water transfers

There are areas in the catchment where the water environment is recognised as being of particular importance, including rare wildlife habitats, bathing waters or areas around drinking water sources. These areas are known collectively as protected areas and are detailed in the table below.

Table 3. Number and type of protected area

Protected Area	Number
Bathing Waters	6
Drinking Water Protected Areas	5
Natura 2000 and Ramsar sites	6
Nitrate Vulnerable Zones	13160ha
Shellfish Waters	0
Urban Waste Water Treatment Directive - Sensitive areas	0

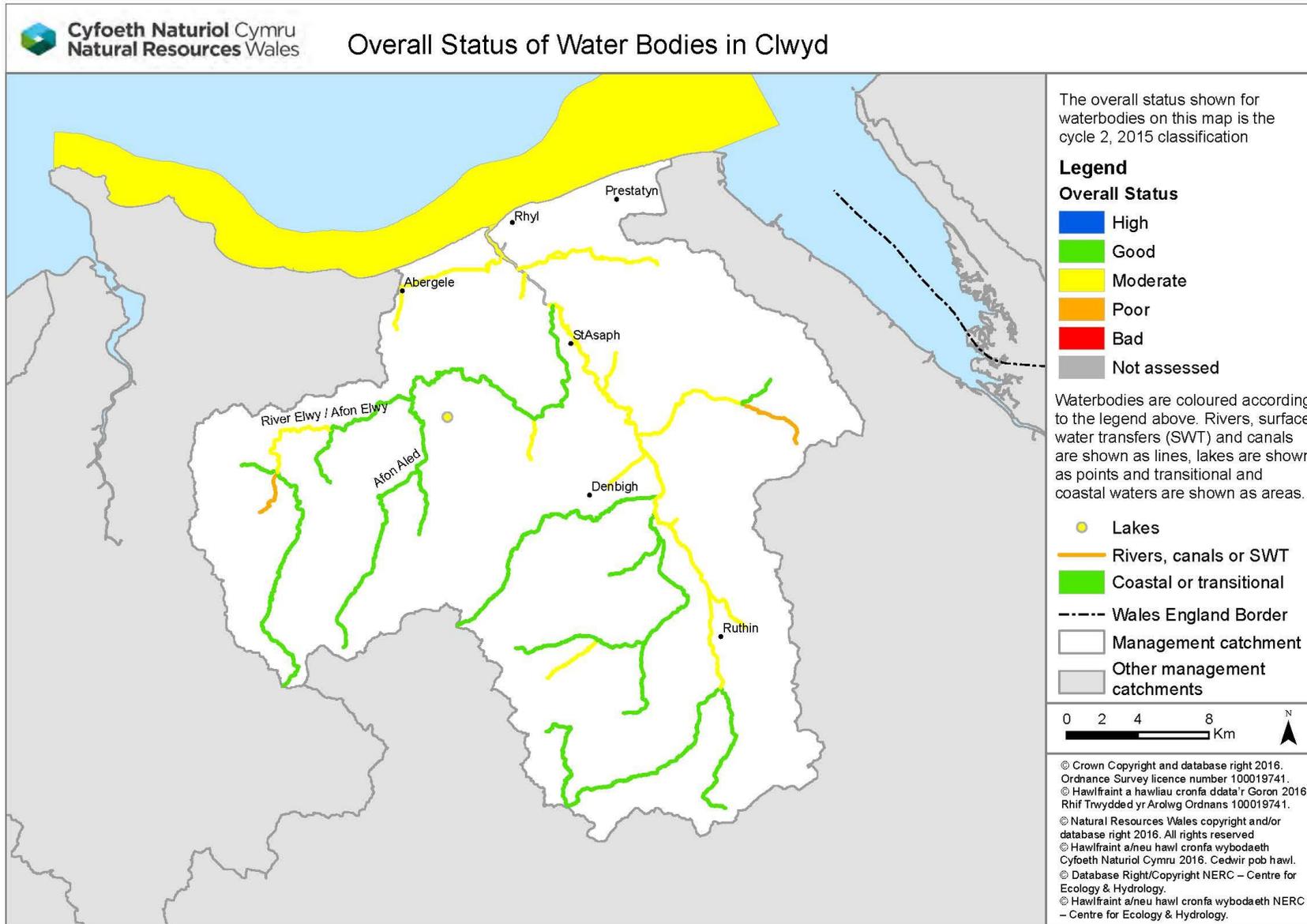
¹ There are differences in water bodies and protected area numbers compared to the first cycle plans and draft second cycle plans. This is due to changes in the water body network as well as refinement of the mapping methodologies and rules between water bodies, management catchments and protected areas.

3. Current Status of the water environment

We assess the condition of water bodies through monitoring which produces an overall classification. The current status for each water body is shown in figure 2. Note, since 2009, we have updated some of the systems we use to classify water bodies, including changes to some standards and water body boundaries.

Within this management catchment 52% of surface waters are at good overall status, 42% at moderate and 6% at poor. There are no surface water bodies at high or bad overall status

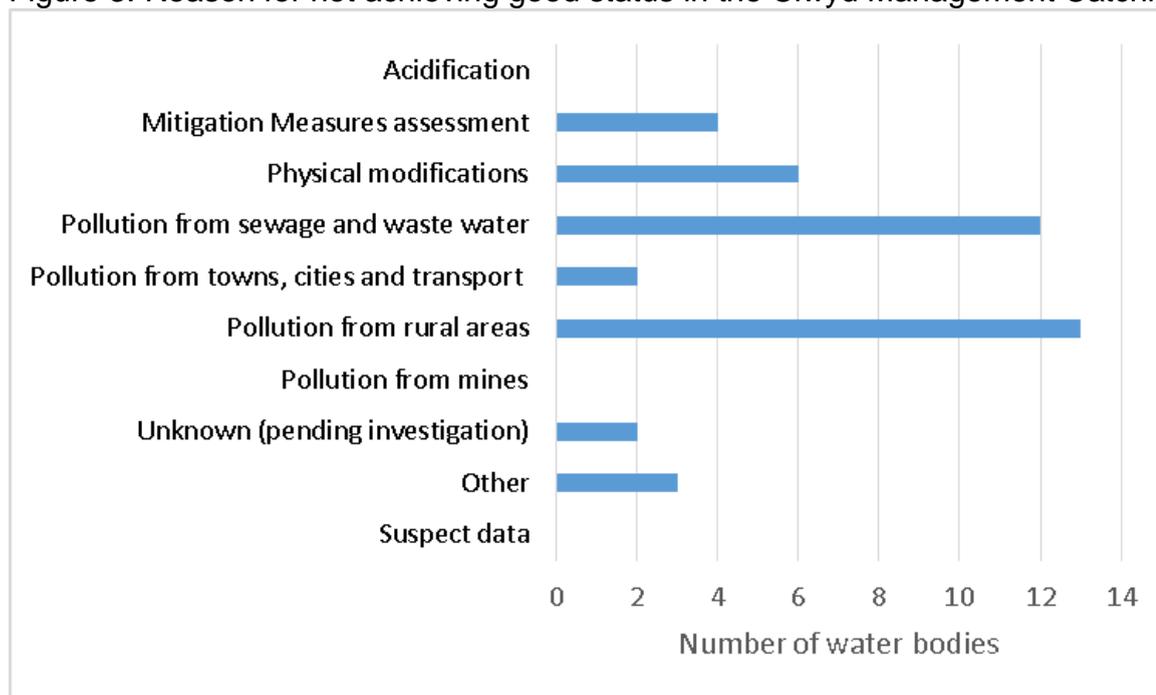
Figure 2. Current status of the Clwyd Management Catchment (2015 classification)



4. The main challenges

We have carried out a programme of investigations to better understand the causes as to why water bodies are failing to meet the required standards. The results of our findings are summarised in Figure 3. The reasons for not achieving good status are listed under the Surface Water Management Issues (SWMI) in line with the updated RBMP. The graph below shows the number of water bodies listed under each SWMI to give an indication of the main issues in the management catchment, each water body may have more than one reason for not achieving good status. Acidification – the percentage of water bodies have been included with other SWMI categories.

Figure 3. Reason for not achieving good status in the Clwyd Management Catchment



Diffuse sources include sediment and phosphate inputs from agricultural and rural land management, which impact on a number of rivers in the Clwyd including the, Wheeler, Bach and the main river Clwyd. Discharges from wastewater treatment works contribute to phosphate failures in the main Clwyd and locally in some tributaries. 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.

4.1 Feedback on challenges

We need to work together to ensure the overall aims of the Water Framework Directive are met, in order to work together effectively we need to agree on the issues and solutions. The following section includes some of the issues that were raised as part of the workshop and the consultation; however it is not a full list.

- Upland land management and drainage affecting spates lower down catchment
- Flooding of domestic and business property, sewage works and land
- Diffuse pollution from urban areas and impact on bathing waters
- Diffuse pollution from rural land management - nutrients, sediments
- Predation of fish by birds, particularly impact on juvenile salmonids
- Invasive non-native species e.g. Himalayan balsam, signal crayfish

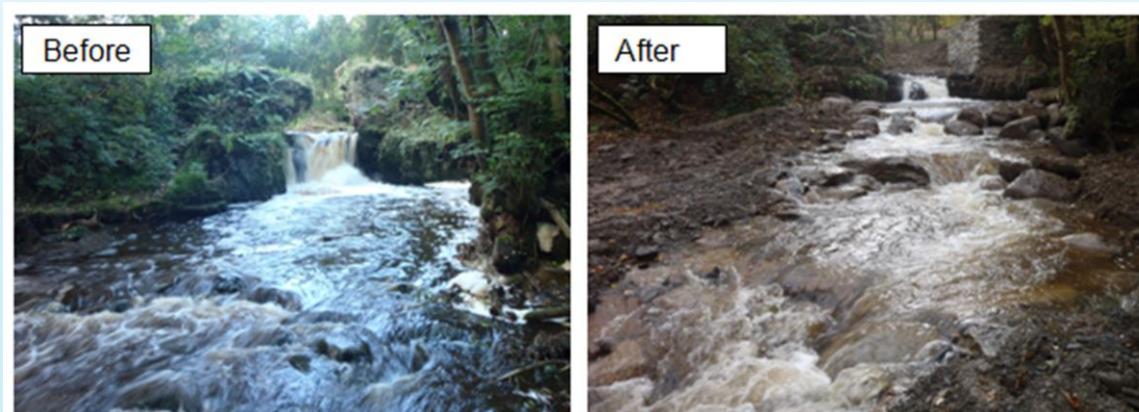
- Decline in aquatic habitats and species

Case study – the Gallen fish pass

The Afon Gallen is a tributary of the Afon Clwyd and there are fewer numbers and species of fish than expected in this type of river so it has not reached good status. A disused weir was a barrier preventing fish including salmon, sea and brown trout from moving upstream to spawning areas. Land management practise is also causing run-off from tracks and sediment from the fields to get into the river.

Fish easement works were put in place by Afonydd Cymru, and involved decreasing the height of the jump by over a metre. A rocky ramp consisting of several pools was put in place to raise the downstream levels. The project has opened up over 20km of tributaries.

Afonydd Cymru has also carried out some habitat restoration work in the Gallen catchment. 300m of fencing and 75m of soft revetment improvement are complete, with a further similar sized habitat scheme planned.



5. Objectives and measures

This section outlines what we are aiming to achieve and the measures that need to be put in place. We aim to develop a single integrated programme of measures by 2021 that meets Water Framework Directive objectives, including:

- **Prevent deterioration in status**

Water body status will not be allowed to deteriorate from the current reported status.

- **Achieve the objectives for protected areas**

Achieve the standards set by the relevant directive under which they were designated. For water dependent Natura 2000 sites we will aim to achieve conservation objectives, achieving good status by 2021 is a milestone towards this objective.

- **Aim to achieve good overall status for surface and ground waters**

Implement measures to achieve good overall status where they are technically feasible and not disproportionately costly.

5.1 Measures

We have reviewed the reasons why water bodies are failing to achieve objectives and identified required measures. Measures are divided into two groups:

National measures apply to the whole of Wales, or the United Kingdom. In general these set the legislative, policy or strategic approach. Examples include a national ban on using a particular chemical or a national strategy for prioritising and funding the remediation of abandoned mines. A list of planned national measures is available in the updated RBMP and Water Watch Wales,

Local measures are specific to the river basin district or a part of it. For example, the removal of invasive plants along a length of designated river or a local campaign targeting misconnections across an industrial estate. Many of the actions listed will also have multiple benefits. For example, sustainable urban drainage (SuDs) schemes help to reduce urban pollution, sewage pollution and changes to water levels. The table below summarises the types of local measures required for the management catchment, based on RNAG and protected area requirements. Including actions from the N2K Actions database that will help the SAC/SPA/Ramsar to achieve favourable conservation status for water dependant features; for example: implementation of appropriate coastal management.

The high level categories describe the types of action required and broadly the options that are available, including voluntary and regulatory measures. At the local scale some of the options described might not be considered appropriate. There is overlap between some categories. The table also shows the number of water bodies that require the measure type, the water body numbers in this table should be used as a guide to show the significance of the issue in the catchment, and these numbers will change through the course of the 6 year programme. Up to date Reasons for Not Achieving Good (RNAGs) data is available on **WWW** and should be referred to before scoping local measures.

Table 4. Proposed list of required local measure for the Clwyd Management Catchment

Measure	Description	No. of water bodies
Complete first cycle investigation	All ongoing WFD investigations from first cycle programme.	9

Measure	Description	No. of water bodies
Dredging and silt management	Includes reducing siltation at source through land management, and implementing sustainable dredging and silt disposal regimes.	2
Improve fish passage and habitat	Remove or modify barriers to fish passage	3
Manage invasive non-native species	Eradication and/or management of invasive non-native species in line with current national invasive species Action Plans. Includes biosecurity good practice, such as "CHECK-CLEAN-DRY" and Be Plant Wise.	3
Mine water and contaminated land remediation	Coal and metal mine, and contaminated land remediation - including passive and active mine water treatment, capping of spoil, removal of wastes to landfill, and channel diversion	2
Mitigate impacts of shipping, navigation and dredging	Assess and implement options for adapting dredging regimes and reducing the impacts of physical modifications.	1
New Investigation	Includes investigations for all new failures, deterioration, and drinking water protected areas	21
Reduce pollution from other waste water discharges	Reduce pollution from other (non-sewage) point sources, both regulated and unregulated. Investigate and implement basic pollution prevention measures, including provision of up to date advice and guidance, such as correct handling and storage of chemicals and waste, management of trade effluent, and regulation.	1
Reduce pollution from septic tanks	Target actions to ensure septic tanks are maintained correctly. Where necessary issue formal works notices to owners to relocate or replace tanks and soakaways.	3
Reduce pollution from sewage discharges	Reducing pollution from continuous and intermittent discharges, includes additional treatment at sewage treatment works (e.g. phosphate stripping), investigating and tackling sewer blockages, and implementing sustainable drainage to reduce surface water drainage to sewers.	5
Sustainable access and recreation management	Reduce the impacts of erosion, disturbance and damage from both	3

Measure	Description	No. of water bodies
	water-based and terrestrial access, including tackling illegal off-roading.	
Sustainable agricultural practices	Implement basic and additional measures such as correct management of slurry, silage, fuel oil, and agricultural chemicals; clean and dirty water separation; nutrient management planning; buffer strips and riparian fencing; cover crops and soil management. In N2k sites changes to grazing regimes may be required, includes scrub management. Within NVZs comply with storage and spreading regulations.	21
Sustainable marine development	Includes off-shore energy developments, such as oil and gas exploration and tidal energy.	1
Sustainable woodland and forestry management	Restore the riparian zone, disconnect forest drains, monitor the effectiveness of the 5 principle risks associated with forestry and use forestry and woodland to reduce diffuse pollution.	1
Tackle misconnections and urban diffuse pollution	Investigate and solve misconnections to surface water drains (at residential and commercial properties) and implement sustainable drainage schemes (SuDs) to reduce diffuse pollution.	2

Details for specific local measures can be found on WWW, some examples of actions already under way 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
- North Wales Wildlife Trust Alyn-Wheeler Living Landscapes project
- Natural Resources Wales has worked with partners on the Glanfyddion Cut, Bach, Wheeler – lower, Ystrad, Dŵr Ial, Hesbin, Corris, Clwyd – upstream of Hesbin and Gallen as part of our focus during the first river basin cycle.
- Afonydd Cymru working with a landowner in the Ystrad has installed a cattle crossing, provided fencing, gates, a water supply and drinking troughs.
- Afonydd Cymru are working with landowners in the Dŵr Ial to provide bankside fencing. A Muck to Money event was held in February 2014 in partnership with Farming

Connect. The event aimed to improve understanding of the use of slurry to replace inorganic fertiliser and soil management to prevent compaction and run-off

- Elwy habitat project – Coed Cymru and Conwy County Borough Council, soft revetment, bank stabilisation, tree planting.

Case study – Clwyd natural flood risk management

Since the St Asaph floods in 2012 a review of existing flood defences in the Clwyd is underway. The Clwyd Natural Flood Risk Management project complements this. Managed by Cadwyn Clwyd, Rural Development Agency for Clwyd, in partnership with Natural Resources Wales, the project will identify benefits of natural flood risk management to ecosystem services in the catchment.

The aim is to alleviate flooding the lower catchment. The work will look at funding options for implementing some of the proposals at a catchment scale. Options may include tree planting, grip blocking or changes to farming practices. This is an opportunity to address concerns about flooding that were identified in the Clwyd catchment workshop in February 2014.

5.2. Feedback on priorities and solutions

Concerns on current status raised as part of the consultation and at the workshop have been highlighted in Section 4, solutions and priorities were also discussed. Of the issues raised, the following were flagged as priorities:

- **Diffuse pollution from urban areas, impact on bathing waters**
Proposed solutions include: Ongoing DCWW catchment management "address at source" and asset improvement programme; education and awareness raising about residential and industrial misconnections, use community groups to help this; address highway drainage
- **Diffuse pollution from rural land management - nutrients, sediments**
Proposed solutions include: Reduce soil erosion by targeting planting (e.g. maize) and education for NGOs/landowners on how river dynamics work. More riparian fencing (with maintenance agreements) and artificial wetlands needed to reduce nutrient and sediment loss. Adapt language and activity to make it relevant to landowners. Look at how Rural Development Plan could be used to help fund work.
- **Upland land management and drainage affecting spates lower down catchment**
Proposed solutions include: Target woodland and heath management more for water, increased tree planting, grip blocking
- **Flooding of domestic and business property, sewage works and land**
Proposed solutions include: Hold water in the uplands (see separate bullet point), prevent infiltration to sewer, more SUDS, ensure water can drain off flood plain, dredging and/or clearing debris from rivers (more dialogue and clarity needed between NRW and landowners), consider re-introducing local drainage board, improve coastal defences. Natural Flood Management – for example; riparian planting, reinstating flood

plains, restoring coastal areas or returning watercourses back to their natural shape. These measures can play an important role in reducing flooding during smaller, more frequent, events while simultaneously delivering many other benefits.

- **Decline in aquatic habitats and species**

Proposed solutions included: restoration of peat bogs and ditch blocking to hold back the water, riparian habitat restoration to act as buffer strip from land runoff and help prevent erosion.

5.3 Target areas for 2015-21

We have worked across Natural Resources Wales to develop an affordable programme of local and national measures, based upon our current understanding of existing resources. Our focus is:

- Preventing deterioration in all water bodies
- Within the Western Wales RBD - improving compliance with good overall status in 21 water bodies that are currently moderate/poor, and also improving 4 poor water bodies to moderate.
- Targeting measures locally in an integrated way to deliver environmental improvements in WFD water bodies and Protected Areas, including areas protected for water habitats and species.
- Identifying where element level improvements will be achieved during the second cycle, but where further measures will be required to deliver an overall ecological status change.
- Developing our approach to natural resource management by working at a local catchment level and capturing the wider benefits delivered through WFD.

Table 5. Water bodies NRW will target in the Clwyd Management Catchment to achieve an improvement in status by 2021

Water body ID	Name	Target status	Details
GB110066054690	Corris	Good by 2021	For further information on the target water bodies please refer to WWW
GB110066059930	Wheeler - lower		
GB110066059920	Wheeler - upper	Moderate by 2021	
GB110066054900	Gallen		

Investigations programme

All water bodies for which the cause of adverse impact is as yet unknown require investigation. This applies in the case of both failing water bodies and those that have deteriorated over the first cycle.

Natura 2000 programme – actions underway/planned

The RBMP programme of measures must include any measures necessary to achieve compliance with standards and objectives for Natura 2000 (N2K) sites listed in the register of protected areas.

There are no priority actions for N2k sites within the Clwyd Management Catchment that are planned or underway however we have identified 13 priority actions which can be taken forward when opportunities arise. Further information on the Prioritised Improvement Plans (PIP) measures and required action information can be obtained by contacting NRW: enquiries@naturalresourceswales.gov.uk.

The number of planned actions is low partly because it is difficult to assess what might be funded beyond 2015/16. Our ambition for the second cycle will develop as opportunities/resources become available.

We have also worked with stakeholders to develop and plan a number of strategic actions to support delivery of N2K objectives. These are included within the updated Programme of Measures

Flood Risk Management Plan Measures

Further information on local measures is available in the catchment summary section of the updated FRMP.

Know Your River – Salmon and Sea Trout Catchment Plans

NRW collects a range of specific salmonid data for management purposes and this is presented in the local Salmon and Sea Trout Catchment Summaries. Salmonid specific tools, measures and data acquisition such as electrofishing results, declared catches and annual salmon egg deposition estimates are used to guide ongoing investment in fish passage and habitat restoration schemes. The summaries are updated annually and ensure that there is effective prioritisation in waterbodies to improve salmonid fisheries. The planned actions are always delivered in association with partners and contribute to enhancement and protection of this valuable resource in Wales. Further information can be obtained by contacting NRW: enquiries@naturalresourceswales.gov.uk)

Water company programme

Within the 2015 RBMP; there are a number of measures required of Water Companies. A funding allocation for these measures was included in company business plans submitted to Ofwat for the 2015-20 period. Natural Resources Wales and the Environment Agency will publish a revised National Environment Plan detailing all water company measures in early 2016. The National Environment Programme details improvements required to comply with all water quality legislation.

An outline of the measures included within this management catchment can be found in the table below, further information can be found on the **WWW** website.

Table 7. Water company investigation and improvement schemes

Water body ID	Name	Outcome
GB110066054720	Dwr Ial	No deterioration scheme
GB110066059990	Glanfyddion Cut	Achieve good ecological status.
GB110066059960	Clwyd - tidal limit to Hesbin	
GB110066059960	Clwyd - tidal limit to Hesbin	

Water body ID	Name	Outcome
GB110066059950	Bach	Investigation to be carried out, where water company assets contribute to RNAGS
GB110066054720	Dwr Ial	
GB110066059750	Meirchion	
GB110066059920, GB110066059930	Wheeler (upper and lower)	
GB110066059990	Glanfyddion Cut	
GB641011650000	North Wales	Coastal and network modelling to enable planning of how to meet WFD shellfish requirements.
GB641011650000	North Wales	Investigations into impact from assets on designated bathing beaches.

5.4 Alternative objectives

We have identified 6% of water bodies where because of the nature of the problem or the required measures we have an extended deadline or less stringent objective (less than good). In each case we have provided a justification.

Table 8. Alternative objectives and justifications

Alternative objective	Justifications	Number of water bodies	Water body
Extended deadline	Cause of adverse impact unknown	2	Plas Uchaf and Dolwen Reservoirs Clwyd

5.5 Opportunities for partnerships

There are several external funding opportunities, which could support projects that contribute towards Water Framework Directive outcomes. Each fund has its own priorities, budgetary allocation and application process. Types of funding for consideration include:

- European funds – The EU provides funding from a broad range of programmes.– go to the Welsh European Funding Office website for more information.
- Lottery Funding – such as Heritage Lottery Fund, Postcode Lottery and BIG Lottery Fund which have a range of programmes from £5000 up to £millions.
- Charities, trust & foundations – there are many of these operating and they often have a specific focus – either geographically or topically and will support local charities and projects.
- Businesses and sponsorship opportunities – including making the most of the Welsh carrier bag charge!
- Public bodies – Local authorities, Welsh Government, UK Government and NRW may have annual funding opportunities or one-off competitions for their priority areas.

- Crowdfunding – gathering support from a wide range and number of funders, often including individuals and usually using the internet to raise awareness for a specific project needing funds.
- Trading – Increasingly funders are looking to support organisations with longer term sustainability in mind so developing trading opportunities can be something to consider too.

Your local County Voluntary Council and Wales Council for Voluntary Action will have up to date information on opportunities such as these as well as a host of other support available.

6. Water Watch Wales

During the implementation phase of the 2009 RBMP many of our partners and stakeholders requested access to data and information to assist them in helping to deliver local environmental improvements. Many stakeholders felt that the first plan was difficult to navigate and access information at a local scale. Consequently with both the support and input from the river basin district liaison panels a web based tool has been developed called **Water Watch Wales**. This is an interactive spatial web-based tool that provides supporting information and data layers.

We will continue to develop this tool and see it as a critical link between the more strategic RBMP and local delivery. It enables the user to access information on:

- classification data at the water body scale
- reasons for not achieving good status
- objectives
- measures/actions, including protected area information
- partnership projects

Data can be retrieved in a number of formats (spreadsheets and summary reports). A user guide together with frequently asked questions is included with the tool and can be accessed from a link on the home page.

Link to home page: waterwatchwales.naturalresourceswales.gov.uk



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