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Carmarthen Bay and Gower Management Catchment Summary

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1. Background to the 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 Carmarthen Bay and Gower Management Catchment

Figure 1 Carmarthen Bay and Gower Management Catchment



The area covered by this management catchment summary includes the catchment areas of the rivers Taf, Tywi, Gwendraeth Fach, Gwendraeth Fawr, Loughor, Lliw, Llan, the streams of North and South Gower and the estuaries and coastal waters of Carmarthen Bay. The area stretches from Narberth in the west, to the western suburbs of Swansea in the east and encompasses the Black Mountain – the western part of the Brecon Beacons National Park from which the headwaters of the Loughor emanate – and the southern foothills of the Cambrian Mountains, the source of the Tywi.

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".

Much of the existing development, particularly to the south of the catchment, has taken place on the flat areas of land in the valley bottoms adjacent to major watercourses. This is notable along the Amman valley, also at Whitland, Carmarthen and Llandeilo. The largest town in Carmarthenshire, Llanelli (population ~25,000 as at 2011), is located on the coast. Further to the north and west and on much of Gower, the area is generally rural in nature and more sparsely populated.

In order to accommodate urban and industrial developments, some rivers have been confined or re-routed (notably the Dafen and Lliedi rivers in Llanelli) and flood defences have been constructed, which now represent an important element of the infrastructure in the area. Our management activities are influenced by such legacies.

The most significant wastewater treatment facilities in the area are at Parc-y-Splotts (Carmarthen), Garnswllt (Ammanford), Llanelli, Crosshands, Pontyberem and Gowerton. Each features advanced treatment technology.

The area has some remaining large-scale and economically important industry, particularly associated with metals, such as Tata Steel (tinplate) and Calsonic Llanelli Radiators. However, there is little significant industry in much of the area. Historically, industrial activity was more extensive and included Llanelli docks, formerly used mainly for exporting coal and tin plate from South Wales. This is now the rejuvenated leisure-hub of the Millennium Coastal Park. Other historic industry included metal mines such as Dolaucothi gold mine and Nant-y-Mwyn lead and zinc mines at Rhandirmwyn. In some parts of the area, this has left a legacy of spoil tips, contaminated land and problems with contamination of streams by metal pollutants from abandoned mines.

Agriculture is the principal land-use within the area, with dairy and beef farming predominating in the lowlands, including Gower. The poorer soils of the uplands support beef and sheep livestock rearing. The salt marshes surrounding Gower are also notable for the production of salt marsh lamb. Forestry is also an important land-use, especially in the upper Tywi catchment. The Tywi is in fact the longest river in Wales and is renowned as one of the best sea trout rivers in the UK.

The headwaters of the Tywi and Camddwr are dammed forming Llyn Brianne reservoir. Llyn Brianne is operated as a regulating reservoir to support abstractions of river water, particularly at Nantgaredig, and is thereby a major source for potable water supply by Dŵr Cymru Welsh Water to a large part of South Wales. Groundwater is also used extensively throughout the area to support large numbers of small abstractions for potable, domestic and agricultural use, and it is also important in maintaining springs, watercourses and wetlands.

There are numerous Special Areas of Conservation, including the Carmarthen Bay and Estuaries and most of the Tywi. Much of Gower is an Area of Outstanding Natural Beauty. The Burry Inlet holds internationally important numbers of waders and wildfowl and supports an important cockle fishing industry. Species of conservation significance within the area include otter, water vole, allis and twaite shad, freshwater pearl mussel, black bog ant, sea lamprey and sand martin. Many of the rivers and streams are important landscape features, particularly where untouched by development.

The unspoilt natural landscape attracts many visitors to the region. In fact tourism is a vital component of the economy of this area, with £355 million in tourist revenue generated in 2011 for Carmarthenshire alone, in addition to that generated by the Gower's charms. The attractions are wide-ranging, with opportunities for game fishing, hiking, cycling, caving, climbing, canoeing and many other leisure activities available within the locality. A total of 10 EC designated Bathing Waters are available to choose from along the varied coastline between Pendine and Swansea.

In February 2014 a Carmarthen Bay and Gower management catchment workshop involving external stakeholders was held in Ferryside. During this event the key features delivered by this catchment were captured. These included:

- Biodiversity. Importance shown by the number of designations such as Natura 2000 sites including Carmarthen Bay and Estuaries, Blue Flag Beaches, and Biodiversity Action Plan species and habitats e.g. saltmarsh, wetlands, water vole, otter and shad
- Food production.
- Recreation & Tourism – canoeing, fisheries, walking, boating, camping, cycling, Brecon Beacons National Park
- Water as a resource for drinking, irrigation and navigation
- Woodlands - both as a resource and for their own ecological importance
- Landscape – Three Rivers Futurescapes area, country parks

We continue to work in partnership with a range of partners and sectors in innovative ways so that we can achieve even more together. 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
Rainscape (Llanelli)	A pioneering scheme to implement large scale Sustainable Urban Drainage and reduce surface water loading in the Llanelli sewerage network. The scheme is aimed at improving quality in the Carmarthen Bay marine environment.	Dwr Cymru/Welsh Water (DCWW), / Carmarthenshire County Council	Dwr Cymru/Welsh Water (DCWW), / Carmarthenshire County Council
South West Area Shellfish Waters Investigation	A three year investigation looking at bacteriological inputs into shellfish waters in SW Wales (Burry Inlet and environs). The study undertook extensive bacteriological sampling and looked at bacti levels, source	NRW	EA(England) NRW

Project Name	Project Description	Partners	Funding sources
	apportionment and origin to inform permit reviews and improvement of discharge quality into the estuaries. Catchment walks and pollution prevention visits also carried out.		
Clear Streams Swansea	An innovative partnership concerned with all things water-related in Swansea from garden ponds to Swansea Bay. Clear Streams promotes a healthier and cleaner aquatic environment by providing advice to householders, businesses and schools on how to reduce their impact on water resources and improve local biodiversity	Wildlife Trust South & West Wales, Swansea Environment Centre	DCWW, NRW
	In the Tywi catchment there are a number of ongoing habitat improvement schemes These have included fencing of river corridors and invasive species management, woody debris blockage removal, fish easement measures and limestone sand application in headwater areas to counteract acidification.	Carmarthens hire Rivers Trust (CRT) / NRW / Voluntary sector	European Fisheries Fund
	Workshops were delivered concerning nutrient and soil management to farms in the Taf catchment. Soil sampling was carried out and advice given during the on farm consultation.	Farming Connect / NRW	Farming Connect
	An ongoing joint investigation into the extent and level of herbicide chemicals in the river Tywi catchment.	DCWW / NRW	DCWW, NRW
	Workshop involving agricultural students at College Sir Gar, Gelli Aur Agricultural College. 240 students took part in workshop concerning Agricultural Best Practice, silage and slurry storage.	Carmarthens hire County Council College Sir Gar / NRW	NRW
	An ongoing joint initiative with National Farming Union and Farming Union of Wales to get seasonal reminders / improved regulatory awareness and advice / guidance to the agricultural community through	National Farming Union (NFU) Farming Union of Wales (FUW) / NRW	

Project Name	Project Description	Partners	Funding sources
	inclusion of articles in their news letters.		
	Ongoing initiative with DCWW to protect Morfa Bychan groundwater (drinking water supply at Pendine) against surface water pollution events.	DCWW / NRW	
	Ongoing work with National Trust in Carmarthenshire to improve the ecological quality of the rivers at their land holdings.	National Trust / NRW	
	Ongoing R&D investigation of Swansea Bay, Gower and Carmarthen Bay status, linked into bathing water quality. This includes modelling of marine currents, loading calculations for significant inputs and a tracer study to inform on coastal dynamics and target further pollution prevention work. This work links in with the SMART COASTS study funded by INTERREG.	Aberystwyth University / Cardiff University / NRW / City and County of Swansea / DCWW	Aberystwyth University, Cardiff University, DCWW, SCC, NRW, Food standards Agency
	Planned - Workshop targeting agricultural contractors to address calibration of fertiliser application equipment and fertiliser application rates.	Farming Connect / NRW	Farming Connect

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 in the management catchment

Number of water bodies	Natural	Artificial	Heavily Modified	Total
River*	90	0	5	95
Lake	0	0	5	5
Coastal	2	0	0	2
Estuarine	2	0	0	2
Groundwater	4	0	0	4
Total	98	0	10	108

*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. Protected areas in the management catchment

Protected Area	Number
Bathing Waters	13
Drinking Water Protected Areas	9
Natura 2000 and Ramsar sites	13
Nitrate Vulnerable Zones	0ha
Shellfish Waters	5
Urban Waste Water Treatment Directive - Sensitive areas	2

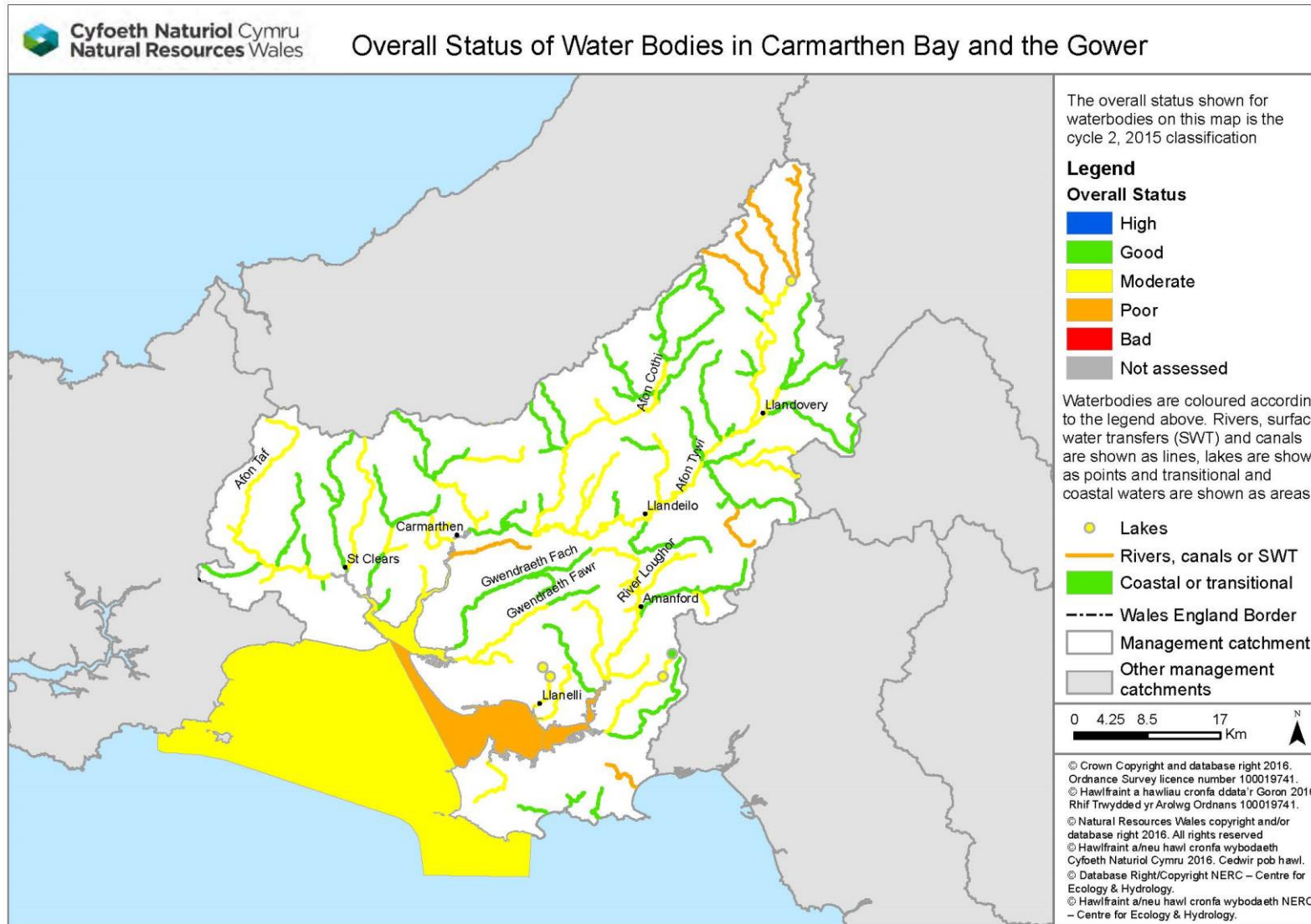
3. Current Status of the water environment

We assess the condition of water bodies through monitoring which produces a 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 48% of surface waters are at good overall status, 43% at moderate and 9% at poor. There are no surface water bodies at high or bad overall status.

¹ There are differences in water bodies and protected area numbers compared to the first cycle plans and 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.

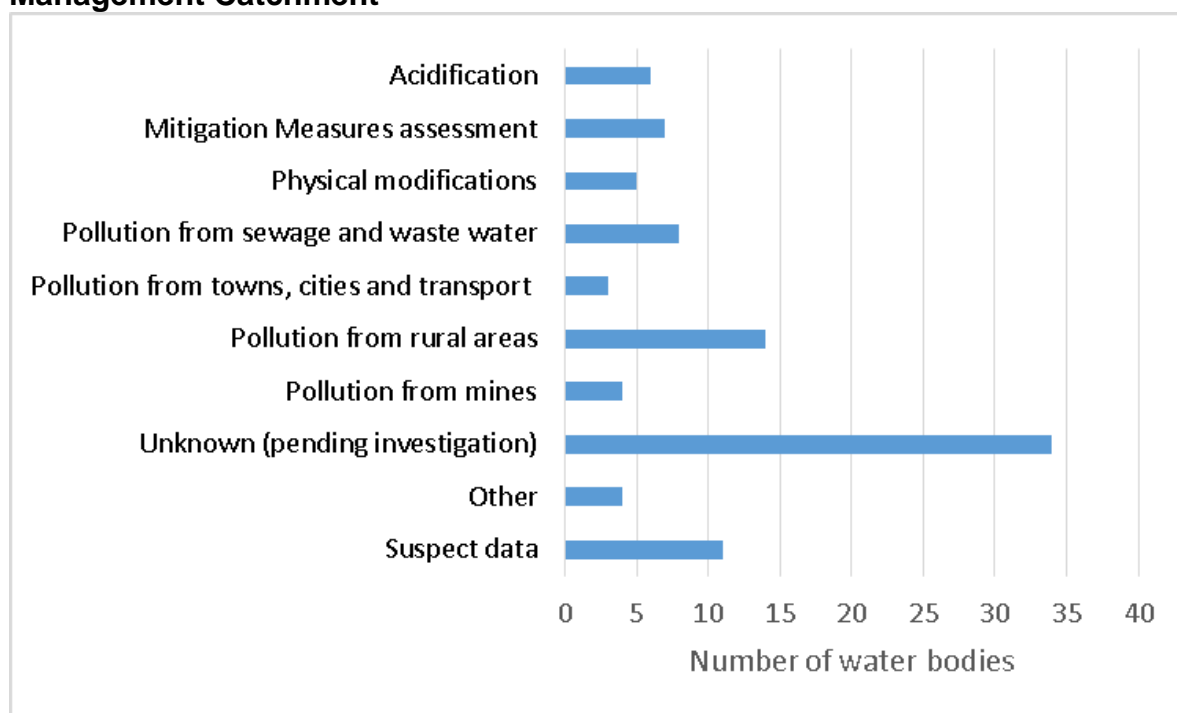
Figure 2. The current status of the Carmarthen Bay and Gower Management Catchment (2015 classification)



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 in 2015 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 Carmarthen Bay and Gower Management Catchment



Our initial investigations have identified that most water bodies in this management catchment are failing in part due to the effects of **agriculture and rural land management** practices. These include the Crychiau and Pibwr, as well as the two estuarine waters. In the upper Tywi a number of waterbodies are failing due to **acidification** from air pollution, exacerbated by historic coniferous forestry. **Artificial barriers** preventing fish migrating and reaching their spawning grounds have been identified as reasons for failure in four rivers. **Abandoned mines** were found to be responsible for the failure of four water bodies on the Upper Tywi, the Loughor. **Continuous discharges from wastewater treatment** works are causing the Gwili (Crosshands) and Gwendraeth Fawr water bodies to fail, the Lliw and Gwendraeth Fawr are also failing due to intermittent discharges from other sources. The Dulais (Loughor) is failing due to **physical modifications** put in place for flood protection purposes.

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 at the catchment workshop and the RBMP consultation; however it is not a full list..

- Diffuse pollution from agriculture and rural land management.
- Diffuse pollution from urban areas, misconnections, highways, development pressure.
- Flooding
- Forestry best practice
- Improved understanding and integrated application of 'catchment approach'
- Marine litter
- Impact of trawling and illegal netting
- Decline in aquatic habitats and species

Case study – Water voles and WFD working together in Pembrey.

The Pembrey Water Vole Project is a multi-agency initiative to improve habitat connectivity for water voles in the Gwendraeth Levels area. This project centres around the network of ditches in the Pembrey area associated with the Gwendraeth catchment. Under the WFD assessments the catchment has been identified as currently moderate ecological status and all are at risk from diffuse pollution. There was once a continuous network of, ditches floodplain grazing pasture and wetlands, though over the last 2 decades much of this habitat has been fragmented, lost to development, agricultural intensification and lack of management. Working in partnership with the Wildlife Trust South and West Wales, the local landowners and Carmarthenshire County Council, this small project was part of a larger initiative to improve local water quality, habitat quality and connectivity through land management with multiple benefits for WFD and local wildlife – particularly water voles, but also eel and water fowl.



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 **WWW**.

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 schemes (SuDs) 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. It includes 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. Summary of required local measures in the management catchment.

Measure	Description	No. of water bodies
Acidification restoration	Emissions controls and upland restoration: blocking drainage, restoring blanket bog, within forestry plantation blocking forest drains and establishing native trees within the	6

Measure	Description	No. of water bodies
	riparian zone, liming options. Some overlap with "address air pollution".	
Address air pollution	Emissions controls to reduce nitrogen and acidic deposition. Some overlap with "acidification restoration".	18
Address point source pollution	Investigate and regulate pollution from point sources. Overlaps with "reduce pollution from sewage discharges" and "other waste water discharges".	9
Complete first cycle investigation	All ongoing WFD investigations from first cycle programme.	6
Drainage and water level management	Investigate and implement changes to land drainage regimes and structures to restore water levels.	14
Dredging and silt management	Includes reducing siltation at source through land management, and implementing sustainable dredging and silt disposal regimes.	6
Improve fish passage and habitat	Remove or modify barriers to fish passage	3
Improve flows and water levels	Reduce impacts of regulated flows and abstractions, restore more natural flow regimes, implement options to improve water levels, such as water efficiency and recycling measures, alternative sources and supplies.	11
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.	21
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	7
Mitigate impacts of flood and coastal defences	Reduce impacts of flood defence structures and operations - improve connectivity, habitat, and morphology by implementing options through capital and maintenance programmes, such as soft engineering, opening culverts, upgrading tidal flaps, changing dredging and vegetation management. Includes the national habitat creation programme to address coastal squeeze.	16
Mitigate impacts of shipping, navigation and dredging	Assess and implement options for adapting dredging regimes and reducing the impacts of physical modifications.	4

Measure	Description	No. of water bodies
New Investigation	Includes investigations for all new failures, deterioration, and drinking water protected areas.	81
Other sustainable land and marine management practices	Includes measures to mitigate impacts from construction and maintenance of infrastructure, including within military training sites.	4
Reduce impacts of other physical modifications	Improve connectivity, habitat and morphology through soft engineering and restoration techniques.	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.	4
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.	7
Specific habitat and feature works	Restoration and/or conservation of specific habitat and features, including natural (e.g. caves, geological outcrops) and human structures (e.g. bridges, ruins).	1
Sustainable access and recreation management	Reduce the impacts of erosion, disturbance and damage from both water-based and terrestrial access, including tackling illegal off-roading.	6
Sustainable aggregate extraction	Reduce and mitigate impacts of extraction industries	11
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.	55
Sustainable fisheries management	Includes measures for both freshwater and marine fisheries to reduce and mitigate impacts	5
Sustainable marine development	Includes off-shore energy developments, such as oil and gas exploration and tidal energy.	2

Measure	Description	No. of water bodies
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.	18
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.	4
Waste management	Includes appropriate management of spoil and sludge, illegal fly-tipping and litter	4

Details for specific local measures can be found on WWW, some examples of actions that are already under way to improve ecological quality include:

- Schemes to improve fish passage
- NRW Officers have been working with landowners to improve farm infrastructure and land management practices, for the benefit of the water environment. Resources have initially been targeted at the Taf catchment.
- The Coal Authority operate several minewater treatment plants in this catchment and are investigating the feasibility of more.
- Natural Resources Wales is improving forest management to reduce the impact of acidification and protect rivers from sediment. Barriers to fish migration are also being removed.
- 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 in and around Swansea to improve the water environment in some of the urban catchments, restoring the river to the heart of the community.
- NRW officers have been carrying out targeted Operator Self-Monitoring (OSM) audits at DCWW assets discharging to failing waterbodies.

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 agriculture and rural land management.**
Proposed solutions included: Improved cross-compliance, integrate 'ecosystems approach', better information & communications for land managers, buffer strips & tree planting, sector focused solutions.
- **Diffuse pollution from urban areas, misconnections, highways, development pressure.**
Proposed solutions included: SuDs, highway drainage enforcement, surface and foul water separation, permeable surfaces, pipe colour-coding, education and awareness-raising.

- **Forestry best practice.**
Proposed solutions included: Creation and sharing of catchment database of forestry operations, 'ecosystem approach', better publicising of good practice.
- **Integrating catchment processes.**
Proposed solutions included: Apply 'ecosystems approach'. Develop natural resource management plans, more joined-up regulation.
- **Marine litter**
Proposed solutions included: Tackle at source – better education and awareness. Impose fines. Encourage community to take responsibility for the river. Clean rubbish from river and prevent more getting into the marine environment.
- **Impact of trawling and illegal netting**
Proposed solutions included: Continue to work to prevent illegal fishing activity and take action against anyone who is found not to comply with the legislation. Limit the days legal nets operate, keep trawlers a minimum of 5 miles from the coast. End removing whitebait for animal feeds and fertilizer and stop harvesting krill. Impose mandatory catch and release for 5 years.
- **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.

The summary provided below is not comprehensive, it provides a snapshot of the information currently available, and will be updated periodically – please refer to **WWW** for further information.

Table 5. Water bodies NRW will target in the Carmarthen Bay and Gower management catchment to achieve an improvement in status by 2021

Water body ID	Name	Target status	Details
GB110059025610	Burry Pill - headwaters to tidal limit	Good by 2021	For further information on the target water bodies please refer to WWW
GB110060029070	Crychiau - headwaters to confluence with Gwili		
GB110060029120	Nant Coedcae - headwaters to confluence with Cywyn		

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.

The list below is a summary of sites where Prioritised Improvement Plan (PIP) measures are planned /underway. It does not summarise all the required actions. (Further 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 identified a further 42 priority actions in the Carmarthen Bay and Gower Management Catchment which can be taken forward when opportunities arise.

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.

The table below shows the Natura 2000 sites that have actions that are planned or underway, further information on the actions can be found on the **WWW** website.

Table 6. List of N2K sites with measure planned or underway

N2k site	Planned	Underway
Afon Tywi / River Tywi		3
Carmarthen Bay Dunes/Twyni Bay Caerfyrddin		1
Gower Commons/Tiroedd Comin Gwyr	1	

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 investigations and improvement schemes

Water body ID	Name	Outcome
GB110060029062	Gwendraeth Fawr - Afan Goch to tidal limit	No deterioration scheme
GB110059032110	Gwili - headwaters to tidal limit	Achieve good ecological status.
GB110059032110	Gwili - headwaters to tidal limit	Investigation to be carried out, where water company assets contribute to reasons for not achieving good status
GB110059025620	Clyne River - headwaters to tidal limit	
GB110059032100	Lliw - headwaters to confluence with Llan	
GB110060029062	Gwendraeth Fawr - Afan Goch to tidal limit	
GB110060036170	Cynin - headwaters to tidal limit	
GB110060036250	Tywi - conf with Llandovery Bran to conf with Cothi.	
Multiple	Afon Tywi	
GB110059032100	Lliw - headwaters to confluence with Llan	
GB110060035940	Gwydderig - headwaters to confluence with Bran	

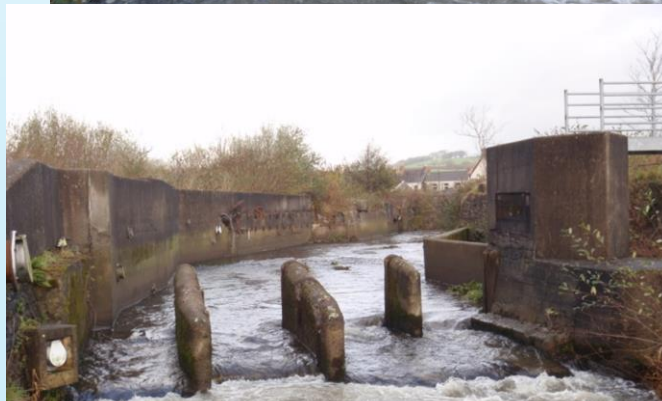
Water body ID	Name	Outcome
GB531006013400	Tywi & Cywyn & Gwendreath	Coastal and network modelling to enable planning of how to meet WFD shellfish requirements.
GB611008590002	Carmarthen Bay (Wisemans Bridge)	Investigations into impact from assets on designated bathing beaches.
GB611008590002	Carmarthen Bay (Pendine)	

Case study – Afon Taf catchment – fish passage improvement project 2011.

The sluice structure on the Afon Gronw, Whitland, was a redundant structure, a legacy from the old creamery site. Each year it became badly blocked with debris causing an increased flood risk and a significant obstruction to the migration of fish species into the Afon Gronw catchment.

The water body has had survey site results that are 'poor' for trout. It was hoped that the removal of the old sluice gate structures will have contributed to an improved WFD 'ecological status' for all fish species by 2015.

Before



5.4 Alternative objectives

We have identified 21% 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	16	Dafen - headwaters to tidal limit Lliedi - headwaters to tidal limit Lliw - headwaters to confluence with Llan Fferws Brook Loughor - headwaters to confluence with Marlais Marlais - headwaters to confluence with Loughor Garnant - headwaters to confluence with Aman Cywyn - conf with Cynnen to conf with Nant Coedcae Fernhill Brook - headwaters to tidal limit Tawelon - headwaters to tidal limit Dewi Fawr - headwaters to confluence with Cynin Llyn Brianne Reservoir Upper Lliw Reservoir Lower Lliw Reservoir Cwm Llied Reservoir Upper Lliedi Reservoir
	Background condition		Pysgotwr Fawr - headwaters to conf with Doethie Doethie - headwaters to conf with Pysgotwr Fawr
	Ecological recovery time	4	Tywi - Llyn Brianne to confluence with Doethie Pysgotwr Fawr - headwaters to conf with Doethie Camddwr - headwaters to Llyn Brianne reservoir Tywi - headwaters to Llyn Brianne reservoir
Less stringent objective	Technically infeasible - minewater scheme	2	Tywi, Taf and Gwendraeths (Groundwater) Carmarthen Carboniferous Coal Measures (Groundwater)

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, trusts & 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.
- Crowd funding – 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 first river basin management plan 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 information at a local scale was hard to find.

Consequently with both the support and input from the river basin district liaison panels an interactive, spatial, web based tool has been developed called **Water Watch Wales** - providing supporting information and data layers.

We will continue to develop this tool and see it as a critical link between the more strategic river basin management plan 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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