

IMPROVING RIVER WATER QUALITY

A DŴR CYMRU
DISCUSSION PAPER



Dŵr Cymru
Welsh Water

JULY 2022

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EXECUTIVE SUMMARY

It is clear that customers, stakeholders, Government, private companies and regulators are all in agreement that more needs to be done to improve the quality of our rivers. How quickly that improvement is delivered is dependent on collaboration, ambition and action.

This paper proposes:

- A collective, collaborative effort towards a common goal of improving river water quality by initially targeting the five failing SAC rivers in Wales
- Urgently agreeing an evidence base that will allow all sectors that impact the rivers to target investment effectively
- Developing a “catchment permit” structure so that a multi-sector approach can be tailored to each catchment for biggest environmental gain
- Current investment is increased by all sectors to fund improvements but that it remains proportionate and affordable

This document is intended to support the discussion on river water quality in Wales and Welsh Water would welcome any responses and further proposals. Responses should be sent to welshwater2050@dwrcymru.com by September 16. We will work with Welsh Government and others to identify a suitable forum to share the feedback we receive.

The Phosphate Summit convened by the First Minister on 18th July 2022 at the Royal Welsh Agricultural Show in Llanelwedd, brought together stakeholders who have an impact on, or are impacted by, the quality of water in our rivers. All parties in attendance agreed that a collaborative approach is needed and indicated their desire to continue with discussions after the summit. This discussion paper offers some proposals that are intended to help continue those discussions. We look forward to working with all interested groups to drive this work forward.

INTRODUCTION

Wales is renowned for the environmental quality of its landscape, rivers, and seas, which attract visitors, support our key industries and are enjoyed by our customers. In rural areas, there is also pressure on housing stock, with a need for more affordable homes to allow our young people to live and work in the communities and help them thrive. It is important for our continued economic success and personal wellbeing that we, as a nation, maintain this enviable reputation of having a healthy and beautiful environment whilst also addressing the challenges we face on behalf of the people of Wales.

As the largest water company in Wales, Dŵr Cymru Welsh Water is dependent on a healthy environment – both in our rivers and beyond – in order to sustain the essential services we provide to our customers. As such, we fully recognise the need to protect our natural resources and limit any adverse impact that we may have.

This draft discussion paper is intended to set out the need for a multi-sector collective response to the challenge of improving the quality of our rivers in Wales and proposes that this response:

- establishes a common goal that all stakeholders work towards;
- ensures investment is evidence-led;
- prioritises SACs (Special Areas of Conservation) rivers and those waterbodies failing to achieve "Good Ecological Status" under the Water Framework Directive;
- requires a collaborative approach to the funding of improvements where the limited funds available are targeted where they have greatest benefit to the river.

There are many stakeholders who impact the health of our rivers, but there is no single cause of this problem and any significant improvement to our rivers will require all such stakeholders to play their part.

As a small nation, we are able to move nimbly by working in close partnership with all key stakeholders. A collaborative approach in Wales to driving improvements will ensure that water companies, regulators, Government, landowners and managers, developers, local authorities and other stakeholders all work together, efficiently and effectively, to meet our joint objectives.

We look forward to having constructive discussions with all stakeholders over the coming months to improve the quality of our rivers for today's customers and communities, for our economy, and for future generations.

EVIDENCING THE NEED FOR A COLLABORATIVE APPROACH

Much of the debate about the health of our rivers has originated in the London-based media who have raised significant concerns about the health of rivers across the UK. There is no doubt that our waterways face significant challenges – from the impact of climate change, urban creep, housing development, the impact of wastewater treatment, run-off from roads, old septic tanks, old mine waters, and rural land use practices including agriculture and forestry.

Whilst much of the debate in England has highlighted the fact that only 14% of rivers in England achieve “Good Ecological Status”, the problem in Wales is not as acute, but nevertheless still unacceptable with only 44% of rivers achieving “Good” status. The situation therefore is better than in England, but it is nowhere near good enough.

Assuming that all sectors and stakeholders agree that there is a problem, it is then important to understand the causes of the problem so that solutions can be developed, investment found, and action taken.

We cannot shy away from the fact that eutrophication of our rivers is adversely affecting the quality of the water and ecology. Neither can we claim that action taken to date has been sufficient to significantly improve the situation. The problem is complex with many contributing factors, the main issue in one stretch of a given catchment being very different to another stretch of river in another catchment – and the solutions are equally complex and multi-faceted.

An uncoordinated, single sector, or unilateral action by a single company or organisation is therefore, unlikely to successfully move the dial towards healthier rivers. As a consequence prescribing a broad-brush approach of focussing on just one site with more stringent targets could at best result in an inefficient use of scant investment and at worst bring no significant benefit to increasing the amount of Welsh rivers meeting “Good Ecological Status.”

TARGET INVESTMENT AND INTERVENTIONS ON THE MOST SENSITIVE RIVERS FIRST

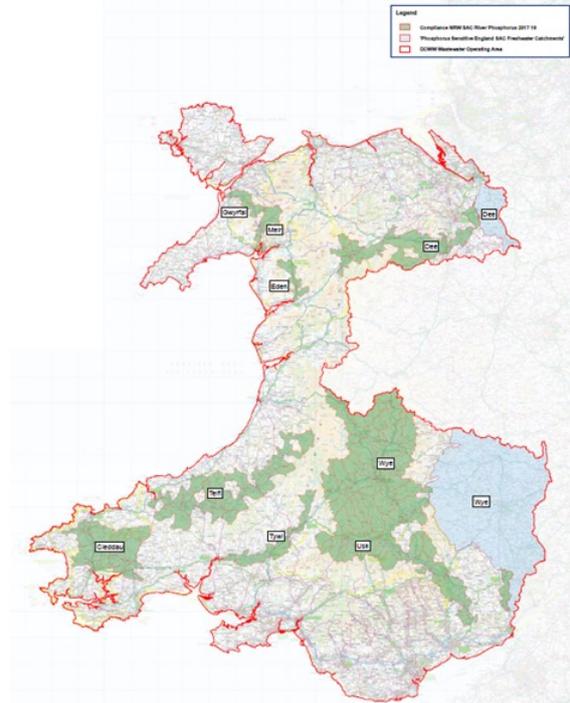
There are nine river Special Areas of Conservation (SACs) in Wales – Cleddau, Eden, Gwyrfai, Teifi, Tywi, Glaslyn, Dee, Usk and Wye. These rivers support some of Wales' most special wildlife. According to Natural Resources Wales (Wales-Wide SAC River Phosphate Report, Jan 2021), the river with the highest level of phosphate failures was the Usk with 88% of its water bodies failing their target. Over 60% of river sections in the Wye and Cleddau failed their targets. The lower Teifi and parts of the Dee also failed to reach the standards. All waterbodies in three rivers in north Wales – the Eden, Gwyrfai and Glaslyn – as well as the Tywi passed their targets.

We, therefore, suggest targeting these five failing SAC rivers should be the initial priority for all sectors that impact these rivers.

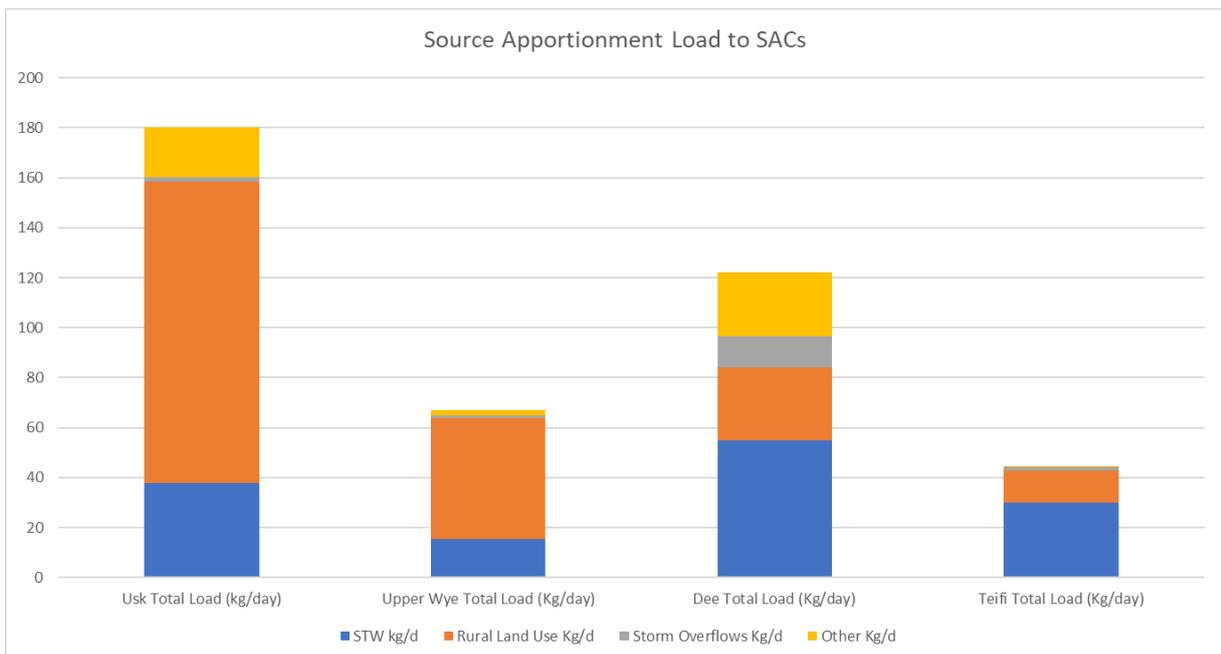
As NRW reported in their report in 2021, “each river and section of rivers will need different approaches.” In order to ensure that significant improvement is achieved along the length of a river, all sectors will need to understand the impact that they have on the specific section of specific rivers and, ideally, work together to identify the best collective solution for each river. This will also require regulators and Government to develop multi-sector regulations and guidance that incentivise cross-sector collaborative solutions where investment is targeted at improving the overall water quality of the designated rivers as opposed to potentially ineffective tighter regulation over a single sector on a designated river.

As a starting point, Welsh Water has commissioned "Source Apportionment" modelling to identify the main phosphate sources on each section of the five failing SAC rivers. This work, which is being made publicly available, free of charge, has been commissioned together with Natural Resources Wales who are in the process of verifying the data, and in agreement with Welsh Government. Below are the results of four of the five rivers, with the Cleddau expected to be published imminently. All information is available on the Dŵr Cymru website (<https://www.dwrcymru.com/en/our-services/wastewater/river-water-quality/sac-rivers>).

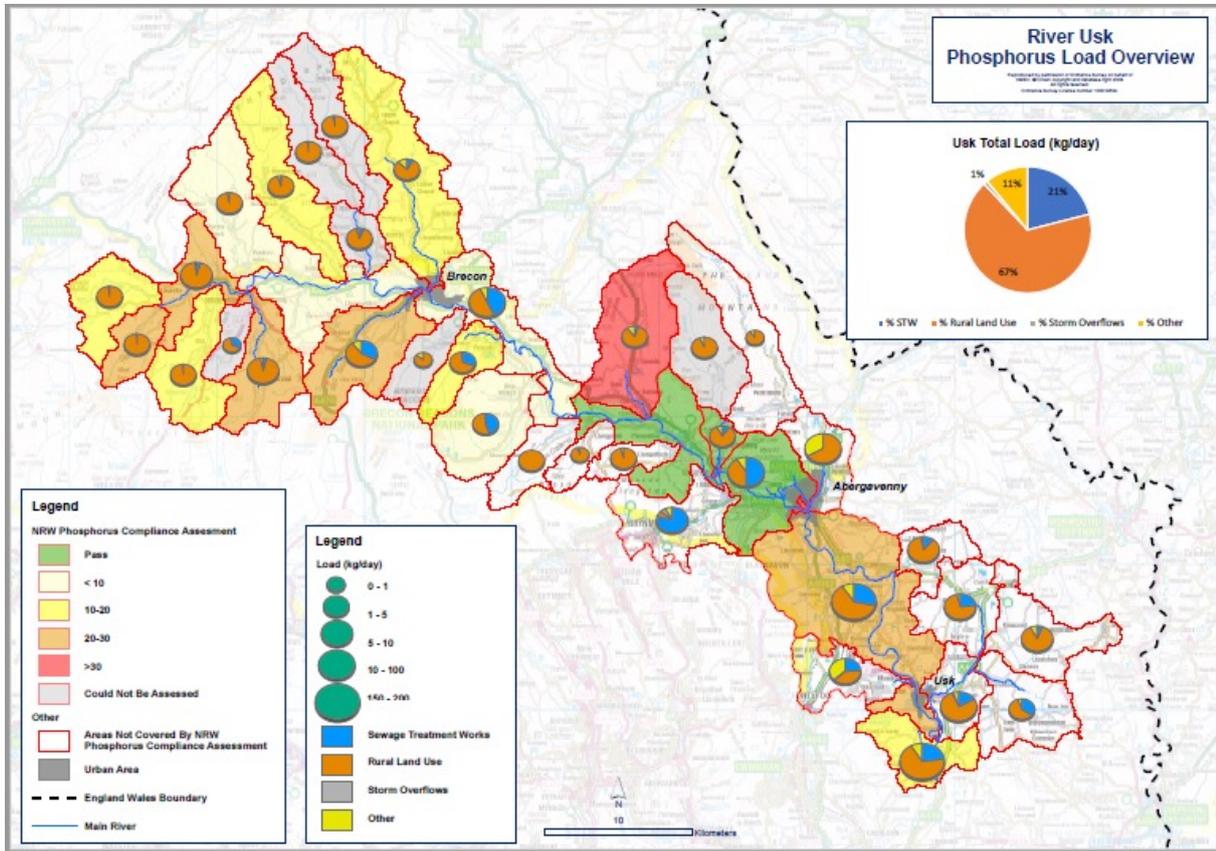
The purpose of these source apportionment maps is not to apportion blame. They are to inform the solution and identify the most efficient and effective way of delivering a coordinated, and collaborative solution to improving the river water quality in these failing rivers that is both cost-effective and has a greater chance of succeeding.



The graph below shows the total phosphorous load in the four of the SAC rivers and the sources of the phosphorous for each. Evidently, as noted by NRW's Wales-Wide SAC River Phosphate Report (Jan 2021), the river Usk has the highest level of phosphate failures. Whilst "rural land use" – from the way we manage livestock and poultry, to the way we add fertilisers to grow crops and grass – is the single biggest contributing factor, the impact from wastewater treatment works is not insubstantial. Converse to many media reports, combined storm overflows (CSOs) have a far more limited contribution to the nutrient issue on the Wye and Usk. In the Dee and Teifi, the impact of waste water treatment works is more significant in terms of percentage of total phosphate load and CSOs are having some effect on the Dee.



When looking at this data in more detail, it is possible to present the data for every failing section of river in each of the rivers. Below is the Source Apportionment Map of the Usk as an example.



Looking at the example of the Usk alone, it is evident that only improving the wastewater assets on the river will have limited impact on the overall goal of achieving good ecological status. Focussing on the impact of combined sewer overflows alone will have marginal impact.

On the Teifi we can see a small number of waste treatment works are having an impact on the lower reaches of the river and so tackling the phosphates coming out of these works is a priority.

No wastewater treatment works can completely remove all phosphates, the best available technical solutions can get down to around 0.25mg/l compared to an untreated discharge of around 5mg/l. However, this comes at a large cost in terms of construction, chemicals and energy with a large carbon footprint. We therefore need to target sites with the most impact rather than a blanket approach to all works. We also need to use where we can nature based solutions, that do not have a large CO2 impact.

A CATCHMENT APPROACH

One proposal to incentivise cross-sector collaboration could be the creation of "catchment permits" rather than regulators permitting one site or entity.

This could allow companies, organisations and farmers to work together on solutions that could bring the biggest benefit to that section of a river. For example, the use of phosphate strippers at a Wastewater Treatment works may cost millions of pounds to achieve a limited reduction in phosphorous load, with the result that adding these to smaller sewage works serving smaller communities would probably make less environmental and financial sense than other ways of reducing the phosphate load in rivers.

For example, Dŵr Cymru could work with – and fund – landowners to reduce diffuse nutrient pollution by changing farming practices e.g. reduce slurry spreading or fertiliser use, or by building a sustainable wetland as a potential alternative to tackling purely waste water treatment works' Phosphorous loading.

Such an approach could have a more beneficial improvement on river water quality, potentially provide a funding stream for farmers to meet environmental standards, increase the use of nature-based solutions, reduce carbon emissions (with fewer new energy intensive treatment processes) and free-up investment to reduce existing adverse impacts at the sites that would most benefit from it.

This "catchment permit" approach could, therefore, potentially bring significant benefits and accelerate improvement to our river water quality, but it will require significant buy-in from Government, regulators and numerous stakeholders, in particular land managers, working in collaboration.

A COLLABORATIVE APPROACH

Nutrient Management Boards (NMB) will play an increasingly important role over the coming years and are already proving successful on the Wye in Herefordshire – where the water and development sector including Local Planning Authorities are working together to build eight wetland areas to reduce nutrient loading on the Lugg (tributary of the Wye).

The approach in Hereford aims to 'unlock' development through the Local Authority planning process – with a Phosphate Credit Scheme (PCS). (The PCS enables developers to invest in phosphate reduction schemes – such as wetlands – to allow new homes to be built).

This method of multi-sector working in Herefordshire, could be achieved in Wales to reduce nutrients from the food sector.

The collaborative approach of the NMBs is welcomed and a strong foundation on which to build.

Collaboration could go further, however, and all stakeholders in Wales – including customers – could have a role to play:

GOVERNMENT

- ban wet wipes;
- maintain policy of focussing on improving river water quality in the round;
- consider limiting the use of artificial grass in gardens and property developments;
- consider ban on phosphate-based detergents;
- consider Phosphate Credit Scheme for Wales to enable sustainable development.

LOCAL GOVERNMENT

- promote and deliver sustainable urban drainage scheme such as Greener Grangetown in Cardiff and RainScape in Llanelli;
- introduce wetlands to reduce nutrients;
- work with Welsh Water to remove surface water from the waste water network.

REGULATORS

- support and introduce regulations to enable “catchment permitting” and then incentivise its introduction;
- incentivise cross-sector collaboration to improve river water quality;
- work with companies and organisations to allow sufficient funding to meet the ambition set by Welsh Government.

WATER COMPANIES

- build evidence base to inform solutions and business cases;
- work with regulators to identify funding opportunities;
- work with partners to develop innovative solutions to reduce impact of treatment works on rivers;
- develop clear investment plans for 2025-30 (and beyond) to ensure that CSOs are not responsible for any failure to achieve Good water quality status by 2030;
- run customer behaviours campaigns to reduce wet wipe usage;
- work with other stakeholders to achieve common goals.

CUSTOMERS

- not to use non-flushable wet wipes that can cause blockages and environmental damage;
- to use phosphate-free detergents;
- not to use artificial grass and to maintain as much green space on their properties as possible to reduce the amount of surface water entering the combined sewer network;
- Business Customers to examine and take account of their impacts on our rivers.

DEVELOPERS

- promote and deliver sustainable urban drainage schemes such as Greener Grangetown in Cardiff and RainScape in Llanelli;
- introduce wetlands to reduce nutrients.

WELSH WATER INVESTMENT

With a strong environmental record, we are always very disappointed when our work has a detrimental impact on the environment and we will always investigate such incidents to ensure that we learn lessons that will inform our future way of working. It is also why we clearly acknowledge that there is more that we can ourselves do to improve river water quality.

We work collaboratively with our environmental regulators to develop the National Environment Programme (NEP in Wales; WINEP in England) which allows us to plan and deliver environmental improvements over a 5 year business plan cycle. The new JNCC targets for river water quality in SAC rivers were introduced post our business plan for 2020-25 being agreed. Fortunately, a lot of the work that we already had planned for the River Wye supports achieving these tighter targets but there were no schemes identified at the time for P removal on the Usk.

We have increased our investment to improve problematic waste water assets and combined storm overflows from £783m to £836m over the five years to 2025.

This includes £98m for Phosphorous (P) reduction Investment targeted on schemes identified in the AMP 7 National Environment Programme (NEP) jointly with Natural Resources Wales and Environment Agency. This includes major schemes at Hereford, Leominster, Rhayader, Cross Hands, Presteigne and Denbigh.

In addition to the above, subject to regulatory approval, we aim to release a further £100m of investment before the end of 2025 to enable investment schemes to be brought forward from the next regulatory period 2025 to 2030 (AMP8). This will include an additional c. £60m to reduce our phosphorous contribution and £40m investment in storm overflows. This would include phosphorous reduction at Abergavenny, Brecon, Corwen, Letterston, Llanybydder, Monmouth, and Wolfscastle, supporting improvements on the Cleddau, Dee, Teifi, Usk and Wye.