River Wye SAC
Nutrient Management Plan
Action Plan

Environment Agency & Natural England
Version 1 November 2014

Introduction

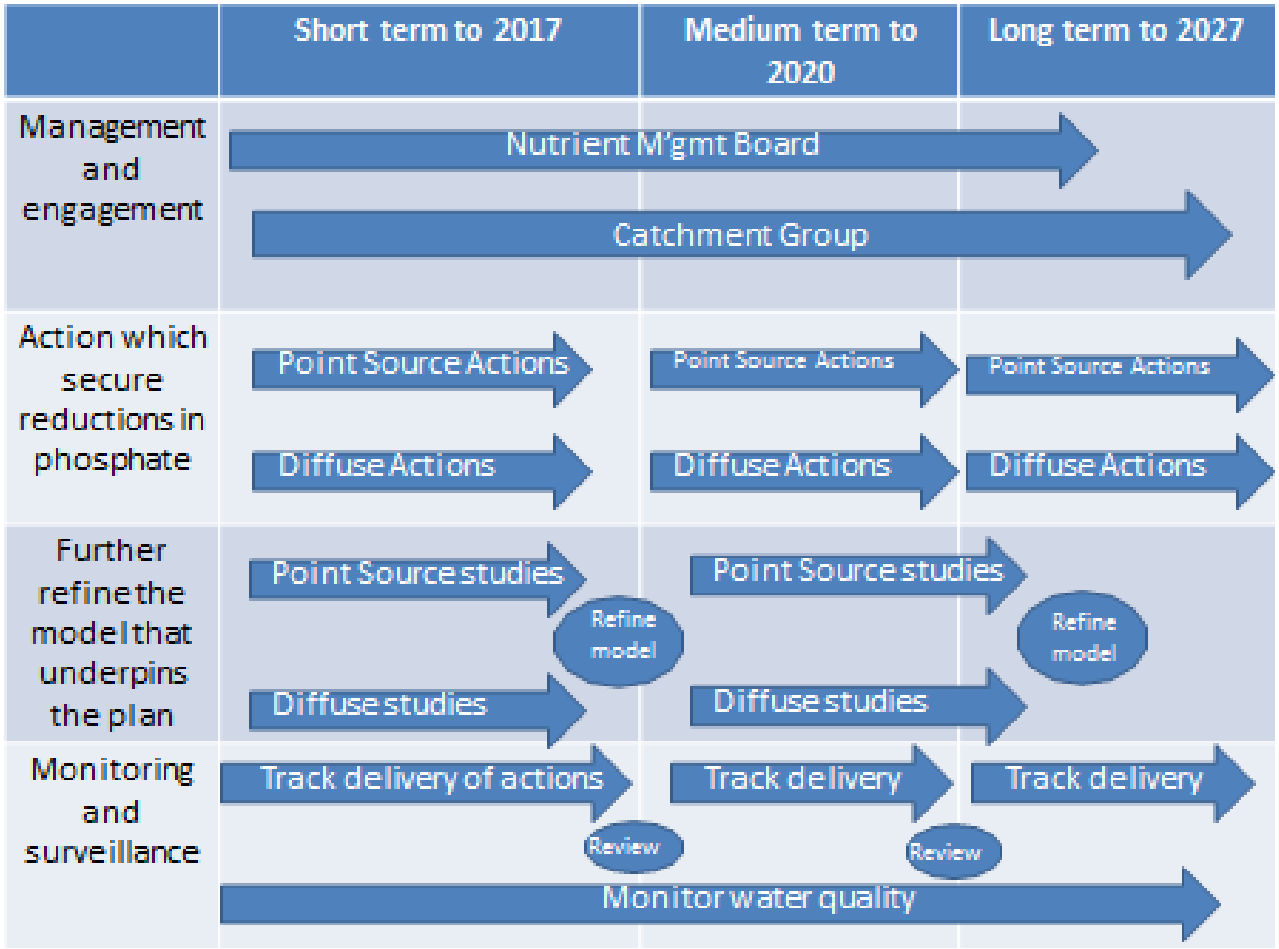
This document forms the third part of the Wye Nutrient Management Plan and as such should be read in conjunction with the Evidence Base and Options Appraisal.

The Nutrient Management Plan (NMP) is designed to enable the desired economic growth in Herefordshire whilst achieving and maintaining Favourable Condition Status for the River Wye SAC, and as such this document is intended to support and be read in conjunction with the Core Strategy for Herefordshire. This plan describes the actions necessary, outside of the planning regime, to allow development in the catchment. The plan is designed to support and assist planning and development considerations but is not designed to reiterate or replace the development of planning policy nor does it duplicate the decision making process associated with developments. Necessary planning policies, to further and support the NMP, will be found within the Core Strategy and associated documents rather than within the NMP.

The development and delivery of the plans objectives will be managed via the Catchment Based Approach (CABA) with oversight from a Nutrient Management Board that holds overall responsibility for the delivery of the plan. Delivery and Engagement at a local scale will be managed by a Nutrient Management Group that is a subsidiary of the larger catchment management group.

The plan will be iterative in nature and go through a series of developments in response to changes within the catchment. The first cycle sets in place:

- The monitoring and surveillance program.
- The management and engagement strategy.
- Actions to further refine the model that underpins the plan.
- Some real reductions in phosphate in the short term.



Environment Agency

NATURAL ENGLAND

Sources and Apportionment

The actions prescribed by this plan are based on the data and modelling carried out in parts 1 & 2 of the plan, therefore in order to understand the action plan properly it must be read in conjunction with the evidence base and options appraisal sections of the plan. Action will be required by the water industry to reduce load of phosphorus in existing discharges of sewage together with action by the agricultural sector to reduce diffuse inputs of phosphorus resulting from run-off from the land.

The starting point for assessing the necessary action required is to establish what are the proportional reductions in line with each sector's contribution to the overall load of a pollutant. This is in line with Government's general policy principle that the 'polluter pays'. However, this is not an absolute requirement and variation from it may sometimes be necessary depending on local circumstances and subject to the agreement of affected parties.

Diffuse

The vast majority of the diffuse phosphate load to the catchment arises from agriculture. The short term ambition for managing agriculture's contribution is to increase the uptake of targeted measures and advice to address land use and encourage appropriate mitigation options, funded (where appropriate) through agri-environment schemes and primarily reliant on voluntary uptake (extreme cases will be dealt with by enforcement/notice powers where appropriate). If these advice led voluntary and incentivised approaches do not deliver the reductions required by agriculture, it may be necessary to seek formal restrictive measures through appropriate existing mechanisms.

Point Source

The vast majority of the point source phosphorus load arises from water company consented discharges.

Studies to investigate the effectiveness and practicalities of phosphate reduction, and other load reducing measures, at sewage treatment plants or in their sewerage catchments will be carried out over the next 5 years and the results of these will be used to help inform the suite of measures applicable to reduce the Water Company contribution. In the short term the water companies will review their current operational models to identify any opportunity to reduce phosphate loads.

Oversight and Engagement.

The Wye catchment management partnership jointly hosted by the Wye and Usk Foundation and Natural Resources Wales will be the overall delivery mechanism for the Nutrient Management Plan. This partnership is mature and has developed strong partnerships within the catchment. The major stakeholders are well represented and engaged with the group. This will also ensure that the NMP is affiliated with the wider catchment objectives described by the Water framework Directive and the River Basin Management Plan and that multi-benefit measures are maximised to achieve the objectives of both plans with the minimum of duplication and burden.

Affiliated to the partnership the Nutrient Management Plan Stakeholder group has been set up tasked with enabling delivery on the ground and engaging with the communities affected by the actions in the plan. This group is chaired by the Bulmer Foundation and the membership is open to all interested parties.

Rather than a blanket one size fits all approach to diffuse measures the development of the action plan is intended to be a bottom up process, engaging with the farming community to improve understanding of the challenges of delivering actions from the plan as well as helping to produce a catchment specific set of achievable realistic actions to tackle agricultural diffuse pollution.

To ensure that progress of the plan is monitored and momentum of delivery is maintained a specific Nutrient Management Board has been set up comprising of Herefordshire and Powys Councils, Dwr Cymru/Welsh Water (DCWW), The Environment Agency, Natural England, Natural Resources Wales (NRW), CABA (WUF), National Farmers Union (NFU), the Country Land and Business

Association (CLA). The board will be chaired on a rotation amongst the members. Currently the chair is held by a Herefordshire Council Cabinet Member. The board's purpose is to focus specifically on nutrient management within the Wye catchment and enable the different sectors to develop the necessary strategies to secure delivery; ultimately the board takes overall responsibility for delivery of the plan with the Environment Agency and Natural England taking a lead role...

During the development of the plan the Environment Agency and Natural England have worked closely with our partners in the NFU CLA NRW and DCWW and all of these bodies have committed to supporting the Nutrient Management Plan and to working closely with EA and NE to aid in the development of the action plan and with the wider catchment based group to help in delivering the measures. The approach outlined above builds on and develops these existing relationships.

Monitoring

In addition to its existing programme and that of the 3rd sector, The Environment Agency has put in place a water quality sampling programme specifically to monitor the phosphate levels within the SAC at the 3 points of interest, the River Wye at Carrots Pool and Holme Lacy Bridge and the River Lugg at Mordiford Bridge. Phosphate levels will be monitored on a monthly basis and this data will be used primarily to monitor progress of the plans objectives. Additionally the data will feed into future iterations of the plan and allow an assessment of potential headroom made available as measures take effect. This sampling data will also provide the measure of compliance with the Favourable Condition Target (FCT) of the SAC.

Monitoring of the level of uptake of advice given by WUF, CSF and CFE will be undertaken to understand the effect the voluntary approach is having within the catchment; this will also include an assessment of the level of engagement and behavioural change essential to complement the chemical water quality sampling programme to assess the progress of the plan.

Iteration

The plan will be flexible and iterative and will require re runs of the source apportionment model as things change within the catchment. There is a need for surveillance to assess the uptake of voluntary measures by the diffuse sector along with the number and location of any development. The changes to the agricultural landscape will be tracked and included in the updated model. The action plan will be revisited at each of these iterations to ensure that it reflects the changes that are happening in the catchment. This planned flexibility allows the plan to respond to both environmental and anthropogenic changes and will be able to incorporate any variation in the SAC requirements or impacts due to climate change that may occur and enables the plan to remain targeted and focused over its lifetime.

Measures

This plan promotes the measures required within the catchment to enable the economic development within Herefordshire whilst protecting the integrity of the SAC. The source apportionment study has identified two major contributors to the phosphate enrichment of the SAC and as such the measures contained within this plan will be focussed towards Water Company Sewage Treatment Works (point source) and the agricultural sector (diffuse source).

Point source

Point source measures will not be restricted to “end of pipe” solutions requiring more advanced phosphate stripping at sewage treatment works, there are a number of alternatives to reduce phosphate from point sources such as removing infiltration from sewers and retro fitting suds to reduce the actual volume of effluent produced. The Environment Agency will review how its permitting process could be varied to allow a more flexible approach in the face of more technically challenging phosphate limits. Opportunities to create “headroom” through short term voluntary agreements until such time as formal changes to permits are made will be explored.

The actions arising from the nutrient management plan are based on accepted tried and tested mitigation measures. However there have been some assumptions made over the potential effectiveness of improvements to phosphate stripping at sewage treatment works.

Point source studies

There is currently a UK wide study being undertaken by the Water Companies to investigate the effectiveness and practicalities of advanced phosphate stripping technologies. The findings of these investigations will help to influence and inform future iterations of the plan. In addition to these studies, UKWIR are undertaking research to give more clarity to the relationship of Soluble Reactive Phosphate to total phosphate in both treated sewage effluent and in the aquatic environment. Whilst this won't drive specific actions in the plan it will help to enhance the accuracy of future source apportionment and the targeting of measures.

Diffuse

Diffuse measures are intended to build on the existing regulatory framework and take a holistic approach to the problem of diffuse agricultural pollution. Providing solutions that not only reduce nutrient losses from farms but can also help to make farming in the catchment more resilient to climate change and more sustainable in the long term.

We will be promoting the voluntary uptake of integrated Soil, Water and Nutrient Management plans. The plans will bring a risk based approach to land management decisions to –

- Reduce any excess phosphate available to be lost.
- Reduce the mobility and erodibilty of soils to keep nutrients in the fields.
- Intercept the pathways to capture the unavoidable losses.

Farmers need to make an assessment of their nutrient need, with a specific focus on limiting application of phosphates to crop need taking into account soil phosphate index, and planning the timing and method of application of any fertilisers to minimise the risk of losses. Farms will also need to make an assessment of their soil structure, identifying areas at risk of erosion and fields that have compacted layers and put in place an effective management strategy to remove compaction and plant suitable crops to

reduce the erosion risk. The plans will also need to encompass a strategy to increase levels of soil organic matter to help maintain soil structure and increase its ability to retain water in the field. The interaction between soil and water needs to be managed identifying the fields that wash and areas prone to run off and managing these pathways effectively. As part of the options appraisal FARMSCOPER was used to predict possible reductions for different farming types. The top 5 most effective measures for mitigating phosphate losses from farms as predicted by FARMSCOPER are included in appendix 1 Some of these will be relevant and effective on individual farms but these measures are not intended as a blanket requirement for all farms, The intention is to develop a suite of measures that are specific to the individual farming situation and targeted at the most vulnerable areas.

Diffuse Studies

In addition to national projects looking at how best to reduce diffuse pollution in a rural context Cranfield University in partnership with the Environment Agency are undertaking a research project within the catchment to assess the effectiveness of soft engineering measures to intercept and clean agricultural run-off. There are also a number of studies looking at cover crops and the effectiveness of different soil management techniques.

Action Plan Measures

Action	Lead Team	Start Date	Target Date	Outcome	Potential to Reduce Phosphate
Set up and maintain Nutrient Management Board to meet every 6 months	Herefordshire Council	2014	The Nutrient management board will remain in place for the duration of the plan (2027)	The Nutrient Management board ensures the Plan gets strategic oversight throughout its delivery. The board also ensures and the involvement and commitment of the key stakeholders in the catchment	Monitor activity within the catchment to maintain the flexibility of the plan and ensure success of the actions.
Maintain NMP Stakeholder group on behalf of CABA	Bulmer Foundation	2014	2027	Affected groups are engaged at the local level ,the actions within the plan are disseminated, future iterations of the plan are based on feedback from local input	Enables interactions with the affected groups to allow actions to take place
Maintain water quality surveillance monitoring	EA	2014	2027	Robust data is available to measure success of actions in	This is used to effectively target

program				the catchment	measures and prioritise actions
Monitor delivery of Plan Provide annual review of water quality data	CABA/Nutrient Management Board	2014	2027	Actions are re-prioritised and further actions added. There is ongoing monitoring of environmental response.	Monitor and drive the actions within the Plan to ensure continuous reduction in P throughout the catchment to achieve the Conservation Objective for phosphate
Review and modify Plan as new evidence, issues and opportunities are identified on behalf of the NMP Board	NE, EA	2014	The plan will be comprehensively reviewed every 4 years to 2027 with the first review in 2017	The iterative nature of the plan will require regular review and model re runs to keep it current and specific to the catchment as it responds to actions.	Regularly assess the effectiveness of measures within the catchment to ensure compliance
Point Sources					
Seek Extension of Memorandum of	DCWW Herefordshire	2014	2020	Phosphate stripping at Eign and Rotherwas Sewage treatment	Protects the current

Understanding between DCWW and Herefordshire Council	Council			works is maintained through local agreement.	complaint status of the Wye SAC d/s of Hereford
Investigate effects of preventing infiltration to the Herefordshire Sewer network AMP 6	DCWW	2015	2020	Feasibility study to investigate the practicality and effect of preventing groundwater infiltration into the sewer	Potential to significantly reduce the effluent volume from the Eign and Rotherwas works consequently reducing phosphorous contribution.
Review permitting process for Water company discharge permits	EA	2017		Review the way in which compliance is assessed for phosphate limits on water company discharges in response to technical challenges of meeting significantly tightened limits	Provides comfort to the water companies over headroom in P limits

Retrofit SuDS feasibility study	EA, Herefordshire Council, DCWW	2015	2015	Identify key areas of industrial, commercial and residential land and associated highways that would be appropriate for sustainable drainage systems.	Reduction in phosphate reaching river
Develop a suite of schemes for submission to AMP7	EA NE DCWW NRW	2015	2017	Point source contributions to the phosphate loads in the SAC are addressed through a suite of measures in conjunction with Welsh Water	Will significantly reduce levels of phosphates in the SAC
Diffuse Sources / Agriculture					
Promote the development of Integrated Soil, Water and Nutrient management plans	NMP Stakeholder Group	2014	2019	Reduction of excess nutrients and breaking pathways through voluntary uptake of whole farm plans. Specific actions required from the agricultural sector are developed through engagement with the agricultural sector	Potential to reduce the amount of field run off entering watercourses
Identifying and tackling poor practice leading to pollution	EA, NE, NRW	2014	2027	the Water quality improves and the baseline level of regulatory compliance within the catchment is improved through use of existing regulatory powers to address pollution incidents	This will reduce the number of pollution incidents impacting on the SAC

Community Engagement	NMP Stakeholder Group	2015	2017	The general public's appreciation of soils and awareness of soil pollution and how to prevent it improves. Increasing the value people place on soil as a natural resource and celebrating the natural environment of Herefordshire	Reducing the number of soil related pollution incidents
Support Woodlands for Water project	NMP Stakeholder Group	2015	2019	Assist in developing the Woodlands for Water project within the Wye Catchment	Reduction in diffuse phosphate pollution
Actively promote Winter storage reservoirs	NMP Stakeholder Group	2014	2027	Encourage the use of winter storage reservoirs within the horticultural sector	Potential to reduce the amount of field run off entering watercourses, and increase flows through reduced summer abstraction
Promote the uptake of rainwater harvesting	NMP Stakeholder Group	2014	2027	Encourage the use of rainwater harvesting particularly on poly-tunnels	Potential to reduce the amount of field

					run off entering watercourses and increase flows through reduced summer abstraction
Promote SuDS for new and existing developments	Herefordshire Council DCWW	2015	2027	Identify opportunities to remove clean water entering the sewerage networks thereby reducing the volume of effluent requiring treatment	Reduces the volume of sewage effluent discharged.
Pathway identification	EA, NE, Herefordshire Council	2015	2019	Identify highways acting as diffuse pollution pathways and consider potential interventions	Reduction in phosphate reaching river
Misconnection investigations	DCWW, Herefordshire Council, EA	2015	2019	Identify and rectify misconnections impacting on the SAC	Reduced volume of untreated sewage entering the river system will reduce phosphate loads.

Research	EA Cranfield University	2014	2017	PhD Study into the effectiveness of soft engineering options to control run off	Physical interventions that could significantly reduce the phosphorous loads in field run off

Glossary

CABA – Catchment Based Approach – Partnership hosted by Wye and Usk Foundation and Natural Resources Wales

CFE – Campaign For the Farmed Environment

CLA – Country Land and Business Association

CSF – Catchment Sensitive Farming

DCWW – Dwr Cymru/Welsh Water

EA – Environment Agency

NE – Natural England

NFU – National Farmers Union

NMP – Nutrient Management Plan

NRW – Natural Resources Wales

SAC – Special Area of Conservation

SuDS – Sustainable Drainage Schemes

WUF – Wye and Usk Foundation

Environment Agency

NATURAL ENGLAND

Appendix 1 “Top 5” Farmscoper Measures to reduce phosphate loss

Farm type: Roots and combinable	**River Wye**	**River Lugg**
Establish cover crops in the autumn	Y	Y
Adopt reduced cultivation system	Y	Y
Allow field drainage systems to deteriorate	Y	Y
Use a fertiliser recommendation system	Y	Y
Incorporate manure into the soil	Y	Y
Farm type: Mixed combinable	**River Wye**	**River Lugg**
Establish cover crops in the autumn	Y	Y
Adopt reduced cultivation system	Y	Y
Establish riparian buffer strips	Y	Y
Store solid manure heaps on an impermeable base and collect effluent	Y	Y
Incorporate manure into the soil	Y	Y
Farm type: Upland grazing	**River Wye**	**River Lugg**
Do not spread FYM to fields at high-risk times	Y	Y
Capture dirty water in dirty water store	Y	Y
Use dry cleaning techniques to remove solid waste from yards prior to cleaning	Y	Y
Establish and maintain artificial wetlands – steadying runoff	Y	Y
Fence off rivers and streams from livestock	Y	Y
Farm type: Lowland grazing		
	River Wye	**River Lugg**
Do not spread FYM at high risk times	Y	Y
Avoid spreading manufactured fertiliser to fields at high risk times	Y	Y
Fence off rivers and streams from livestock	Y	Y

Environment Agency

NATURAL ENGLAND

Do not apply P fertiliser to high P index soils	Y	Y
Uncropped cultivated areas	Y	Y