Extracts from Vision:

Water

Water is clean, and its flows and cycles support our lives, and all life

- Streams and rivers are naturalised and healthy, from headwaters to floodplains
- Water resources are managed carefully

"In the valleys of spring of rivers
By Ony and Teme and Clun,
The country for easy livers
The quietest under the sun…"

Extracts from 'A Shropshire Lad' by A E Housman, 1896.

Subsections in this 'Water' section of the Plan:

Integrated catchment management

Water quality

Flood attenuation, and managing low flows

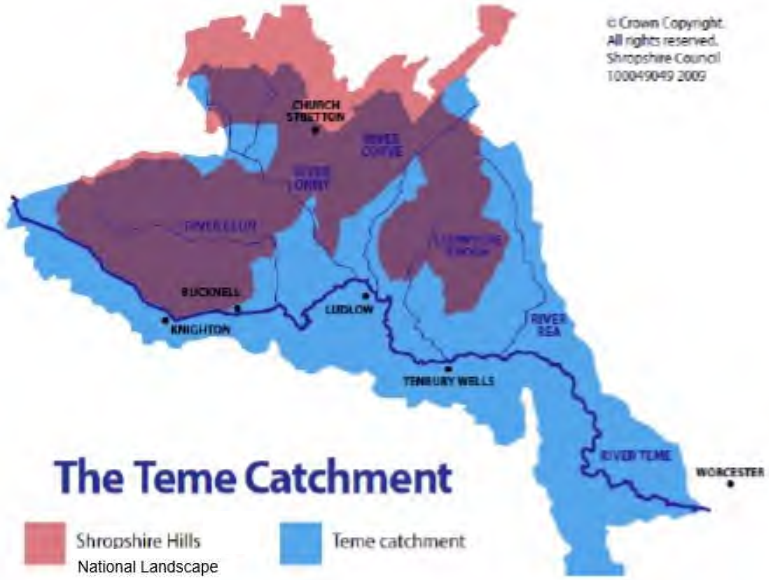
Catchment **headwaters**

Water as a **resource**

*Key link to other Plan themes - **Managing land in order to look after water***

Integrated catchment management

A catchment is the area of land, often bounded by high ground, which drains into a given river and its tributaries, eventually joining a larger river or flowing out to the sea. The Shropshire Hills forms the majority of the headwaters of the Teme catchment, and it is helpful to think of it as this. Administrative units focus attention within a county boundary, but the way land and water are managed in the Shropshire Hills affects water flows at Tenbury Wells and Worcester.



Integrated catchment management is about treating a river catchment as a system, looking at flood risk, water quality and other ecosystem functions together and engaging relevant stakeholders. The government supports this through the Catchment Based Approach (CaBA) and in our area there is the Teme Catchment Partnership, which is led by Severn Rivers Trust. Sub-catchments can also be a useful scale to work at, and in our area the Clun Catchment is the obvious example.

The Vision for the Teme Catchment is for:
"Healthy functioning rivers flowing through a balanced living landscape, cherished by all in the Teme Catchment."

High level objectives for the Teme Catchment include:

- Water bodies with high ecological status and natural ecological function
- A healthy and recruiting population of Freshwater pearl mussels
- Wildlife returning to the river and the catchment, including rare fish, such as shad and formerly common birds such as cuckoo.
- Healthy and connected trees and woodlands
- River sediment reduced to natural levels through improved practices, such as sustainable urban and rural drainage and good buffer strips along river banks on cultivated land and fewer livestock accessing the river.
- Sustainable levels of water in the streams and rivers
- No need for pesticide removal from drinking water

Northern parts of the National Landscape drain north into the Middle Severn especially via the Cound Brook, ending up in the same place but by a very different route.

A small area in the north-west of the Shropshire Hills drains into the Upper Severn and falls within the area of the Severn Valley Water Management Scheme which is seeking to implement catchment management solutions to reduce flooding in Shrewsbury especially. This sits as part of the broader River Severn Partnership working for a sustainable future for the whole Severn catchment.

Water quality

The Water Environment (Water Framework Directive) Regulations 2017 put the EU Water Framework Directive into UK law post Brexit. The regulations require that a river basin management plan is prepared for each river basin district, ours being the Severn.

In a national context water quality in the Shropshire Hills is quite good, but it is not as good as it should be, and in many places has deteriorated. In 2024, 3.7% of river length in the Shropshire Hills had a high or good ecological status, compared to 64.3% in 2013. The River Clun Special Area of Conservation with its population of freshwater pearl mussel rightly takes the most attention in the area, but the issues around water quality and influences on it are also applicable to other sub-catchments in the Shropshire Hills.

River Clun

In March 2022 Natural England published updated guidance on water quality and nutrient neutrality advice (NE785) which identified the River Clun SAC as being in an 'unfavourable condition' due to the continued depletion of the freshwater pearl mussel population as a result of declining water quality. As a result, Shropshire Council are not able to grant planning permission for new developments that provide overnight accommodation within the catchment of the River Clun SAC, unless it can be clearly demonstrated that they will not have a detrimental impact in terms of nutrient loading to the designated protected area.

Freshwater pearl mussels are very sensitive to water quality, with juvenile mussels being particularly susceptible to pollution. The River Clun SAC is in unfavourable and declining condition caused by high levels of phosphate, nitrogen and silt. Agricultural activities give rise to all three of these, whilst development mostly contributes phosphates from surface and foul water discharges. The phosphate levels required by the freshwater pearl mussel are extremely low and they are already too high for the pearl mussels to breed and also too high to maintain adult pearl mussels. Therefore, any additional phosphate entering the river will make the condition of the special area of conservation worse.

A joint statement by the Environment Agency, Natural England, Shropshire Council and Severn Trent Water of 2021 states that whilst the favourable conservation targets recognise the unique environmental value of the River Clun SAC, there is also the need to recognise the value of the area as an important rural community.
"Our combined vision for the River Clun SAC is therefore for the whole catchment area to be restored to a functional unit where a nature recovery plan enables ecological and human needs to successfully interact, thereby balancing the needs of people, economy and the environment."

The Clun Protected Site Strategy (PSS) is currently still in its pilot research and development phase. A Diffuse Water Pollution Plan for the Clun has also been recently prepared.

Flood attenuation, and managing low flows

Flooding is divided into surface water flooding caused by water that is on a journey *towards* the river channel, and river flooding that is caused by excess water spilling *out of* a river channel. Available modelling including online public tools indicate that there is a low risk of river and surface flooding within the National Landscape except by the River Severn, and along the banks of the River Clun and its tributaries. However, damaging localised surface and river water floods are being seen increasingly often due to extreme weather events. There is a need to plan pro-actively, but a concern that the national modelling may underestimate the risks in our area. Such modelling also has the challenge of trying to take account of climate change predictions, showing that rainfall events will increase in their frequency and intensity, posing greater threat of flash flooding to communities.

Surface water flooding affects roads and paths as well as properties

There is a greater understanding now that holding water higher in a catchment for longer 'slowing the flow' helps to reduce or attenuate flood risk downstream, since so many catchment streams come together. There is however still misunderstanding about flooding, and some attempts to reduce flooding by removing obstacles and speeding up flow simply exacerbate flooding downstream. The strategy can be summarised as "Slow it, sink it, spread it."

Re-naturalising and 're-wiggling' rivers to more natural form is a way to slow the flow further down the course of a river as well as having habitat benefits. Low flows also affect rivers in the area, especially the River Teme which has suffered from drying periods with significant impacts on fish and wildlife. They also affect the River Redlake and the Clun. Holding water back for longer high in a catchment also helps to recharge groundwater levels, which then maintain base flows for rivers and reduce the risk of drying.

The River Teme drying up in a drought year (Environment Agency)

The interaction of altering drainage with heritage features and assets needs to be considered e.g. ditches are sometimes of historical significance or protected.

Catchment headwaters

Headwaters are the tributaries feeding a river system, defined as being the first 2.5km of streams from their source. Due to the very high number of branching small channels, these can make up 70% of total river length. They are the essential ecological foundation for healthy functioning river systems, a habitat in their own right and the support system for downstream rivers. Hydrologically they are the 'gathering grounds' for river flow and crucial in controlling water supply (quality and quantity) and flood risk management.

Approximate extent of headwater areas in orange

The degree of naturalness or modification of land at stream sources makes a big difference to the river catchment. In the Shropshire Hills, headwaters are often highly modified - by drainage, simplified vegetation and in some cases culverting. The aim should be to restore natural headwater function and mosaics of in-channel, riparian and wetland habitats. Restoration of natural processes include natural flow, geomorphology and water quality regimes. This requires a large-scale perspective, looking at the land areas at catchment headwaters and not just the stream or riparian area.

Case study - Soil and hydrology surveying in the River Clun headwaters to inform work to re-naturalise hydrology

During 2023-25 detailed eco-hydrology survey work was done on 900ha of land where shallow peat was thought to be present, including farmland, forestry and nature reserves. The survey has made recommendations for enhancing environmental benefits by re-naturalising hydrology in the headwaters. The importance of high-functioning natural processes in headwater areas is key in climate change resilience. The soils, rich in organic matter and in places peaty, are important for water regulation as well as storing carbon and maintaining water quality. Hydrology in the Clun catchment is quite highly modified. Gaining detailed site-specific information about hydrology and habitats is seen as key to informing and encouraging land management centred on restoring natural hydrology.

The aim was to understand the condition and extent of shallow peaty soils and the current hydrology to inform future management, including:

- Peat soil survey (presence, depth, condition & extent)
- Vegetation surveys to understand plant communities and links between peaty soils, vegetation diversity and roughness, and hydrology.
- Eco-hydrology surveys to identify natural and human influences on water movement (surface water flows, ground water and streams)

https://www.shropshirehills-nl.org.uk/our-work/projects/clun-headwaters

Looking at shallow peat at Rhos Fiddle SWT nature reserve

Water as a resource

Water is used directly from watercourses and water bodies by farm livestock, through abstraction (pumping from streams and rivers) and treated mains water is used by farms, homes and businesses.
The water 'footprint' of different activities is increasingly understood to be important to consider and seek to minimise.

Rainwater capture and storage systems for farming have potential to reduce pressure on water resources at key times, as well as increasing the resilience of the farm business. Depending on the farm, use can also be made of natural storage with benefits to wildlife.

Solar powered pump for livestock watering

Key link to other Plan themes - Managing land in order to look after water

The land and water systems are integrally linked, and many of the measures to manage water quality and quantity are taken on land.

Water friendly farming techniques for water quality are set out in the Teme Rivers Water Friendly Farming Guide.

Natural Flood Management measures on land include:

- Buffer strips along watercourses
- Peat restoration
- Soil management
- Tree planting, especially contour woodlands/hedges
- Passive floodplain storage
- Formal flood store areas
- Taller and more complex vegetation

New hedge with ditch reprofiled as a swale which will slow the flow over time

Beavers have been proven to have very beneficial effects on naturalising hydrology as well as improving habitats. They are a keystone species and their dams help to store water and slow the flow, with beneficial effects in lowering flood peaks. Species reintroduction needs to be done with great care and appropriate consultation, but the first beavers have arrived in the Shropshire Hills and could have an increased role to play in future.

Summary of statutory requirements and duties - Water
(not exhaustive)

The Water Environment (Water Framework Directive) Regulations 2017 – ecological and chemical status of rivers

Environment Act water targets

Farming rules for water

Nutrient neutrality

Pollution laws in Water Resources Act 1991

Consent regimes for alterations to watercourses

PLAN POLICIES – WATER

(See the explanation of what the Policies are)

13. Water Quality

i) All feasible steps should be taken to improve the condition of the River Clun SAC and the River Teme SSSI.

ii) Land use and land management should avoid adverse impacts on the quality of watercourses, waterbodies, and natural water systems. Water-friendly farming techniques should be encouraged to reduce diffuse pollution and soil loss to rivers.

iii) Development should avoid harm to water quality, including chemical pollution, nutrient pollution and sedimentation, and including through cumulative effects.

iv) Development should be regulated, with suitable mitigation measures (such as reedbed filtration systems), to manage local Nutrient Neutrality issues.

v) Highways management and drainage should seek to minimise movement of sediment into watercourses, by careful management of road verges and use of sediment traps and swales, etc. where appropriate.

vi) Sewage and wastewater treatment should be of a high standard to have no adverse impacts on river water quality.

vii) Septic tanks should be maintained to high standards to avoid harm to water quality.

viii) Impacts on water quality and nutrient levels from intensive pheasant rearing and duck shooting should be minimised.

14. Flood attenuation, and managing low flows

i) Natural Flood Management measures should be used to increase water storage, reduce flood risks, maintain aquifers and to help prevent low flows and drying of rivers.

ii) Development should support and enable the natural storage of water through sustainable drainage systems.

iii) Drainage and water management measures should avoid displacing flooding, and should look to water storage solutions where possible rather than speeding up flows.

iv) Natural water storage should be enhanced e.g. through restoration and creation of ponds and other small waterbodies.

15. Water as a resource

i) Harm should be avoided to water resources, by protecting rivers, wetlands and water environment. Regulation should be used where needed to protect water resources and the water environment.

ii) Water resources should be managed to be sustainable and more resilient to pressures from climate change.

iii) On-farm storage of water is encouraged, to help reduce demand on river and stream water supplies.

16. Managing land to look after water

i) Naturalness of watercourses and floodplains should be enhanced and restored, and river and riverbank habitats improved. Artificial in-channel obstructions limiting the natural range of fish should be removed where possible.

ii) Land use and land management in upland areas should support retaining water for longer in catchment headwaters.

iii) Methods should be adopted to avoid as far as possible soil compaction which reduces infiltration and accelerates run-off.

iv) Nature-based solutions should integrate water measures with nature recovery, climate mitigation and adaptation.

Recommendations – Water

(See the explanation of what the Recommendations are)

W 1. Deliver improvements to the condition of the River Clun SAC through activity linked to the Protected Site Strategy pilot.

W 2. Take necessary steps for all rivers in the National Landscape to reach good ecological and chemical status.

W 3. Strengthen co-ordination and avoid siloing water issues, by adopting a holistic approach.

W 4. Focus on headwaters and upper catchments as a key significance of the Shropshire Hills area.

W 5. Seek opportunities for rewetting, especially of deep peatland, valley mires and high organic matter soils in the headwaters.

W 6. Support landowners to implement recommended actions from recent Upper Clun surveys to re-naturalise hydrology.

W 7. Continue and promote Catchment Sensitive Farming scheme providing advice and grants for farmers for works to help improve water quality.

W 8. Promote working and thinking at catchment and sub-catchment scales as functional units.

W 9. Support the further reintroduction of beavers in selected and controlled suitable sites.

W 10. Undertake re-meandering or re-wiggling of rivers at suitable sites to restore more natural form and habitats.

W 11. Support greater public engagement and understanding about rivers and the water environment, including iconic species such as salmon, otter and water vole, and steps that individuals can take.

W 12. Promote existing legal public access to rivers, and seek opportunities to extend access, such as through agreements.

W 13. Encourage safe and sustainable use of water for recreation, including paddling and wild swimming.

Aspirations - Water

(See the explanation of what the Aspirations are)

W(a) Establish a major project or area initiative for the Teme headwaters focusing on re-naturalising hydrology of headwater areas.

W(b) Widespread adoption of water-friendly farming techniques.

W(c) Undertake further hydrology surveys where appropriate.

W(d) Use of soil erosion risk mapping to inform land management to avoid siltation in rivers.

W(e) Raise awareness of human health importance of water quality.

W(f) Strengthen fish populations.