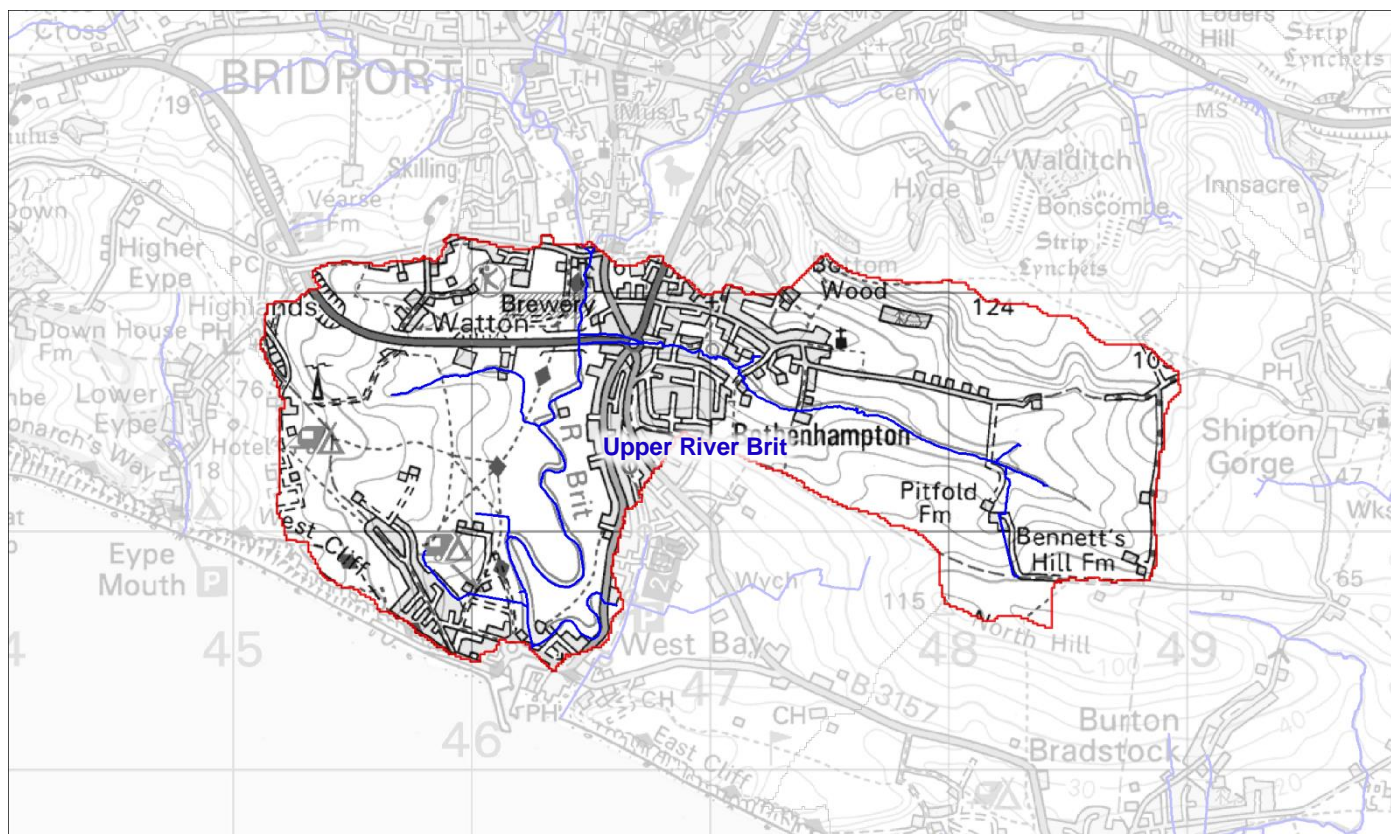




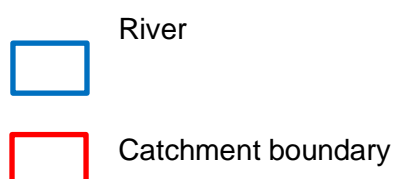
## Lower River Brit



Map of the Lower River Brit catchment

Key

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### Introduction

The Lower River Brit lies south of the confluence of the Upper Brit, Asker and Simene in Bridport. It is a short reach of the river and after leaving Bridport it meanders 2.6km over a wide flood plain before entering the sea at West Bay. West Bay is a man-made harbour which has had several modifications, and even been moved. Fishing is limited to small boats, local anglers and tourist trips. Land use is a mix of agricultural pasture and urban. It lies entirely within the Dorset Area of Outstanding Natural Beauty.

<b>River length</b>	2.6 km
<b>Catchment area</b>	4.47 km <sup>2</sup>
<b>Geology</b>	Flows over mudstones, siltstones, limsteones and sandstones
<b>Land use</b>	Pastoral agriculture with a significant urban centre
<b>Principle towns and villages</b>	Bridport, Bothenhampton, West Bay



No river in England is in pristine condition, and it is the responsibility of the Environment Agency to monitor how far from pristine the condition of our waterbodies has deviated. It is up to us to tackle the issues affecting the River Brit and make a difference on the ground (because if we don't work together and make a difference, who will?). By conserving and enhancing existing habitats of importance, restoring habitats where possible and working with natural process, it is possible to make meaningful improvements to the condition of the water environment, and ultimately the wellbeing of communities living within the catchment.

The next sections explores the state of the river and wider catchment, the areas that have been identified as at risk from the Environment Agency and from local people, and potential areas to explore that will help deliver our aim of improving the condition of the River Brit.

This document should be seen as a starting point for discussion and is not meant to be comprehensive. We can work with communities to explore opportunities to help improve the river and wider catchment.



## Environment

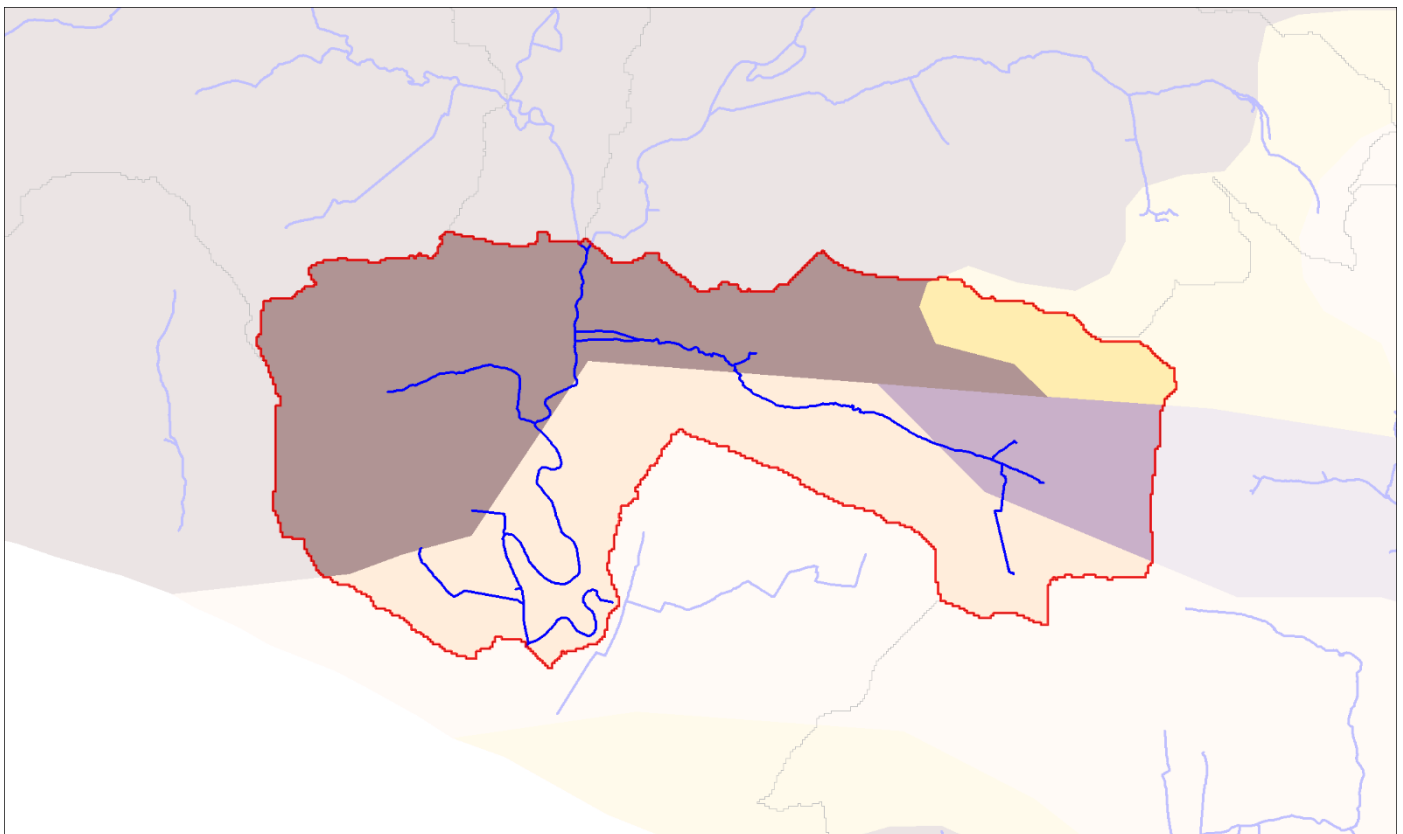
### Geology

The geology under our feet heavily influences how water moves through the catchment, the soils that form above it and the plants and animals that live here. It also influences how we use the land to produce food.

The catchment is dominated by two rock types, with small areas of two others. The two dominant types are the Lias Group of rocks and Great Oolite Group. The Lias Group of rocks is made up mudstones, siltstones, limestone and sandstone that were deposited in shallow seas some 172 to 204 million years ago in the Jurassic and Triassic Periods. The Greater Oolite Group is made up of sandstones, limestones and argillaceous rocks formed in warm shallows seas some 165 to 168 million years ago in the Jurassic Period.





The minor rock formations are the Inferior Oolite Group, formed 165 to 176 million years ago, and the Kellaways and Oxford Clay Formation, formed some 156 to 165 million years ago.

The map below shows the extent of the geology within the catchment.



Map of the Lower River Brit underlying geology

Key

-  River
-  Catchment boundary
-  Lias Group: mudstone, siltstone, limestone and sandstone
-  Inferior Oolite group: limestone, sandstone, siltstone and mudstone

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Geology Data © British Geological Survey and United Kingdom Research & Innovation 2021



Great Oolite Group: sandstone, limestone and argillaceous rocks



Kellaways Formation and Oxford Clay Formation: mudstone, siltstone and sandstone



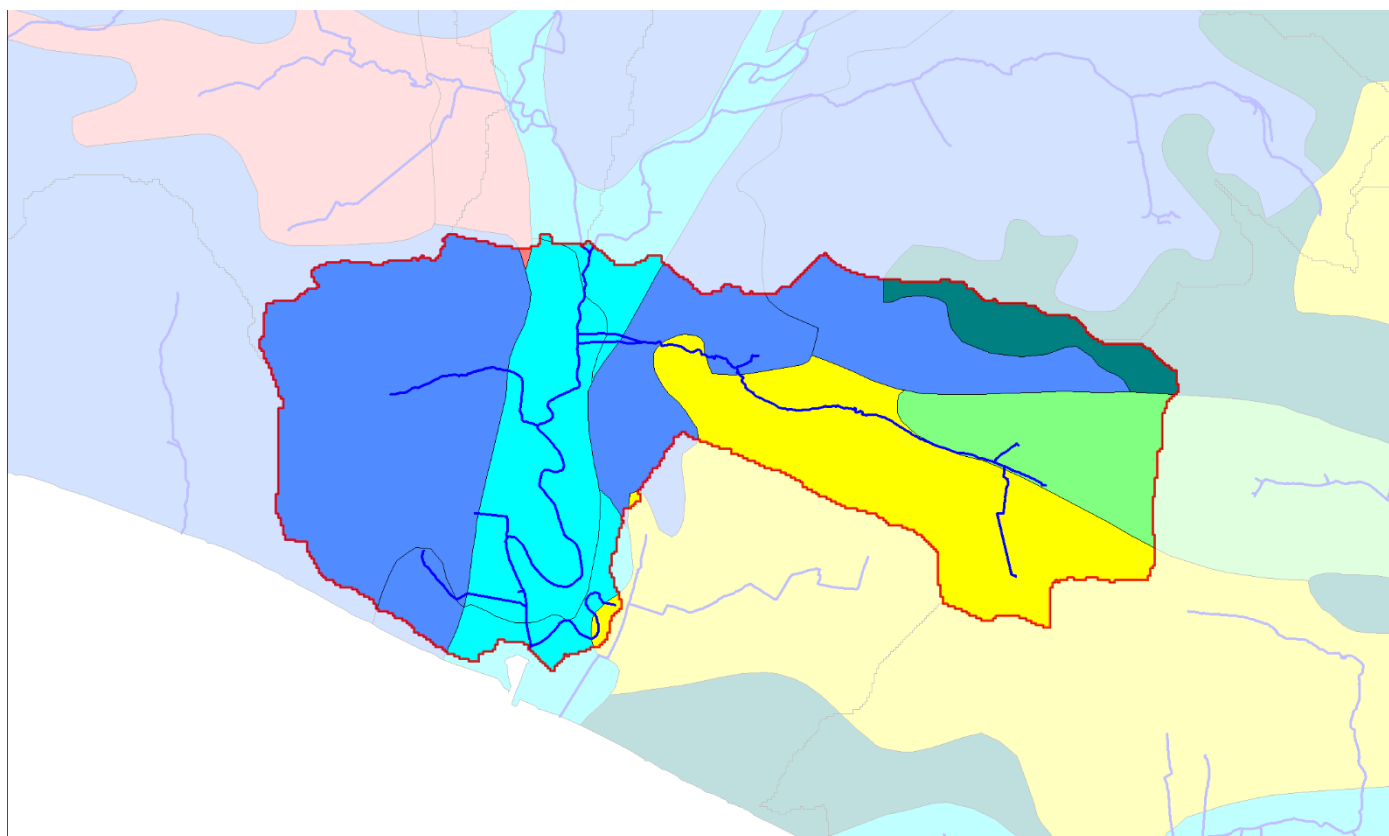
## Soil types

Heavily influenced by the underlying geology, soils are at the interface between biotic (living) and abiotic (non-living) worlds. These are important stores of carbon and biodiversity in their own right and provide the foundations from which others can grow. Soils can be broadly described as basic (acid), calcareous (alkaline) and neutral. The soils of the Lower Brit catchment are a mix of neutral, slightly acid and alkaline soils.

There is no one dominant soil type, as characterised by Cranfield University's Soilscales. The soilscales found in the catchment are:

- 'Freely draining slightly acid loamy soils'. They are freely draining and have low fertility. They are suitable for neutral and acid pastures and deciduous woodlands and can be used for grassland and arable. There is low potential for carbon storage. Water drains to local groundwaters and streams network and the main risks are groundwater contamination with nitrate and siltation and nutrient enrichment of streams from soil erosion.
- 'Loamy and clayey floodplain soils with naturally high groundwater'. These are naturally wet and have moderate fertility and medium carbon storage potential. They are suitable for wet flood meadows with wet carr woodlands in old river meanders and can be used for grassland with some arable. The main risks to the water environment are due to their close proximity to river, resulting in pollution risk from floodwater scouring and from drainage water after spreading of fertiliser or slurry.
- 'Slightly acid loamy and clayey soils with impeded drainage.' These slightly impede drainage, feed into the stream network, have moderate to high fertility but low carbon storage potential. They are suitable for a wide range of pasture and woodland types and can be used for arable and grassland. The main risks to the water environment are drained farmland making streams more vulnerable to pollution run-off and rapid through-flow; surface capping can trigger erosion of fine sediment.
- 'Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.' They impede drainage and have moderate fertility. They are suitable for seasonally wet pasture and woodland habitat and can be used for grassland and arable, with some woodland. There is low potential for carbon storage. Water drains to a stream network (rather than groundwater) and the main risks are associated with overland flow from compacted or poached fields. Organic slurry, dirty water, fertiliser, pathogens and fine sediment can all move in suspension or solution with overland flow or drain water.
- 'Shallow lime-rich soils over chalk or limestone'. These are freely draining to groundwater, lime-rich moderate fertility and have low to medium carbons storage potential. They have the potential to host herb-rich downland pastures along with beech hangers and other lime-rich woodlands. They are used for arable and grassland and they particularly vulnerable to leaching of nitrate and pesticides to groundwater. Surface capping and erosion of chalk soils on steeper slopes under cereals is linked with eutrophication and silting of streams and their gravel spawning beds.
- 'Lime-rich loamy and clayey soils with impeded drainage'. These have slightly impeded drainage, and discharge to the river network. They have high fertility and low carbon storage potential. They are suitable for base-rich pastures and classic chalky boulder clay ancient woodlands and have some wetter areas and lime-rich flush vegetation. They can be used for arable and some grassland. The main risks to the water environment are that land is drained and nitrate vulnerable leading to rapid pollutant transport; surface capping can trigger sheet erosion of fine sediment to stream network.

The map below shows the extent of the Soilscales in the catchment.



Map of the Lower River Brit catchment soils

Key

-  River
-  Catchment boundary
-  Soilscape 3: Shallow lime-rich soils over chalk or limestone
-  Soilscape 18: slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils
-  Soilscape 6: freely draining slightly acid loamy soils
-  Soilscape 9: slightly acid loamy and clayey soils with impeded drainage
-  Soilscape 20: Loamy and clayey floodplain soils with naturally high groundwater
-  Soilscape 9: Lime-rich loamy and clayey soils with impeded drainage

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Soils Data © Cranfield University (NSRI) and for the Controller of HMSO 2021



## Land use

The geology and soils of the Lower Brit catchment have influenced how this land has been used. The confluence of the rivers has meant led to the development of the thriving market town of Bridport. The harbour at West Bay has also meant significant development, historically supported by the coming of the railway and more recently through the Dorset Coast being a holiday destination. In between the urban centres, land has been used for grazing on the floodplain. As agriculture has intensified, particularly since the end of the Second World War, habitat fragmentation has increased. As a result, over 97% of all semi-natural habitats mapped in Dorset in the 1930s have been converted to agriculturally improved arable or grassland. This will have knock-on impacts on the water quality of the River Brit, with increased contamination of sediments and nutrients from agriculture along with increased isolation of the semi-natural habitat the exists along the river corridor. This is magnified on the Lower Brit, as issues may be derived from much further up within the Upper Brit catchment.

Looking in a bit more detail at the land use of the Lower Brit catchment, we can split it down into a number of categories that are described below. The figures are derived from a study undertaken in 2018 that mapped land use in the Dorset AONB from existing data, aerial photography and satellite images.

### Intensive land use

Improved grassland covers 82% of the catchment area. This is a high percentage. Improved grassland will predominantly be used to support grazing. There is little other intensive land use within the catchment.

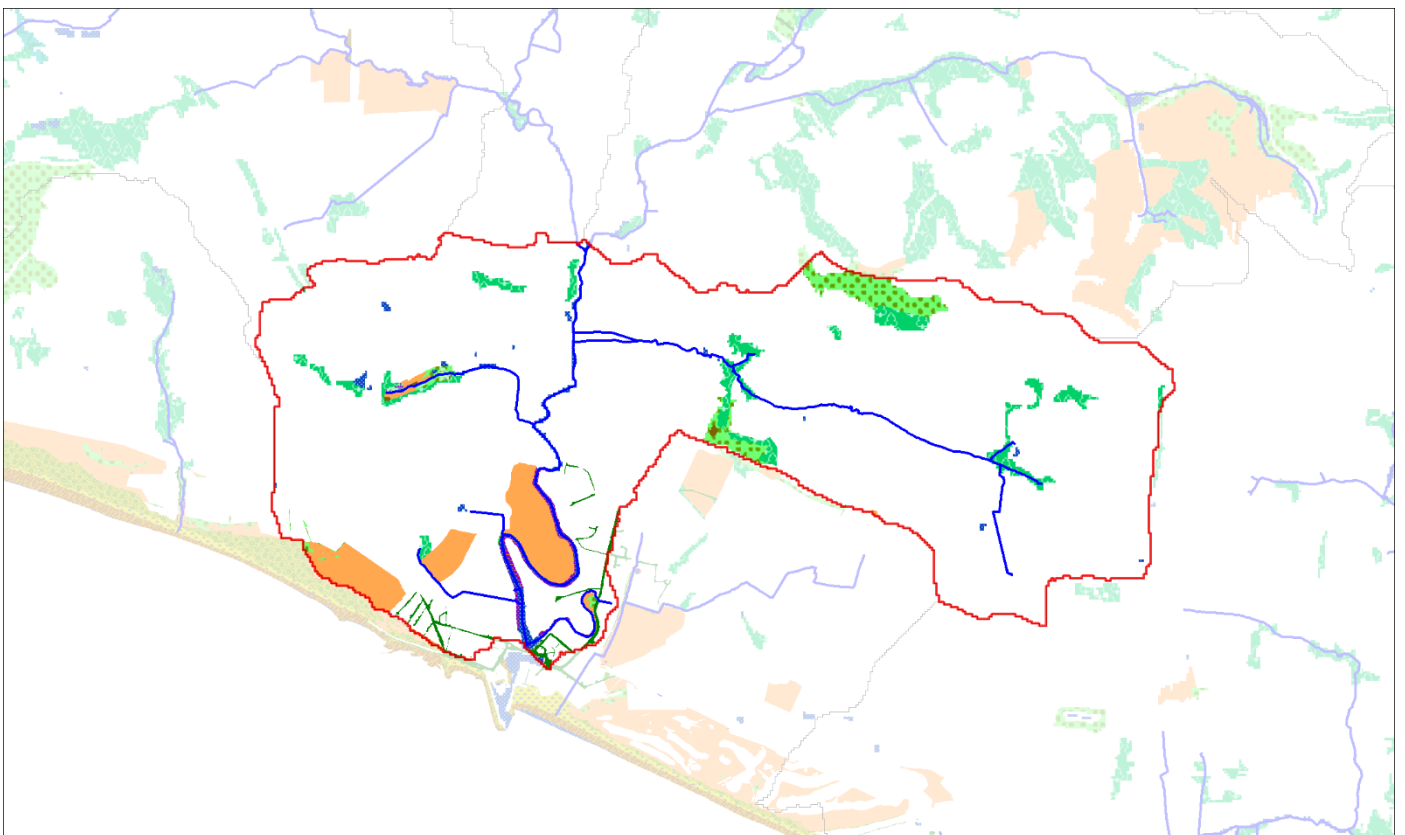
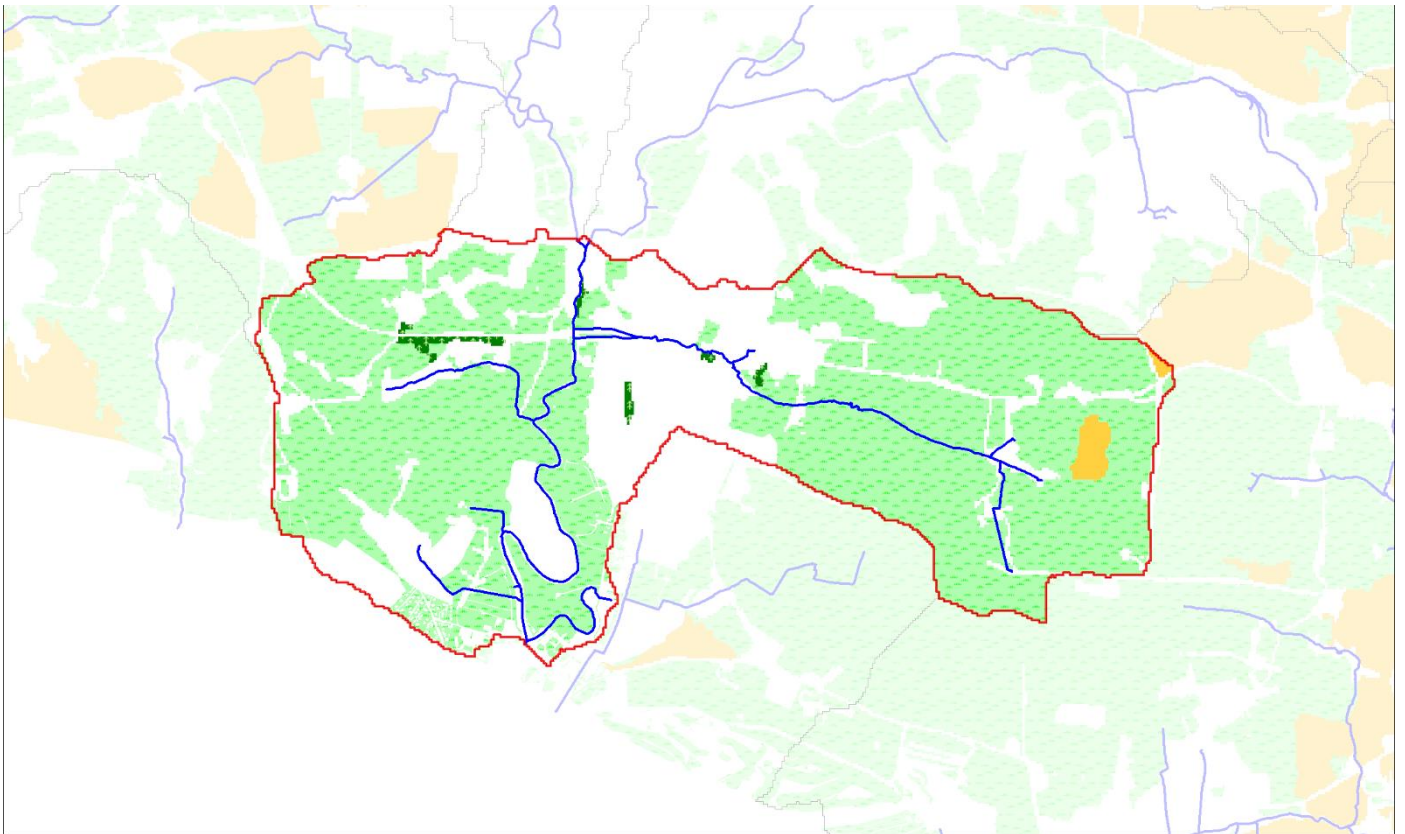
### Extensive land use

Covering 9% of the catchment area are habitats associated with more extensive land use. The most significant of these is semi-improved grassland. Semi-improved grassland is not as rich in wildlife as semi-natural grasslands because it has been improved in the past to favour a grass-dominated sward. However, having not been ploughed up recently and as intensively managed, it holds great potential for restoration back to semi-natural habitat. There are also small pockets of broadleaved woodland and scrub.

### Other land use

Urban land cover takes up 4% of the area, and there is an additional 3% that has been classified as gardens (though this category is hard to define because the individual areas are quite small). 1% is water.









## Map of the Lower River Brit catchment intensive land use (top) and extensive land use (bottom)

### Key





















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River



Catchment boundary

	Arable		Quarry
	Bare ground		Saltmarsh
	Bracken		Sand dune
	Broadleaved woodland		Scrub
	Cliffs and rocky shore		Semi-improved grassland
	Coniferous plantation		Shingle above high tide mark
	Felled woodland		Tall herb and fern
	Gardens		Unimproved grassland (Acid)
	Hedgerow		Unimproved grassland (Calcareous)
	Improved grassland		Unimproved grassland (Neutral)
	Intertidal habitat		Urban
	Lowland dry heath		Water
	Marshy grassland		Wet heath
	Mixed woodland		Wet woodland
	Parkland/scattered trees		Wetland

Land use categories



## Ecological networks

We have undertaken further analysis of the land use data to identify areas of habitat that are important for the survival of native species, as they provide shelter and food for them. We also looked at how easily these species can move through the landscape between these 'core' habitat sites. We have broken this analysis down into four broad habitat types: grassland, woodland, heathland and wetland. For each of these, we have identified: 'core' habitat, which are extensive land use blocks over 1ha in size; 'stepping stones', which are extensive land use blocks less than 1ha in size; and the 'ecological network', which maps how a species can move between the 'core' habitat blocks using the 'stepping stones' and wider intensive land use. It is vital for the survival of species that they have access to adequate 'core' habitats to shelter, feed and reproduce as well as adapt to extreme weather and climate change.

The most significant networks within the Lower Brit catchment are grassland and woodland. There are no heathland sites and only wetland stepping stone sites are restricted to the margins of the river itself.

It is the governments ambition to have 30% of the land managed for wildlife. If we total the 'core' habitat blocks within the catchment, this gives us a total of 6%. There is, therefore, significant capacity for restoration and enhancement to help meet this target. Natural England also recognise that for a site to function naturally, it should be at least 40ha in size. There are no areas of habitat above this threshold.

### Grassland

19ha of 'core' and 'stepping stone' habitat exist within the catchment over 21 locations, none of which are over 40ha. These sites support a grassland ecological network (for an average medium dispersal species) of 52ha over 5 locations.

### Woodland

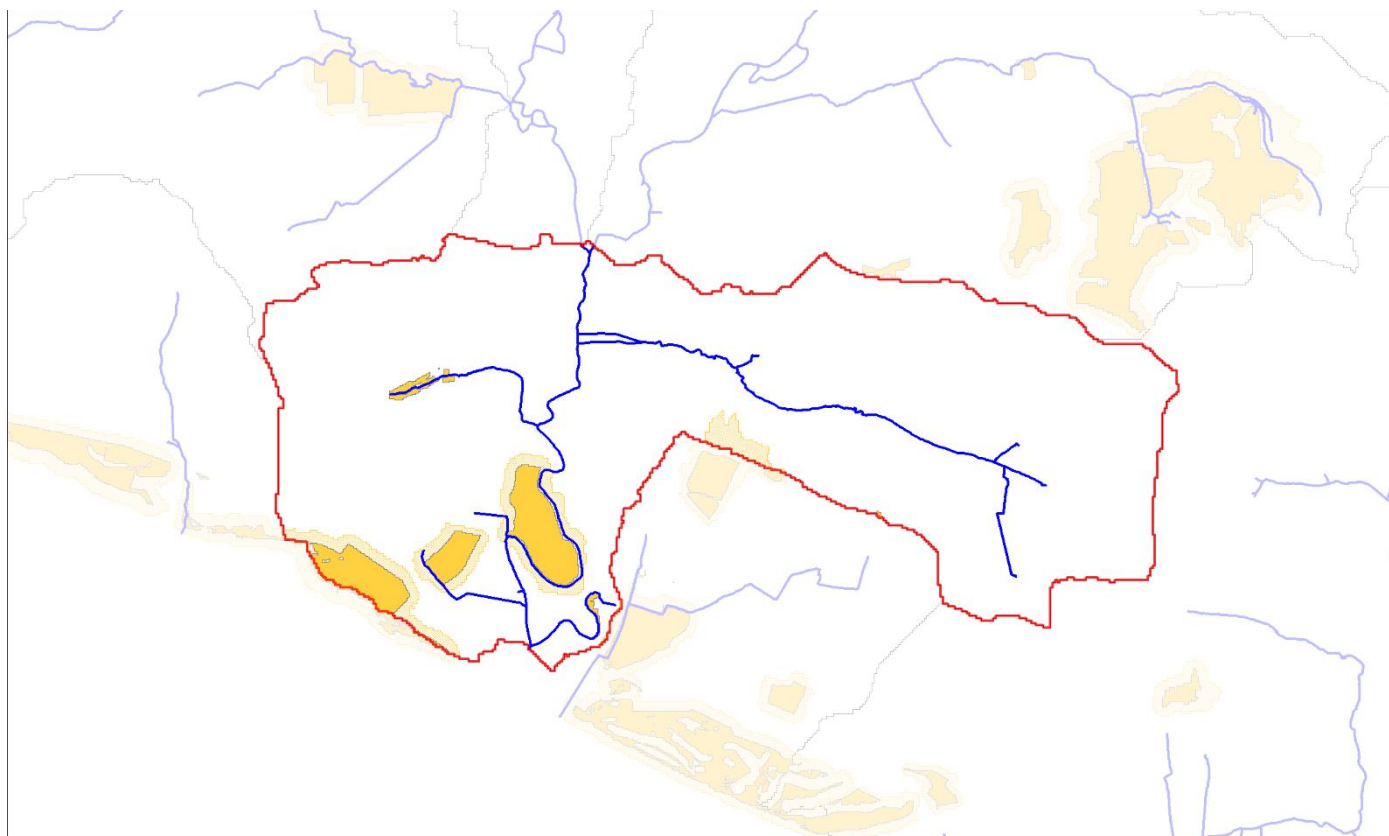
16ha of 'core' and 'stepping stone' habitat exist within the catchment over 12 locations, none of which are above 40ha. These sites support a woodland ecological network (for an average medium dispersal species) of 35ha over 7 locations.

### Wetland

There is 1.4ha of 'stepping stone' habitat within the catchment adjacent to the river. They are not extensive enough to support an ecological network which means species reliant on this habitat are poorly serviced in the Lower Brit catchment.





### Heathland

There are no heathland sites because the required geological and soil conditions do not exist within the catchment.

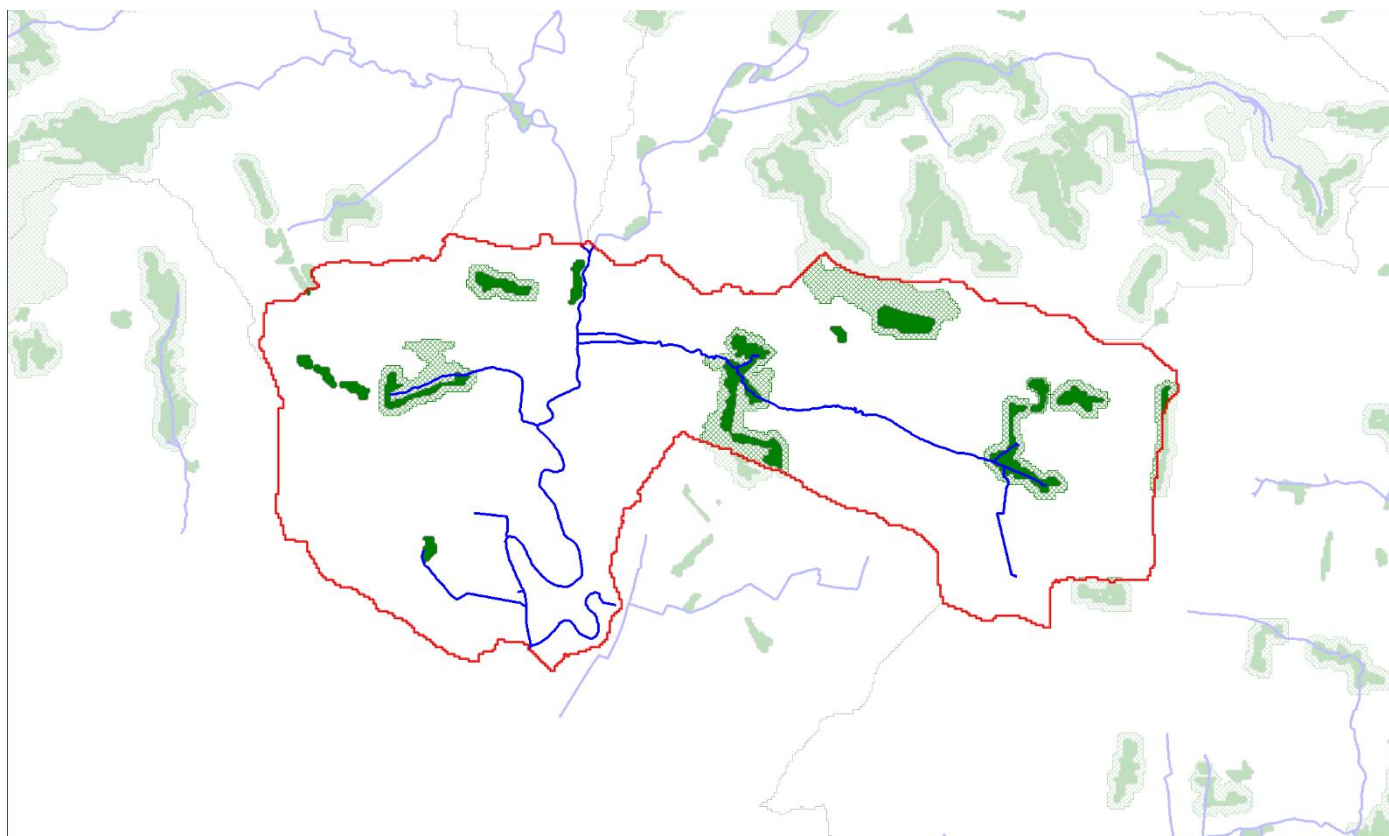


Map of the Lower River Brit catchment grassland ecological network

Key





-  River
-  Catchment boundary
-  Grassland core (>1ha) and stepping stone (<1ha) sites
-  Grassland ecological network for a medium dispersal species

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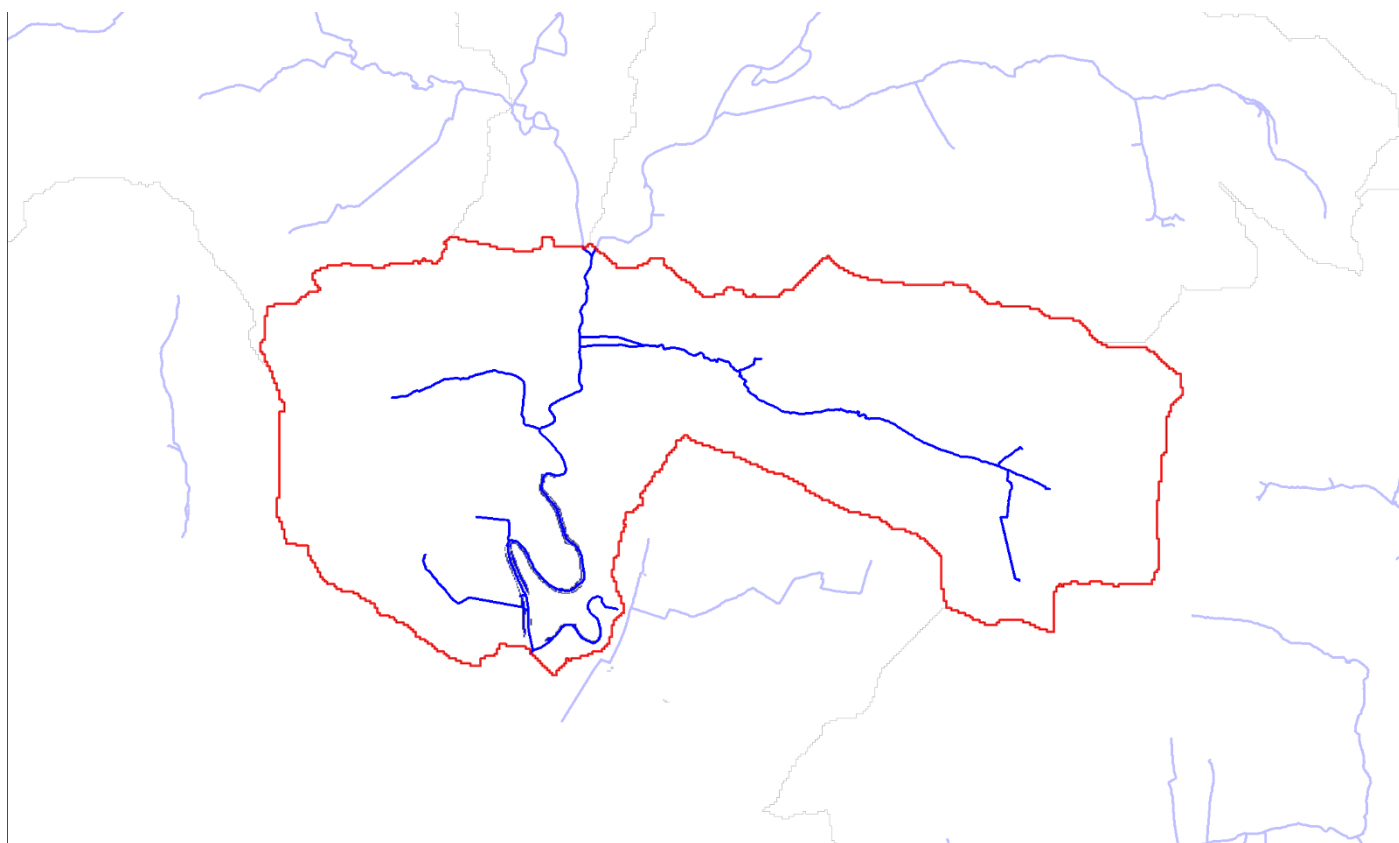


Map of the Lower River Brit catchment woodland ecological network

Key




-  River
-  Catchment boundary
-  Woodland core (>1ha) and stepping stone (<1ha) sites
-  Woodland ecological network for a medium dispersal species

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Map of the Lower River Brit catchment wetland ecological network

Key

-  River
-  Catchment boundary
-  Wetland stepping stone (<1ha) sites

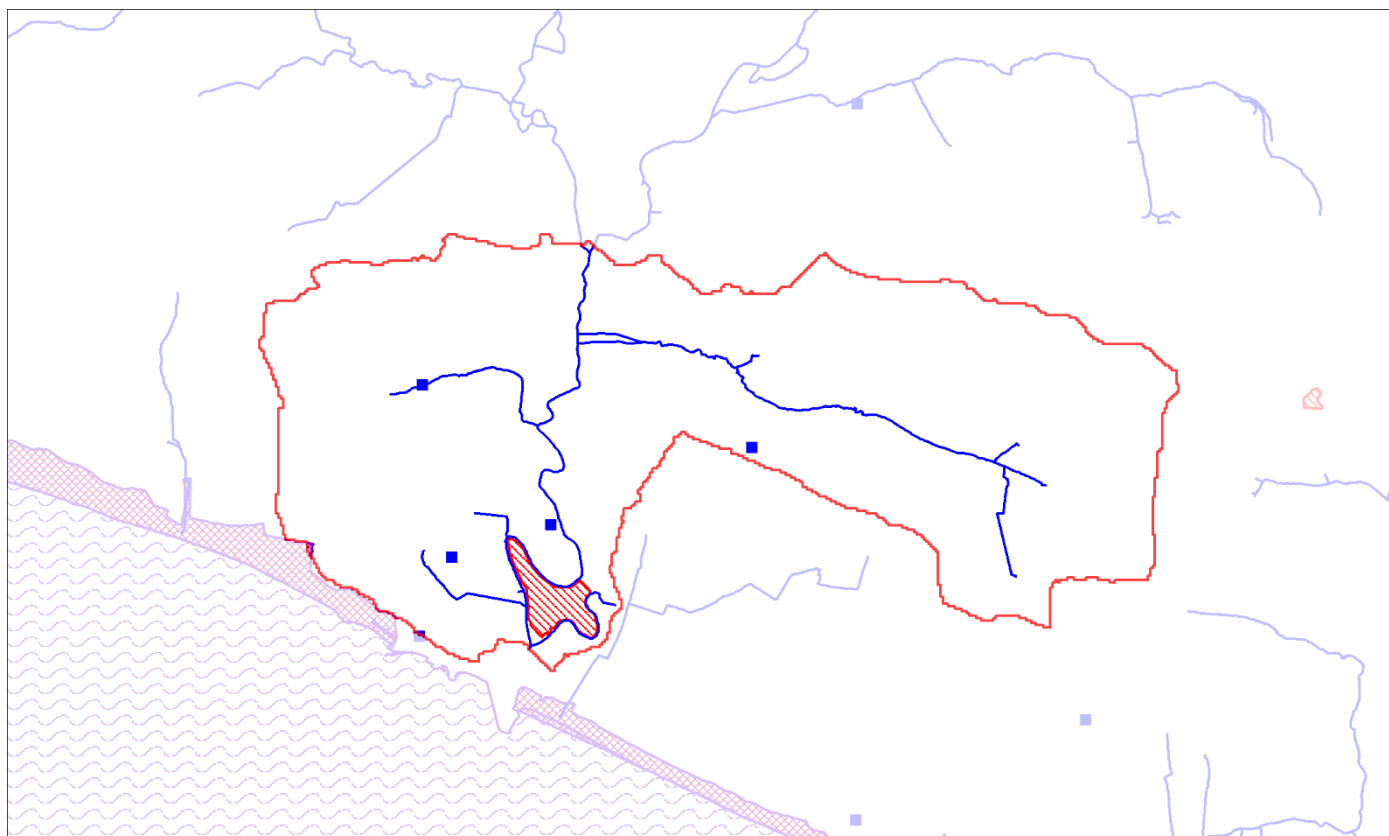
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## Designations






There is part of one Sites of Special Scientific Interest (SSSI) within the catchment, covering approximately 6ha. This is West Dorset Coast SSSI.

There are 4 Sites of Nature Conservation Interest covering approximately 20ha.



Map of the Lower River Brit catchment  
environmental designations

### Key

-  River
-  Catchment boundary
-  Sites of Special Scientific Interest (national)
-  Special Area of Conservation (international)
-  Sites of Nature Conservation Interest – point (local)

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## Issues & Impacts

### River condition:

The Environment Agency classify waterbodies such as River Brit into categories that reflect their overall condition. These are **High** > **Good** > **Moderate** > **Poor** > **Bad**. The Lower Brit is categorised as **Moderate**. The aim is to have waterbodies classed as Good, so the Lower Brit is currently considered to be a failing watercourse. It was classified as Good in 2013, 2014, 2015 and 2016, so has deteriorated in quality lately.

The areas that the Environment Agency monitor to come up with their classification are summarised below. There is more detail behind these categories, which is available from the Catchment Data Explorer website<sup>1</sup>.

Classification area		Condition assessment category
<b>Overall</b>		<b>Moderate</b>
<b>Ecological</b>	Biological	<b>High</b>
	Hydromorphological	Supports Good
	Physico-chemical	<b>Good</b>
	Specific pollutants	No data
<b>Chemical</b>	Priority substances	<b>Good</b>
	Other pollutants	Does not require assessment
	Priority hazardous substances	<b>Bad</b>

The specific elements that are currently failing are:

- Polybrominated diphenyl ethers (PBDE) (under priority hazardous substances on the table below)
- Perfluorooctane sulphonate (PFOs) (under priority hazardous substances on the table below)
- Mercury and its compounds (under priority hazardous substances on the table below)

Little is currently known about the impacts of the hazardous substances on wildlife, and this an area of further work for the Environment Agency.

### Local assessment:

To get a local perspective, we consulted other stakeholders about their views on the threats facing the River Brit, including Dorset Council, Wessex Water and the Environment Agency, amongst others. We did this in 2015 and updated it in 2021. The main issues are rural runoff issues, flooding, invasive species, poor conditions for wildlife and poor management of flood defences that impact wildlife

The combined areas of most concern, as identified by the Environment Agency and local stakeholders are:

1. Sediment contamination from agriculture
2. Flooding
3. The ability of the river to function naturally

<sup>1</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB108044009540>



4. The impact of invasive species, particularly Himalayan balsam



## Action

Through our engagement with organisations and individuals over the winter of 2020, several potential opportunities were highlighted for the Lower Brit catchment. These are highlighted below:

- Wessex Water are developing Drainage and Waste Water Management Plans<sup>2</sup> that set out how Wessex Water will enhance their assets and networks to ensure they continue to deliver for their customers and the environment in a sustainable and affordable way and in the face of future challenges such as population growth and climate change. Combined Sewage Overflows have discharged a number of times over the past three years but have not passed the threshold where further action would be investigated.
- Litter Free Coast & Sea<sup>3</sup> are working with agencies, businesses and local groups to engage with communities surrounding beach locations and find collaborative solutions that improve everyone's enjoyment of Dorset beaches. Currently this does not include Swanage Beach but may do in the future.
- There are funding options available to farmers to help them manage their land better for the water environment. New schemes will be starting in 2024 that will have a greater focus on managing for the water environment but up until then existing Countryside Stewardship schemes are open for new applications and extensions, along with opportunities outlined in the Agricultural Transition Plan<sup>4</sup>. Of particular interest / relevance are:
  - Farming in Protected Landscapes: a grant programme to help farmers deliver projects that benefit, nature, climate, people and place. It runs until March 2024<sup>5</sup>.
  - Catchment Sensitive Farming<sup>6</sup>
- Woodland planting areas have also been prioritised by Bridport Town Council for several reasons, including reducing flood risk. Their Tree Plan is available to view online<sup>7</sup>

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<sup>2</sup> <https://wessexwater.maps.arcgis.com/apps/MapSeries/index.html?appid=e371301c24ca4228b36db3a3a6ba8560>

<sup>3</sup> <https://www.litterfreecoastandsea.co.uk/current-projects-and-campaigns/beach-profiles/>

<sup>4</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/954283/agricultural-transition-plan.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/954283/agricultural-transition-plan.pdf)

<sup>5</sup> <https://www.dorsetaonb.org.uk/resource/farming-in-protected-landscapes/>

<sup>6</sup> <https://www.gov.uk/guidance/catchment-sensitive-farming-reduce-agricultural-water-pollution>

<sup>7</sup> <https://www.bridport-tc.gov.uk/bridport-area-tree-plan/>