

River Axe Special Area of Conservation

Evidence Pack

First published August 2022, revised June 2024

Natural England Technical Information Note TIN193

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Further information

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Contents

Site Details.....5

1. Reasons for European Site Designation5

2. Nutrient Pressure and Water Quality Evidence5

3. Additional Information.....7

Appendix.....8

List of abbreviations10

1. Site Details

River Axe Special Area of Conservation

The mixed catchment geology of sandstones and limestones gives rise to calcareous waters where stream water-crowfoot *Ranunculus penicillatus* ssp. *pseudofluitans* dominates, giving way to river water-crowfoot *R. fluitans* further downstream. Short-leaved water-starwort *Callitriche truncata* is an unusual addition to the water-crowfoot community.

The diverse flora results from a number of contributing factors. Firstly, the lower reaches of the Axe have high bed stability. Secondly, the river has few trees along its banks, allowing much light to reach the riverbed. Finally, the active geomorphology of the river has generated a range of natural features (including long riffles, deep pools, islands and meanders), which provide a variety of ecological niches.

This variety of river channel habitats also supports an important fish community, including Atlantic salmon *Salmo salar*, sea lamprey *Petromyzon marinus*, brook lamprey *Lampetra planeri* and bullhead *Cottus gobio*.

2. Reasons for European Site Designation

The River Axe Special Area of Conservation (SAC) is designated for the following features:

- H3260 Water courses of plain to montane levels with *R. fluitantis*
- S1095 Sea lamprey, *Petromyzon marinus*
- S1096 Brook lamprey, *Lampetra planeri*
- S1163 Bullhead, *Cottus gobio*

Links to Conservation Advice:

- [Conservation Objectives](#)
- [Conservation Objectives Supplementary Advice](#)

3. Nutrient Pressure and Water Quality Evidence

Nutrient Pressure(s) for which the site is unfavourable:

- Phosphorus

The Conservation Objectives for the River Axe SAC state that **‘the natural nutrient regime of the river should be protected, with any anthropogenic enrichment above**

natural/background concentrations should be limited to levels at which adverse effects on characteristic biodiversity are unlikely’.

The maximum phosphorus concentration is set at 50ug/l.

Water Quality data is reported against the relevant Site of Special Scientific Interest (SSSI) units within the SAC.

Table 1 – Site attributes with targets for water quality

Unit Name	SSSI Unit	Monitoring Point ID	WQ Target	WQ Monitoring Data ¹	Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target
			Soluble Reactive Phosphorus (µg/l), annual mean	Orthophosphate reactive as P (µg/l) mean	
Dorset Section	1	River Axe at Broom SW – 70230122*	50	120.3 (June 2019-Jan 2022)*	FAIL 58% reduction needed
Devon Border to Yarty Confluence	2	River Axe at Bow Bridge SW - 70230103	50	105.5 (Feb 2019 -Jan 2022)	FAIL 49% reduction needed
River Yarty confluence to Axe bridge	3	River Axe At Slymlake - SW- 70220164	50	110.3 (Feb 2017 – Feb 2020)	FAIL 53% reduction
		River Axe At Whitford Bridge SW- 70220159	50	108.5 (Jan 2019 – Dec2021)	FAIL 54% reduction
		River Axe U/S		97.9 (Feb 2019	FAIL 49% reduction

¹ Water Quality Monitoring data from EA WIMS database. Nutrient concentrations reported are the annual mean for Total Phosphorus (TP) and Total Nitrogen (TN)

		Colyton Stw - SW- 70220119	50	– Jan 2022)	
*The monitoring point used for Unit 1 is located outside of the SAC boundary, slightly upstream.					

The occurrence of excessive nutrients in the waterbody can impact on the competitive interactions between high plant species and between higher plant species and algae, which can result in a dominance in attached forms of algae, and a loss of characteristic plant species. Changes in plant growth and community composition can have implications for the wider food web, and the species present. Increased nutrients and the occurrence of eutrophication can also impact on the dissolved oxygen levels in the waterbody, also impacting on biota within the river.

Recent water quality measurements for the River Axe within the SAC show phosphorus concentrations to be exceeding the targets for all units. Any nutrients entering the catchment upstream of the locations which are exceeding their nutrient targets, will make their way downstream and have the potential to further add to the current exceedance. Hence the catchment map for the River Axe includes the entire catchment upstream.

4. Additional Information

Habitat type affected by nutrients - Riverine

The SAC is legally underpinned by River Axe SSSI.

SSSI features of interest include:

- Bullhead, *Cottus gobio*
- IA - Fluvial Geomorphology
- Invert. assemblage W114 stream & river margin
- Invert. assemblage W122 riparian sand
- Otter, *Lutra lutra*
- Population of Schedule 5 leech - *Hirudo medicinalis*, Medicinal Leech
- River supporting habitat
- Rivers and Streams

Appendix

Component SSSIs

Map of component SSSIs of River Axe SAC

Catchment Area Update (2024)

Natural England has undertaken a review of all the Nutrient Neutrality catchment areas. This review has considered updated surface water catchment data and evidence held by both Natural England and the Environment Agency. Consideration has also been given to data and evidence provided by other parties such as Local Planning Authorities. The information below summarises changes.

This catchment remains unchanged following review.

Publishing of catchment area data

The Geographic Information Systems (GIS) data is available on [Defra Data Services Platform](#).



Area where Natural England's Nutrient Neutrality advice applies for River Axe SAC

European protected sites requiring nutrient neutrality strategic solutions

- ▬ Local Authorities
- ▬ Component SSSIs of impacted designated site
- ▬ Surface water catchment area of relevant designated site due to nutrient pollution

Produced by Nutrient Mitigation Scheme Team

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List of abbreviations

SAC – Special Area for Conservation

SSSI – Site of Special Scientific Interest

WQ – Water Quality

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