Designated Site Name:	River Wensum SAC

Site Details:

From the River Wensum SAC citation:

The Wensum is a naturally enriched, calcareous lowland river. The upper reaches are fed by springs that rise from the chalk and by run-off from calcareous soils rich in plant nutrients. This gives rise to beds of submerged and emergent vegetation characteristic of a chalk stream. Lower down, the chalk is overlain with boulder clay and river gravels, resulting in aquatic plant communities more typical of a slow-flowing river on mixed substrate.

Much of the adjacent land is managed for hay crops and by grazing, and the resulting mosaic of meadow and marsh habitats, provides niches for a wide variety of specialised plants and animals. *Ranunculus* vegetation occurs throughout much of the river's length.

Stream water-crowfoot *R. penicillatus* ssp. *pseudofluitans* is the dominant *Ranunculus* species but thread-leaved *watercrowfoot R. trichophyllus* and fan-leaved water-crowfoot *R. circinatus* also occur in association with the wide range of aquatic and emergent species that contribute to this vegetation type.

The river should support an abundant and rich invertebrate fauna including the native freshwater crayfish *Austropotamobius pallipes* as well as a diverse fish community, including bullhead *Cottus gobio* and brook lamprey *Lampetra planeri*. The site has an abundant and diverse mollusc fauna which includes Desmoulin's whorl-snail *Vertigo moulinsiana*, which is associated with aquatic vegetation at the river edge and adjacent fens.

Reason for European Site Designation:

The River Wensum Special Area for Conservation is designated for the following features:

- H3260 Water courses of plain to montane levels with *R. fluitantis*
- S1016 Desmoulin's whorl snail, *Vertigo moulinsiana*
- S1092 Freshwater crayfish, *Austropotamobius pallipes*
- S1096 Brook lamprey, *Lampetra planeri*
- S1163 Bullhead, *Cottus gobio*

Links to Conservation Advice:
Conservation Objectives
Conservation Objectives Supplementary Advice

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

Phosphorus

Water Quality Evidence:

In the Conservation Objectives Supplementary Advice for the River Wensum SAC it states 'restore the natural nutrient regime of the river, with any anthropogenic enrichment above natural/background concentrations limited to levels at which adverse effects on characteristic biodiversity are unlikely'

Water Quality data is reported against the respective SSSI units within the SAC. The data reported here are from the same monitoring points as those used in the River Wensum Diffuse Water Pollution Plan.

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 (ug/l), annual mean	Orthophosphate, reactive as P (ug/l), mean	Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target
Wensum Above Confluence with Tat	45	R.Wensum Helhoughton Bridge An-Wen020	20	39.3 (Feb 2019 – Jan 2022)	FAIL 49% reduction needed
Tat Above Confluence with Wensum	46	R.Tat Tatterford Common (R.Wensum) An-Wen010	20	80.9 (Feb 2019 – Jan 2022)	FAIL 75% reduction needed
Confluence - Fakenham Mill	47	R.Wensum Sculthorpe Mill An-Wen040	30	45.2 (Feb 2019 – Jan 2022)	FAIL 34% reduction needed
		R. Wensum Goggs Mill Rd. Br. Hempton An-Wen045	30	46.1 (Jan 2019 – Dec 2021)	FAIL 35% reduction needed
Fakenham Mill - Great Ryburgh Mill	48	R.Wensum Great Ryburgh Bridge An-Wen070	30	59 (Oct 2011 – Sept 2014)	FAIL – older data 49% reduction needed
Great Ryburgh Mill - Bintree Mill	49	No Monitoring Point	30	-	Unknown
Bintree Mill - North Elmham Mill	50	R.Wensum County School Bridge An-Wen102	30	71.6 (May 2019 – Dec 2021)	58% reduction needed
North Elmham Mill - Elsing Mill	51	R.Wensum Swanton Morley Bridge An-Wen180	30	57.6 (Feb 2019 – Jan 2022)	FAIL 48% reduction needed
Elsing Mill - Lenwade Mill	52	R. Wensum Lyng Road Bridge An-Wen1905	30	64.9 (Jan 2019 – Dec 2021)	FAIL 54% reduction needed
Lenwade Mill - Taverham Mill	53	R.Wensum Great Witchingham Bridge An-Wen200	30	59.7 (Feb 2019 – Jan 2022)	FAIL 50% reduction needed
Taverham Mill - Hellesdon Mill	54	R.Wensum Taverham Bridge An-Wen235	30	63.8 April 2017 – March 2020)	FAIL 53% reduction needed

Langor Drain Above Conf. with Wensum	55	Kettlestone Str. Langer Br. (R. Wensum) An-Wen060	30	75 (Aug 2014 – Jul 2017)	FAIL 60% reduction needed

[1]Water Quality Monitoring data from EA WIMS database, the date range is in brackets. Any sample results below the level of detection (LOD) were taken at face values in the calculation of the mean. Following the rivers common standards monitoring guidance the mean of 3 years of data used where available.
The condition of the waterbody and the habitats which support the designated features is in part dependent on the water quality within them.

The occurrence of elevated 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 loss of characteristic plant species. Changes in plant growth and community composition and structure 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 and substrate condition, also impacting on biota within the river.

Recent water quality measurements for the River Wensum within the SAC show phosphorus concentrations to be exceeding the targets for all unit where there is monitoring data. 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. Therefore, for the River Wensum, the whole upstream catchment is included within the catchment map.

Additional Information:

Habitat type impacted by nutrients - Riverine

The Special Area for Conservation is legally underpinned by the River Wensum SSSI

SSSI interest features include:

- River supporting habitat
- Rivers and Streams