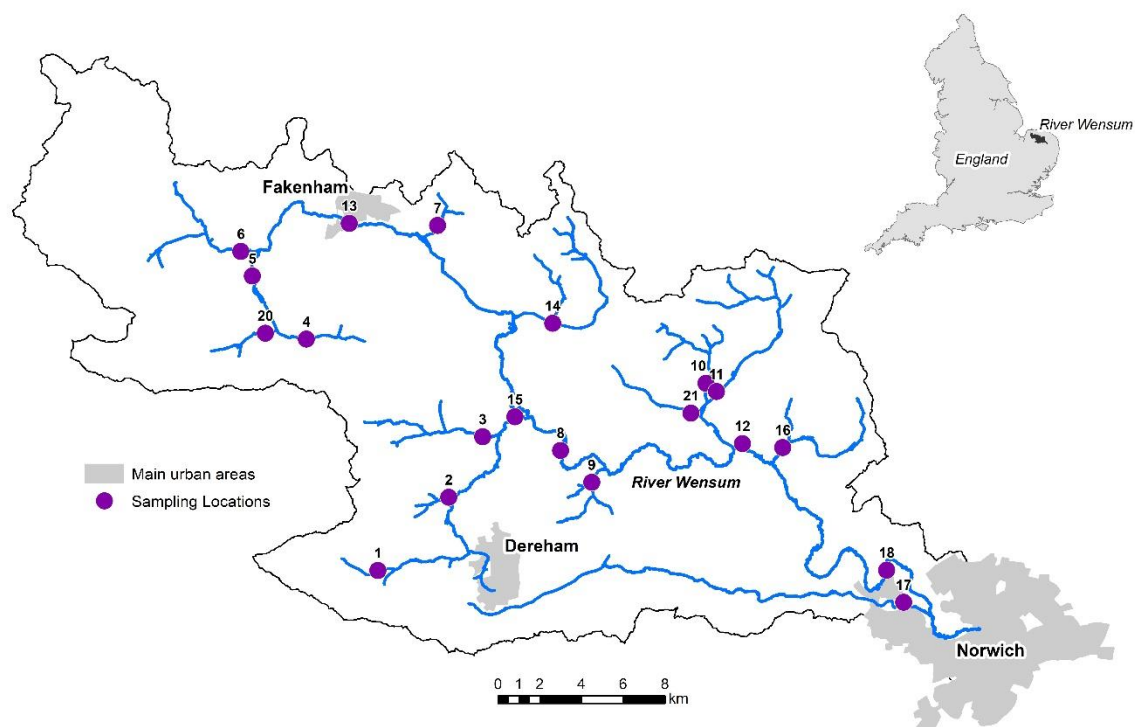


## Dataset Title: River Wensum Water Quality Data (2010 – 2016)

### Methodology:

#### 1. Sample Collection

River water samples were collected from 17 tributary outlets and three main river sites across the catchment at approximately monthly intervals between October 2010 and September 2016, with 899 water samples collected in total during the field campaign (**Figure 1**). River water was manually grab sampled from the centre of the channel in 1 L acid pre-washed polypropylene bottles. All samples were transported in cool boxes and returned to cold storage (4°C) within 5 h to minimise biological degradation.



**Figure 1:** River Wensum catchment, UK, showing the locations of the 20 river water sampling sites

#### 2. Laboratory Analysis

All water samples were analysed within five days of collection by the UEA Science Analytical Facilities ([www.uea.ac.uk/about/faculties-and-schools/faculty-of-science/facilities](http://www.uea.ac.uk/about/faculties-and-schools/faculty-of-science/facilities)) to determine concentrations of nutrients, carbon, major ions and total suspended solids (TSS). To ensure data quality, instrument accuracy and limits of detection were tested every batch via certified reference materials, whilst instrument precision was tested via repeat measurements (**Tables 1 & 2**). Any analysis runs which fell outside acceptable tolerances for accuracy and precision were reanalysed after recalibration of the instrument. All data were checked manually for errors prior to acceptance.

### 3. The Dataset

**Table 1:** Metadata for the River Wensum Water Quality Dataset

Variable	Units	Analytical instrument*	Long-term precision (±)	Long-term accuracy (absolute)	Limit of detection
Latitude	Decimal degrees	N/A	N/A	N/A	N/A
Longitude	Decimal degrees	N/A	N/A	N/A	N/A
Date/Time	yyyy/mm/dd:hh:mm	N/A	N/A	N/A	N/A
pH	NA	1	N/A	N/A	N/A
Electrical conductivity	µS/cm	1	13	1	N/A
Ca	mg/L	2	0.80	0.84	0.36
Mg	mg/L	2	0.44	0.75	0.02
Na	mg/L	2	0.24	2.49	0.07
K	mg/L	2	0.12	0.95	0.06
SO <sub>4</sub> <sup>2-</sup>	mg/L	3	0.22	0.13	0.01
Cl <sup>-</sup>	mg/L	3	0.49	0.54	0.01
Total alkalinity (CaCO <sub>3</sub> )	mg CaCO <sub>3</sub> /L	1	6	10	N/A
HCO <sub>3</sub> <sup>-</sup>	mg/L	1	N/A	N/A	N/A
CO <sub>3</sub> <sup>2-</sup>	mg/L	1	N/A	N/A	N/A
Si	µg/L	4	42	54	2
B	µg/L	2	N/A	N/A	39
Al	µg/L	2	N/A	N/A	8
Fe	µg/L	2	N/A	N/A	15
Mn	µg/L	2	N/A	N/A	2
NO <sub>3</sub> <sup>-</sup>	mg N/L	3	0.19	-0.24	0.01
NO <sub>2</sub> <sup>-</sup>	µg N/L	4	1.5	-0.30	1.0
NH <sub>4</sub> <sup>+</sup>	µg N/L	4	5.0	5	6
Total nitrogen (TN)	mg N/L	5	0.20	N/A	0.07
Total particulate nitrogen (TPN)	mg N/L	Calculated	0.28	N/A	N/A
Total dissolved nitrogen (TDN)	mg N/L	5	0.20	-0.21	0.07
Dissolved organic nitrogen (DON)	mg N/L	Calculated	0.28	N/A	N/A
Total phosphorus (TP)	µg P/L	4	3	-1	1
Total particulate phosphorus (TPP)	µg P/L	Calculated	3	N/A	N/A
Total dissolved phosphorus (TDP)	µg P/L	4	2	-1	2
Total reactive phosphorus (TRP)	µg P/L	4	11	N/A	1
PO <sub>4</sub> <sup>3-</sup>	µg P/L	4	2	-1	4
Total Carbon (TC)	mg/L	5	1.38	-1.70	0.16
Total organic carbon (TOC)	mg/L	5	N/A	N/A	N/A

Non-purgeable organic carbon (NPOC)	mg/L	5	0.49	N/A	0.08
Total suspended solids (TSS)	mg/L	Filtration	N/A	N/A	0.01
Sum of Cations	meq	Calculated	N/A	N/A	N/A
Sum of anions	meq	Calculated	N/A	N/A	N/A
Ion balance error	%	Calculated	N/A	N/A	N/A

**Table 2:** Analytical instruments used to by the UEA Science Analytical Facilities to generate the River Wensum water quality dataset.

*Analytical Instrument	Manufacturer	Model
1	Metrohm	855 robotic titro sampler
2	Agilent	ICP-OES Vista pro
3	Dionex	ICS2000 Ion Chromatography
4	Skalar	San ++ Autoanalyser
5	Skalar	Formacs CA15 TOC TN analyser