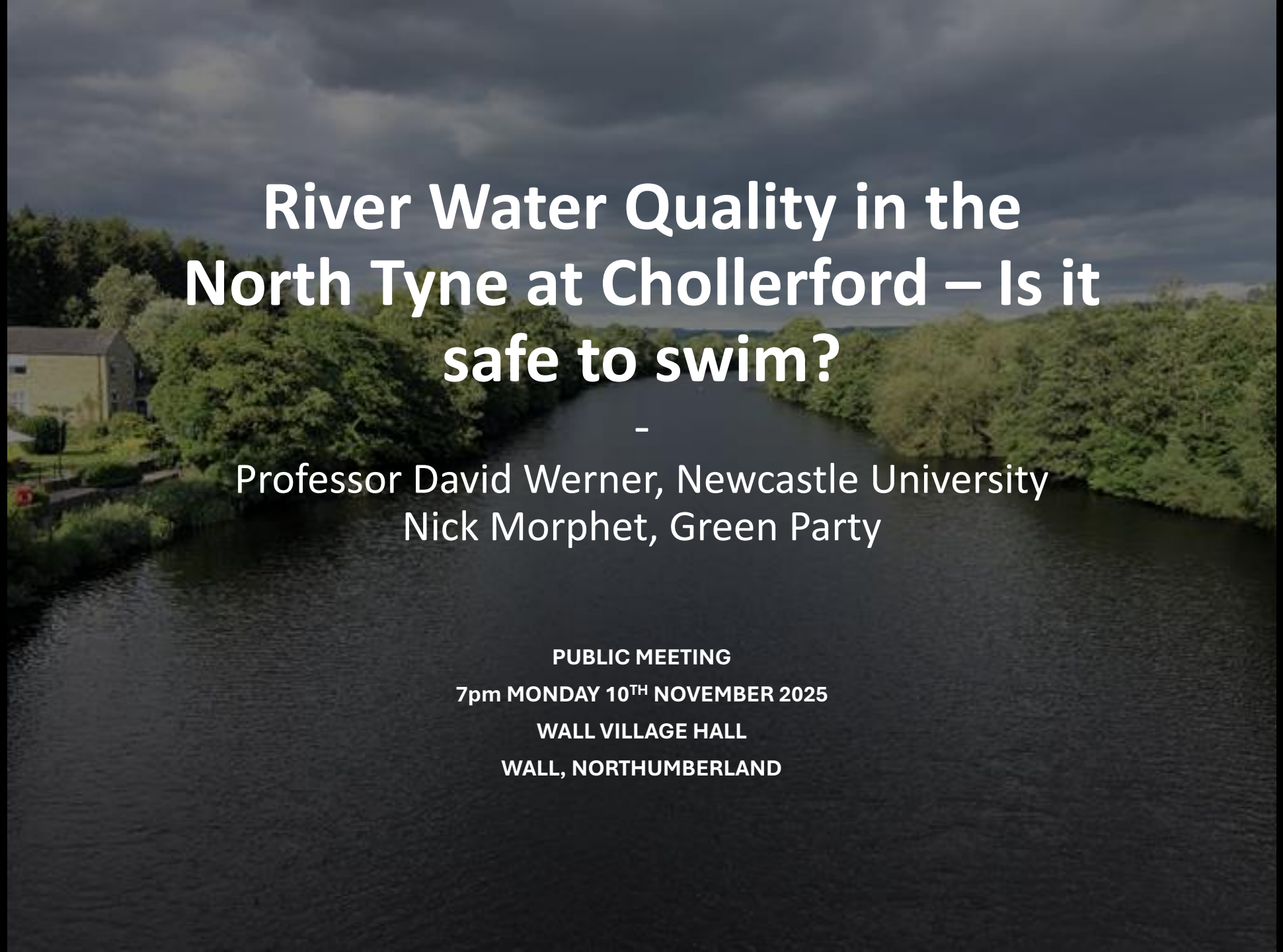


River Water Quality in the North Tyne at Chollerford – Is it safe to swim?

-

Professor David Werner, Newcastle University
Nick Morphet, Green Party

PUBLIC MEETING

7pm MONDAY 10TH NOVEMBER 2025

WALL VILLAGE HALL

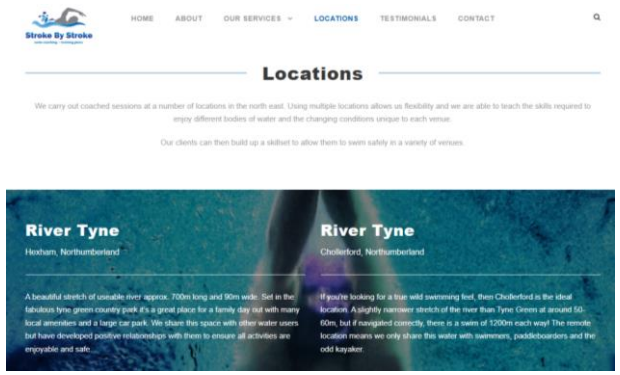
WALL, NORTHUMBERLAND

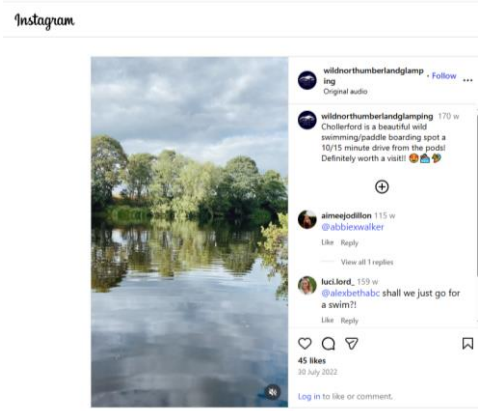
Open Water Safety – RNLI Guidance

- https://rnli.org/safety/choose-your-activity/open-water-swimming#

- Make sure you're prepared for your open water swim. Check the weather and tides, choose your spot, go with a buddy, have the right equipment.
- If in doubt, don't go out. No matter how much preparation you do, or how experienced you are, if a swim doesn't feel right there is no shame in getting out of the water straight away or not entering.
- Make sure you acclimatise to avoid cold water shock.
- Be seen. Wear a bright coloured swim hat and take a tow float.
- Stay within your depths.
- Float to live.
- Call 999 or 112 and ask for the coastguard in an emergency.

Wild Swimming and Water Sports at Chollerford





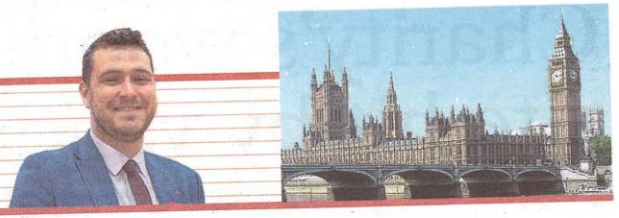
Chollerford (River Tyne)

Chollerford is a village in Northumberland, around 4 miles north of Hexham. There is a section of the River Tyne there well suited for open water swimming. During the lockdown, we heard a lot of swimming clubs were travelling to use this ideal spot.

Directions to Chollerford

For more information, and a look at the scenery, check out this informative blog from tynetri.org

Local Interest



Joe Morris

Talking Politics EVERY THURSDAY

Protecting the Tyne is priority

RECENTLY, I met with Emma Hardy, the minister for water and flooding, to discuss the challenges of improving the state of the River Tyne. We spoke at length about the important work being done by the Clean Tyne Group, which is committed to protecting and restoring our River Tyne.

Local organisations like these play a vital role in keeping our rivers clean, monitoring environmental conditions and campaigning for positive change. I have been incredibly pleased to work with Clean Tyne Group on raising awareness around the state of our waterways and it is essential that the government continues to support groups like this in their invaluable work.

Our River Tyne and its natural surroundings are among the greatest assets of this area. They are what make our county so special and what draw visitors in from all over the country. Protecting and preserving them for future generations must remain a priority for us all.

Last week, the Government launched a consultation to expand and strengthen the range of financial penalties available to the Environment Agency in order to clamp down more quickly on environmental offences.

This consultation builds on the actions we have already taken across the water sector, including blocking unfair bonuses for executives of polluting water companies, and form part of wider, long-term reforms to protect our natural environment.

One of the things that truly makes our county special is the way our community comes together at key moments throughout the year. Events like Hexham Spook Night are great examples of this. Last weekend, families lined the streets in their costumes for an evening of spooky fun, bringing our market town to life.

Unfortunately, ongoing work by Northumberland County Council on the Shambles in the town centre, which has repeatedly been delayed, meant that the usual plans for Spook Night were disrupted.

I was disappointed that the council did not show greater foresight or appreciation for events that matter so much to the people of Hexham in order to get this work completed in time. The work continues to have an effect on the passing trade of businesses at that end of Market Square, as such I hope to see the Shambles restored as soon as possible so that our marketplace can return to being a star attraction and local retailers can return to usual business.

Surgery appointments continue to be one of the most important parts of my work as your local MP. They provide an opportunity for constituents to raise issues with me in confidence and for my casework team and I to intervene and help where we can.

These conversations also inform the work I do both locally and nationally, ensuring that the concerns of our area are represented in Parliament and that we receive our fair share of government funding. I am here to listen, to understand and to act in the best interests of everyone across our constituency.

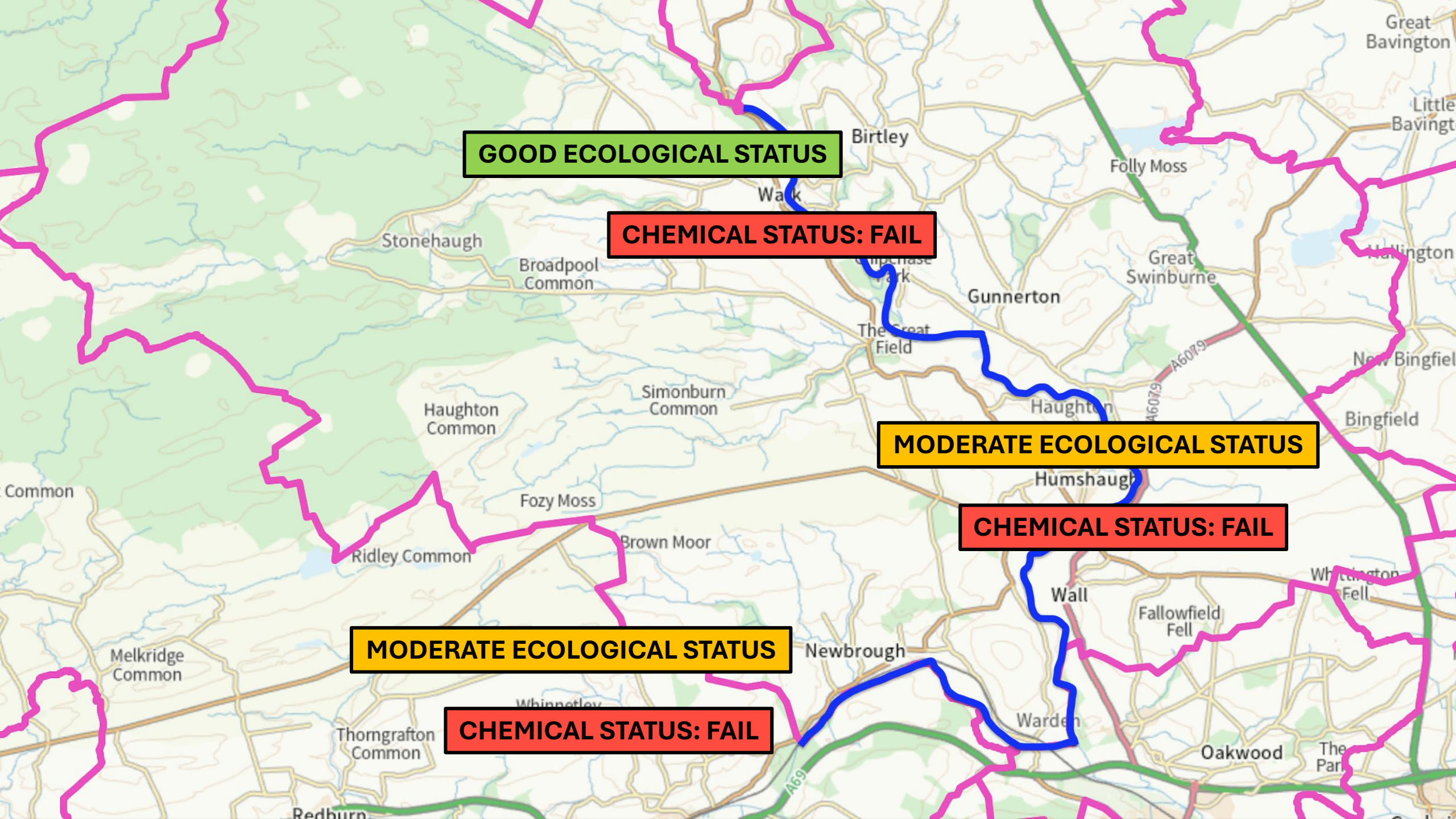
My upcoming surgeries will take place in Newton on Friday, November 14 from 2.30pm to 4.30pm and in Newburn on Friday, November 21 from 10am to 12pm. To book an appointment, please email joe.morris.mp@parliament.uk. Exact address details will be provided to those with appointments 72 hours before the surgery.

As always, if you are in need of assistance, please do not hesitate to get in touch. You can contact me by emailing joe.morris.mp@parliament.uk, calling 01434 614720 or writing to me at the Office of Joe Morris MP, Queen's Hall, Beaumont Street, Hexham, NE46 3LS.

Hexham MP Joe Morris

SEWAGE SPILLS ON THE RIVERS OF THE HUMSHAUGH WARD

NOVEMBER 2025


GOOD ECOLOGICAL STATUS
CHEMICAL STATUS: FAIL
MODERATE ECOLOGICAL STATUS
CHEMICAL STATUS: FAIL
MODERATE ECOLOGICAL STATUS
CHEMICAL STATUS: FAIL
Great Bavington
Little Bavington
Birtley
Folly Moss
Stonehaugh
Broadpool Common
Gunnerton
Great Swinburne
Simonburn Common
Haughton Common
Bingfield
Humshaugh
Fozy Moss
Brown Moor
Ridley Common
Wall
Fallowfield Fell
Melkridge Common
Newbrough
Thorngrafton Common
Warden
Oakwood
A69
A6079

Sewage spills by water firms have risen 29-fold over the last five years

Senior water executive says it is up to the public to decide whether or not to swim where sewage has recently been released

By Camilla Turner, CHIEF POLITICAL CORRESPONDENT
18 August 2022 • 7:50pm

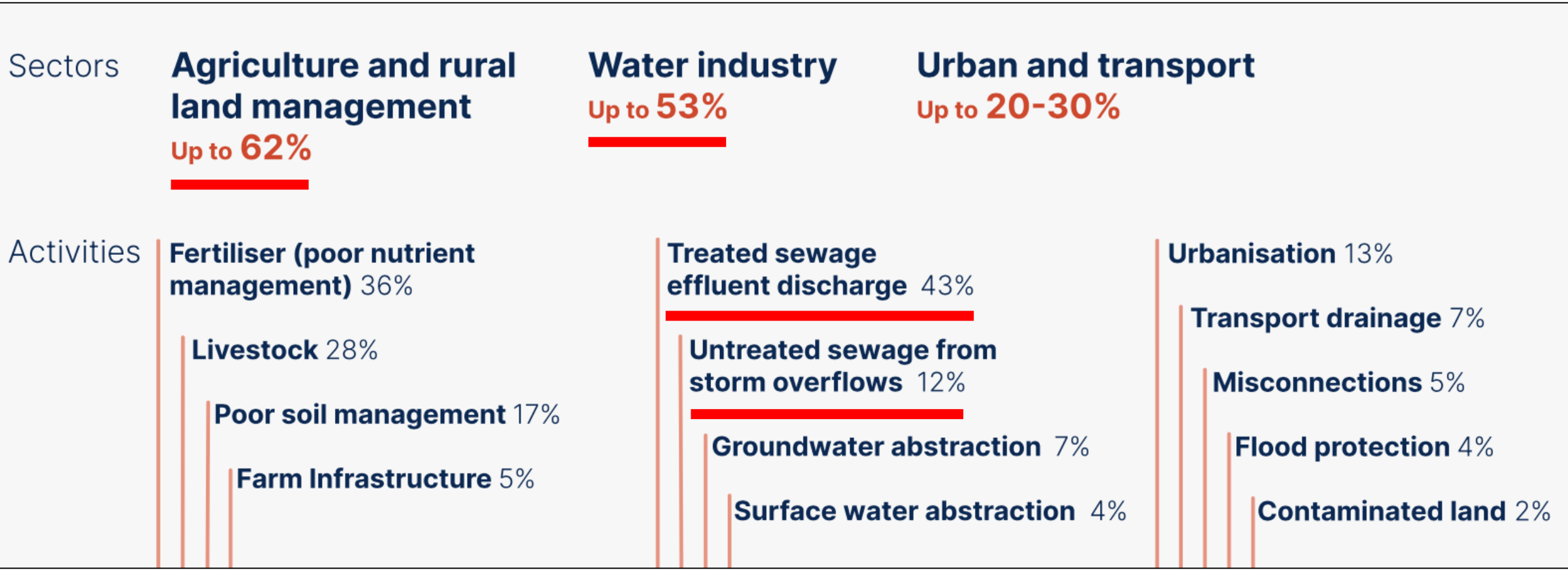
Raw sewage was reportedly discharged off the coast in Seaford on Wednesday following heavy rain | CREDIT: D

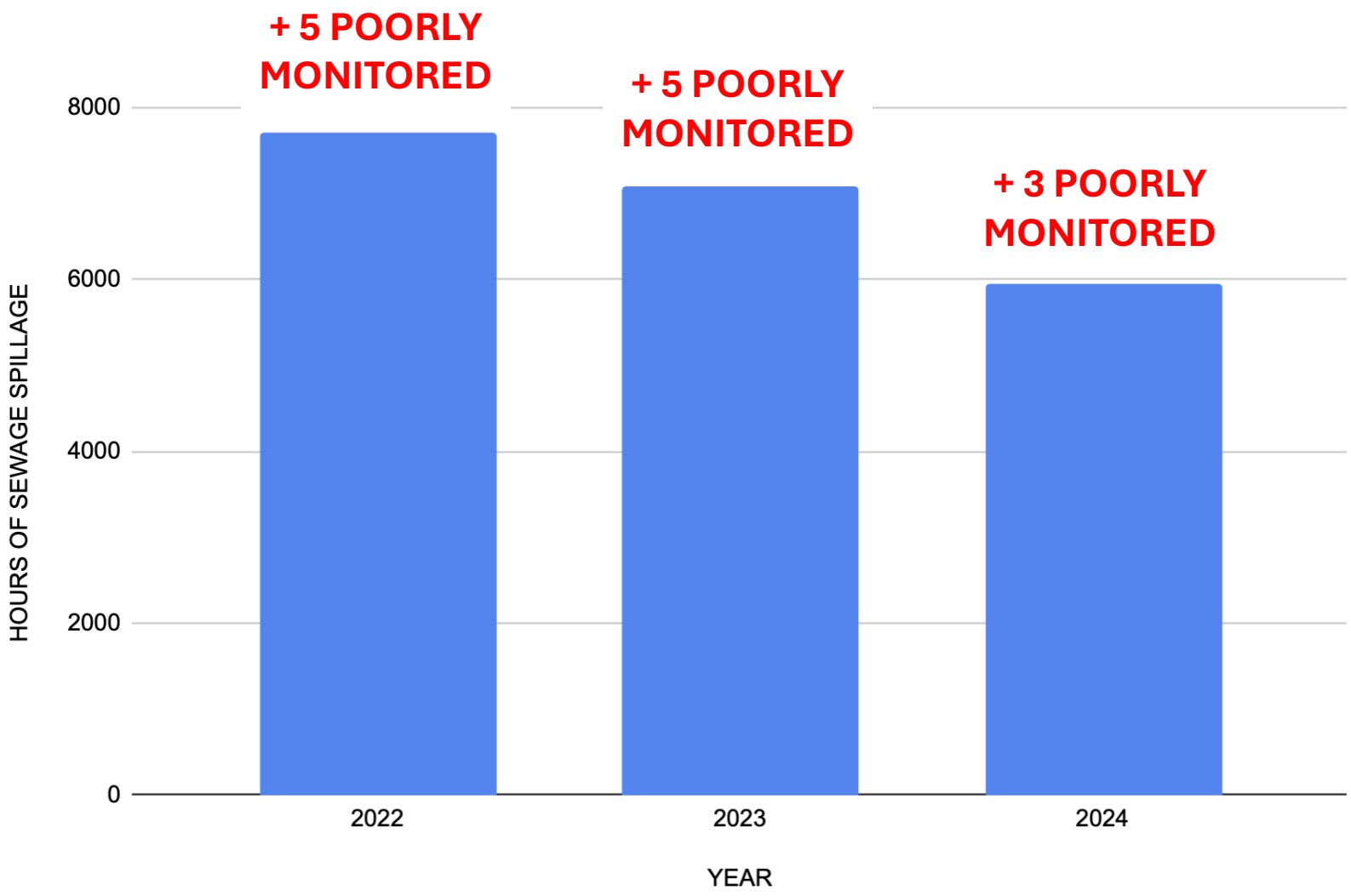
Map shows where sewage has been pumped into rivers and canals near you

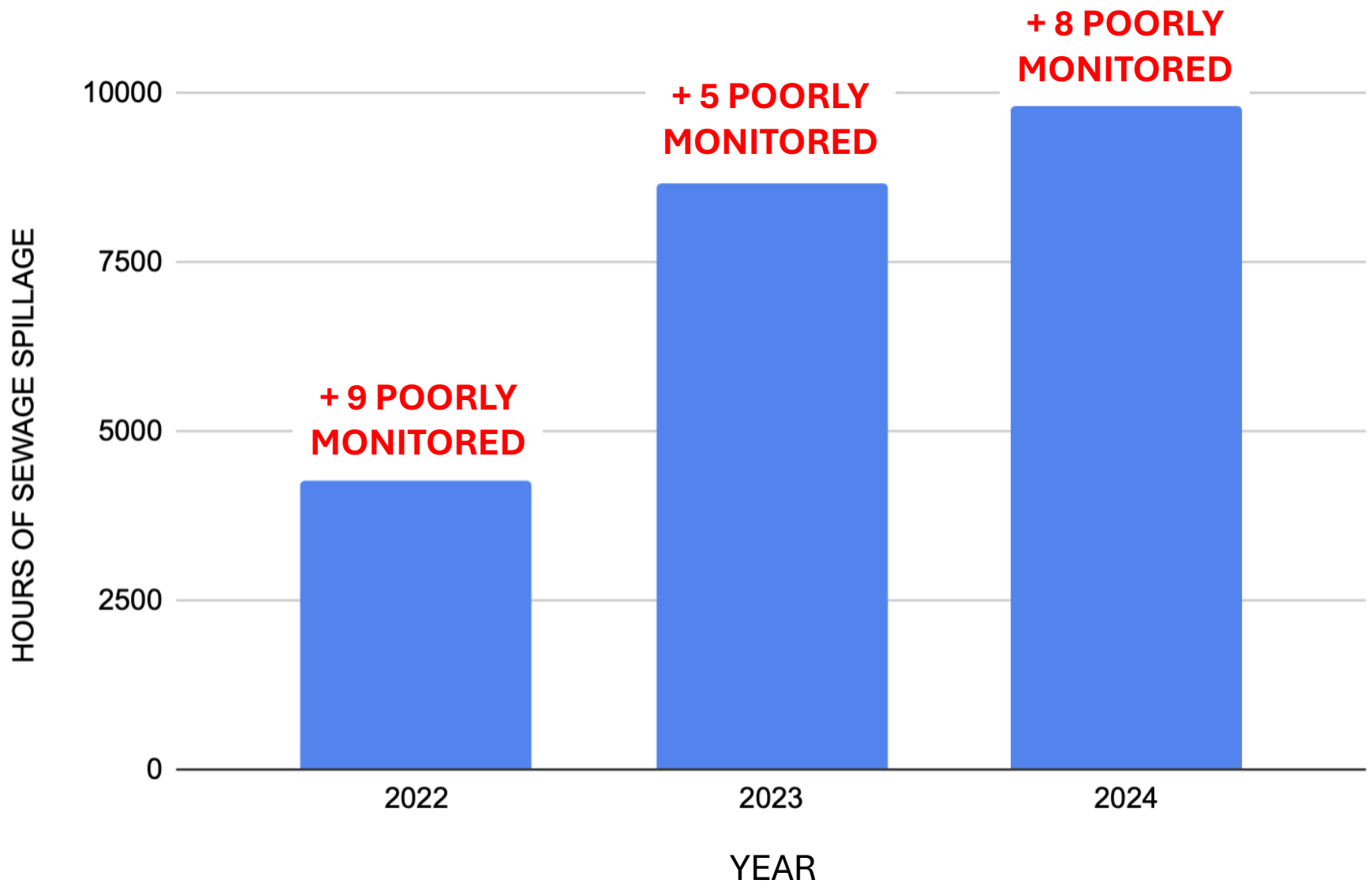
There were 29,416 sewage spills in the North East last year for a combined total of 105,304 hours

Comments 8

By **Daniel Hall** Rural Tourism Reporter and **David Dubas-Fisher-NEC**
06:00, 03 Jul 2023


Sectors
Agriculture and rural land management
Up to 62%
Water industry
Up to 53%
Urban and transport
Up to 20-30%
Activities
Fertiliser (poor nutrient management) 36%
Livestock 28%
Poor soil management 17%
Farm Infrastructure 5%
Treated sewage effluent discharge 43%
Untreated sewage from storm overflows 12%
Groundwater abstraction 7%
Surface water abstraction 4%
Urbanisation 13%
Transport drainage 7%
Misconnections 5%
Flood protection 4%
Contaminated land 2%


+ 5 POORLY MONITORED
+ 5 POORLY MONITORED
+ 3 POORLY MONITORED
8000
6000
4000
2000
0
HOURS OF SEWAGE SPILLAGE
2022
2023
2024
YEAR

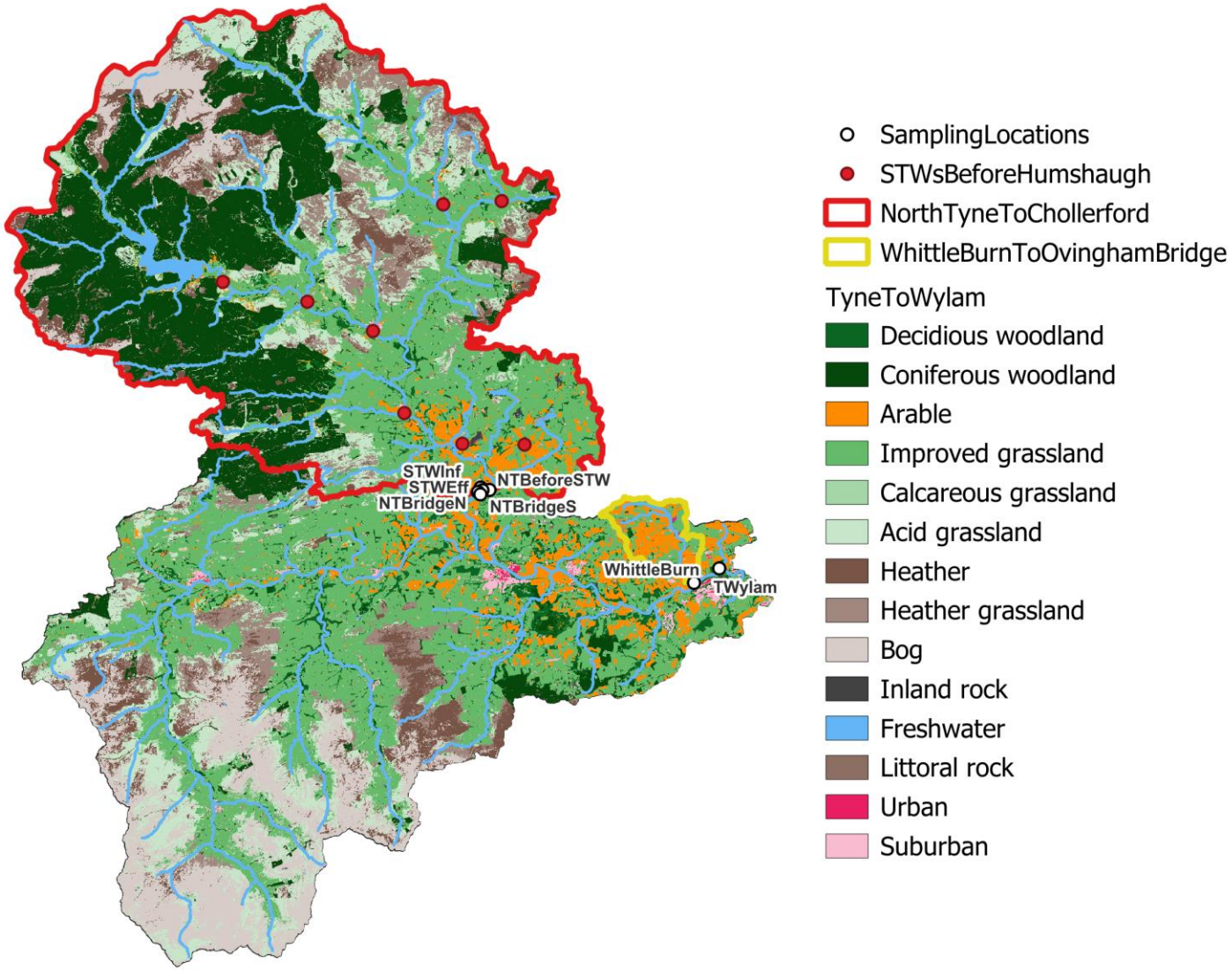

+ 9 POORLY MONITORED
+ 5 POORLY MONITORED
+ 8 POORLY MONITORED
10000
7500
5000
2500
0
HOURS OF SEWAGE SPILLAGE
2022
2023
2024
YEAR

River water quality in the North Tyne at Chollerford – Is it safe to swim?

10/11/2025

Prof David Werner
Newcastle University

Land cover in the catchments

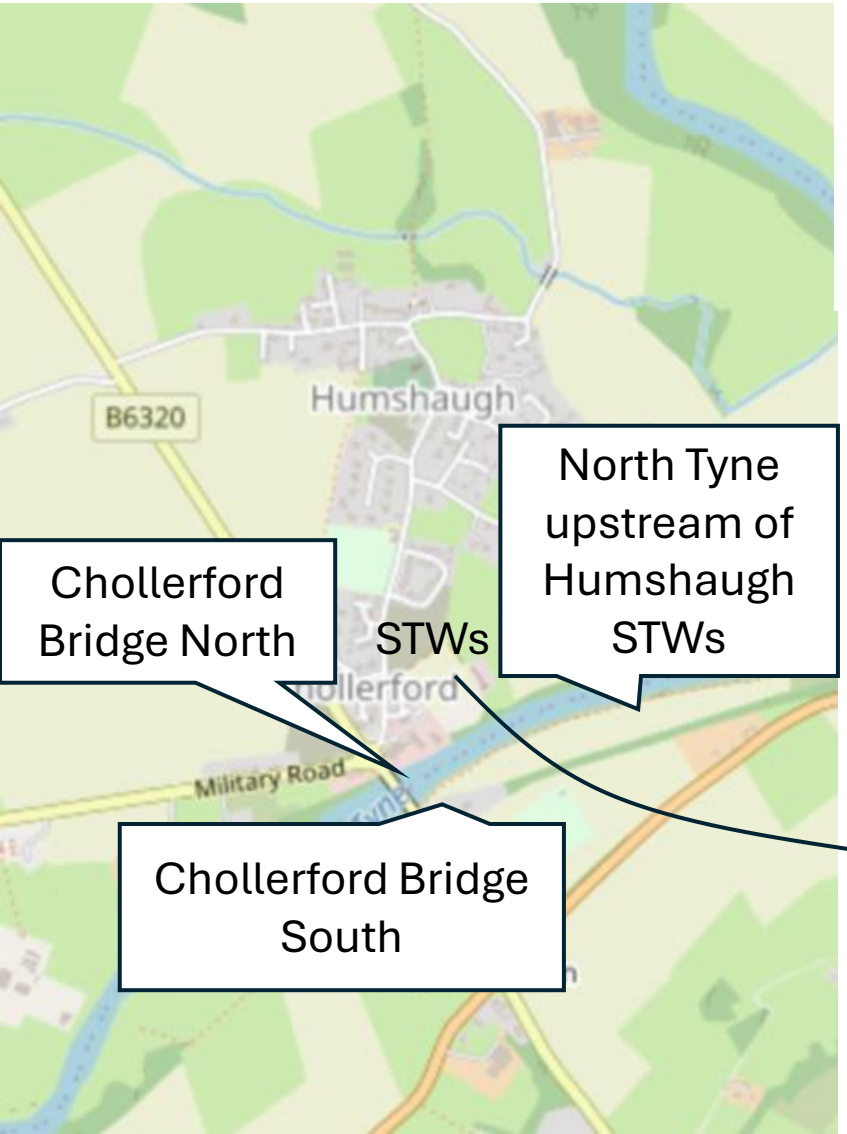


North Tyne to Chollerford:
36% woodland, 39% grassland, 3.5% arable, **19% moorland**, 0.6% residential

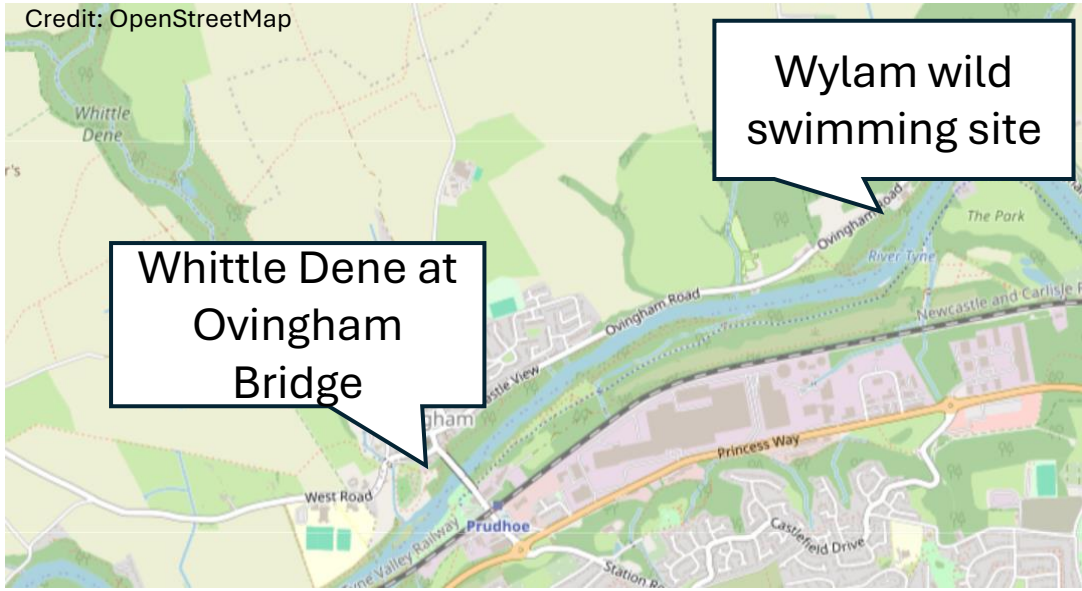
Whittle Burn to Ovingham bridge:
6.4% woodland, 39% grassland, **50% arable**, 1% moorland, 2.5% residential

Tyne to Wylam:
23% woodland, 46% grassland, 5.5% arable, **23% moorland**, 1.5% residential

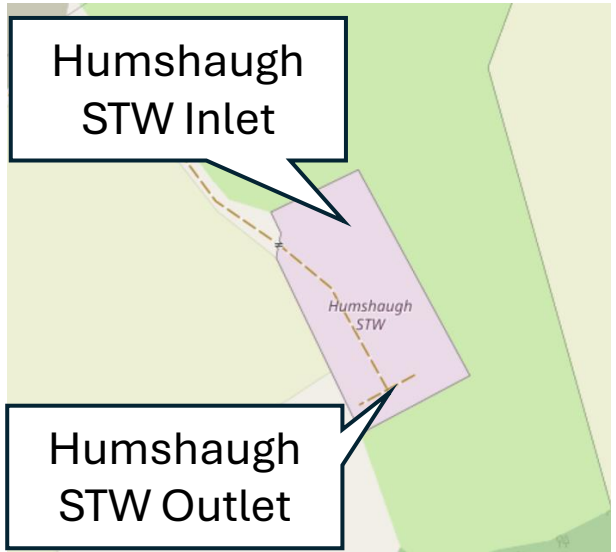
Sampling sites and dates



Dates:
30/05/2024
10/07/2024
25/06/2025
24/07/2025

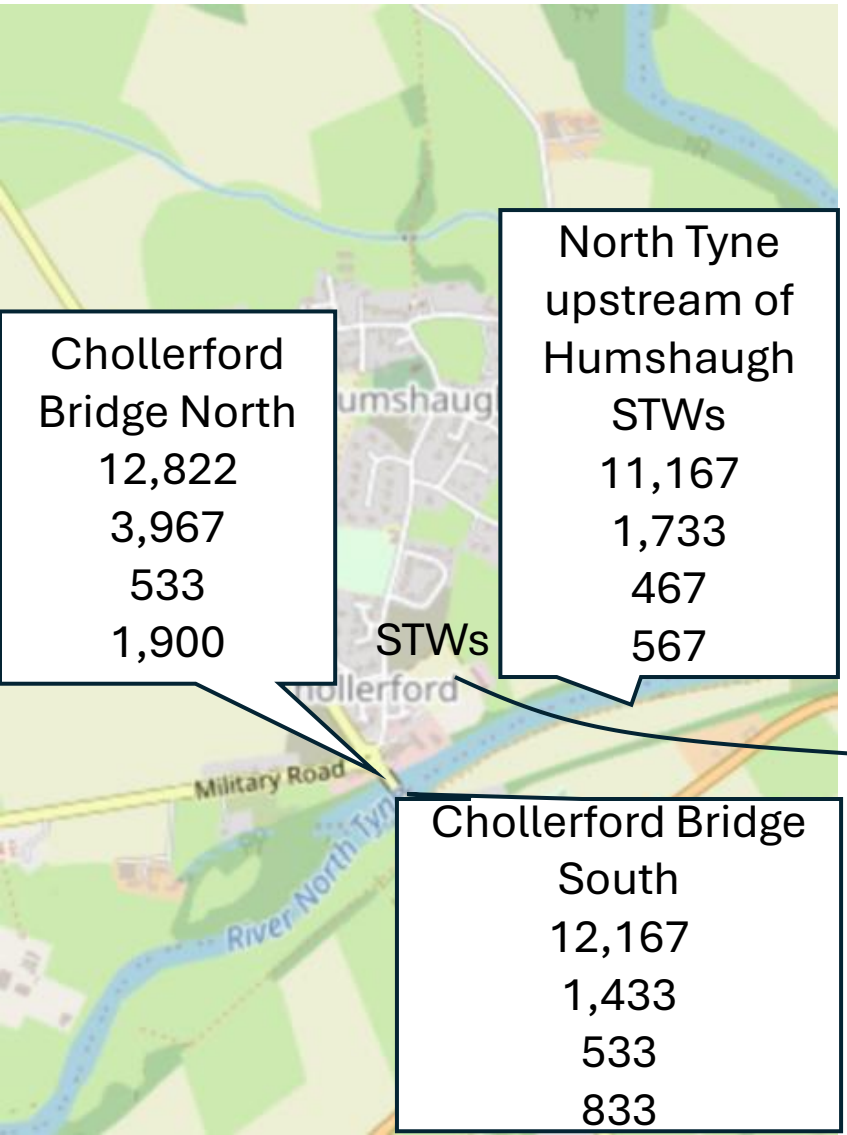


Dates:
30/05/2024
05/06/2024
26/06/2024
10/07/2024
25/06/2025
24/07/2025



Dates:
25/06/2025
24/07/2025

Average *E coli* per 100 mL (from triplicates)



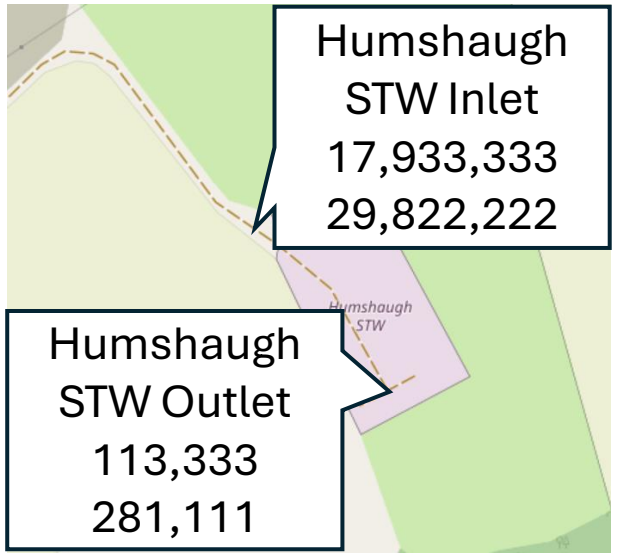
Dates:
30/05/2024
10/07/2024
25/06/2025
24/07/2025

Chollerford Bridge North
12,822
3,967
533
1,900

North Tyne upstream of Humshaugh STWs
11,167
1,733
467
567

STWs

Chollerford Bridge South
12,167
1,433
533
833

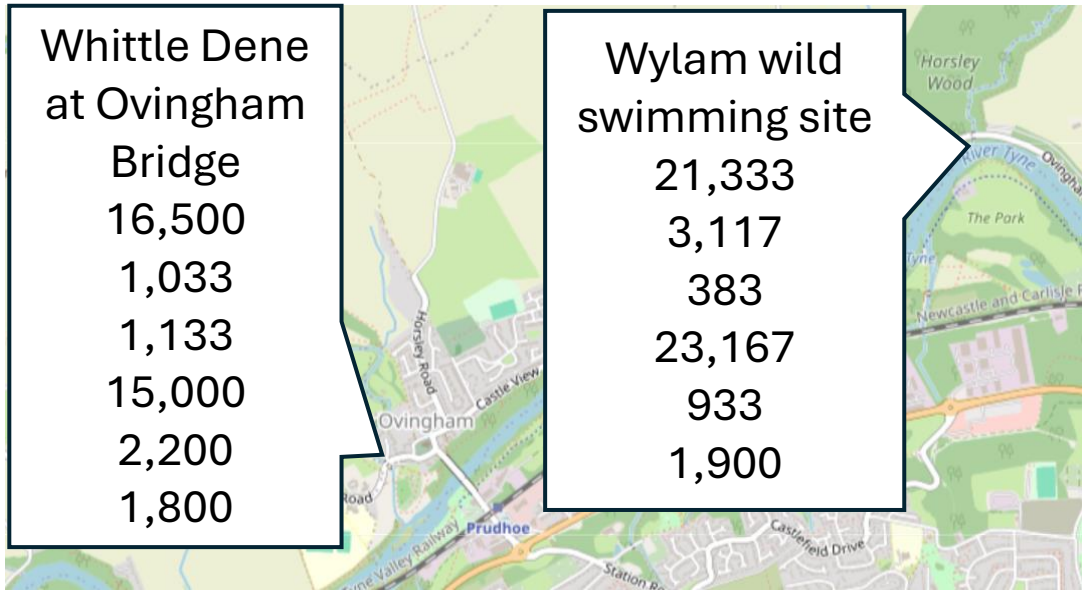


Humshaugh STW Inlet
17,933,333
29,822,222

Humshaugh STW Outlet
113,333
281,111

Dates:
25/06/2025
24/07/2025

Whittle Dene at Ovingham Bridge
16,500
1,033
1,133
15,000
2,200
1,800



Wylam wild swimming site
21,333
3,117
383
23,167
933
1,900

Dates:
30/05/2024
05/06/2024
26/06/2024
10/07/2024
25/06/2025
24/07/2025

Is the Tyne fit to swim in?

The 90-percentile is derived from the average (μ) and standard deviation (σ) of $\log_{10}$ counts per 100 mL across the sampling dates according to 90-percentile = antilog (μ + 1.282 σ).

No more than 900 E. coli and 330 intestinal enterococci per 100 mL as 90-percentile is the standard for sufficient bathing water status.

	90-percentile *E. coli* per 100 mL	**90-percentile intestinal enterococci per 100 mL**	**Status**
Wylam	26,847 (n=6)	946 (n=2)	Poor
Chollerford Bridge North	15,230 (n=4)	330 (n=2)	Poor
Chollerford Bridge South	9,944 (n=4)	4,233 (n=2)	Poor
All sites	17,391 (n=14)	1,114 (n=6)	Poor

The Tyne is not fit to swim in.

Potential sources of *E. coli*

	***E. coli* per 100 mL**	**Source**
Raw sewage Humshaugh STW	17,933,333 to 29,822,222	*This study*
Treated sewage Humshaugh STW	113,333 to 281,111	*This study*
Drainage from pastures with grazing sheep	1,100 (dry weather) to 28,000 (wet weather)	*Study in Southern Scotland, Vinten et al., 2004*
Drainage from manured fields	1,000 to 10,000 after slurry application 100 to 1,000 long term	*Study in Southern Scotland, Vinten et al., 2002*
North Tyne	467-12,822	*This study*
Brooks in moorland and woodland	0 to 70	*Another study by the author, Simonside*

How much does Humshaugh STW contribute?

Need to compare loads = concentration x flow

Effluent channel flow
@ sampling time
0.00236 m^3/s on 25/06/2025
0.00128 m^3/s on 24/07/2025

North Tyne flow
@ sampling time/Reaverhill
11.787 m^3/s on 25/06/2025
9.154 m^3/s on 24/07/2025

Load calculations for Humshaugh STW

	25/06/2025	24/07/2025
STW Influent (E. coli per s)	338,940,000	745,555,556
STW Effluent (E. coli per s)	2,674,667	3,598,222
North Tyne Before STW (E. coli per s)	55,006,000	51,872,667
Contribution STW Effluent to combined load (%)	4.6	6.5

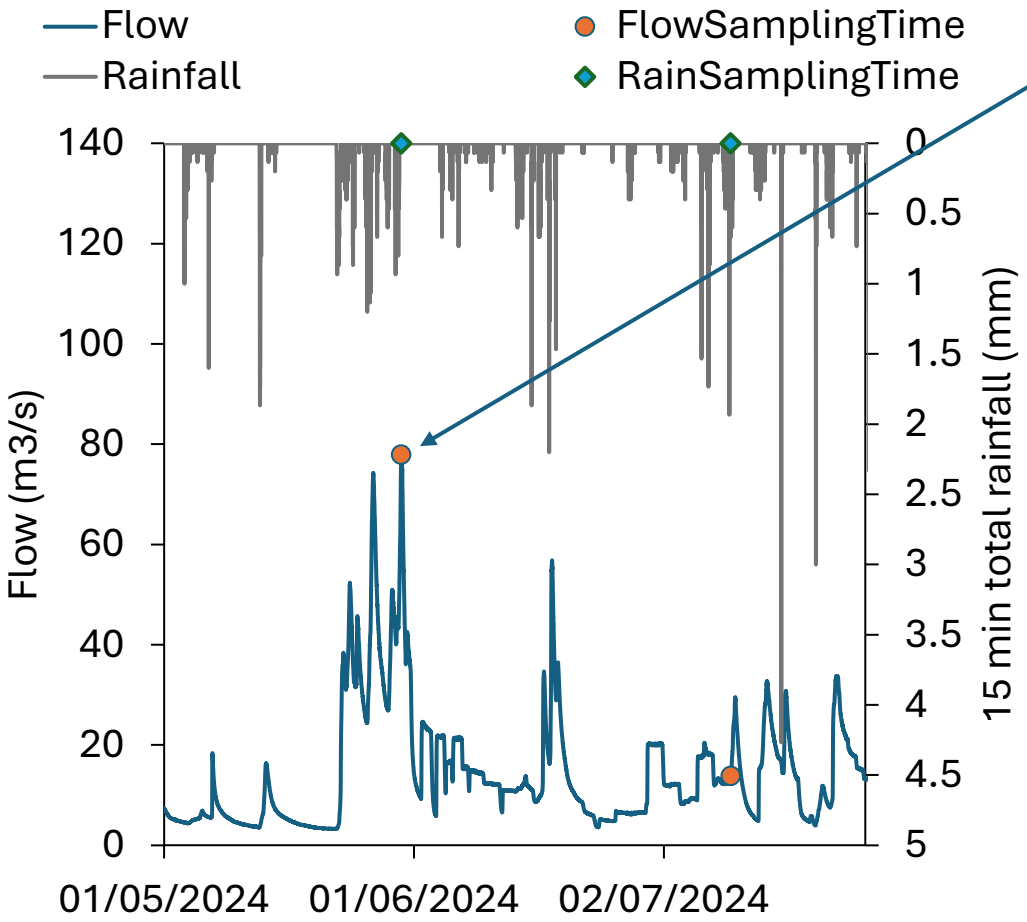
Combined load STWs estimation for 25/06/2025

STW	Population served	Load discharge* (*E. coli*/s)	Travel time to Humshaugh** (d)	Attenuation factor*** (-)	Load reaching Humshaugh
Humshaugh	495	2,674,667	0.00	1.00	2,674,667
Gunnerton	125 (<250)	675,421	0.18	0.92	623,706
Colwell	125 (<250)	675,421	0.19	0.92	621,163
Warks	509	2,750,314	0.27	0.88	2,433,100
Bellingham	1092	5,900,477	0.50	0.80	4,713,166
Lanehead	125 (<250)	657,421	0.68	0.74	497,186
Falston	125 (<250)	675,421	0.86	0.68	458,181
Elsdon	125 (<250)	675,421	0.81	0.70	469,550
Otterburn	502	2,712,490	0.80	0.70	1,893,430
All STWs	3223				14,384,148

*Based on Humshaugh, adjusted for population served
** River flow velocity 0.51 m/s
*** First order inactivation and sedimentation coefficient 0.45 per day

25% of *E. coli* in North Tyne at Humshaugh
34% for 24/07/2025

What if STW inlet storm overflows are active?

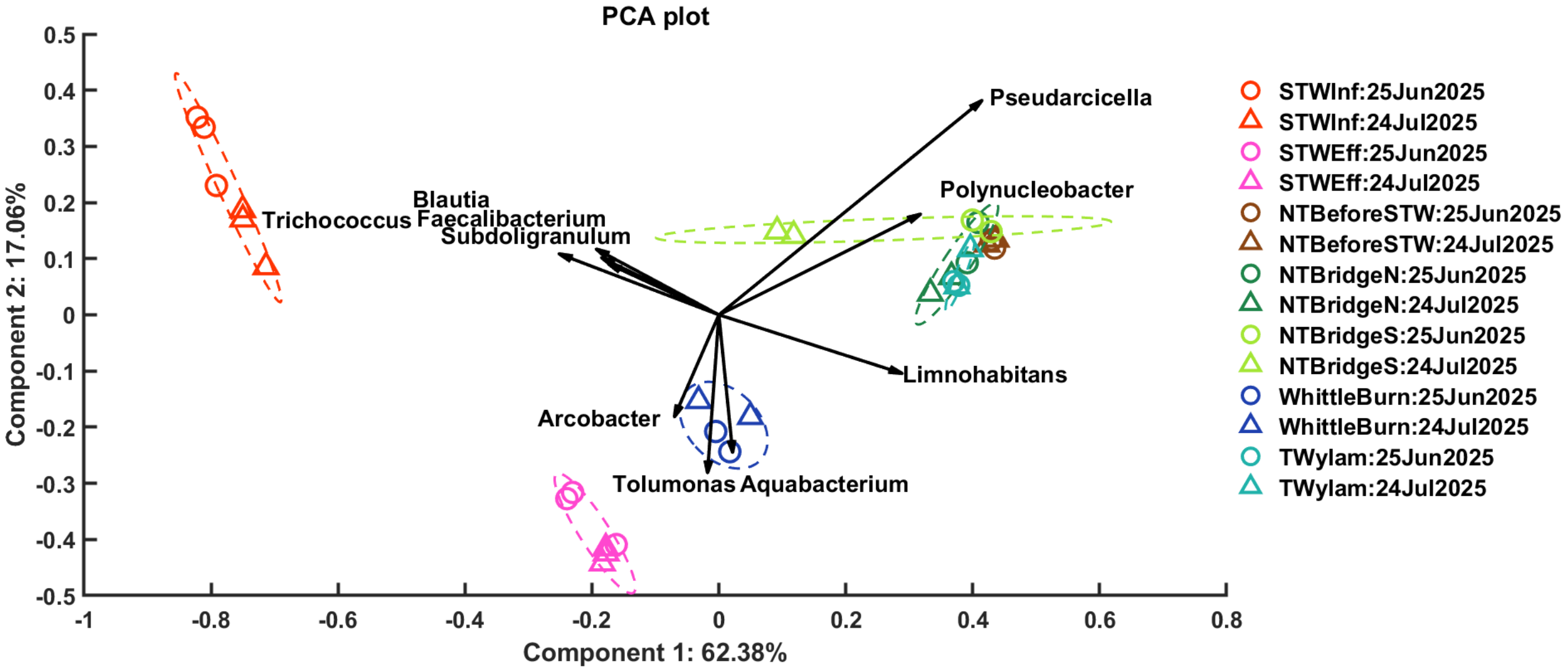


The highest sampled river flow was on May 30th, 2024, when the *E. coli* concentration was 11,167 CFUs per 100 mL upstream of Humshaugh STWs.

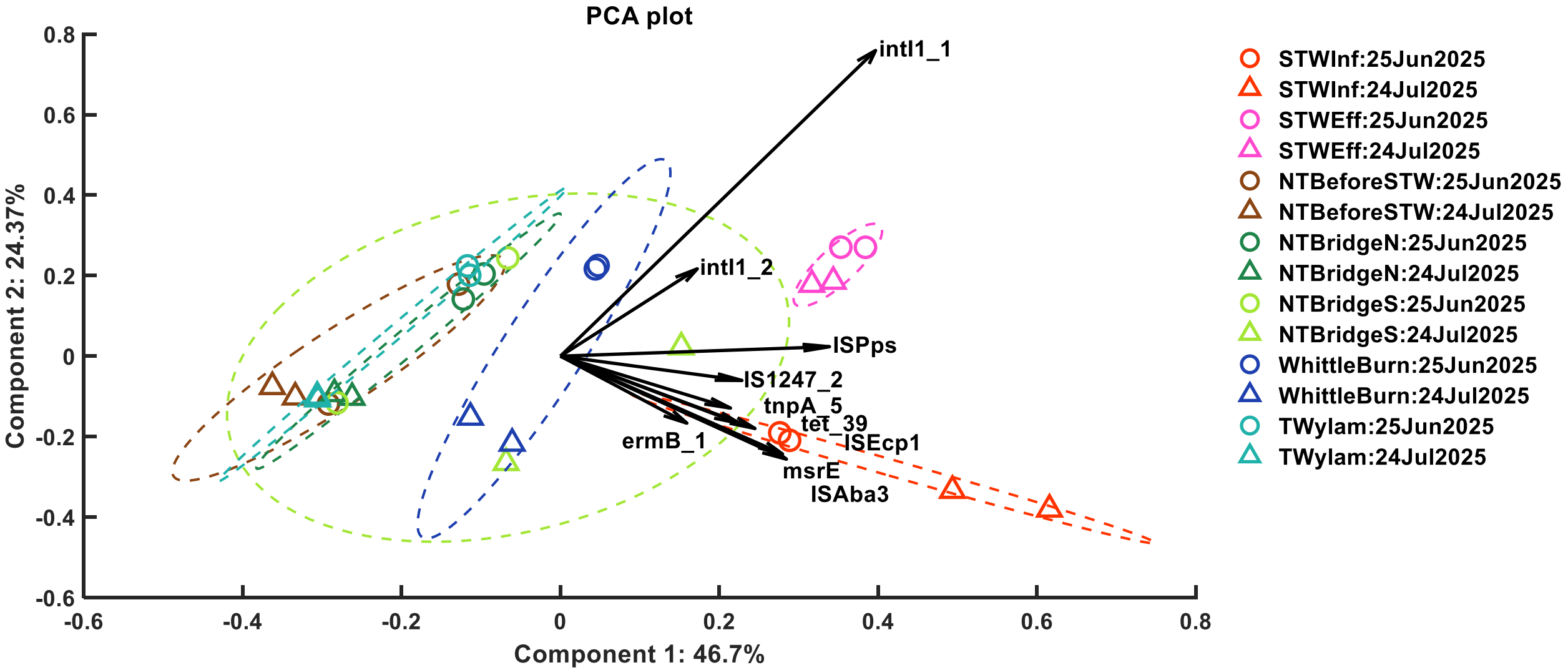
On that day, the inlet storm overflow of Humshaugh STW was active, but the STW was not sampled.

Rough estimate:
If 25% of the average incoming load bypassed treatment on May 30th, 2024, Humshaugh STW could account for 1.7% and all STWs for 9% of the *E. coli* load in the river North Tyne for storm weather conditions.

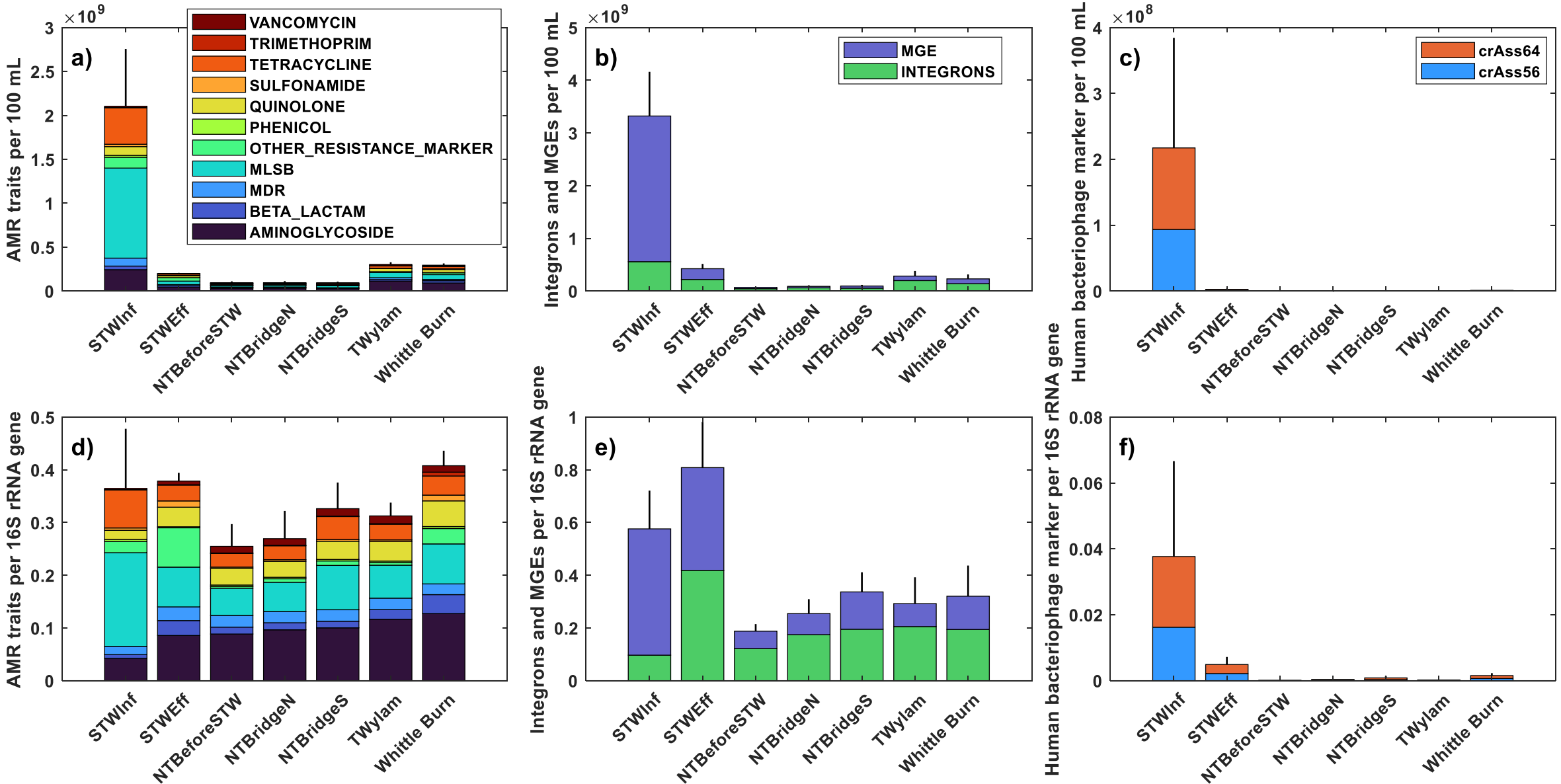
Bacterial community similarity



Bacterial community similarity



Antimicrobial resistance



Conclusions

- ❑ Water quality in the Tyne and North Tyne rivers does not meet bathing water standards.
- ❑ *E. coli* concentrations are approximately twenty times higher than the threshold for “sufficient” bathing water quality.
- ❑ Sewage treatment works remove about 99 % of *E. coli*, indicating high treatment efficiency.
- ❑ During low-flow conditions, treated sewage effluent still contributes roughly one-quarter to one-third of the total *E. coli* load in the North Tyne.
- ❑ Under high-flow conditions, the estimated contribution of storm overflows and treated sewage is approximately one-tenth of the total *E. coli* load in the North Tyne.
- ❑ Diffuse and agricultural sources dominate overall *E. coli* inputs, but sewage remains a non-trivial contributor.