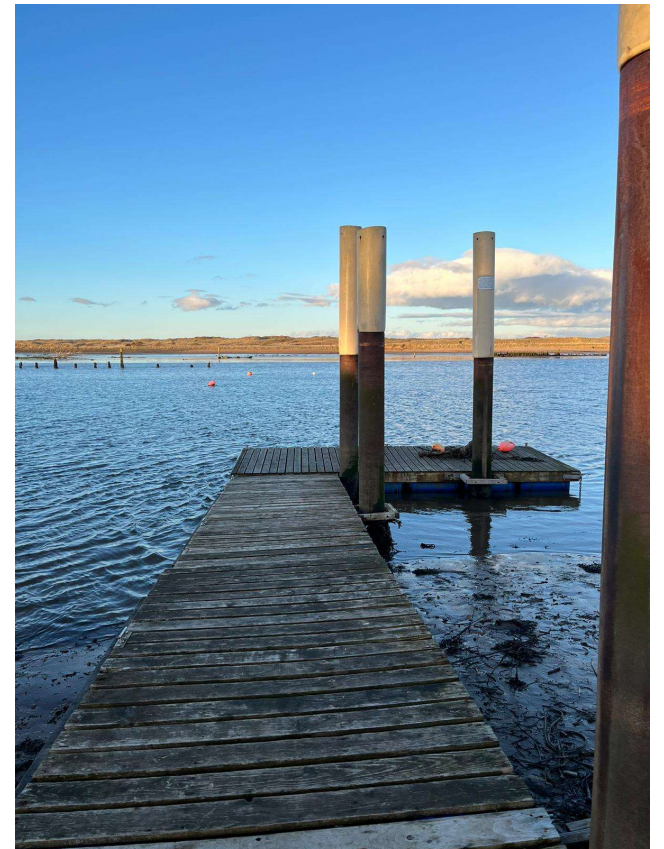






Coquet River Action Group



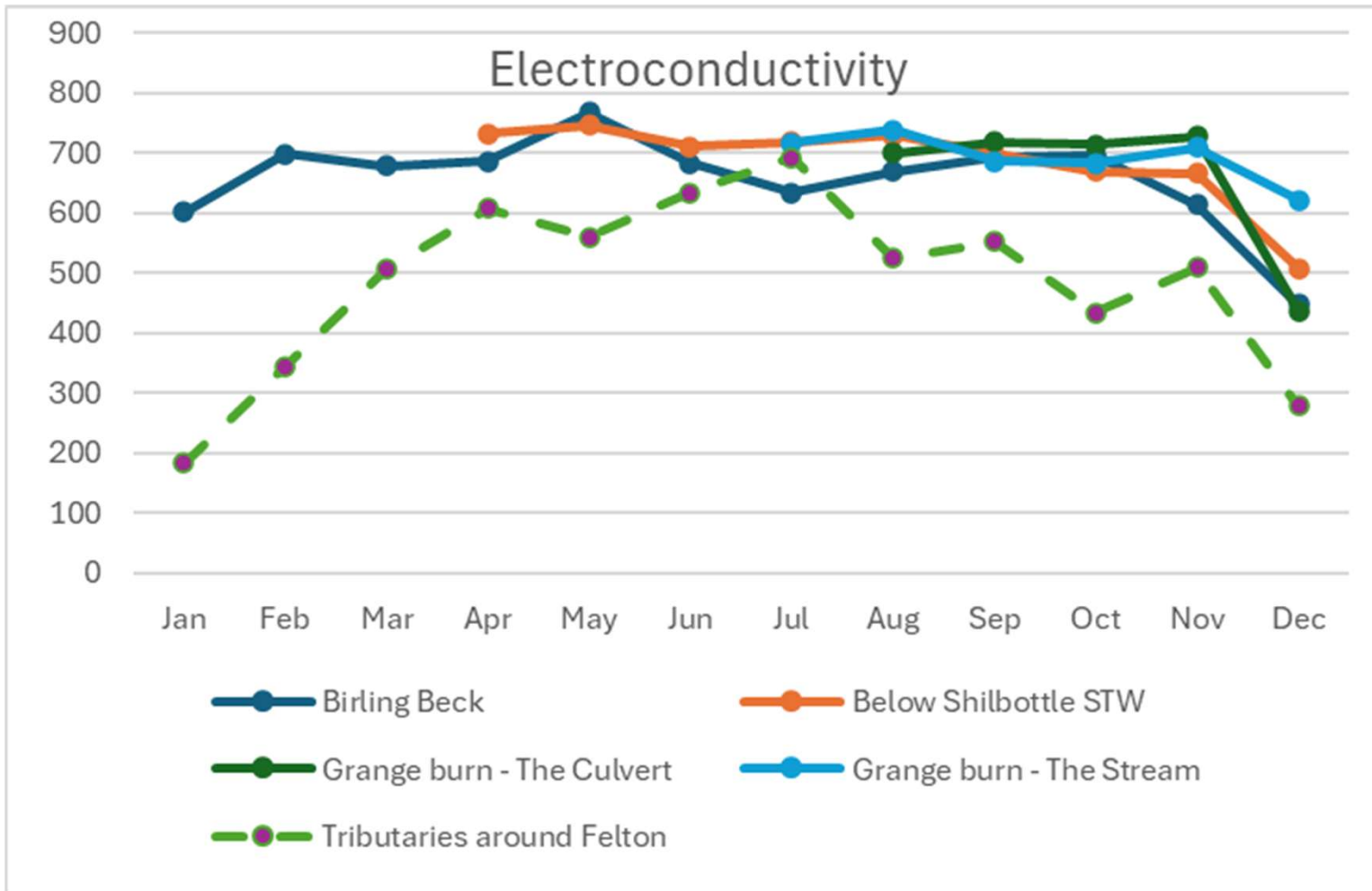
Test sites in 2025

-  CRAG test sites
-  EA test sites



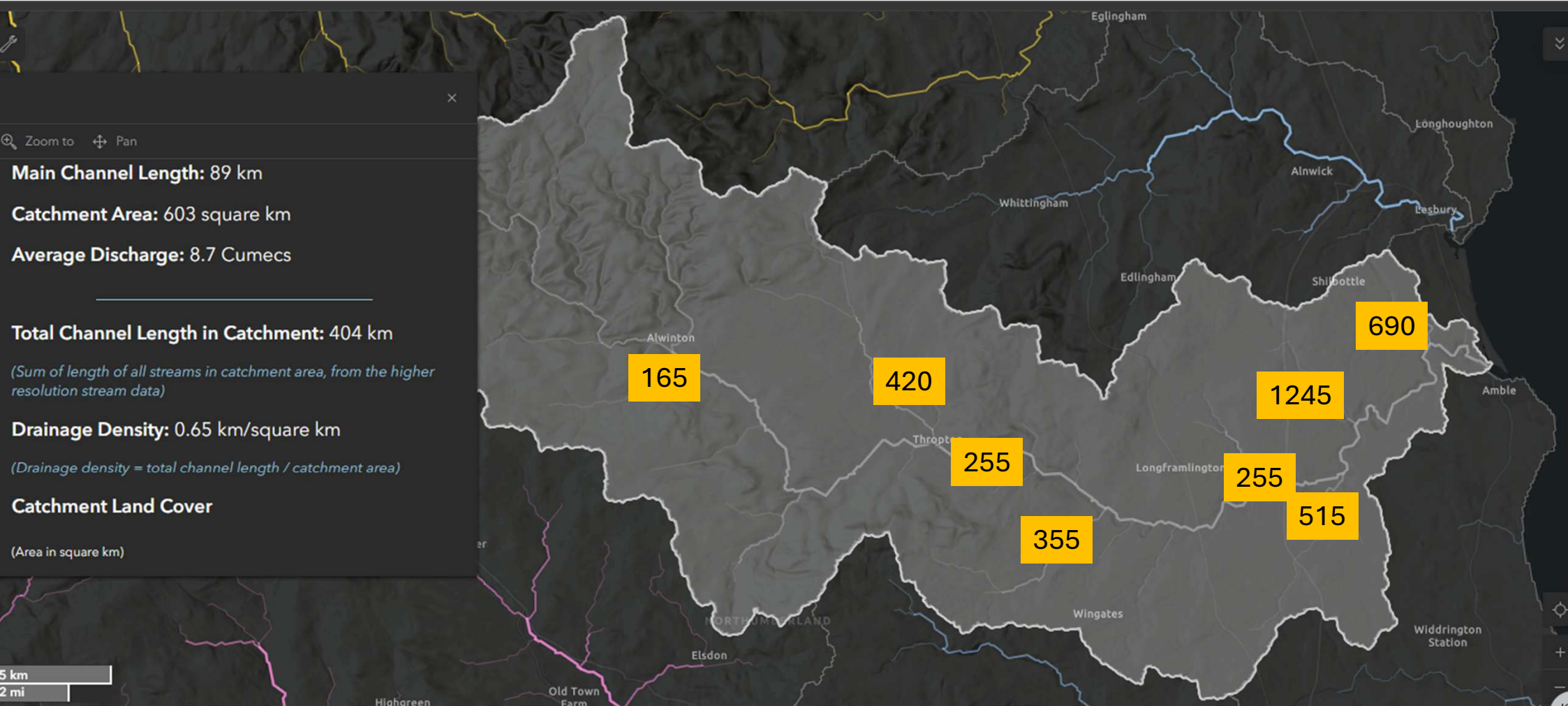
Electroconductivity (μ Siemens) – only at freshwater sites

What has been the impact of the dry summer?



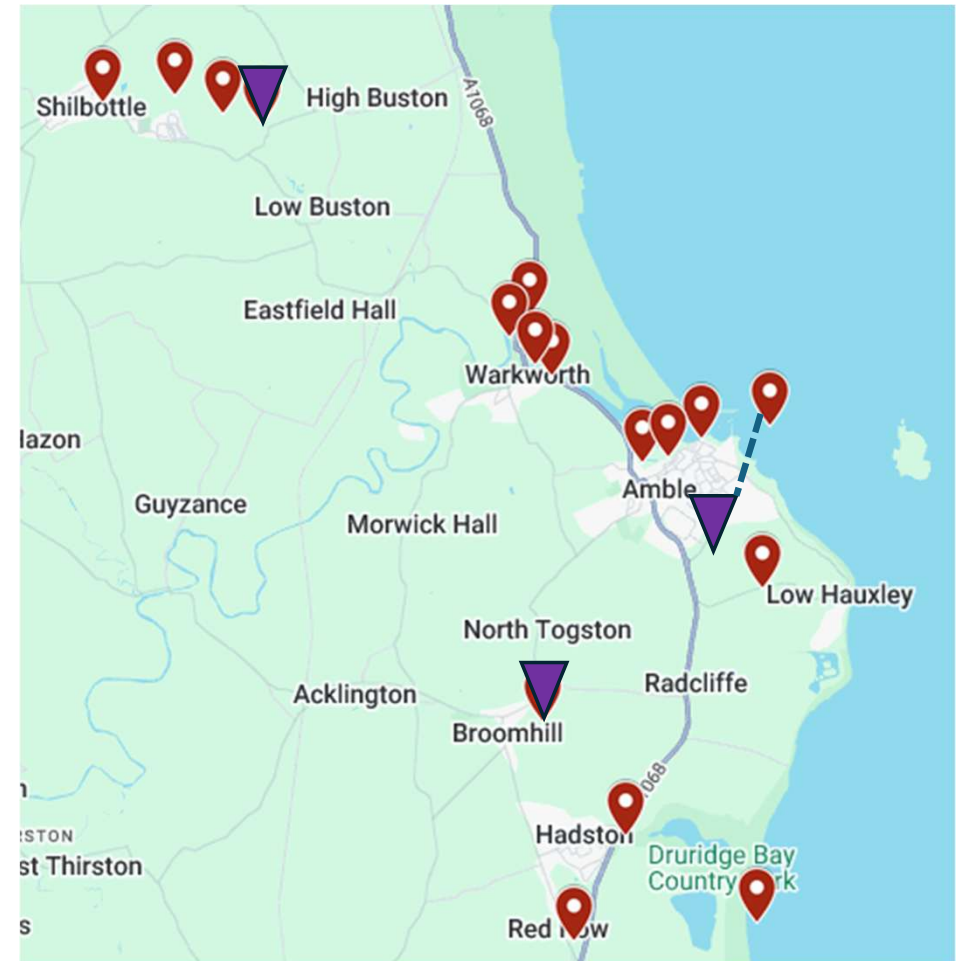
- Tyelaw/Grange burn and Birling Beck have similar EC
- EC high down the Tyelaw/Grange burn doesn't change from STW to join with Coquet
- Decrease in EC in December
- Change with rainfall not as pronounced as for tributaries further upstream

Electroconductivity (μ Siemens) – Down the Coquet



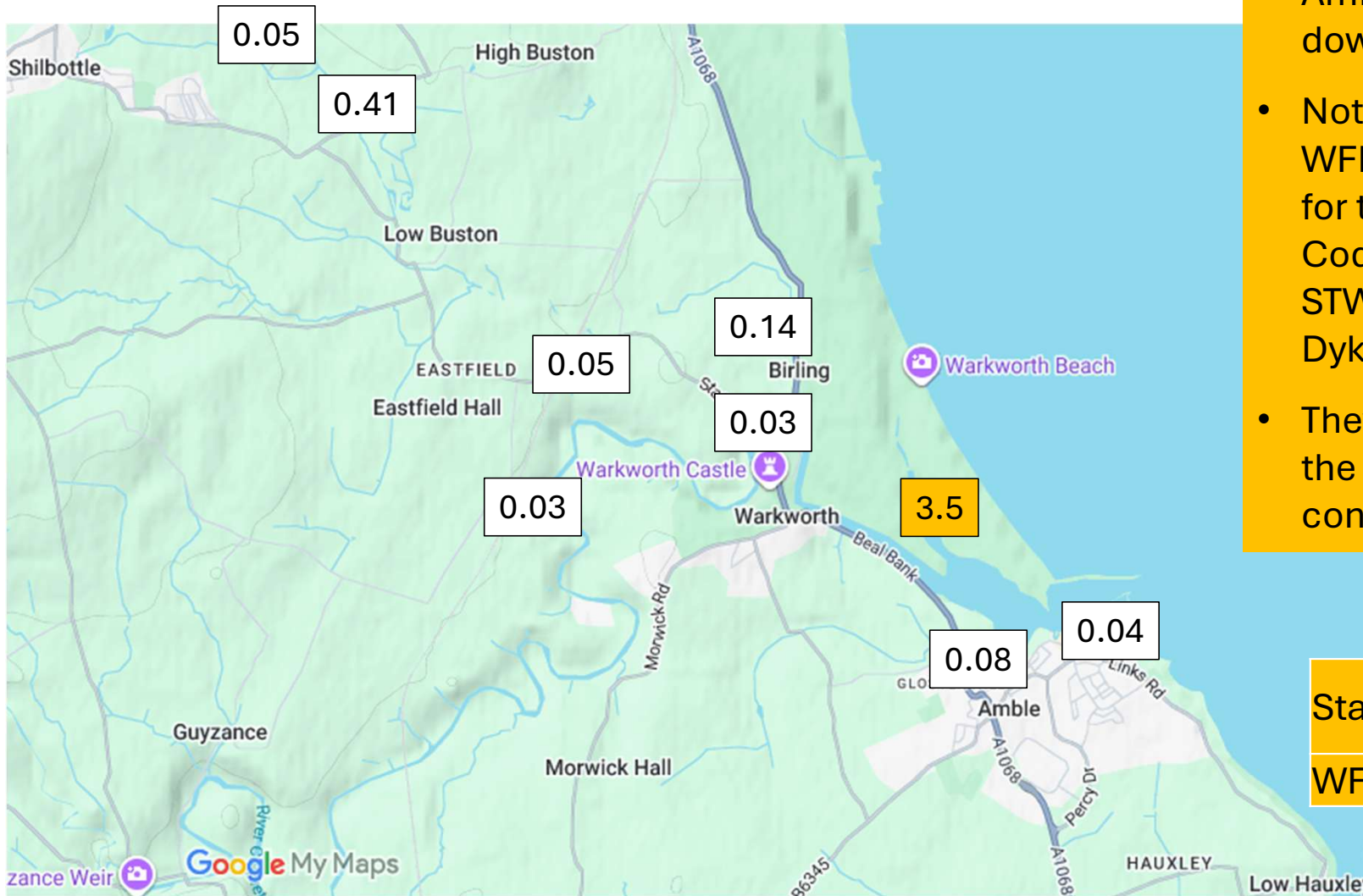
Sewage discharges 2025

Site name	Discharges	Hours	Average hours per discharge
Shilbottle STW	316	169	0.53
Togston STW	109	168	1.54
Hadston North Sea PS	18	130	7.22
Hadston Lady burn PS	12	103	8.58
Amble STW North Sea outlet	605	98	0.16
High Hauxley PS	23	38	1.65
Amble Harbour PS	33	38	1.15
Red Row PS	3	29	9.67
Shilbottle No2 CSO	45	27	0.60
Amble Swarland House PS	12	20	1.67
Warkworth Woodlands PS	4	13	3.25
Warkworth Beal Bank PS	9	8	0.89
Warkworth bridge CSO	10	7	0.70
Warkworth Lawrence Court SSO	3	2	0.67
Amble Turner Street PS	8	1	0.13
Shilbottle Fairfield View CSO	6	0	0.00
Shilbottle No1 Grange Road CSO	1	0	0.00



Top 5 along the Coquet	Hours
Felton STW	599
Thropton & Snitter STW	194
Shilbottle STW	169
Togston STW	168
Swarland Lanehead PS	152

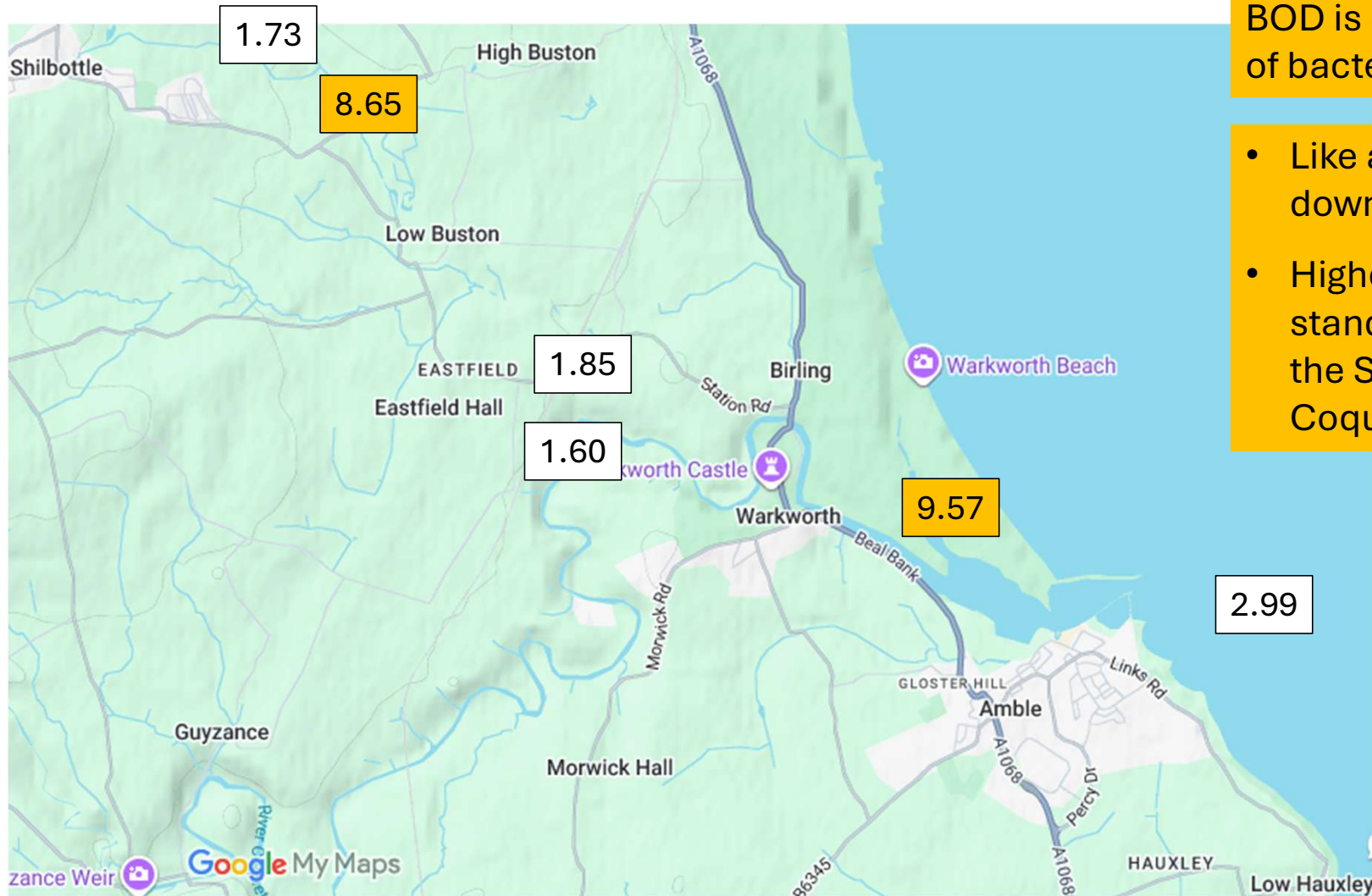
Ammonia as N (mg/L)



- Ammonia is high downstream from STWs
- Not higher than the WFD standard except for the outlet from the Coquet View Caravan STW into the Castle Dyke wetland
- They are not breaching the EA permit conditions

Standards	Amm as N
WFD	1.10

Biological Oxygen Demand (mg/L)



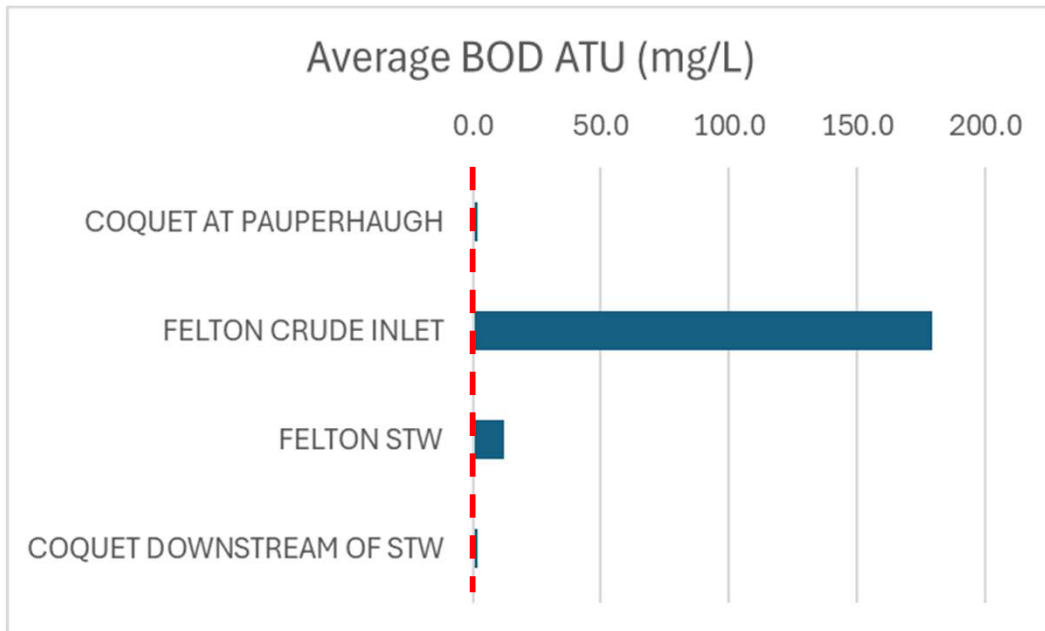
BOD is caused by the growth of bacteria and algae

- Like ammonia, BOD is high downstream from STWs
- Higher than the WFD standard downstream from the Shilbottle STW and the Coquet View Caravan STW

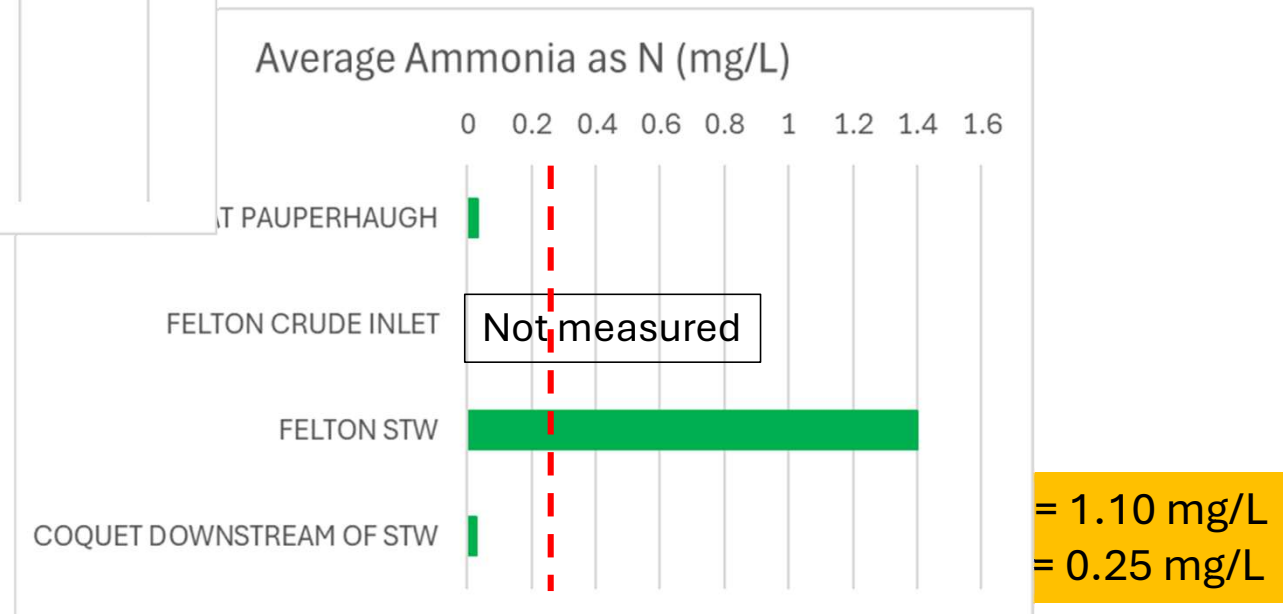
WFD Standard =
6.0 mg/L

Treatment in an STW – BOD and Ammonia

- Inlet BOD is extremely high
- STW allows solids and many chemicals to settle out
- Outlet BOD and Ammonia still higher than standards
- 200 metres downstream chemicals have diluted to levels below standard
- Dilution is much less in tributaries



WFD standard = 6.0 mg/L
SSSI standard = 2.5 mg/L

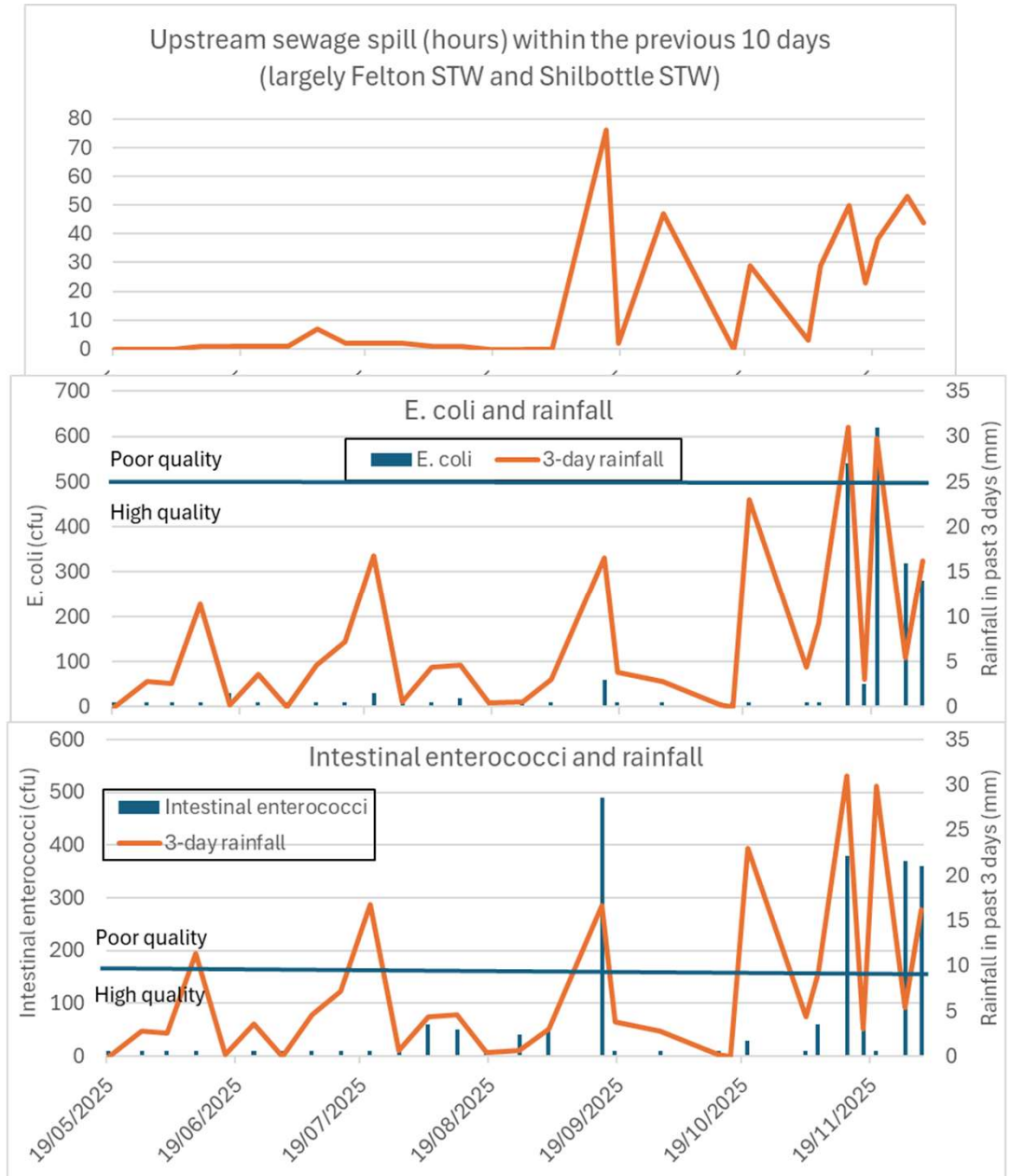


E. Coli and Intestinal enterococci (cfu) during the bathing water season (June to the beginning of October) – Little Shore

- Levels of E. coli and Intestinal enterococci are related to rainfall events and subsequent sewage discharges (in most cases!!)
- Some rainfall events don't lead to sewage spills, and some sewage spills don't lead to increased bacterial growth

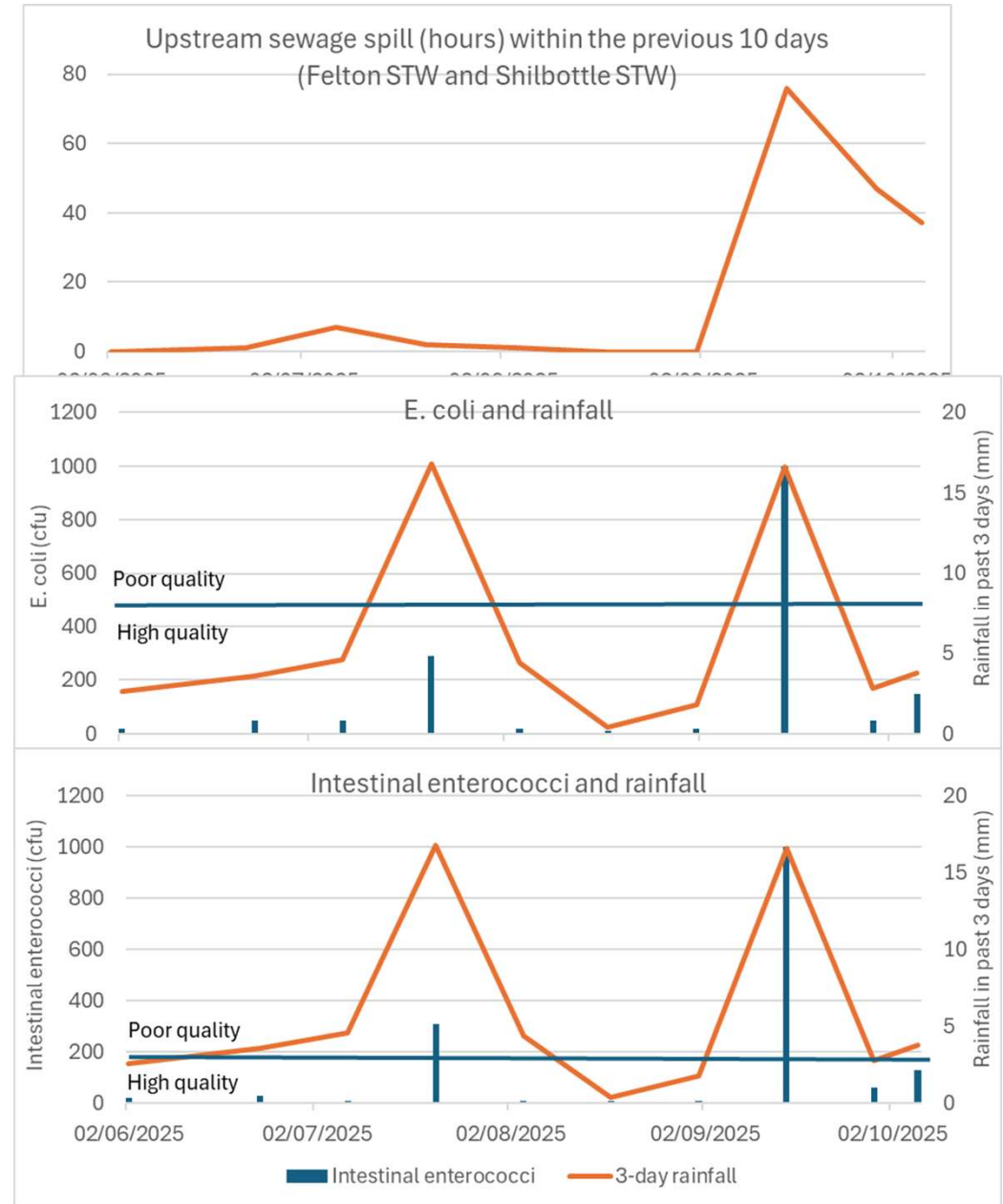
General pattern:

- Rainfall
- Sewage outflow
- Increase in Ammonia, BOD and E. coli



E. Coli and Intestinal enterococci (cfu) during the bathing water season (June to the beginning of October) - Warkworth

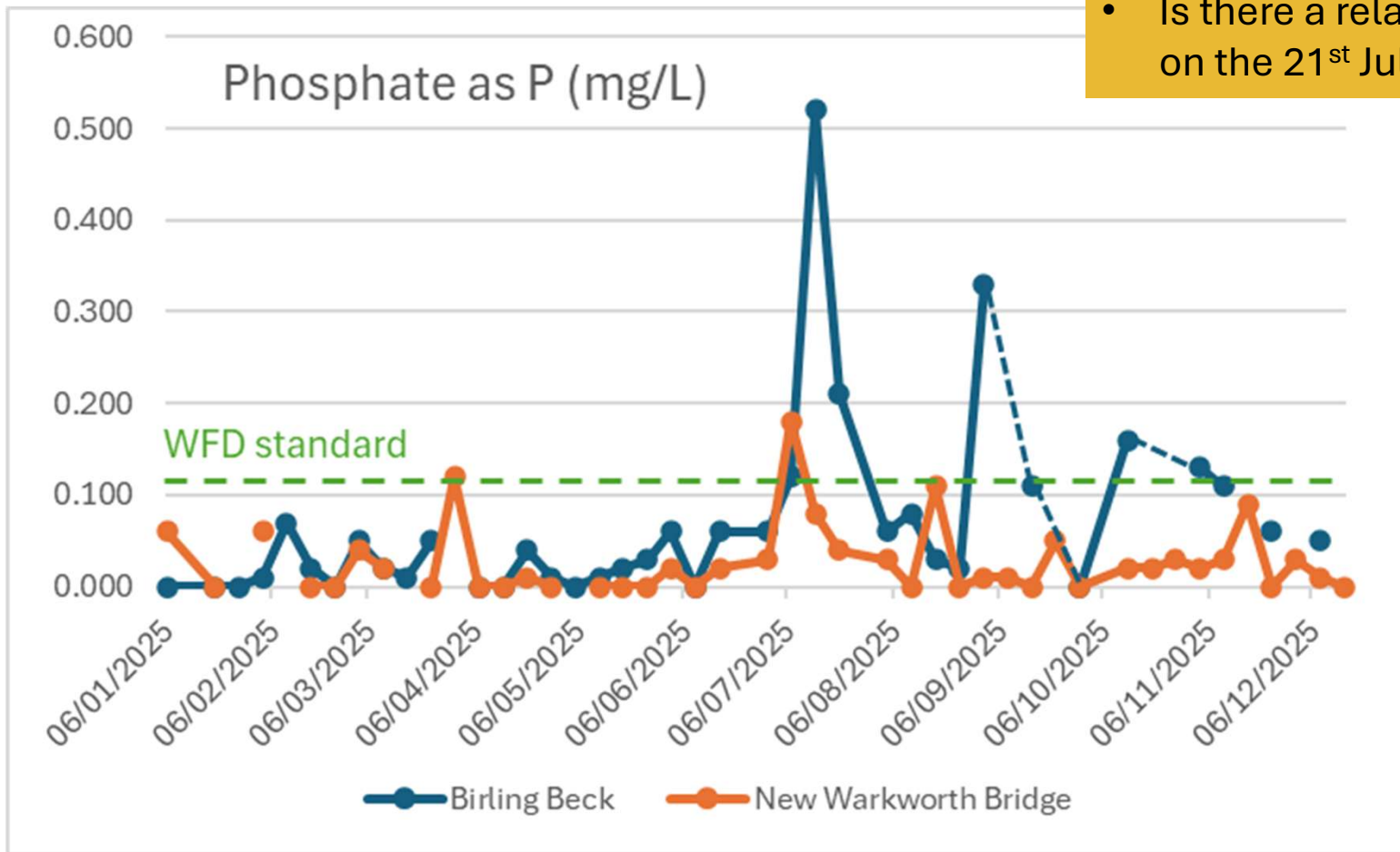
- As at Little Shore, levels of E. coli and Intestinal enterococci are related to rainfall events and subsequent sewage discharges (in most cases!!)
- If not sewage outflow, could it be fertilizer (21st July)?



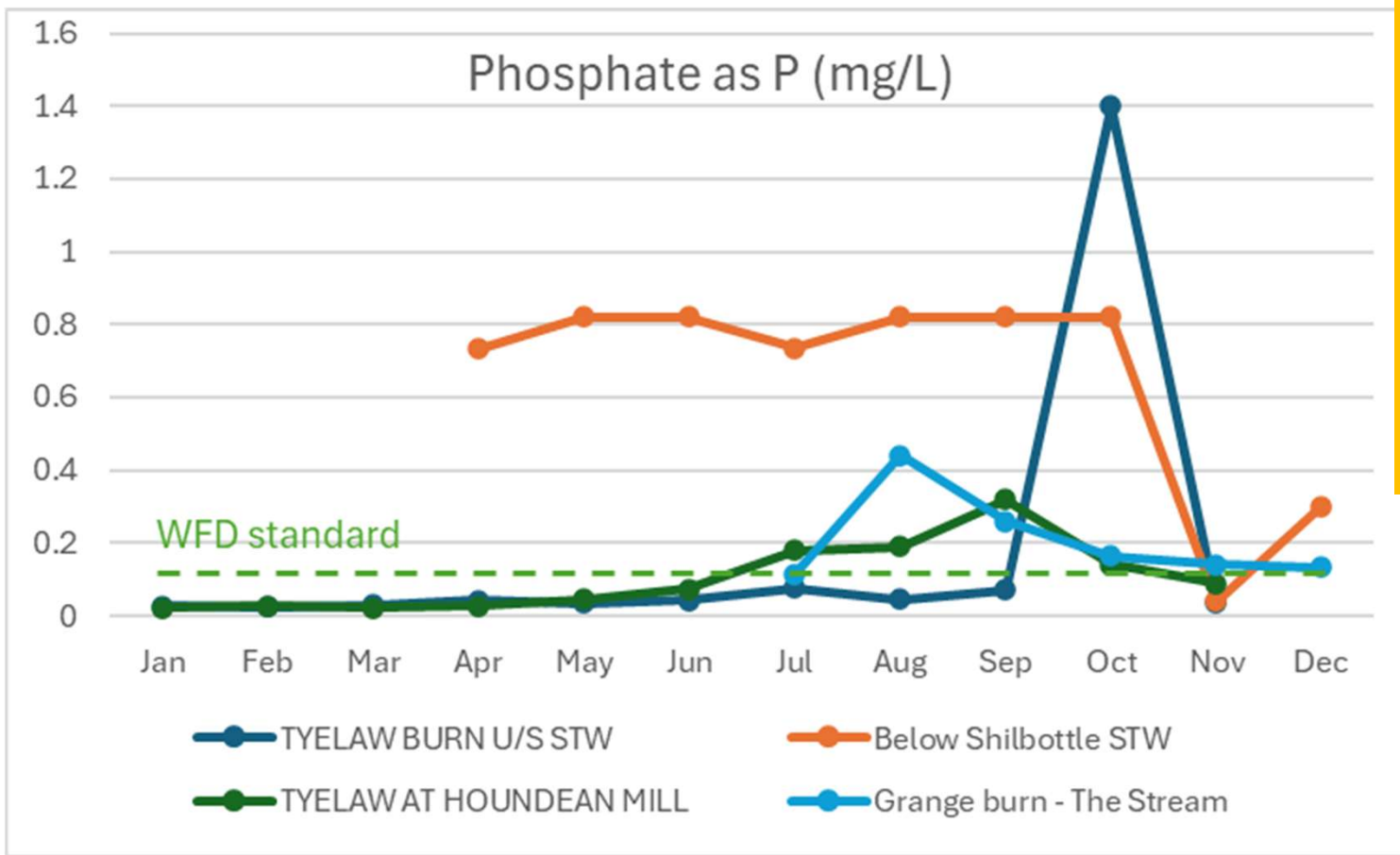
Phosphate as P (mg/L) – four slides

Birlinging Beck and Warkworth bridge

- Both site had above standard phosphate at the beginning of July (and Birling Beck again in September and October)
- Is there a relationship with the high E. coli on the 21st July?



Phosphate as P (mg/L) –
Down the Tyelaw/Grange burn (CRAG and EA data)



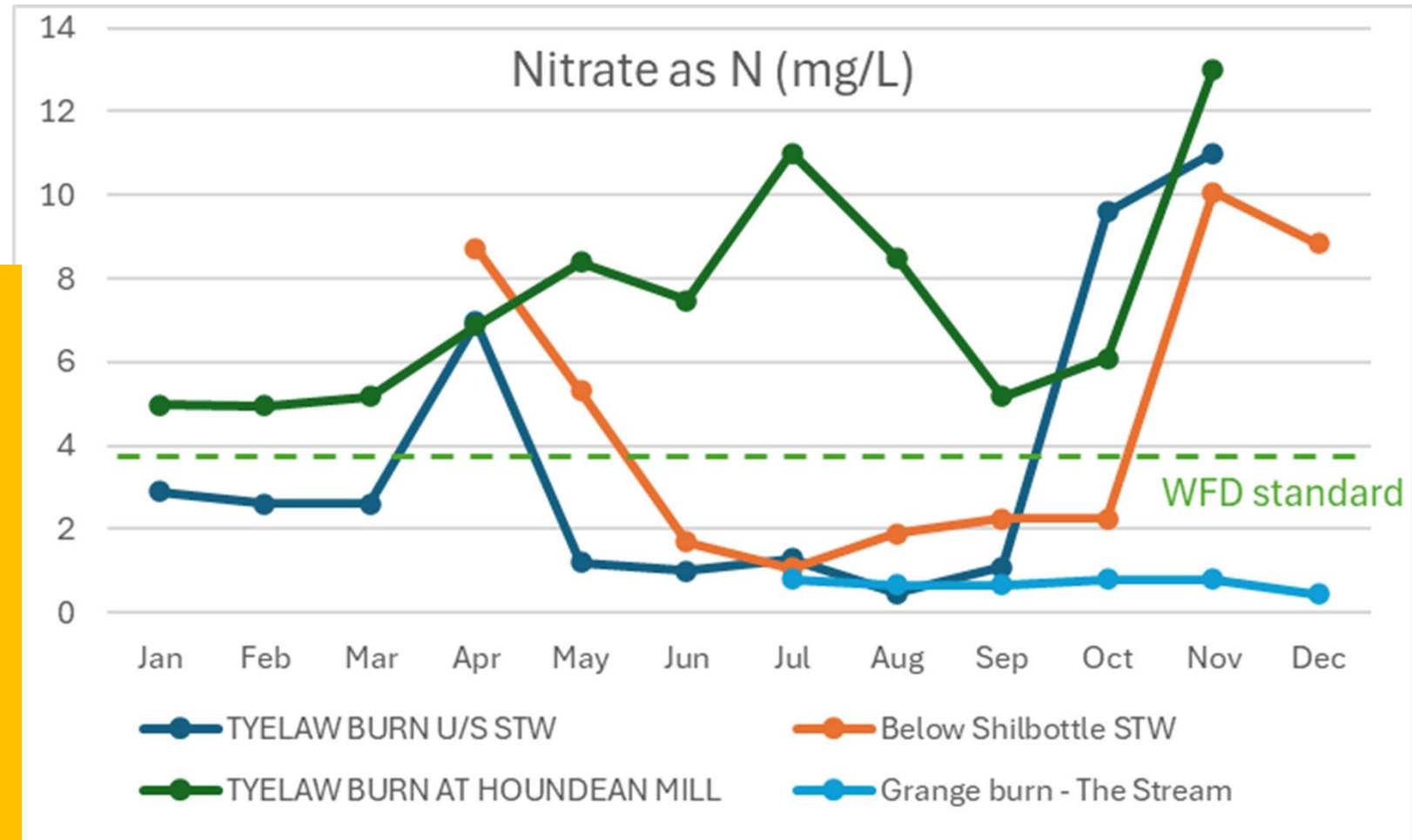
- Below the STW, meter maxed out for most of the year
- Even down stream at Station Cottages/Houndean Mill, values are almost always high then the standard (dilution effect works less well in tributaries)
- High reading above STW by EA is 6 Oct. They didn't measure downstream on that day (has to be a fertilizer event)

Nitrate as N (mg/L)

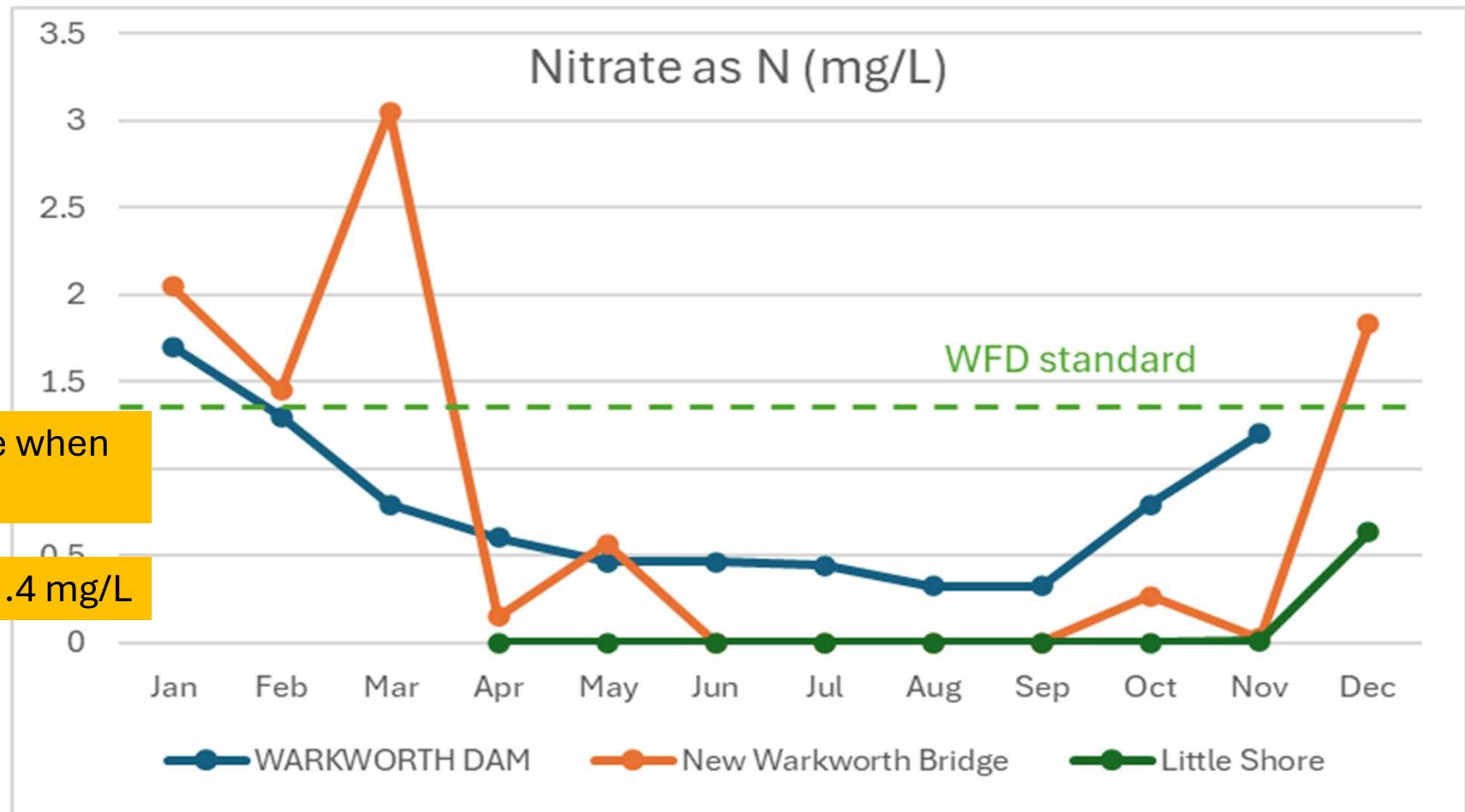
Down the Tyelaw/Grange burn (CRAG and EA data)

Standard freshwater = 3.7 mg/L

- High nitrate reading matches high phosphate reading above STW by EA on 6 Oct.
- EA consistently measure higher than standard level of nitrate at Houndean Mill but CRAG doesn't (test strips??)



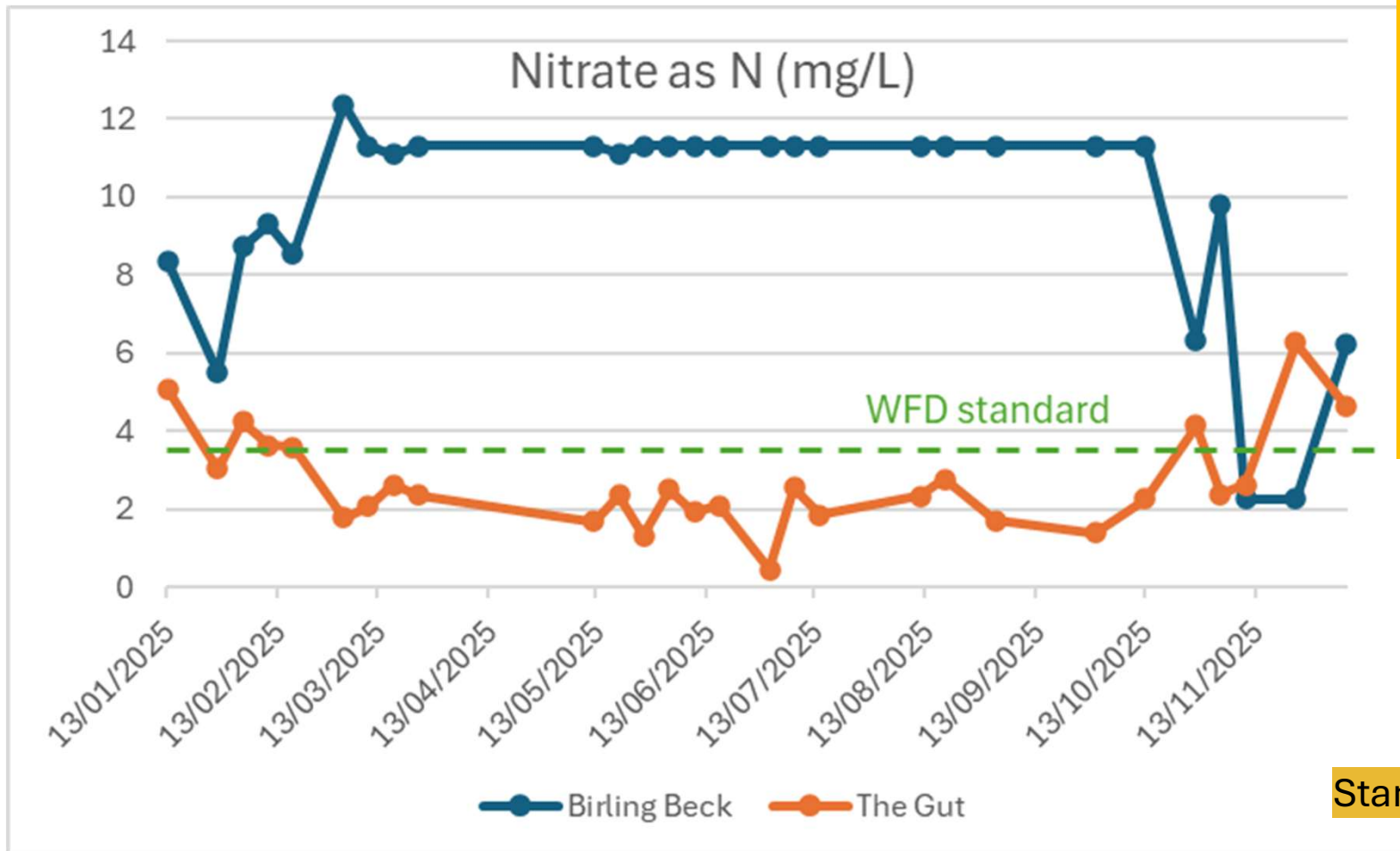
Nitrate as N (mg/L) – Main river and Little Shore



Possible higher nitrate when it rains

Standard (estuary) = 1.4 mg/L

Nitrate as N (mg/L) – The Gut and Birling Beck



- The Gut – pattern matches the main river (higher nitrate levels when it rains)
- Birling Beck - consistently high nitrate levels (Nitrate meter maxed out, just like for phosphate).
- Lower levels when it rains (Birling Beck a nitrate source??)

Standard freshwater = 3.7 mg/L

What have the tests shown us:

- We can see the effect of seasons on chemicals in the water
- We can see the impact of STW overflows and major fertilizer events on chemicals in the water
- We can pin-point some specific problem STWs (Castle Dyke and Shilbottle STW)
- We can clearly link heavy rainfall events to sewage overflow to E. coli levels
- We can show that the phosphate and nitrate levels in Birling Beck and the Tyelaw/Grange burn are consistently above standards. This will be detrimental to the ecology of these tributaries.

Liam has been working on the website. You will soon be able to see your measurements in (almost) real time. Thanks Liam.

Nitrate Test Equipment Evaluation

Your measurement of chemicals has help us talk with government agencies and other groups.

One of these groups is the Environment Agency Life Wader programme. We have both been concerned with the accuracy of our measurement of nitrate with meters, and so developed an experiment to check accuracy

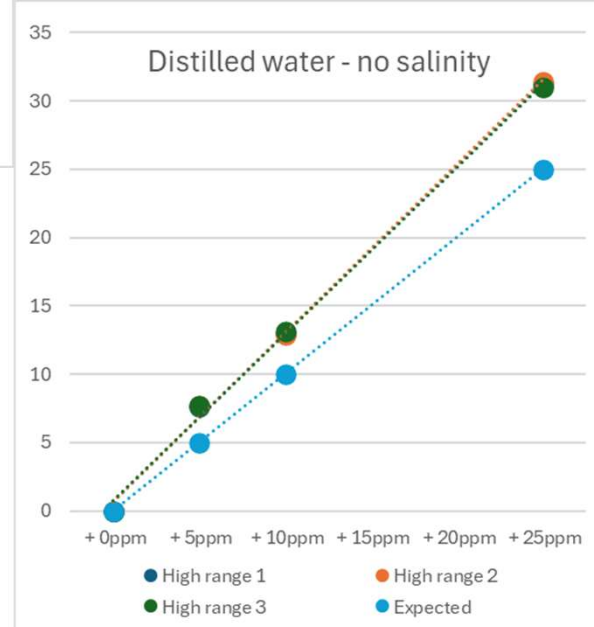
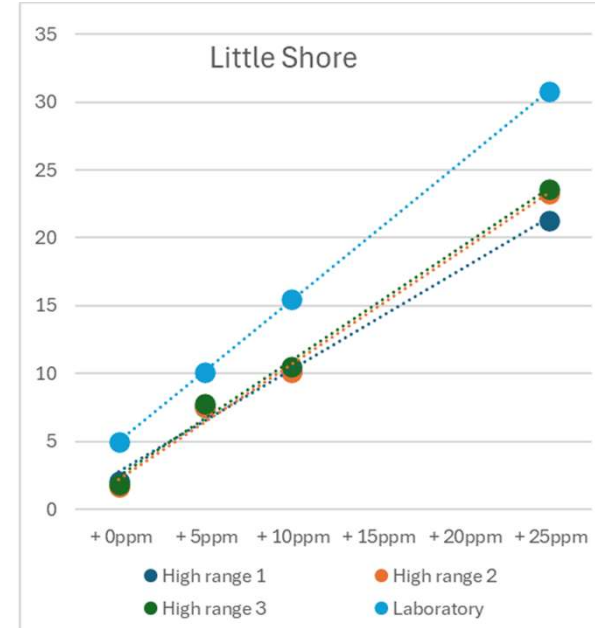
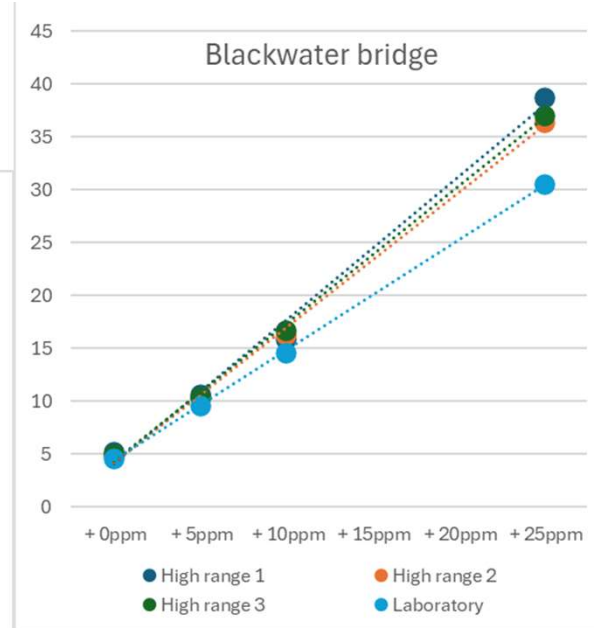
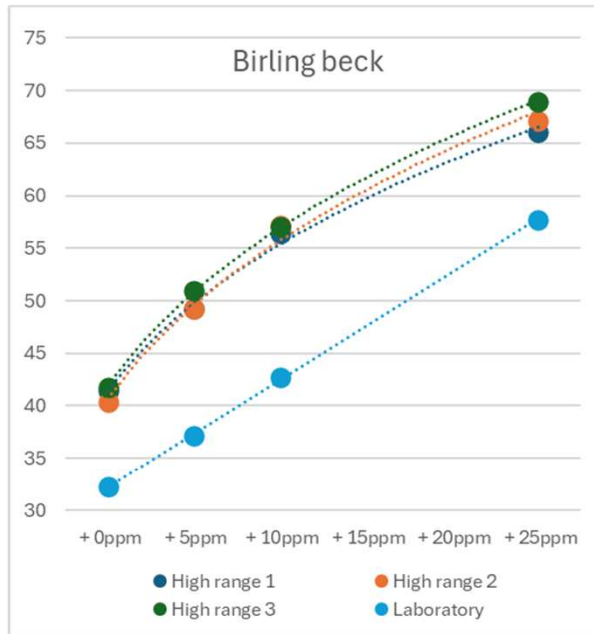
- Current Hanna high-range HI-782 meter Vs 5 other meter types Vs laboratory
- Blackwater Bridge, Birling Beck and Little Shore river samples to be compared to freshwater and saltwater control samples
- 20 samples to be tested with different (known) Nitrate levels

Nitrate Test Equipment Evaluation



Nitrate Test Equipment Evaluation

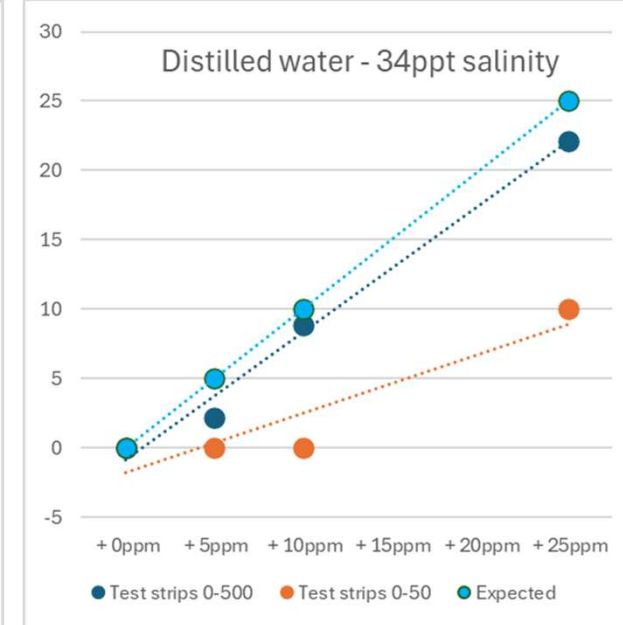
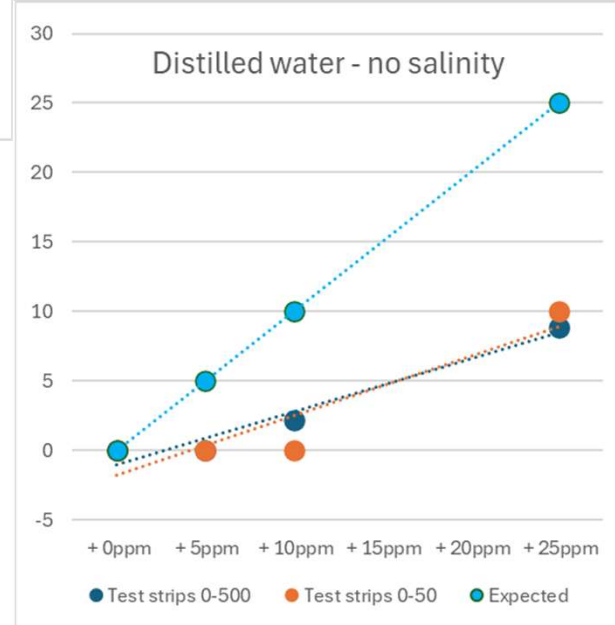
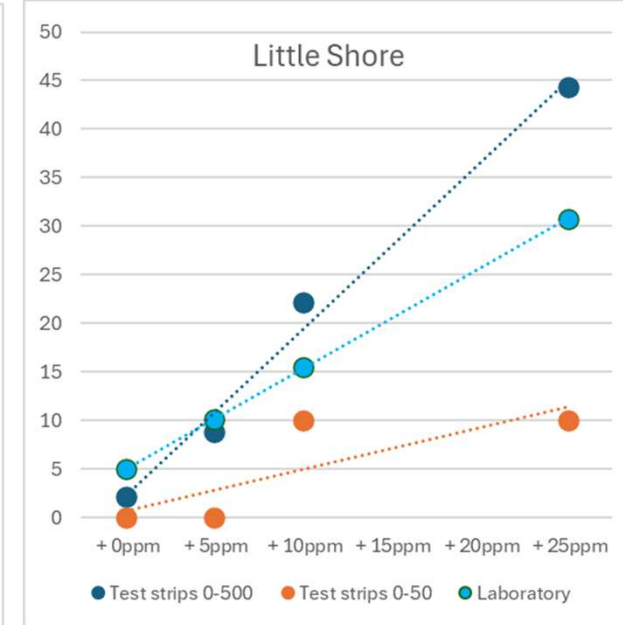
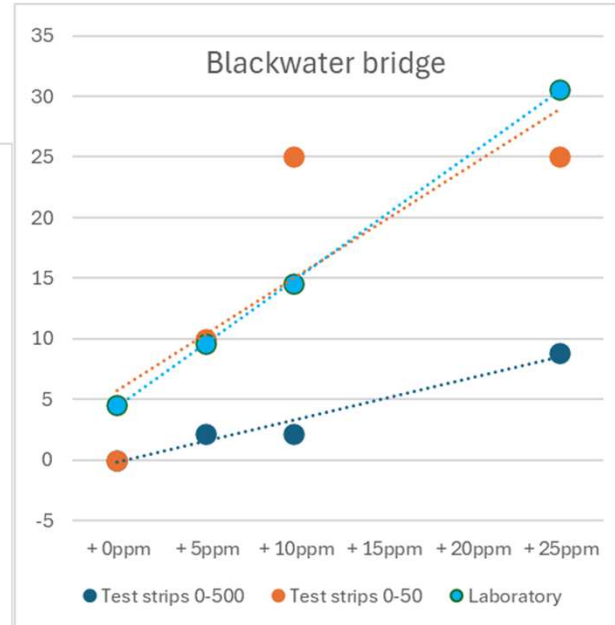
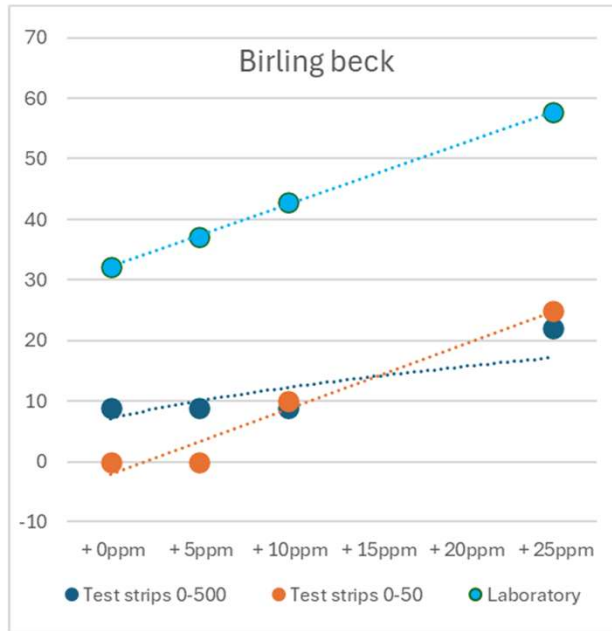
Hanna high-range meters



- Little Shore and saline control – meter measurement was lower than laboratory measurement (light blue)
- Birling Beck, Blackwater bridge and no salinity control – meter measurement was higher than the laboratory measurement

Nitrate Test Equipment Evaluation

Test strips



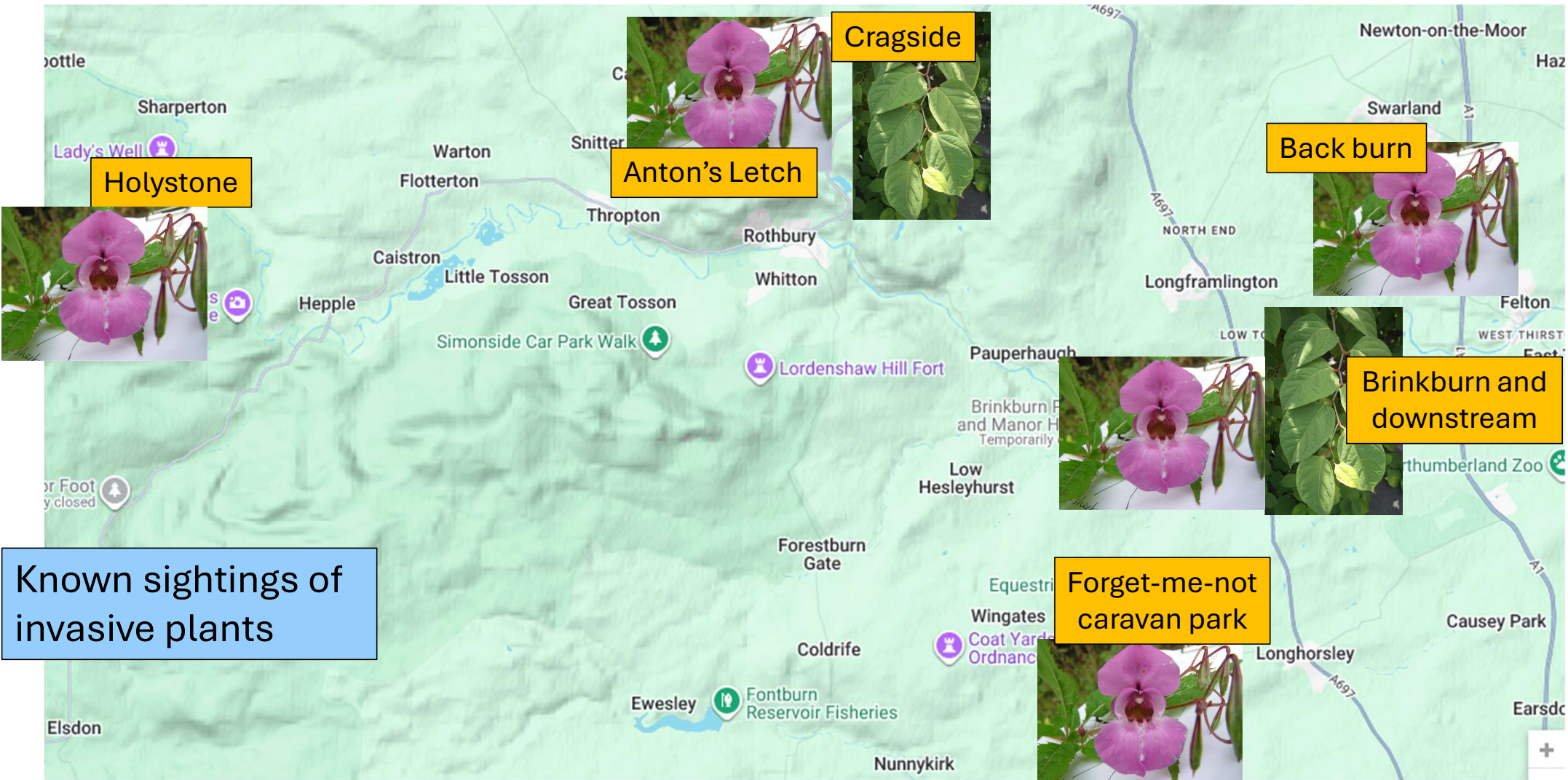
- Test strip measurement all over the place, but generally much lower than the laboratory measurement

CRAG and Future Plans



- Water Quality Measurement – keeping background levels up to date and relevant, where to test, cooperate and support our River in a constructive, practical way
- Help assessing data collection methods in the field, with EA, SAS. Can include AI??
- E. coli monitoring, individual sites and areas, support data for BW, looking at spread duration and pinpointing source of issues
- Collecting data for modelling nutrient flow in the Estuary (Newcastle University)
- Invasive Weeds project – collecting data, find sources, volunteer recording and removal
- Riverfly monitoring on tributaries

- Bathing Water Signage and liaison
- Northumberland Wildlife Trust on Peat Restoration
- Northumbria Water Ltd on Felton Environmental Project
- Natural England and Northumberland National parks – Protective Site Strategy
 - Sarah from NICRE is here tonight, please talk to her about how to connect to the river
- What a Wonderful World
- Puffin Festival



Known sightings of
invasive plants

Holystone



Anton's Letch



Cragside



Back burn



Brinkburn and
downstream



Forget-me-not
caravan park



