WESTCOUNTRY RIVERS TRUST CITIZEN SCIENCE

MONITORING OF THE PAR RIVER AND ITS TRIBUTARIES

The monitoring group operates under the citizen science scheme run by the Westcountry Rivers Trust. The Friends of Luxulyan Valley, The Friends of Par Beach, and the G7 Legacy Project for Nature Recovery have helped. Comments and opinions in this report are not necessarily shared by these organisations.

FEBRUARY 2023

CONTENTS & PAGES

A. KEY POINTS FROM WRT CSI MONITORING IN FEBRUARY 2023

1. The high river level (and flooding) noted in January had receded.

2. Phosphate levels in the main river between Luxulyan allotments and Lady Rashleigh Mine were High or Too High.

3. China clay pollution of the Carbis Stream was evident.

4. A very high reading for Total Dissolved Solids was recorded at Par Beach slipway.

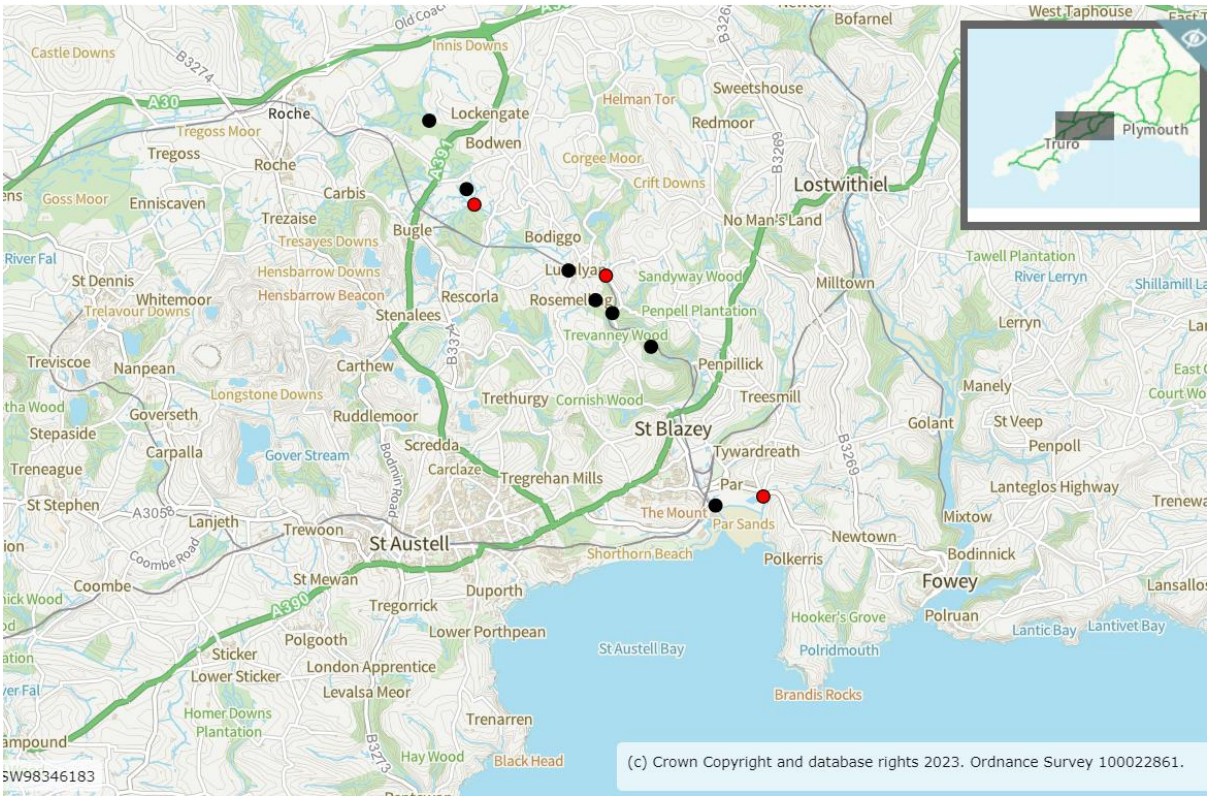
5. Little wildlife was recorded although otter spraint was found and a grey wagtail observed near the Treffry Viaduct.

B. OUR GROUP

Monitoring is part of the Citizen Science programme run by the West Country Rivers Trust (WCRT) and is carried out monthly by volunteers, including Dave Burrell; Joan Farmer; Veronica Jones; Sue Perry; Roger Smith; Simon Tagney; Maggie Tagney; and Brian Harrisson. They have received training from Lydia Ashworth, Junior Evidence and Engagement Officer of the West Country Rivers Trust (https://wrt.org.uk/project/become-a-citizen-scientist/). Results are logged on the Cartographer website. The support and advice given by Ross Tonkin, Chloe Lake, David Edwards, Claire and Gary Phillips, Jenny Heskett, Nick Taylor, Jeremy Roberts, Mat Bateman, Colin Pringle, Matt Healey, Simon Browning, Lydia Deacon, Layla Ousley, Jack Middleton and Nicola Rogers is greatly appreciated. The interest and encouragement offered by Environment Agency officers, especially Lisa Best, Lisa Goodall and Peter Scobie, have been invaluable.

C. FEBRUARY 2023 MONITORING POINTS

This month monitoring occurred at 10 locations. Monitoring points along the main Par River are shown in black. Those in red are on tributaries.
Source: https://magic.defra.gov.uk/MagicMap.aspx



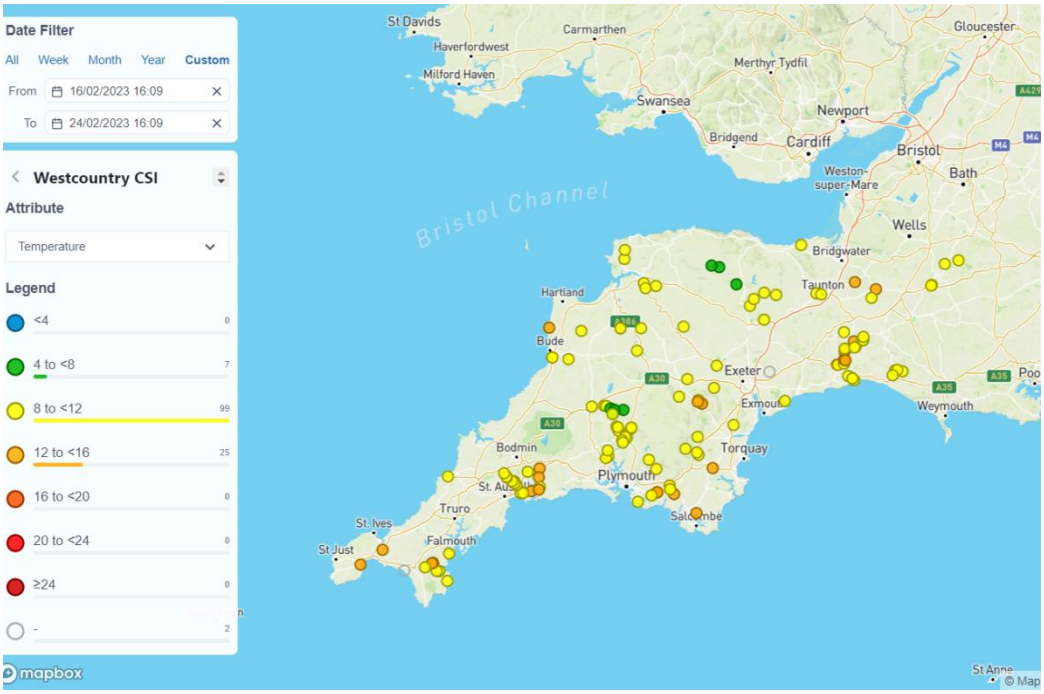
LOCATION	DATE	TYPE OF CHECK	MONITORED BY
Criggan Moors, Par River, SX 01882 61133	18/2/2023	CSI sample & Cartographer record.	Roger Smith
South of Minorca Lane, Par River, SX02668 59747	18/2/2023	CSI sampling. Cartographer record.	Roger Smith
Carbis Stream SX 02834 59401	18/2/2023	CSI sampling. Cartographer record.	Roger Smith
Luxulyan allotments, Par River, SX 04732 58045	18/2/2023	CSI sampling. Cartographer record.	Dave Burrell, Joan Farmer, Roger Smith
Cam Bridges, Par River, SX 05292 57454	18/2/2023	CSI sampling. Cartographer record.	Dave Burrell, Joan Farmer, Roger Smith
Gatty's Bridge, Bokiddick Stream SX 05531 57953	18/2/2023	CSI sampling. Cartographer record.	Dave Burrell, Joan Farmer, Roger Smith
Treffry Viaduct, Par River, SX 05650 57179	18/2/2023	CSI sampling. Cartographer record.	Dave Burrell, Joan Farmer, Roger Smith
Lady Rashleigh Mine, Par River, SX 06451 56509	18/2/2023	CSI sampling. Cartographer record. Bacteria sample.	Dave Burrell, Joan Farmer, Roger Smith
Par Beach slipway, SX 0776 53261	19/2/2023	CSI sampling. Cartographer record.	Brian Harrisson
Polmear Stream, Ship Inn SX 08749 53417	19/2/2023	CSI sampling. Cartographer record.	Simon Tagney

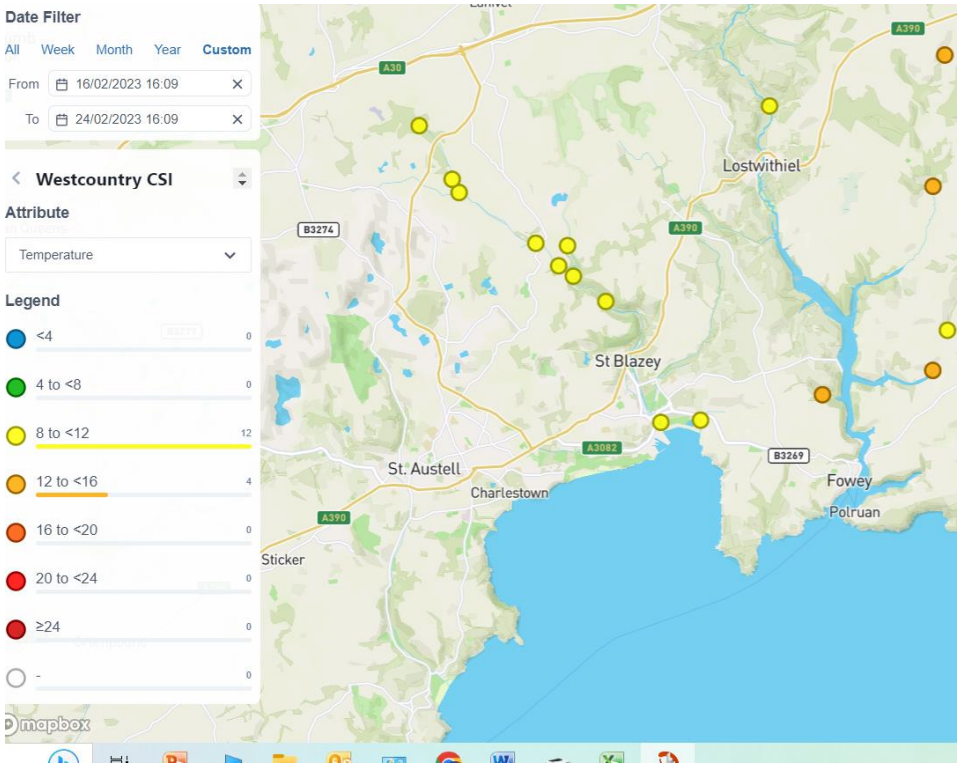
D. TEMPERATURE

1. This is the WRT's explanation of why this is monitored:

Temperature is a vital parameter within the river ecosystem. It controls many of the aquatic species life cycles. Temperature fluctuates with the seasons; however, you do get variation within that, particularly in small rivers and streams. Another important reason to measure temperature is to track the impact of our warming climate on our waterbodies.

2. **Geographical comparison.** Source: Cartographer.





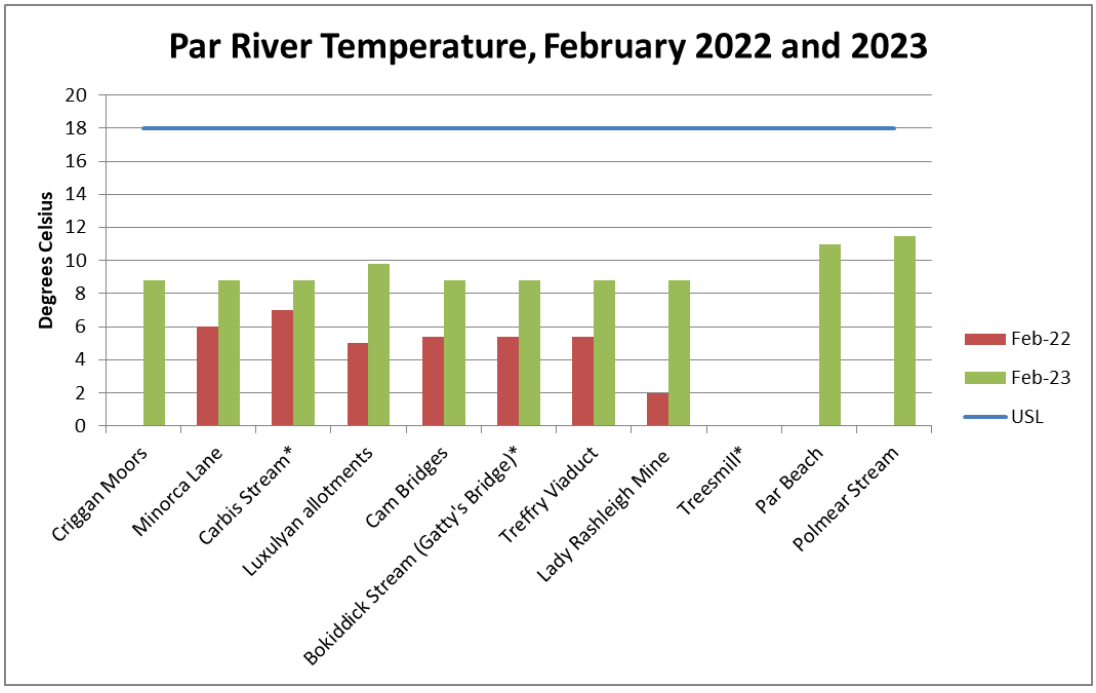
3. **Results** February 2023

PAR RIVER/TRIBUTARY	LOCATION	Temperature ˚Celsius
Par	Criggan Moors, SX 01882 61133	8.8
Par	South of Minorca Lane, Par River, SX 02657 59788	8.8
Tributary	Carbis Stream SX 02834 59401	8.8
Par	Luxulyan allotments, Par River, SX 04732 58045	9.8
Par	Cam Bridges, Par River, SX 05292 57454	8.8
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	8.8
Par	Treffry Viaduct, Par River, SX 05650 57179	8.8
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	8.8
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	-
Par	Par Beach slipway, SX 0776 53261	11
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	11.5

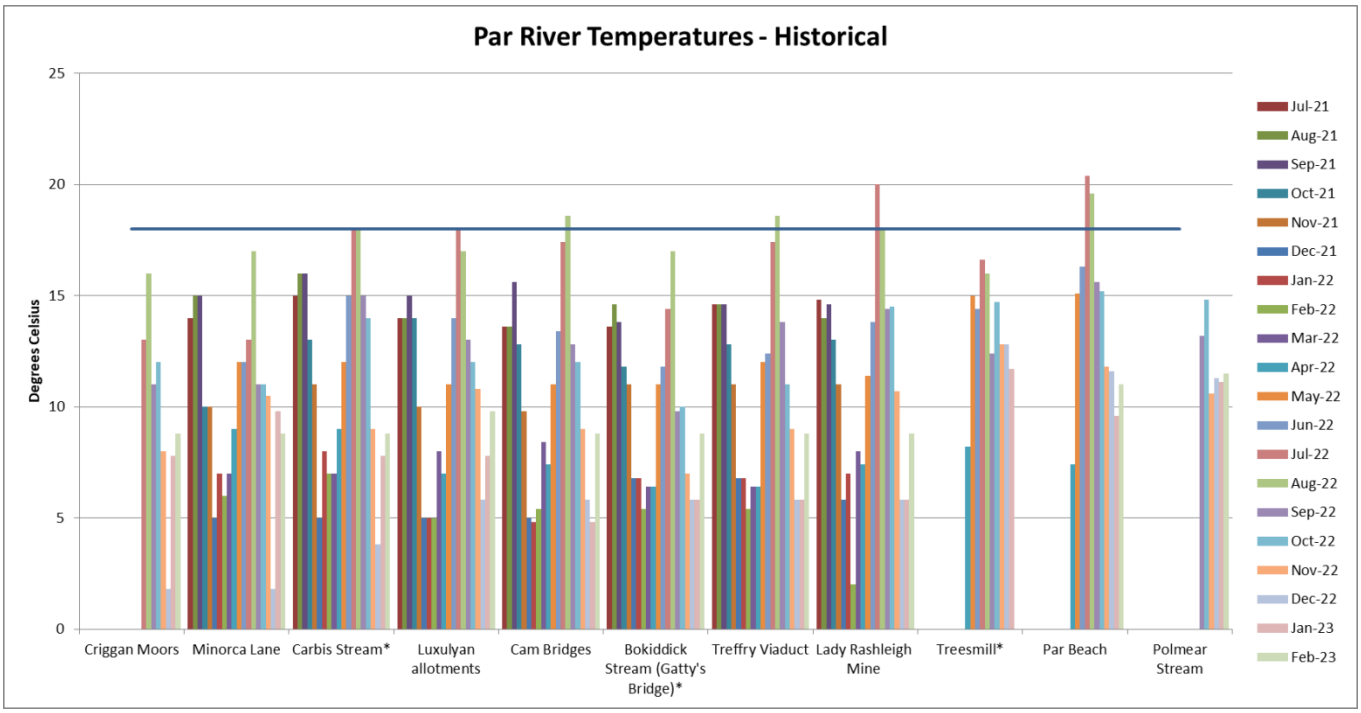
4. Graph February 2023 (**and** February 2022 for comparison)

*indicates a tributary of the Par River.

USL – Upper Safe Limit Our assumption is that 18˚ Celsius is the upper safe limit for fish. This simplification is a useful rule of thumb.



5. Historical data on temperature:

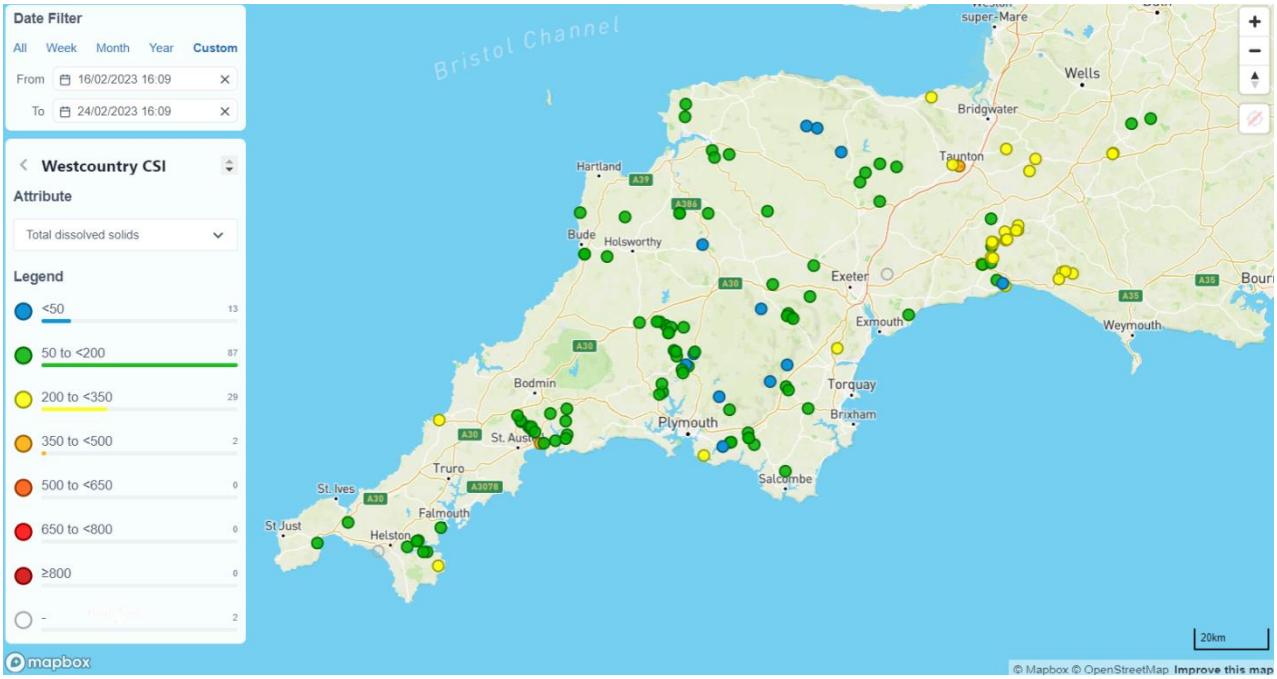


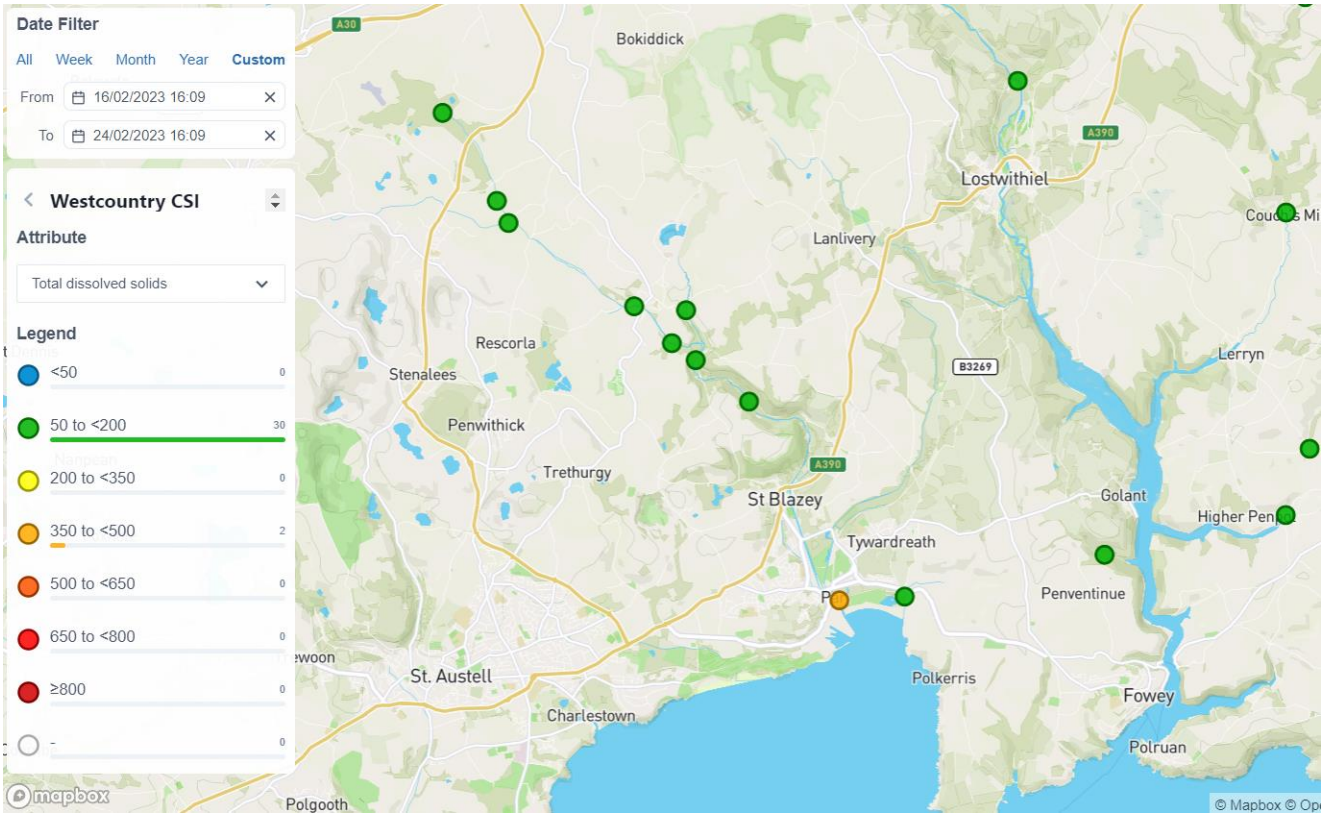
E. TOTAL DISSOLVED SOLIDS

1. We measure these in ppm (parts per million). This is the WRT's explanation:

Total Dissolved Solids (TDS) is directly related to the conductivity of the water. The more minerals, salts and metals that are dissolved in the water the more conductive it gets. Low levels of dissolved solids in waters such as those on Dartmoor near to the source of the river are a result of very low levels of input from the surrounding landscape. As the river runs down to the sea it collects material from many different inputs, some natural and some man-made such as farms, sewage plants, factories and residential areas. This typically increases the amount of solids dissolved in the water leading to a higher reading. Harmful pollution from things like sewage, slurry and factory discharge will usually elevate your TDS reading. However, some pollutants such as oil can lower conductivity; therefore it should be used as a general indicator of water quality not a specific measure of toxicity. Geology will influence the normal level of conductivity in a watercourse (e.g. Areas dominated by granite generally give a lower conductivity than those with limestone). Regular monitoring will allow the detection of changes in conductivity which can indicate pollution.

2. Geographical **comparison.** Source: Cartographer.





3. **Results** February 2023

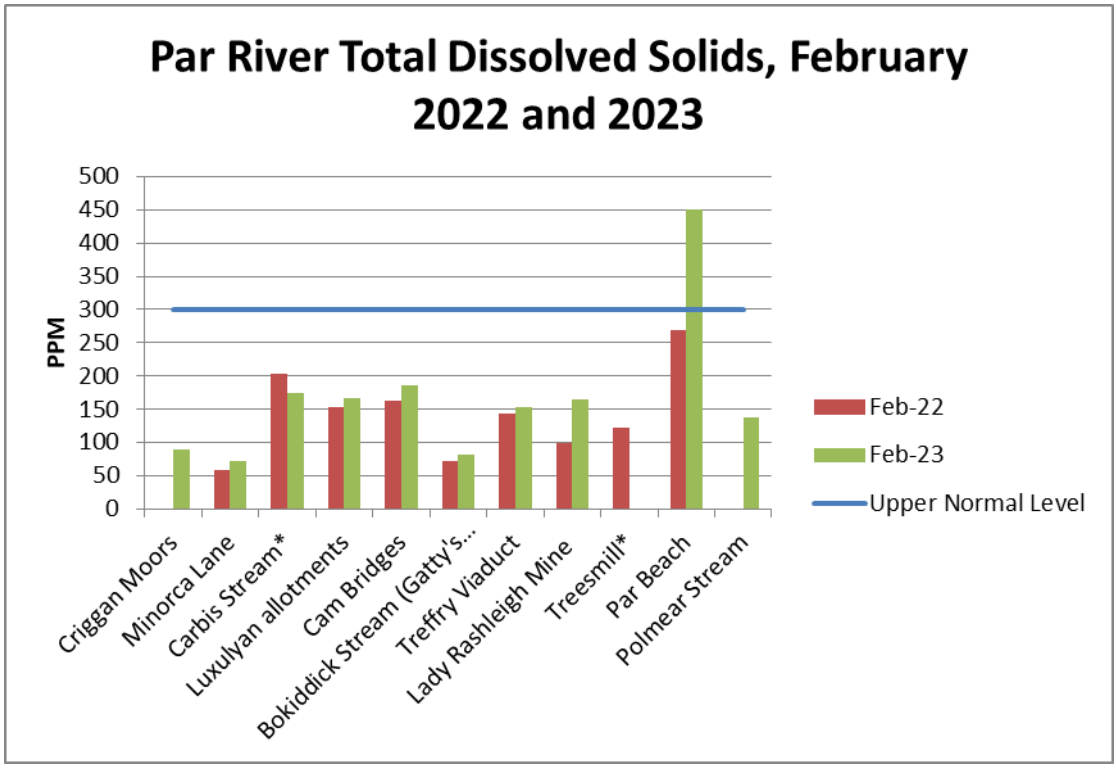
PAR RIVER/TRIBUTARY	LOCATION	Total Dissolved Solids PPM
Par	Criggan Moors, SX 01882 61133	89
Par	South of Minorca Lane, Par River, SX 02657 59788	71
Tributary	Carbis Stream SX 02834 59401	174
Par	Luxulyan allotments, Par River, SX 04732 58045	166
Par	Cam Bridges, Par River, SX 05292 57454	185
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	82
Par	Treffry Viaduct, Par River, SX 05650 57179	154
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	164
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	-
Par	Par Beach slipway, SX 0776 53261	450
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	137

***indicates a tributary of the Par River.**

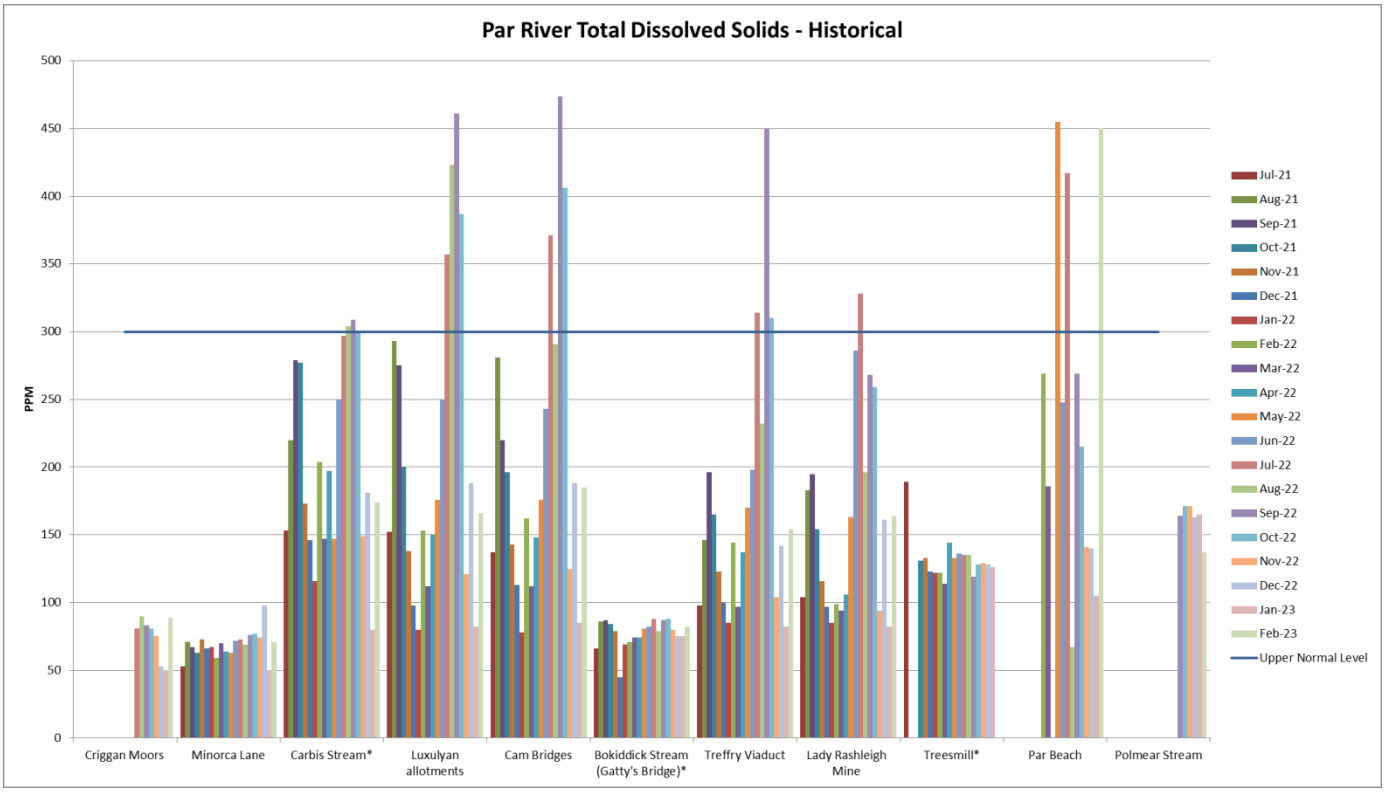
4. Graph February 2023 (and February 2022 for comparison)

Upper Normal Level

The WRT advice is: 'TDS levels vary between catchments due to natural geology etc. We generally say that after 6 months of sampling you should have an idea of what is 'normal' for your river. Looking at the scorecards for the Lower Par for 2020 and 2021 I would say that anything above 300 ppm is too high.'



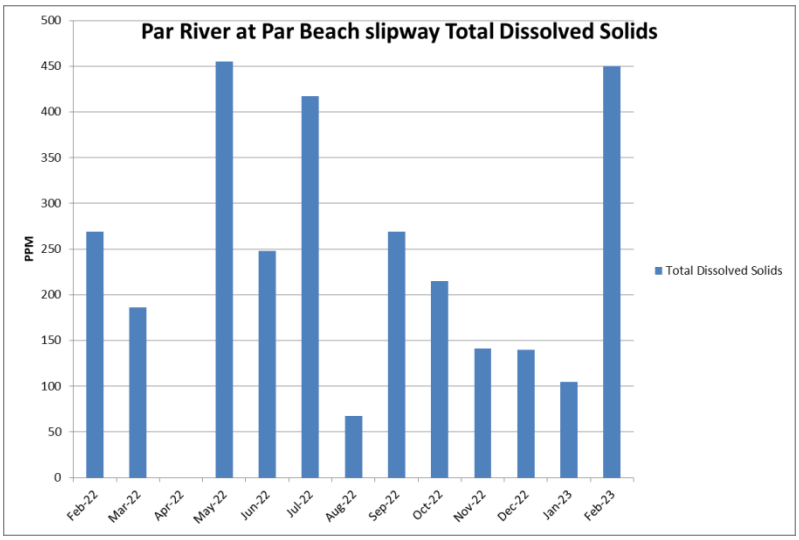
3. **Historical data** on total dissolved solids:



*indicates a tributary of the Par River.

4. Par Beach slipway (SX 0776 53261)

On 1st March 2023 Brian Harrisson took another reading, which was 305 ppm.

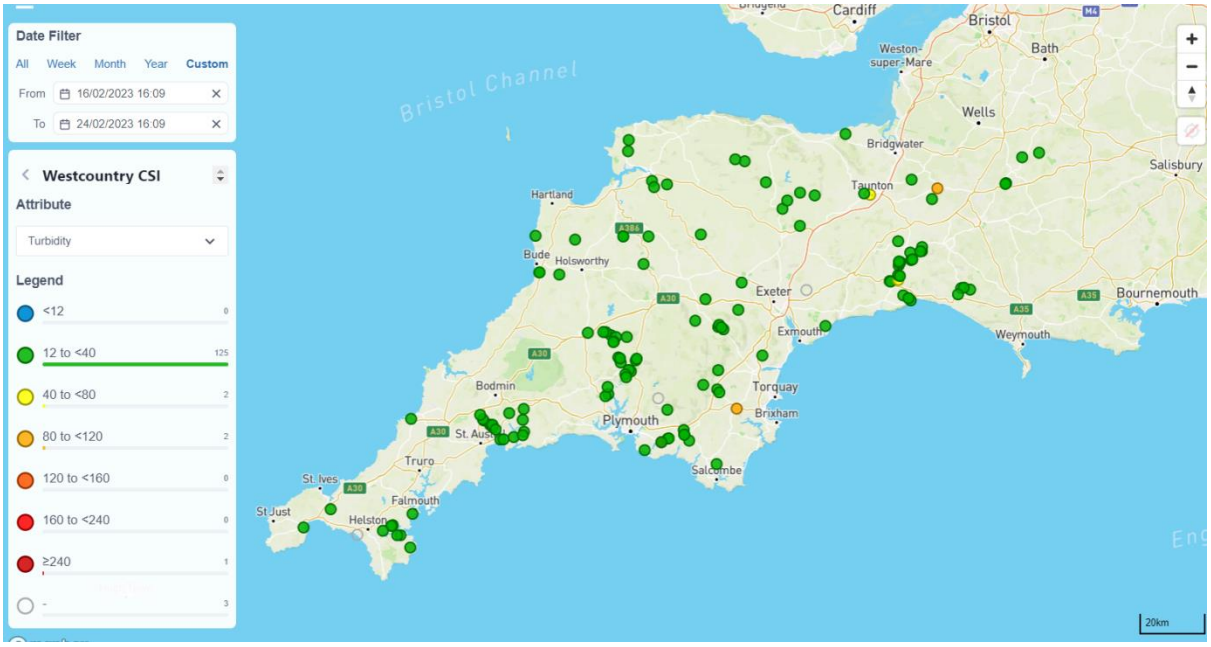


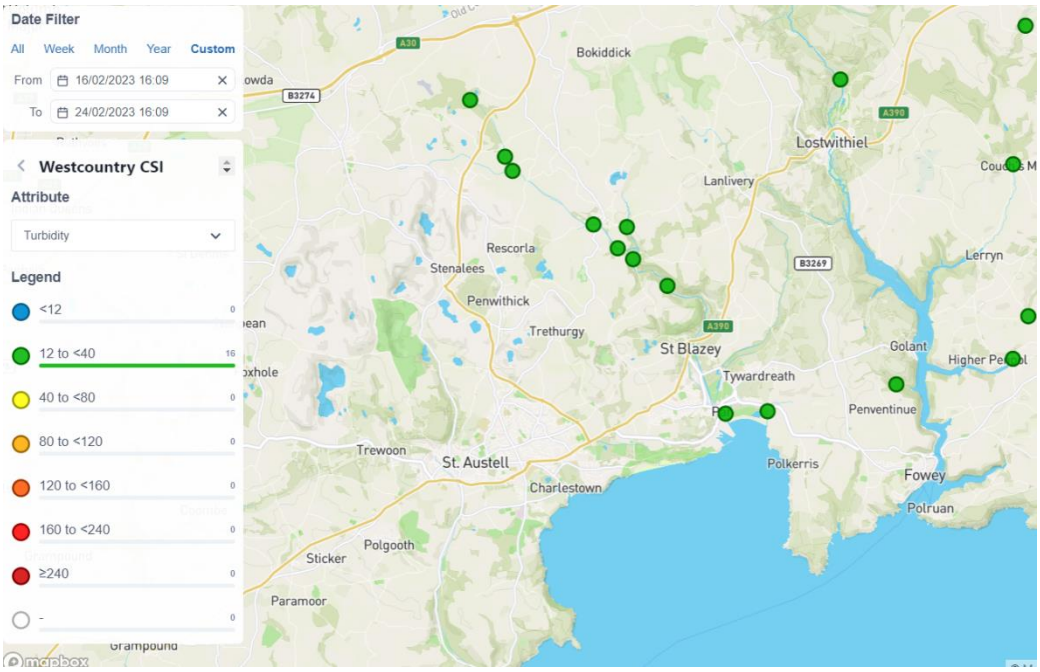
F. TURBIDITY

1. This is the WRT explanation of this measure:

Turbidity tube is a measure of the optical clarity of the water. The more suspended particles in the water the lower the clarity and the higher the turbidity. You will often find your waterbody gets more turbid after heavy rainfall due to soil running off the fields and sediment being mixed into the water column. This loss of topsoil is both a problem for farmer and river. It can often contain chemicals from the fertiliser and pesticides used on the land. An increase in sediment level on the substrate of the river can cause smothering of habitat by removing light and oxygen. Aquatic wildlife such as the less mobile invertebrates and fish eggs struggle to survive in low oxygen conditions and without light, plants are unable to grow. It is a good idea to sample your river after different weather conditions to understand how it responds to rainfall or drought.

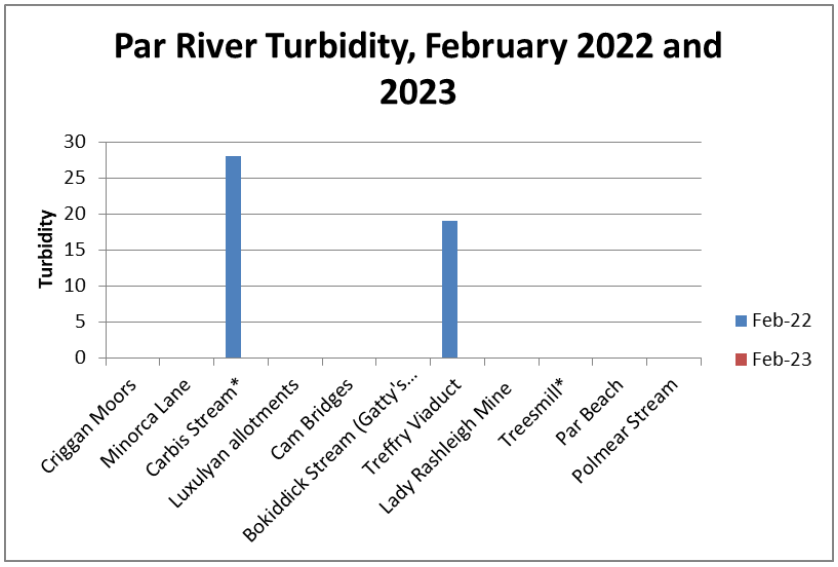
2. **Geographical comparison.** Where scores are shown as 0, it means that the reading using the Secchi tube was <12. Source: Cartographer.



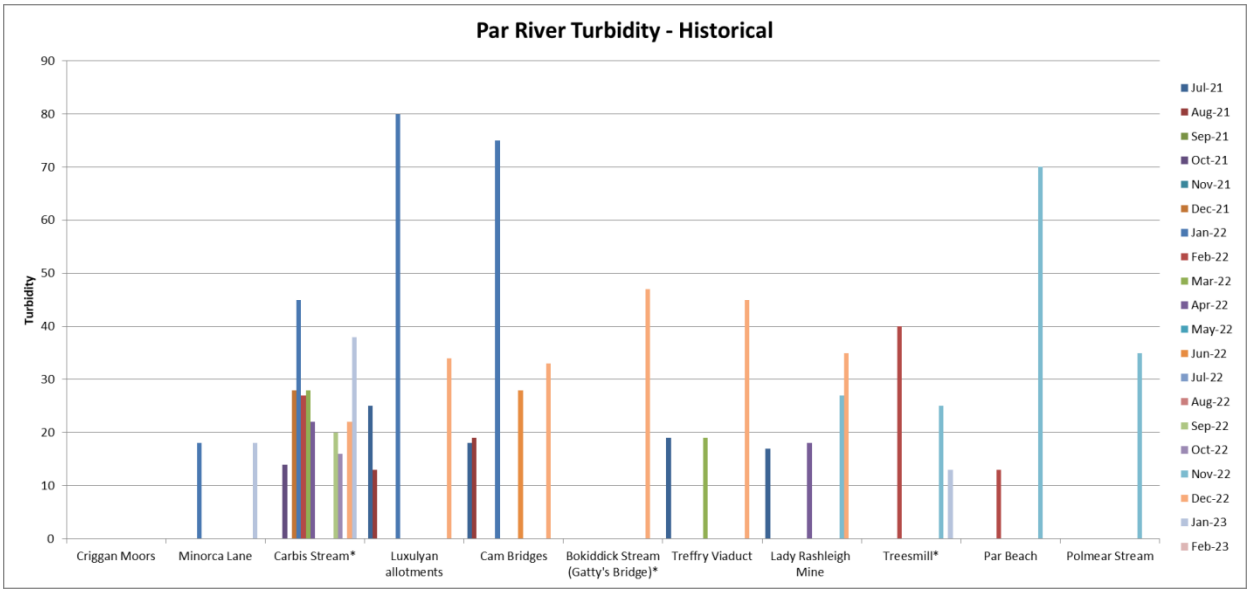


	LOCATION	Turbidity
Par	Criggan Moors, SX 01882 61133	0
Par	South of Minorca Lane, Par River, SX 02657 59788	0
Tributary	Carbis Stream SX 02834 59401	0
Par	Luxulyan allotments, Par River, SX 04732 58045	0
Par	Cam Bridges, Par River, SX 05292 57454	0
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	0
Par	Treffry Viaduct, Par River, SX 05650 57179	0
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	0
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	-
Par	Par Beach slipway, SX 0776 53261	0
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	0

3. Results January 2023



3. Historical **data on turbidity:**



G. PHOSPHATES

1. This is the WRT's explanation of this measure.

Phosphate occurs naturally within the river ecosystem, but in very low levels under 0.05 mg/l. Therefore, higher levels may indicate anthropogenic input. Phosphate is found in animal and human waste, cleaning chemicals, industrial runoff and fertiliser so this can be a good indicator of pollution. Having raised levels of phosphate can lead to increases in plant growth within the watercourse. This leads to a depletion of oxygen due to the plant's aerobic respiration during the night. Without oxygen aquatic species cannot survive and the river ecosystem collapses. (It is important to note that phosphate is taken up by plants. You may get a low reading but high plant growth, indicating eutrophication.)

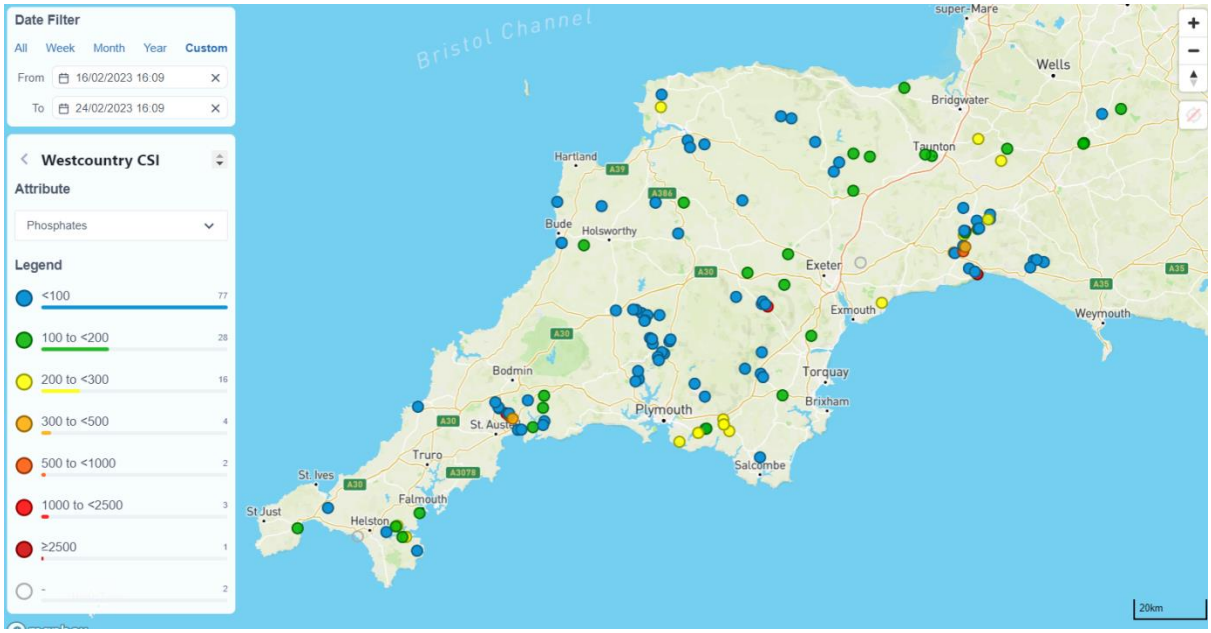
Ranges on phosphate diagnostic colour chart:

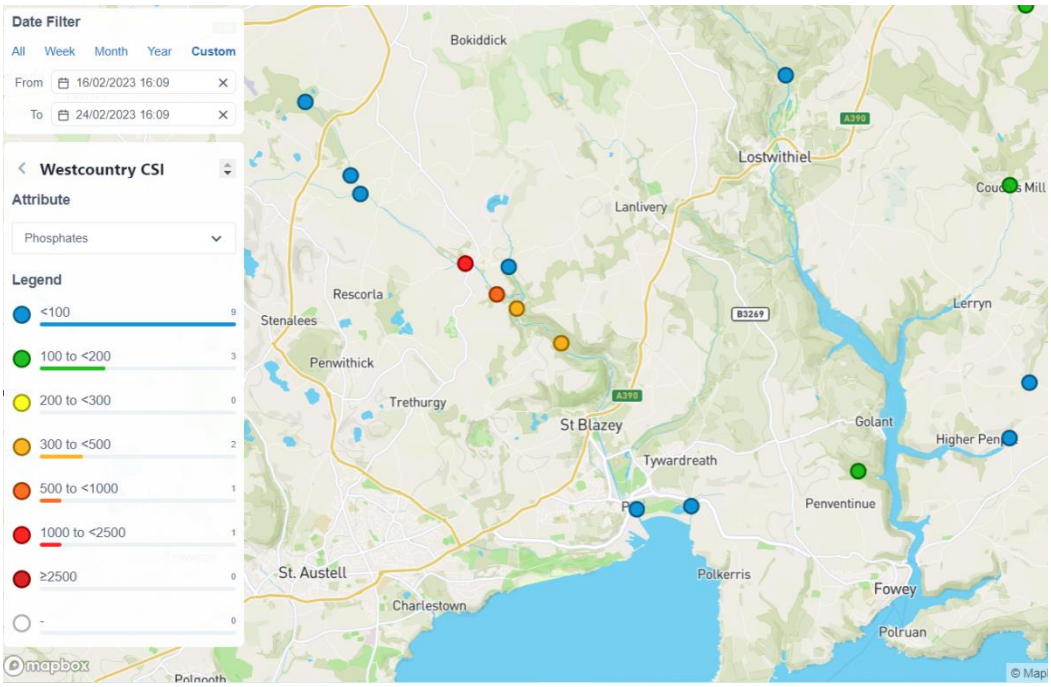
0 – 100 OK

200 – 300 HIGH

500 – 2500 – TOO HIGH

2. **Geographical comparison.** Source: Cartographer



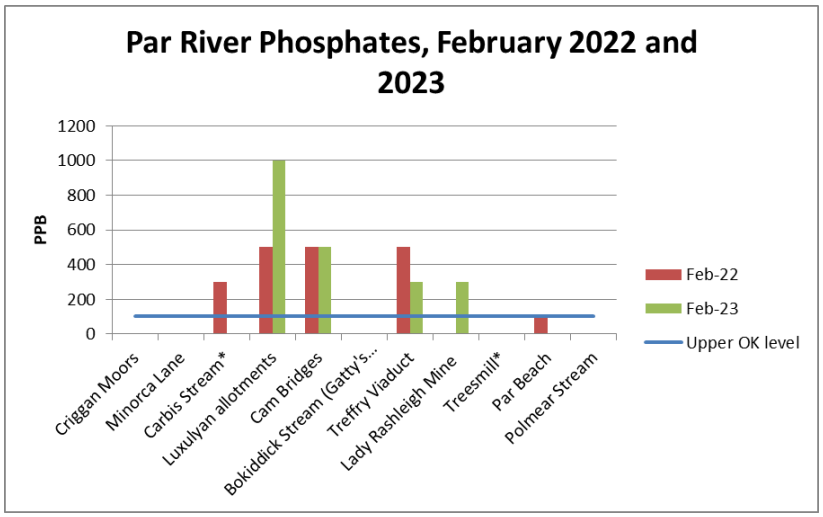


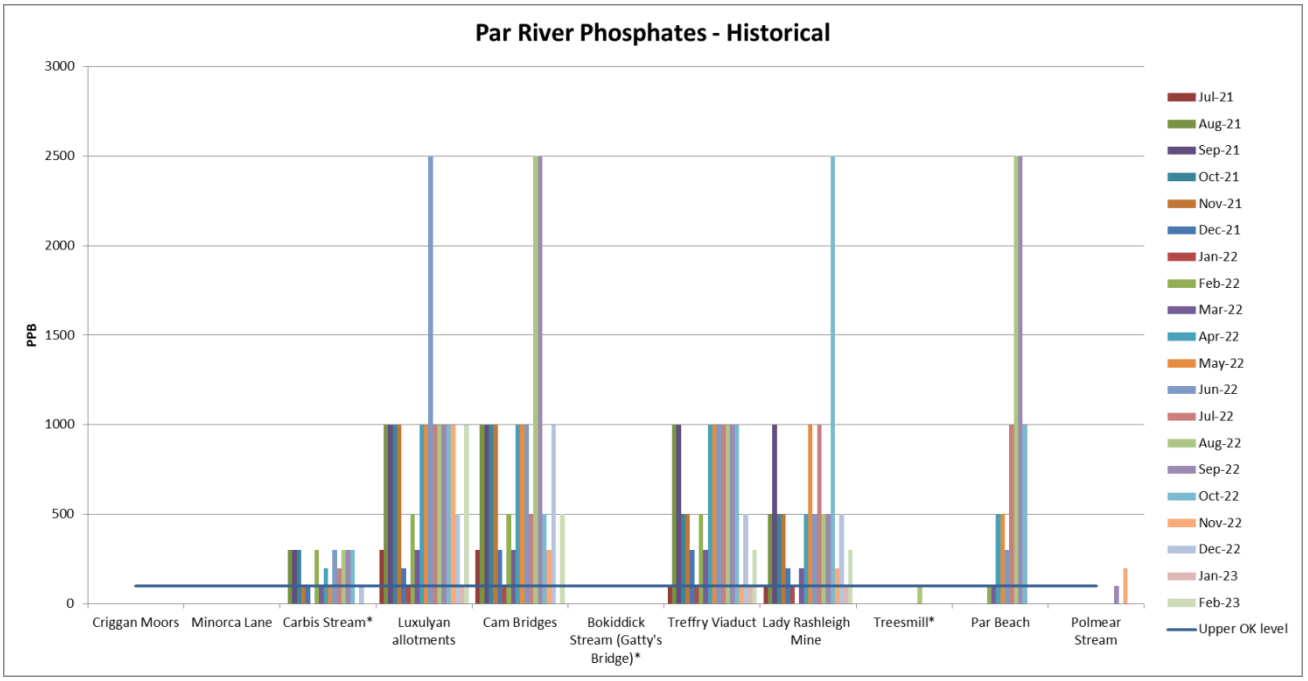
3. Results February 2023

PAR RIVER/TRIBUTARY	LOCATION	Phosphates PPB
Par	Criggan Moors, SX 01882 61133	0
Par	South of Minorca Lane, Par River, SX 02657 59788	0
Tributary	Carbis Stream SX 02834 59401	0
Par	Luxulyan allotments, Par River, SX 04732 58045	1000
Par	Cam Bridges, Par River, SX 05292 57454	500
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	0
Par	Treffry Viaduct, Par River, SX 05650 57179	300
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	300
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	-
Par	Par Beach slipway, SX 0776 53261	0
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	0

*indicates a tributary of the Par River. USL is 100 Parts Per Billion which, according to WRT, is the Upper Safe Level.

5. **Historical data on phosphates:**





H. BACTERIA (E.COLI (EC) & TOTAL COLIFORM (TC)

1. A sample was taken from the Par River at Lady Rashleigh Mine (SX 06451 56509). Joan Farmer incubated the samples.

2. Key information:

(a) What is the difference between total coliform and E. coli?

Total coliform is a large collection of different kinds of bacteria. Faecal coliform are types of total coliform that exist in faeces. E. coli is a subgroup of faecal coliform.
https://doh.wa.gov/sites/default/files/legacy/Documents/Pubs//331-181.pdf

(b) Why is E. coli in river water a concern?

The presence of E. coli **indicates faecal contamination of the drinking water** and as a result, there is an increased risk that enteric pathogens may be present. https://www.canada.ca/en/health-canada/programs/consultation-e-coli-drinking-water/document.html

Particular thanks are due to Joan Farmer for allowing the use of her home for the unpleasant process of incubating the samples and also for contacting the manufacturers of the kit in North Carolina, USA, for guidance on the results. Thanks too to Ross Tonkin for sharing his professional expertise.

(c) Interpreting the river group results:

Aquagenx CBT EC+TC MPN Kit gives a guide to help interpret the results of the incubated samples. This is an attempt at a simple guide linked to the **United States Environmental Protection Agency Recreational Water Health Risk Category Based on Most Probable Number (MPN) and Upper 95% Confidence Level.** However, this simplification should be used with caution until it has been checked by someone with relevant expertise.

MPN/100mL	Health Risk Category
0	**Low Risk/Safe**
10 - 40	**Low Risk/Probably Safe**
47 – 84	**Low Risk/Possibly Safe**
91 - 96	**Intermediate Risk/Possibly Safe**
136 - 171	**High Risk/Probably Unsafe**
326 - 483	**Very High Risk/Unsafe**
>1000	**Very Unsafe**

3. Monthly results including February 2023

MONTH & TEST	Criggan Moor (Upper Par) SX01882 61133 Sample & Result Dates, Score & Health Risk	Minorca Lane (Upper Par) SX02657 59788 Sample & Result Dates, Score & Health Risk	Lady Rashleigh Mine (Lower Par) SX06451 56509 Sample & Result Dates, Score & Health Risk	NOTES ON WEATHER, TEST ETC
FEBRUARY 2022				
E.coli	n/a	n/a	21/02/2022 (23/02/2022; 24/02/2022) **483**[1] **Very High/ Unsafe** **483**[2] **Very High Risk /Unsafe**	Rain prev. 24 hrs
Total Coliform	n/a	n/a	21/02/2022 (23/02/2022; 24/02/2022) **>1000** **Very Unsafe** **>1000** **Very Unsafe**	Rain prev. 24 hrs
MARCH 2022				
E.coli	n/a	n/a	21/03/2022; 24/02/2022 **136** **High Risk. Probably unsafe.**	Dry
Total Coliform	n/a	n/a	21/03/2022; 24/02/2022 **>1000**[3] **Very Unsafe**	Dry
APRIL 2022	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	n/a	n/a	16/04/2022; 18/04/2022 **326** **Very High Risk /Unsafe**	Dry and sunny following rain. Temp over 30˚ C.
Total Coliform	n/a	n/a	16/04/2022; 18/04/2022 **>1000** **Very Unsafe**	Dry and sunny following rain. Temp over 30˚ C. Definitely blue in

				compartments 4 & 5.
MAY 2022				
E.coli	n/a	n/a	9/05/2022; 11/05/2022 **136** **High Risk. Prob. Unsafe**	Dry
Total Coliform	n/a	n/a	9/05/2022; 11/05/2022 **>1000** **Very Unsafe**	Dry Def. blue
JUNE 2022				
E.coli	n/a	n/a	27/06/2022; 29/06/2022 **483** **Very High Risk/ Unsafe**	Rain in prev. 24 hours
Total Coliform	n/a	n/a	27/06/2022; 29/06/2022 **>1000** **Very Unsafe**	Rain in prev. 24 hours Def. blue
JULY 2022				
E.coli	n/a	n/a	18/07/2022; 20/07/2022 **47** **Low Risk/Possibly Safe**[4]	Dry
Total Coliform 18/07/2022; 20/07/2022	n/a	n/a	18/07/2022; 20/07/2022 **483** **Very High Risk/ Unsafe**	Dry
AUGUST 2022	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	19/08/2022 **483** **Very High Risk/ Unsafe**	19/08/2022 **483** **Very High Risk/ Unsafe**	21/08/2022; 23/08/2022 **483** **Very High Risk/ Unsafe**	
Total Coliform	19/08/2022 **>1000** **Very Unsafe**	19/08/2022 **>1000** **Very Unsafe**	21/08/2022; 23/08/2022 **>1000** **Very Unsafe**	Light rain
SEPTEMBER 2022	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	16/09/2022 **483** **Very High Risk/ Unsafe**	16/09/2022 **136** **High Risk/Probably Unsafe**	17/09/2022; 19/09/2022 **483** **Very High Risk/ Unsafe**	No rain
Total Coliform	16/09/2022 **>1000** **Very Unsafe**	16/09/2022 >1000 Very Unsafe	17/09/2022; 19/09/2022 **>1000** **Very Unsafe**	No rain
OCTOBER 2022	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	17/10/2022 **483**	17/10/2022 **47**	15/10/2022 **483**	Dry. Light rain in previous 24

	Very High Risk/ Unsafe	**Low Risk/Possibly Safe**	**Very High Risk/ Unsafe**	hours. River low.
Total Coliform	17/10/2022 **>1000** **Very Unsafe**	17/10/2022 **>1000** **Very Unsafe**	15/10/2022 **>1000** **Very Unsafe**	Dry. Light rain in previous 24 hours. River low.
NOVEMBER 2022	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	No sample	16/11/2022 **483** **Very High Risk/ Unsafe**	16/11/2022 **483** **Very High Risk/ Unsafe**	Heavy rain
Total Coliform	No sample	16/11/2022 **>1000** **Very Unsafe**	16/11/2022 **>1000** **Very Unsafe**	Heavy rain
DECEMBER 2022	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	No sample	No sample	18/11/2022 **483** **Very High Risk/ Unsafe**	Heavy rain
Total Coliform	No sample	No sample	18/11/2022 **>1000** **Very Unsafe**	Heavy rain
JANUARY 2023	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	No sample	No sample	No sample	
Total Coliform	No sample	No sample	No sample	
FEBRUARY 2023	**Criggan**	**Minorca Lane**	**Lady Rashleigh**	
E.coli	No sample	No sample	**136** **High Risk. Prob. Unsafe**	Light rain in previous 24 hours. River level average or slightly lower.
Total Coliform	No sample	No sample	**136** **High Risk. Prob. Unsafe**	Light rain in previous 24 hours. River level average or slightly lower.

1. Readings taken twice on the 1st sample as it took 12 hours to reach the minimum temperature of 25 degrees.

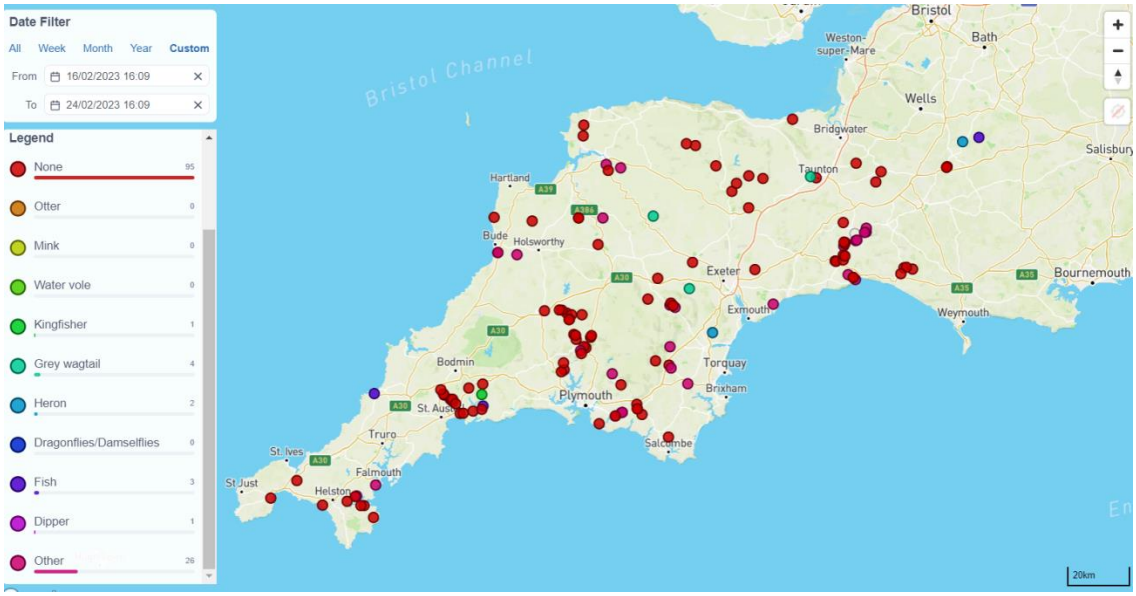
2. Originally >1000 but I now believe this reading should be 483 and the traces of blue in compartment 5 had leaked out of one of the other compartments as the clip was not positioned exactly along the maximum fill line.

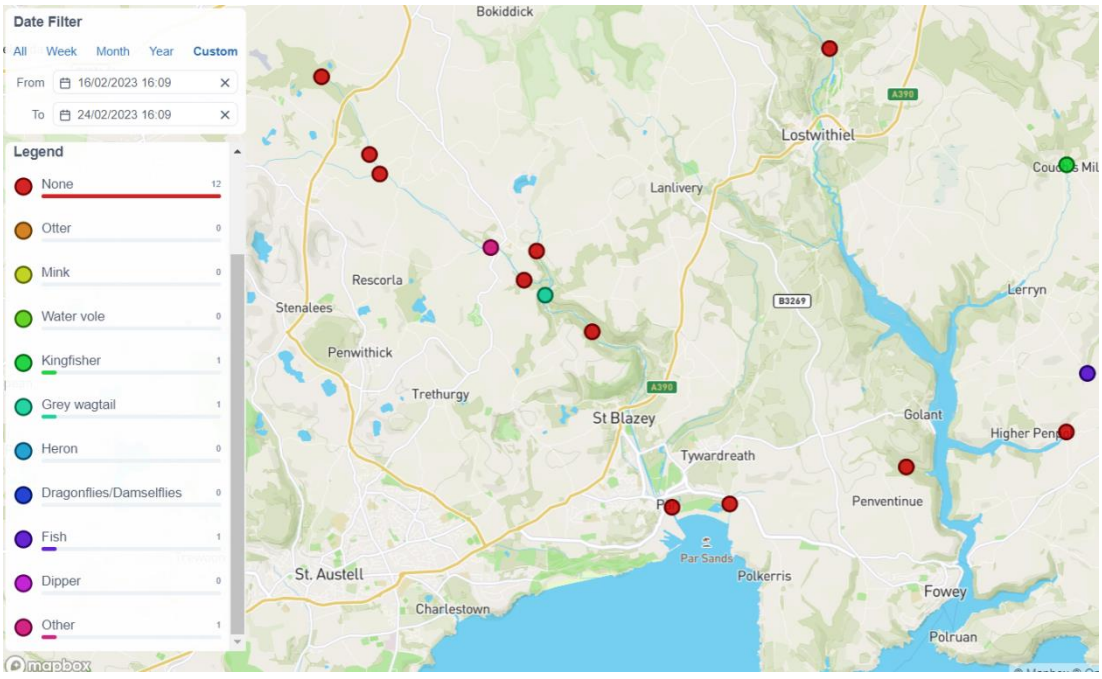
3. Compartments 4 and 5 had only very pale blue fluorescence in UV light, but definitely glowed with no trace of yellow. Aquagenx company confirmed that fluorescence under UV light indicates positive for total coliforms.

4. Due to hot weather, limited additional heat was added. The temperature for most of the time was between 25 and 30 so should have been left for 40-48 hours. Insufficient time given (36 hrs) so results may be wrong.

I. WILDLIFE (FOR OTTER REPORT SEE SECTION J)

(a) Maps





Source: Cartographer.

Otter spraint is included, as usual, under 'Other'.

(**b) Wildlife sightings at the monitoring points included:**

PAR RIVER/TRIBUTARY	LOCATION	WILDLIFE NOTED
Par	Criggan Moors, SX 01882 61133	None.
Par	South of Minorca Lane, Par River, SX 02657 59788	None
Tributary	Carbis Stream SX 02834 59401	None
Par	Luxulyan allotments, Par River, SX 04732 58045	Otter spraint
Par	Cam Bridges, Par River, SX 05292 57454	None
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	None
Par	Treffry Viaduct, Par River, SX 05650 57179	Grey wagtail
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	None
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	-
Par	Par Beach slipway, SX 0776 53261	None
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	None

J. OTTER SURVEY

1. SURVEY CONDITIONS

Date & time	14/2/2023, 18/2/2023
Surveyors	Roger Smith, Dave Burrell, Joan Farmer
Areas surveyed	Upper Par (Criggan Moors and Minorca Lane); Par River from STW to Cam Bridges; Par River from Treffry Viaduct to Lady Rashleigh Mine; Lady Rashleigh Mine to river path downstream from former Prideaux Woods china clay works, Bokiddick Stream at Gatty's Bridge; Fowey Consols leat between sluice near Gatty's and Black Hill.
Weather	Dry on 14th February. Very light drizzle on 18th.
River level	Average or lower.
River flow	Steady
Water quality	Phosphate readings 1000 PPB at the highest (Luxulyan allotments), 500 at Cam Bridges, 300 at Treffry Viaduct and Lady Rashleigh Mine. All readings zero upstream from the allotments.
Other wildlife	

2. EVIDENCE FOR OTTERS ✓

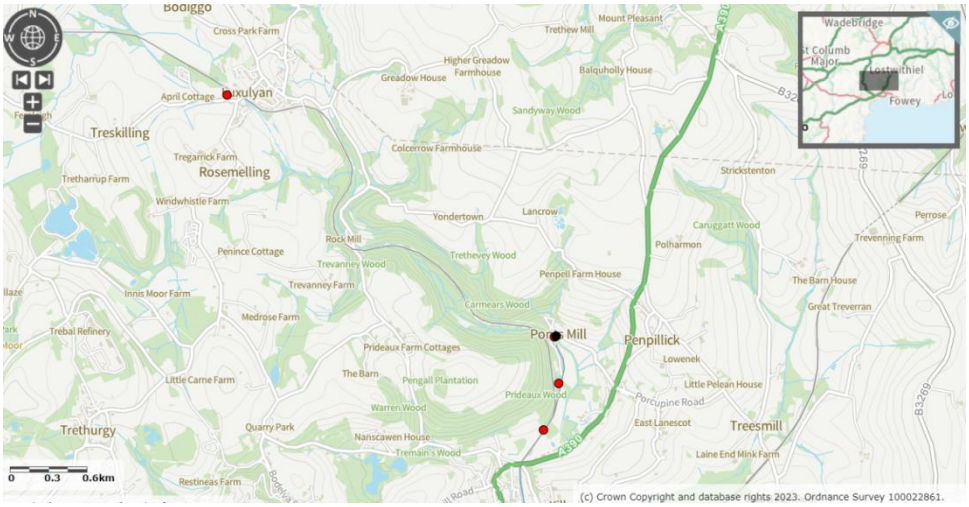
EVIDENCE	SEEN/ ORKS*	LOCATION	NOTES
Spraint - fresh			
Spraint – recent	✓* ✓*	SX 0722 5542 Stone in river near path south of Prideaux Wood china clay works (disused). SX 04747 58056 Luxulyan allotments – boulder in river.	
Spraint - old	✓* ✓*	SX 07342 55795 on bankside stone downstream from sluice gate at Ponts Mill. SX 04747 58056 Luxulyan allotments – boulder in river.	
Anal jelly	✓	SX 07312 56164 Under canal bridge at Ponts Mill. 14th February 2023.	Jelly-like, no bones or scales, distinctive odour.
Sign heap			
Staining			
Tracks	?	SX 07312 56164 Under canal bridge at Ponts Mill. 14th February 2023.	Sand very disturbed.
Path			
Slide			
Holt			
Hover			
Couch			
Live sighting			
Corpse			

***Report sent to ORKS: https://erccis.org.uk/**

3. MAP

Source: https://magic.defra.gov.uk/MagicMap.aspx

Red dots – definite evidence. Recorded on ORKS.
Black dots – possible evidence. Not recorded on ORKS.
Green dots – definite evidence but may have been recorded in the previous month, e.g. old spraint.



4. PHOTOGRAPHS

(a) Spraint: 1 old, 1 recent, all containing bones and scales on stone Luxulyan allotments – boulder in river (SX 04747 58056).

(b) Spraint: 1 old, 1 recent, all containing bones and scales on stone Luxulyan allotments – boulder in river (SX 04747 58056).

(c) Possible anal jelly under the canal bridge at Ponts Mill (SX 07312 56164).

(d) Possible footprints under the canal bridge at Ponts Mill (SX 07312 56164). The ground was disturbed with at least one boot print (not mine). Animal prints were unclear, with one possible dog paw print.

(e) Old spraint on bankside stone downstream from sluice gate at Ponts Mill (SX 07342 55795).

(f-g) Stone in river near path south of disused Prideaux Wood china clay works (SX 0722 5542).

5. COMMENTS

There was clear evidence of the presence of otters between the allotments in Luxulyan and Prideaux Woods china clay works (disused) south of Ponts Mill. Evidence on the small beach beneath the canal bridge at Ponts Mill strongly suggested the presence of otters. No spraint was found but a similar smelling jelly, which may be anal jelly. The surface was highly disturbed but possibly there were paw prints.

K. ARMI RIVERFLY SURVEY

No survey was carried out this month.

L. DISCUSSION

1. Positive observations

(a) Otter spraint was found a number of locations from Luxulyan allotments downstream.

(b) Levels of E.coli and Total Coliforms at Lady Rashleigh Mine were lower than has often been the case.

2. Points of concern

(a) Levels of E.coli and Total Coliforms at Lady Rashleigh Mine were still in the range classed as ‘High Risk. Prob. Unsafe’ according to the Aquagenx testing methodology.

(b) Phosphate levels have returned to being High or Too High (WRT classifications) between Luxulyan allotments and Lady Rashleigh Mine after the diluting effects of high river levels in January.

3. Areas of doubt

(a) We cannot state with certainty but make the working assumption that the high phosphate levels are linked to the St Austell North STW at Luxulyan.

(b) We do not know if the bacteria levels are genuinely high risk and unsafe because the Aquagenx testing is for recreational waters in the USA.

(c) Very high levels of Total Dissolved Solids at Par Beach slipway have been recorded before but are unusual. Over time, recording has taken place at all states of the tide. There seems no obvious explanation.

Report compiled by Dave Burrell, Joan Farmer & Roger Smith for the Par River Monitoring Group, 2nd March 2023.