MONITORING OF THE PAR RIVER AND ITS TRIBUTARIES

The monitoring group operates under the citizen science scheme run by the Westcountry Rivers Trust. Comments and opinions in this report are those of the authors only.

SEPTEMBER 2024

Cam Bridges on the Upper Par. Why is there an unpleasant odour from the river here and not closer to St Austell North STW? Is it turbulence caused by the weir?

CONTENT	PAGES

A. OUR SEPTEMBER 2024 FINDINGS AT A GLANCE (SEE SECTIONS C TO I FOR FULL PICTURE)

1. Data

We sampled at 15 locations on the 12th, 15th and 18th September 2024. The **red** highlighting shows results of concern.

CRITERIA	UPPER PAR (UPSTREAM OF CONFLUENCE WITH BOKIDDICK STREAM NEAR BLACK HILL CAR PARK) 5 TESTING LOCATIONS	LOWER PAR (FROM CONFLUENCE WITH BOKIDDICK STREAM TO SEA) 3 TESTING LOCATIONS	TRIBUTARIES OF UPPER PAR (CARBIS STREAM, MOLINNIS STREAM, TRESKILLING STREAM, BOKIDDICK STREAM) 6 TESTING LOCATIONS	TRIBUTARY OF LOWER PAR (POLMEAR STREAM) 1 TESTING LOCATION
TEMPERATURE ˚ CELSIUS (SHOULD NOT EXCEED 18˚ CELSIUS)	Mean 15.44 Median 16 Min 13.1 Max 16.7	Mean 16.46 Median 17.1 Min 14.8 Max 17.5	Mean 15.9 Median 15.85 Min 14.5 Max 17.4	14.2
TOTAL DISSOLVED SOLIDS PPM (SHOULD NOT EXCEED 300 PPM)	Mean 101.2 Median 103 Min 50 Max 148	Mean 124.66 Median 129 Min 103 Max 142	Mean 96.16 Median 65 Min 49 Max 182	184
TURBIDITY (SHOULD BE <12 ON SECCHI TUBE. FOR AVERAGING ANY READING <12 IS COUNTED AS 0)	Mean 0 Median 0 Min 0 Max 0	Mean 0 Median 0 Min 0 Max 0	Mean 0 Median 0 Min 0 Max 0	0
PHOSPHATES PPB (SHOULD NOT EXCEED 100 PPB)	Mean **260** Median 0 Min 0 Max **1000**	Mean **1100** Median **500** Min **300** Max **2500**	Mean 0 Median 0 Min 0 Max 0	0
RIVERFLY SCORE (TRIGGER LEVEL AT LRM SHOULD BE ≥ 6)	N/A	8	N/A	N/A
WILDLIFE EVIDENCE	Pond skaters, otter spraint & anal jelly, butterfly.	Grey wagtail, Riverfly nymphs(Cased Caddis, Flat-bodied Upwing, Olives, Stoneflies, Gammarus), dragonflies, Red Admiral butterfly swan and cygnets, mallard ducks.	Lake created by beavers	None
INVASIVE PLANTS	Himalayan Balsam, Hemlock Water Dropwort, Japanese Knotweed.	None	None.	None.
EVIDENCE OF POLLUTION	Foam, smell.	Foam, smell.		

2. Key points

(a) Positive signs

(i) The ARMI riverfly trigger level on the Lower Par at Lady Rashleigh Mine was exceeded.

(ii) Otters had been present near Luxulyan Allotments on the Upper Par and had clearly been eating fish.

(iii) The water of the Carbis and Molinnis Streams, sometimes polluted with china clay, was clear.

(iv)The presence of beavers near Helman Tor is evident in the form of a lake resulting from dam-building. This may have a positive impact on water flow and quality downstream.

(b) Points of concern

(i) The maximum phosphate level was detected in the Lower Par River at Lady Rashleigh Mine, in addition to very high levels elsewhere between Luxulyan Allotments and Par Beach Slipway.

(ii) A smell, thought to be sewage-related, was noted at Cam Bridges and along the Lower Par in Luxulyan Valley.

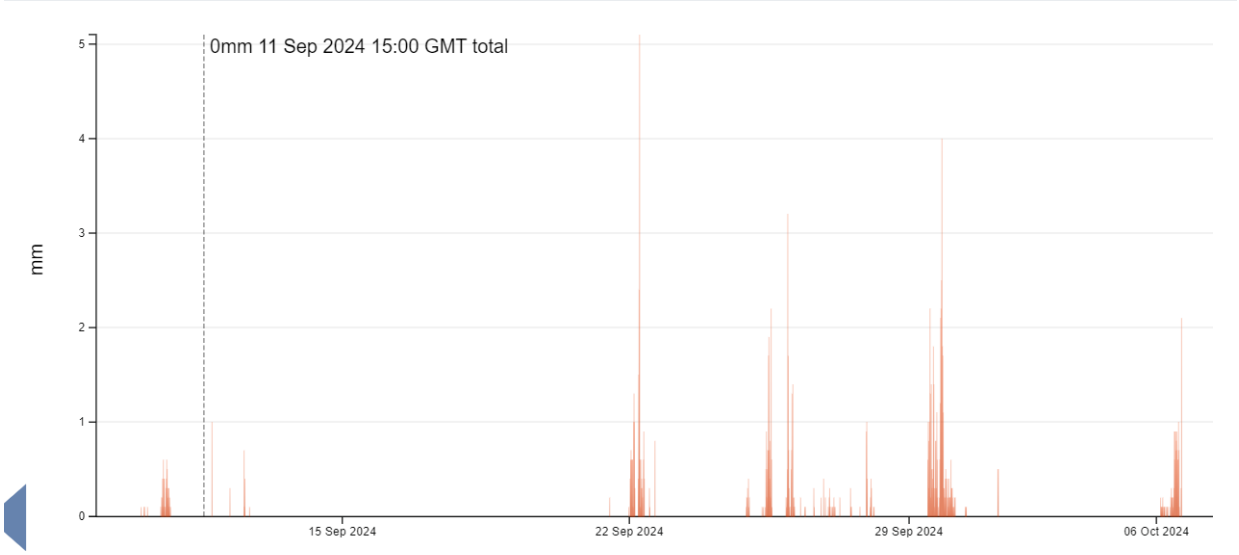
(c) Areas for further research

(i) In August, with a similar lack of rainfall and low river levels, the Molinnis and Carbis Streams were grey/white with china clay, yet in September they were clear.

(ii) It is unclear why there should be a sewage smell at Cam Bridges, yet not at Luxulyan allotments, which is much nearer to St Austell North STW. The effect of the weir in creating turbulence is a possible explanation but doesn't explain why the smell can be detected for a long distance downstream in Luxulyan Valley. Is there another explanation, such as something happening between the allotments and Cam Bridges?

B. RAINFALL, RIVER LEVELS AND FLOW

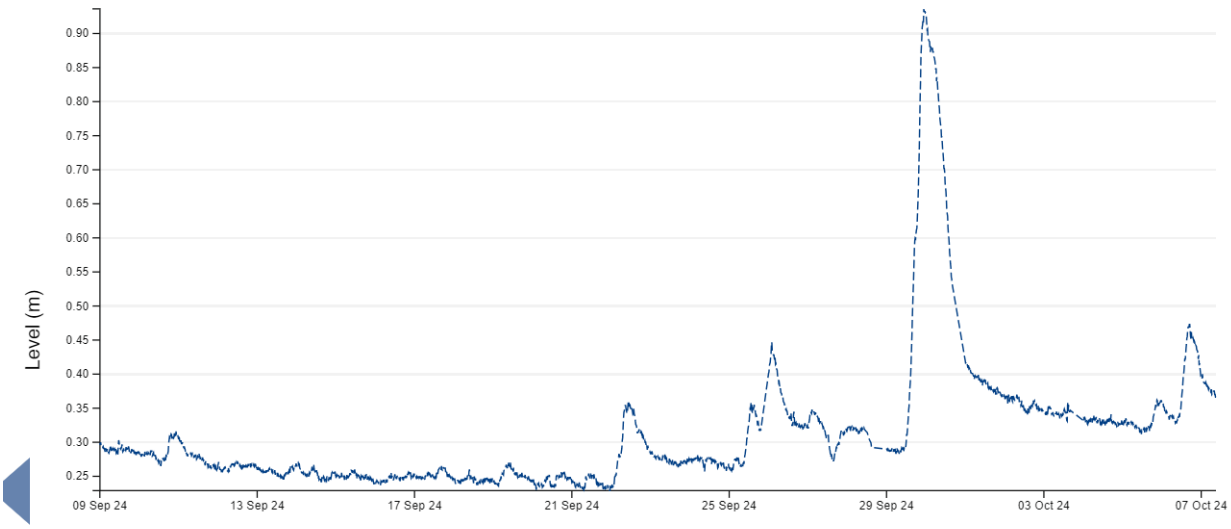
1. Rainfall at Luxulyan



Source: https://environment.data.gov.uk/hydrology/station/14aadf3c-3d4d-44b3-b26b-cf705827d00e_377323

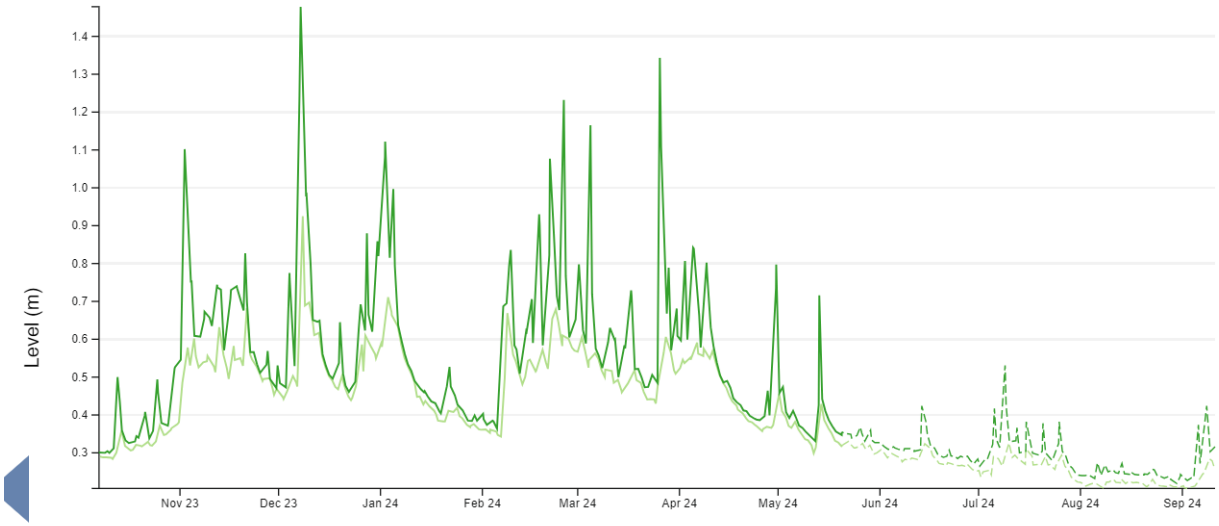
2. **Par River levels at Luxulyan preceding and during surveys.**

(a)



Source: https://environment.data.gov.uk/hydrology/station/14aadf3c-3d4d-44b3-b26b-cf705827d00e

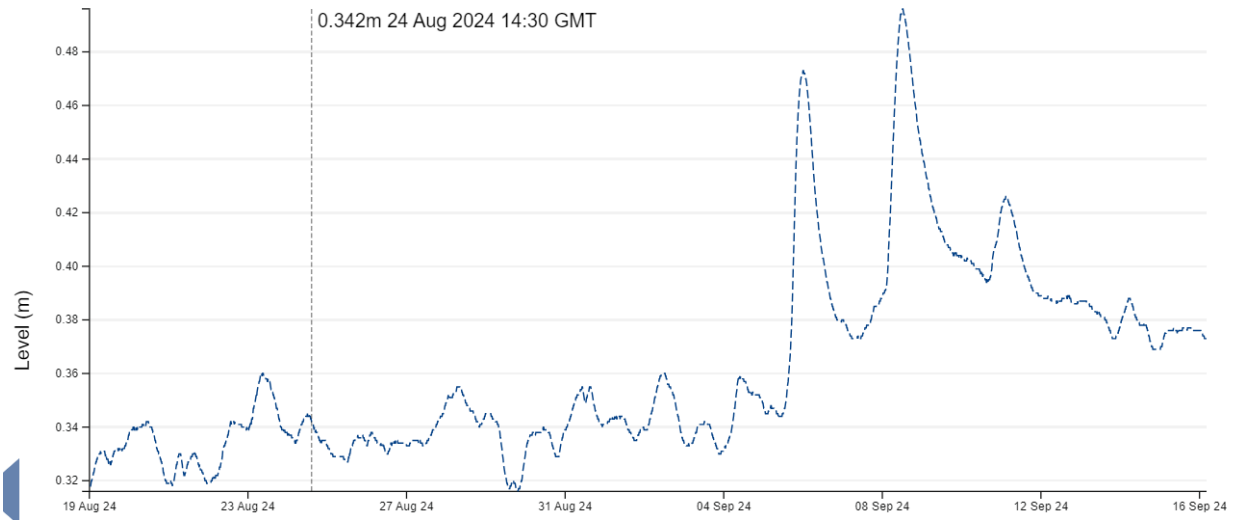
(b) Maximum and minimum levels at Luxulyan for the last year:



(b) How levels at Luxulyan could affect nearby areas:

1.80m	Property flooding is possible above this level. One or more flood warnings may be issued
1.68m	Water reaches the highest level recorded at this measuring station (recorded on 19 December 1999)
1.40m	Low lying land flooding is possible above this level. One or more flood alerts may be issued
	This is the top of the normal range

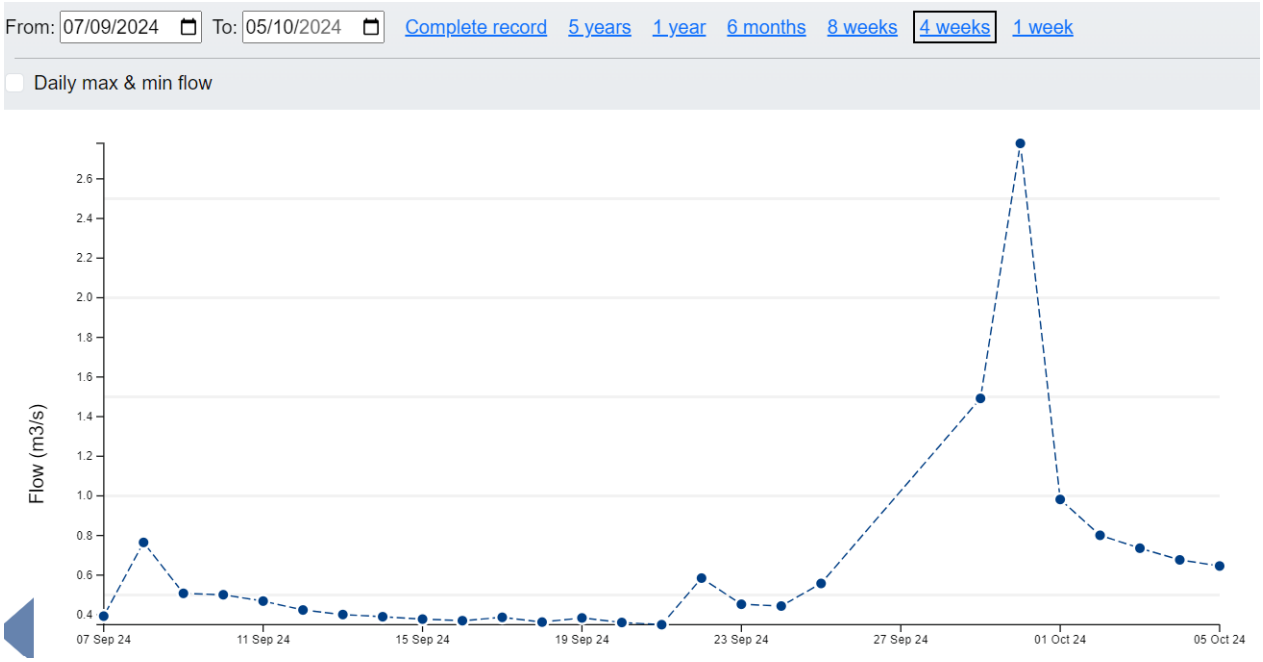
3. Par River at St Andrews (19th August to 16th September 2024)



Source: https://environment.data.gov.uk/hydrology/station/ed1dfc51-fe83-4c39-b433-6f287ce0305e

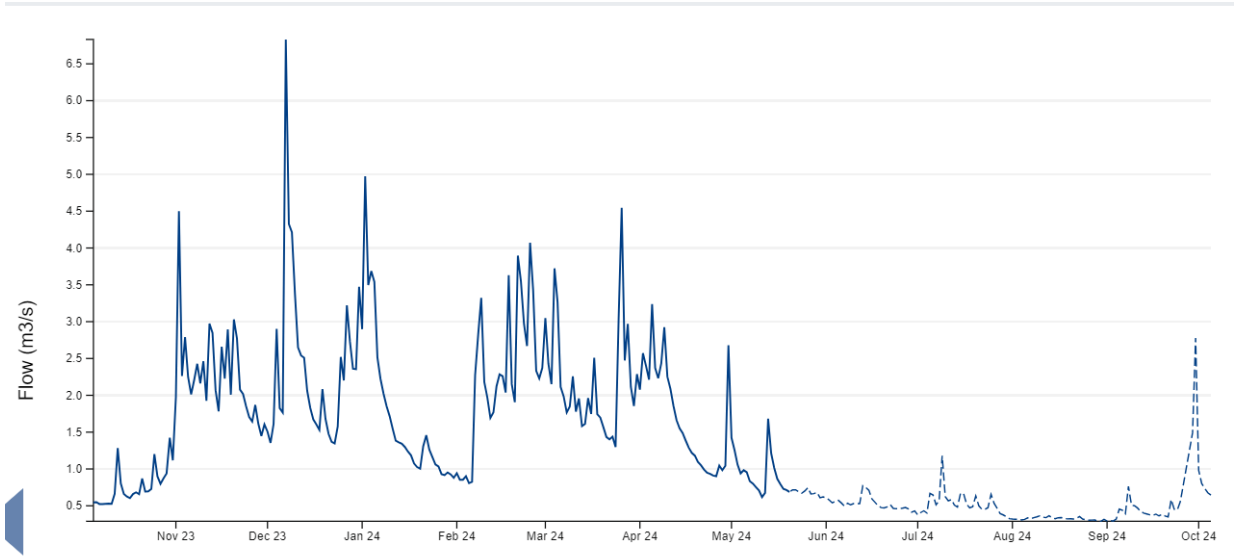
4. RIVER FLOW AT LUXULYAN (Daily Mean Flow in M3/s – cubic metres per second):

(a) The last month:



Source: https://environment.data.gov.uk/hydrology/station/d58ffa6f-8f0d-4626-b7a1-23de1774b470

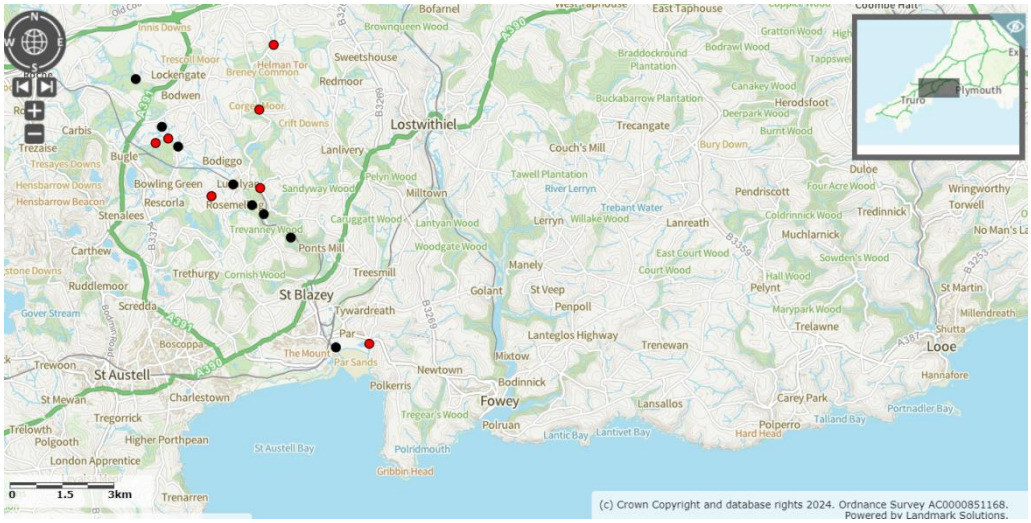
(b) The last year:



5. The graphs in sections 1 to 4 are taken from Hydrology Data Explorer (https://environment.data.gov.uk/hydrology/explore). Data for Luxulyan and Par St Andrews are used here. Other stations in the Par catchment include: Ponts Vale, Par Highways, Treesmill Dam Public Footpath, Treesmill Dam Marsh Villa Gardens, and St Blazey (rainfall only). It is possible to check daily Par River levels for Luxulyan, Ponts Vale and St Blazey Station Stream at St Blazey Station Road at: https://check-for-flooding.service.gov.uk/river-and-sea-levels/rloi/3159 .

C. SEPTEMBER 2024 MONITORING POINTS

This month monitoring occurred at 15 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



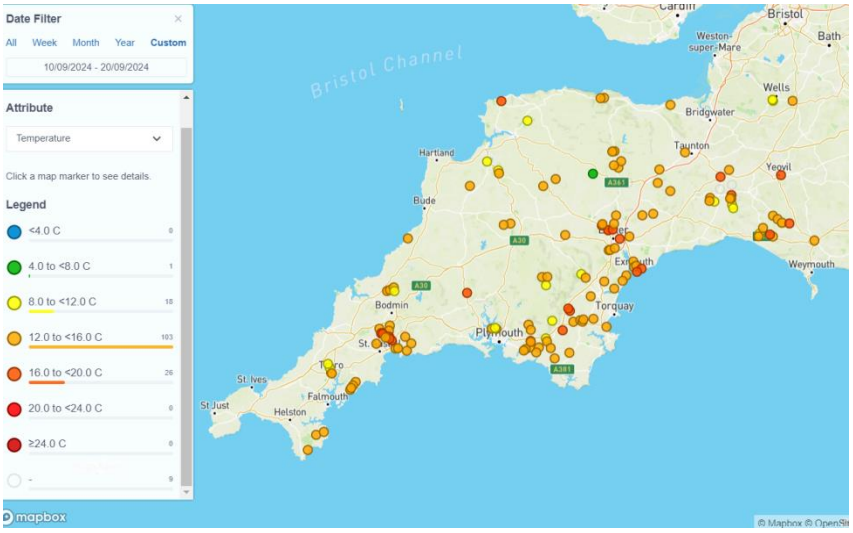
LOCATION	PAR/TRIBUTARY	DATE/TIME	TYPE OF CHECK	MONITORED BY
Criggan Moors, Par River, SX 01882 61133	**PAR**	18/9/2024 8:50	CSI sample & Cartographer record.	Roger Smith
South of Minorca Lane, Par River, SX02668 59747	**PAR**	18/9/2024 8:10	CSI sampling. Cartographer record.	Roger Smith
Near Forkandles farm, Molinnis Stream, SX 02460 59271	**SECONDARY TRIBUTARY (OF CARBIS STREAM)**	18/9/2024 10	CSI sample & Cartographer record.	Roger Smith
Carbis Stream SX 02834 59401	**TRIBUTARY**	18/9/2024 9:40	CSI sampling. Cartographer record.	Roger Smith
Lavrean, Par River SX 03134 59164	**PAR**	18/9/2024 10:20	CSI sampling. Cartographer record.	Roger Smith
Treskilling, Treskilling Stream, SX 04107 57726	**TRIBUTARY**	19/9/2024 11	CSI sampling. Cartographer record.	Roger Smith
Luxulyan allotments, Par River, SX 04732 58045	**PAR**	18/9/2024 11:10	CSI sampling. Cartographer record.	Roger Smith
Cam Bridges, Par River, SX 05292 57454	**PAR**	18/9/2024 12:50	CSI sampling. Cartographer record.	Roger Smith
Trebell Green, Bokiddick Stream SX 0551960226	**TRIBUTARY**	15/9/2024 11:20	CSI sampling. Cartographer record.	Roger Smith
Corgee Moor, Bokiddick Stream SX 0593462167	**TRIBUTARY**	15/9/2024 12:45	CSI sampling. Cartographer record.	Roger Smith
Gatty's Bridge, Bokiddick Stream SX 05531 57953	**TRIBUTARY**	18/9/2024 13:20	CSI sampling. Cartographer record.	Joan Farmer
Treffry Viaduct, Par River, SX 05650 57179	**PAR**	18/9/2024 16:05	CSI sampling. Cartographer record.	Roger Smith
Lady Rashleigh Mine, Par River, SX 06451 56509	**PAR**	18/9/2024 14:35	CSI sampling. Cartographer record. ARMI riverfly survey.	Veronica Jones, Joan Farmer, Roger Smith
Par Beach slipway, SX 0776 53261	**PAR**	12/9/2024 16:18	CSI sampling. Cartographer record.	Brian Harrisson
Polmear Stream, Ship Inn SX 08749 53417	**TRIBUTARY**	12/9/2024 16:50	CSI sampling. Cartographer record.	Simon Tagney

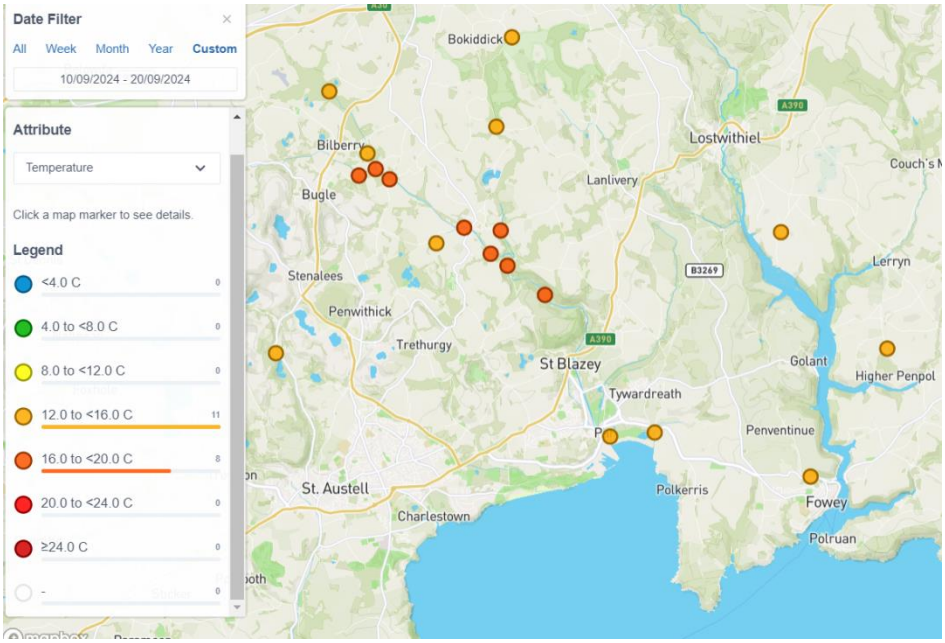
C. TEMPERATURE

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.

Geographical comparison. Source: Cartographer.





3. Results September 2024

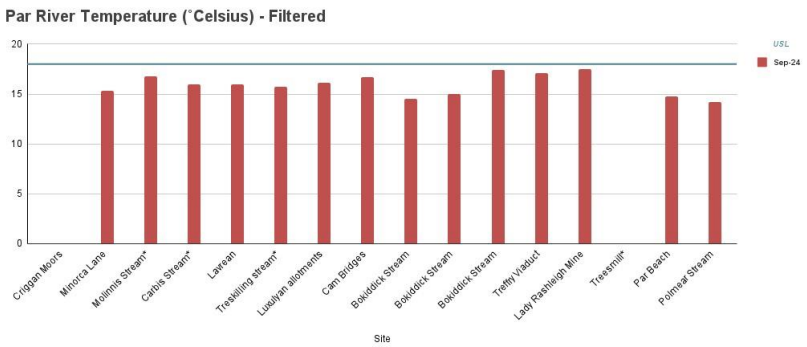
PAR RIVER/TRIBUTARY	LOCATION	Temperature ˚Celsius
Par	Criggan Moors, Par River, SX 01882 61133	13.1
Par	South of Minorca Lane, Par River, SX 02657 59788	15.3
Secondary tributary	Near Forkandles Farm, Molinnis Stream, SX 02460 59271	16.8
Tributary	Carbis Stream SX 02834 59401	16
Par	Lavrean, Par River SX 03134 59164	16
Tributary	Treskilling, Treskilling Stream, SX 04107 57726	15.7
Par	Luxulyan allotments, Par River, SX 04732 58045	16.1
Par	Cam Bridges, Par River, SX 05292 57454	16.7
Tributary	Trebell Green, Bokiddick Stream SX 0551960226	14.5
Tributary	Corgee Moor, Bokiddick Stream SX 0593462167	15
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	17.4
Par	Treffry Viaduct, Par River, SX 05650 57179	17.1
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	17.5
Par	Par Beach slipway, SX 0776 53261	14.8
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	14.2

Results above the temperature at which fish and other organisms can function healthily will be shown in red. At present, 18 ˚Celsius is being used as the upper safe limit for fish and other creatures, although 20˚ Celsius has been suggested by WRT instead. The Yealm Estuary to Moor Project (YEM) in Devon considers that the upper safe level (USL) for temperature is 19.5 °C.

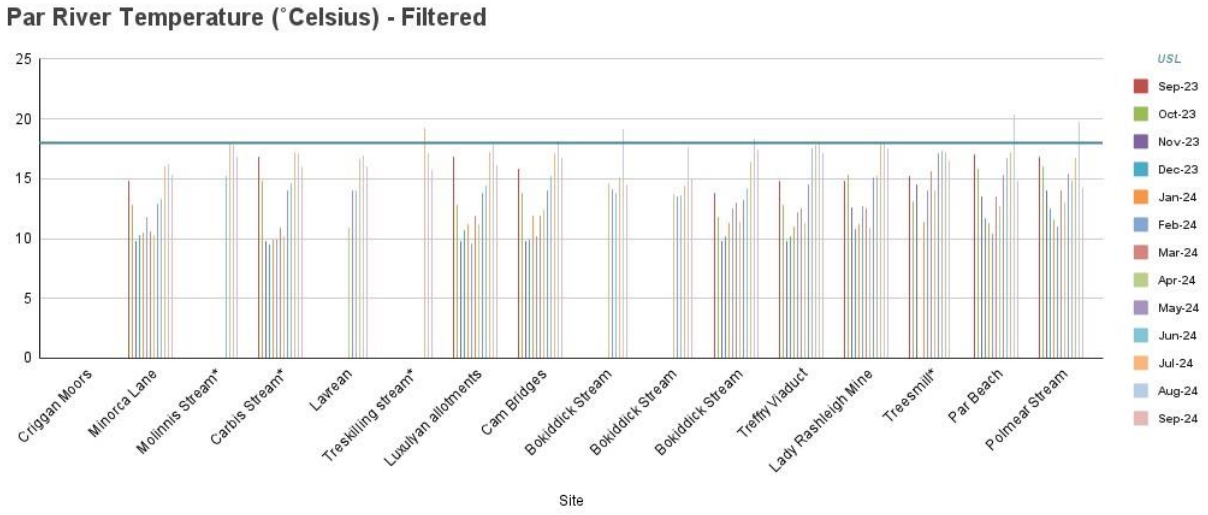
From December 2023 all readings have been taken with the new thermometer/TDS device. Previously, all Upper Par readings, except for Lady Rashleigh Mine, have been taken with the old device. There is a worrying discrepancy with the readings on the older devices.

4. Graphs

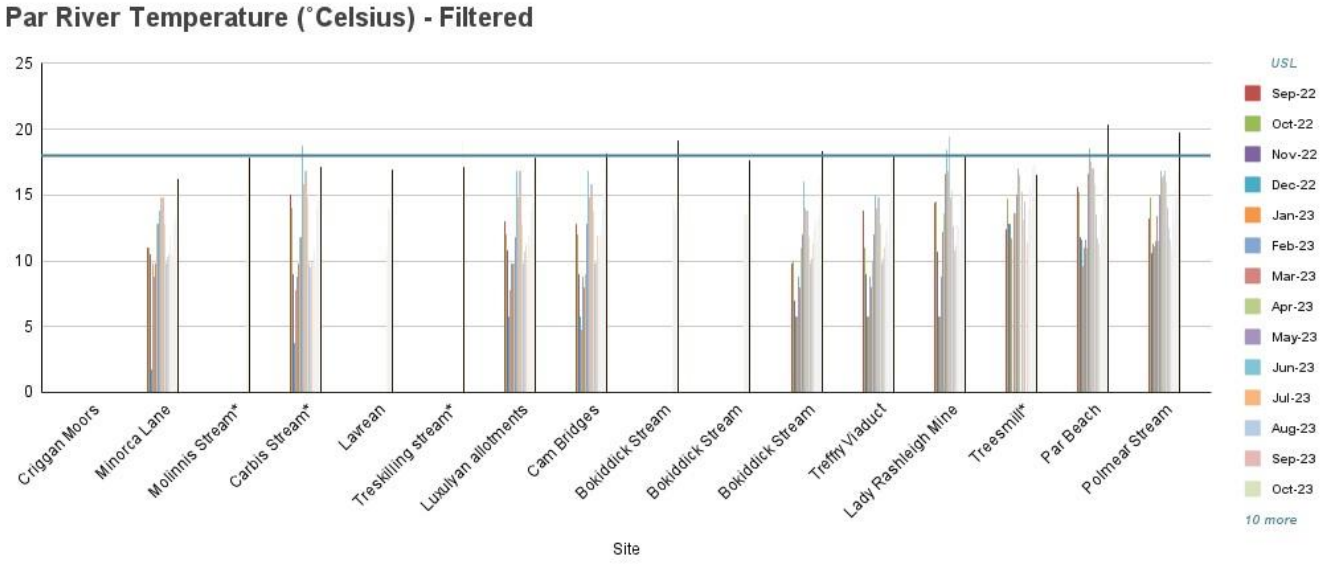
(a) This month:



(b) From 1st September 2023 until now:



(c) From 1st September 2022 until now:

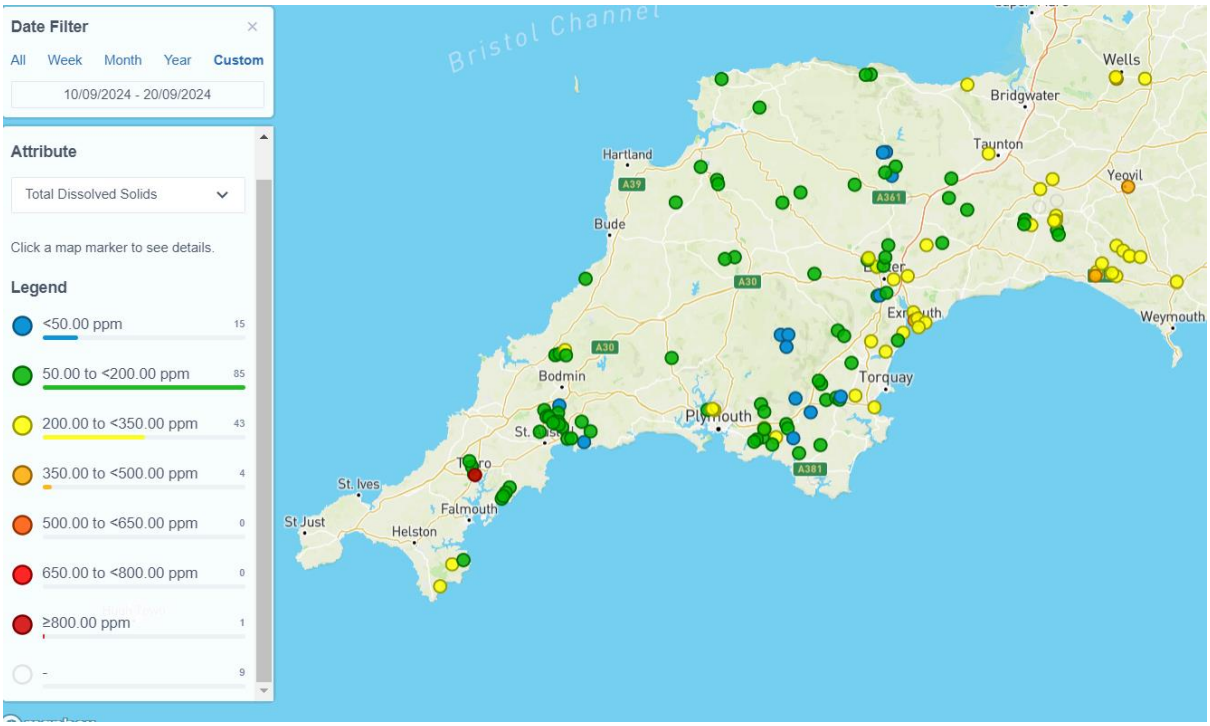


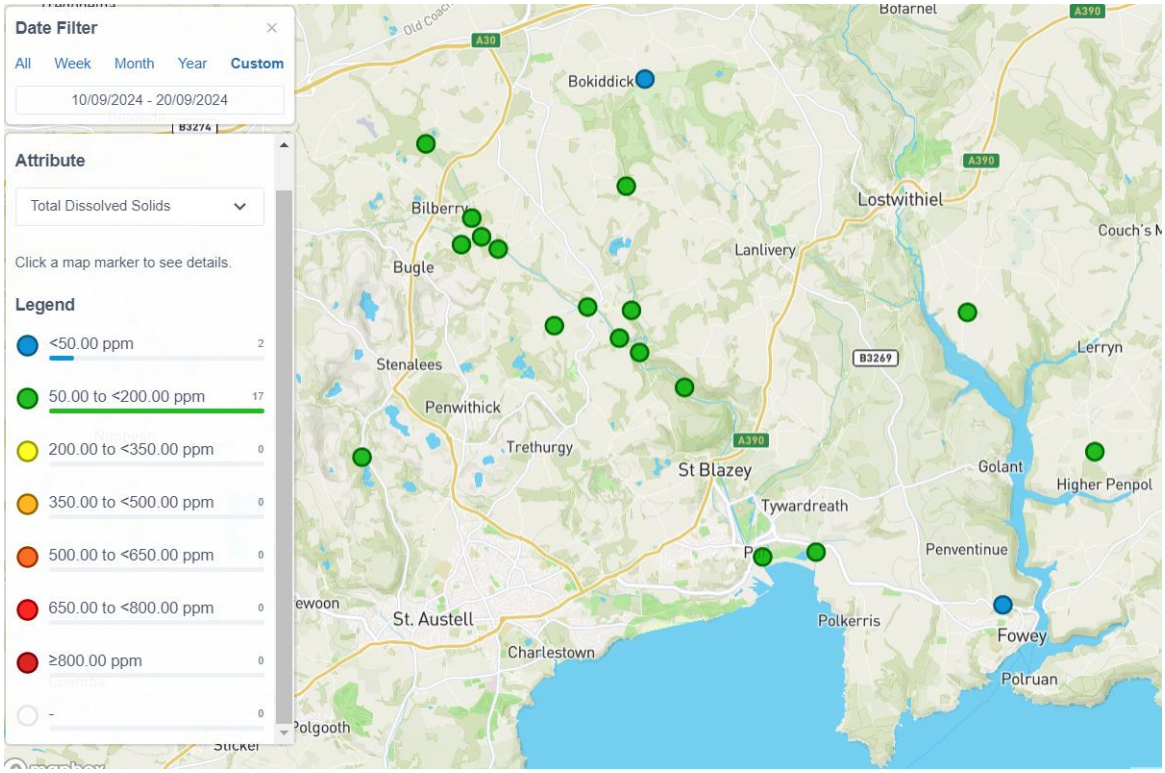
D. TOTAL DISSOLVED SOLIDS

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.



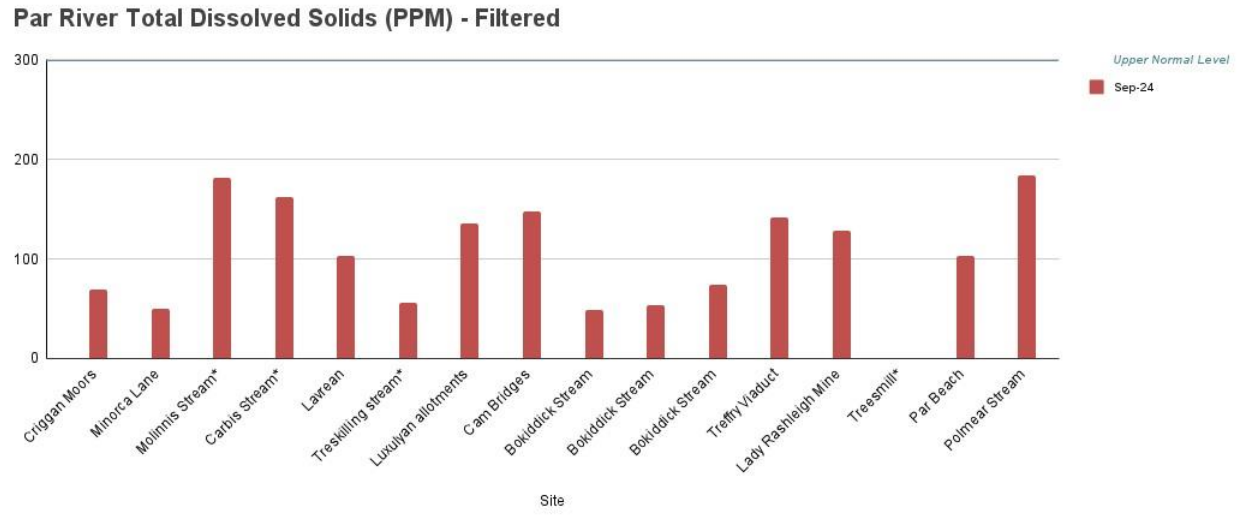


3. Results September 2024

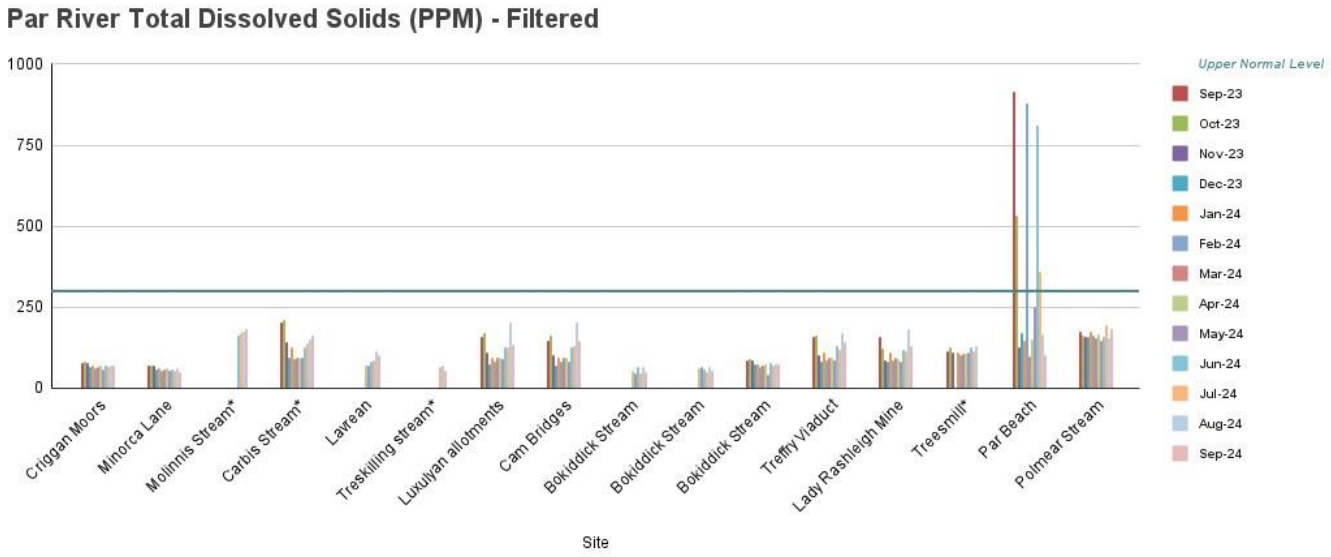
PAR RIVER/TRIBUTARY	LOCATION	Total Dissolved Solids PPM
Par	Criggan Moors, Par River, SX 01882 61133	69
Par	South of Minorca Lane, Par River, SX 02657 59788	50
Secondary tributary	Near Forkandles Farm, Molinnis Stream, SX 02460 59271	182
Tributary	Carbis Stream SX 02834 59401	162
Par	Lavrean, Par River SX 03134 59164	103
Tributary	Treskilling, Treskilling Stream, SX 04107 57726	56
Par	Luxulyan allotments, Par River, SX 04732 58045	136
Par	Cam Bridges, Par River, SX 05292 57454	148
Tributary	Trebell Green, Bokiddick Stream SX 0551960226	49
Tributary	Corgee Moor, Bokiddick Stream SX 0593462167	54
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	74
Par	Treffry Viaduct, Par River, SX 05650 57179	142
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	129
Par	Par Beach slipway, SX 0776 53261	103
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	184

4. Graphs

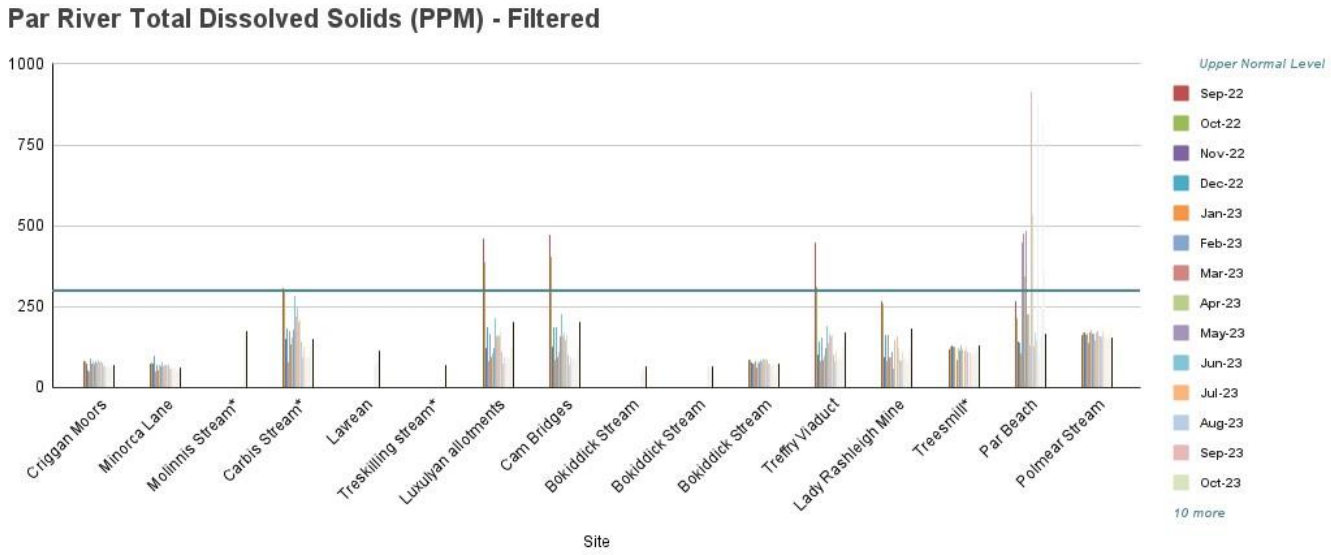
(a) This month



(b) From 1st September 2023 until now:



(c) From 1st September 2022 until now:



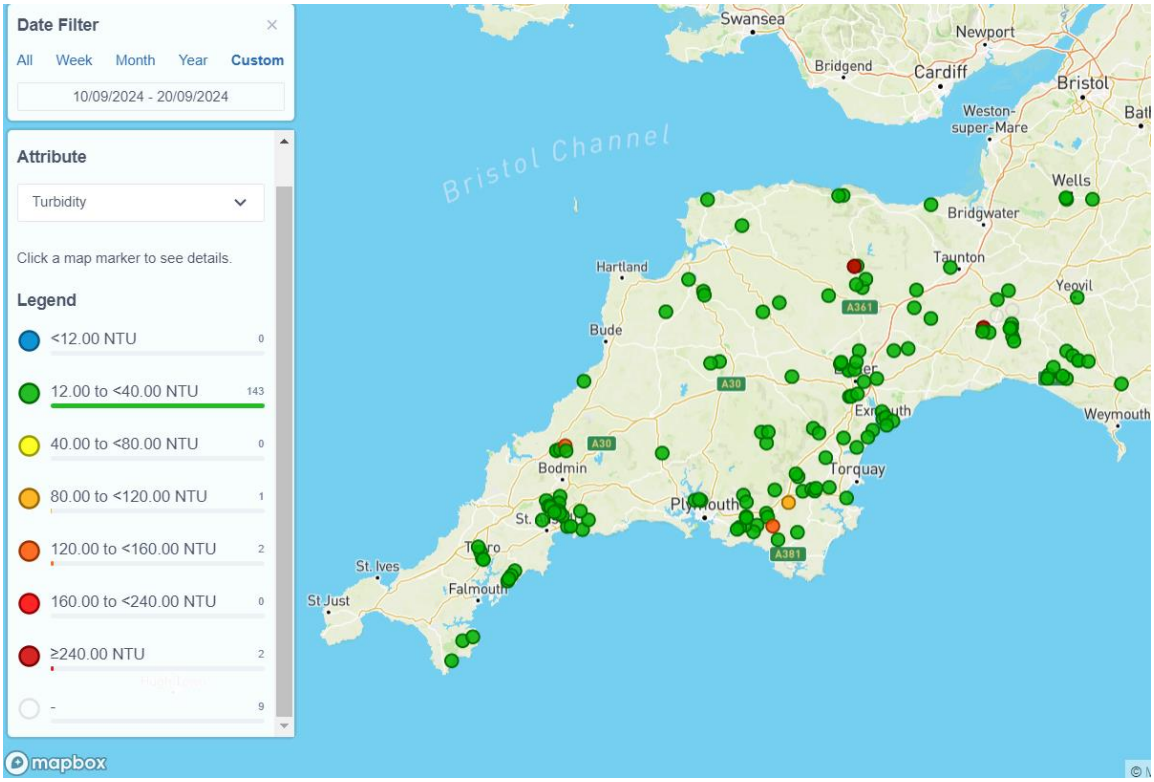
E. TURBIDITY

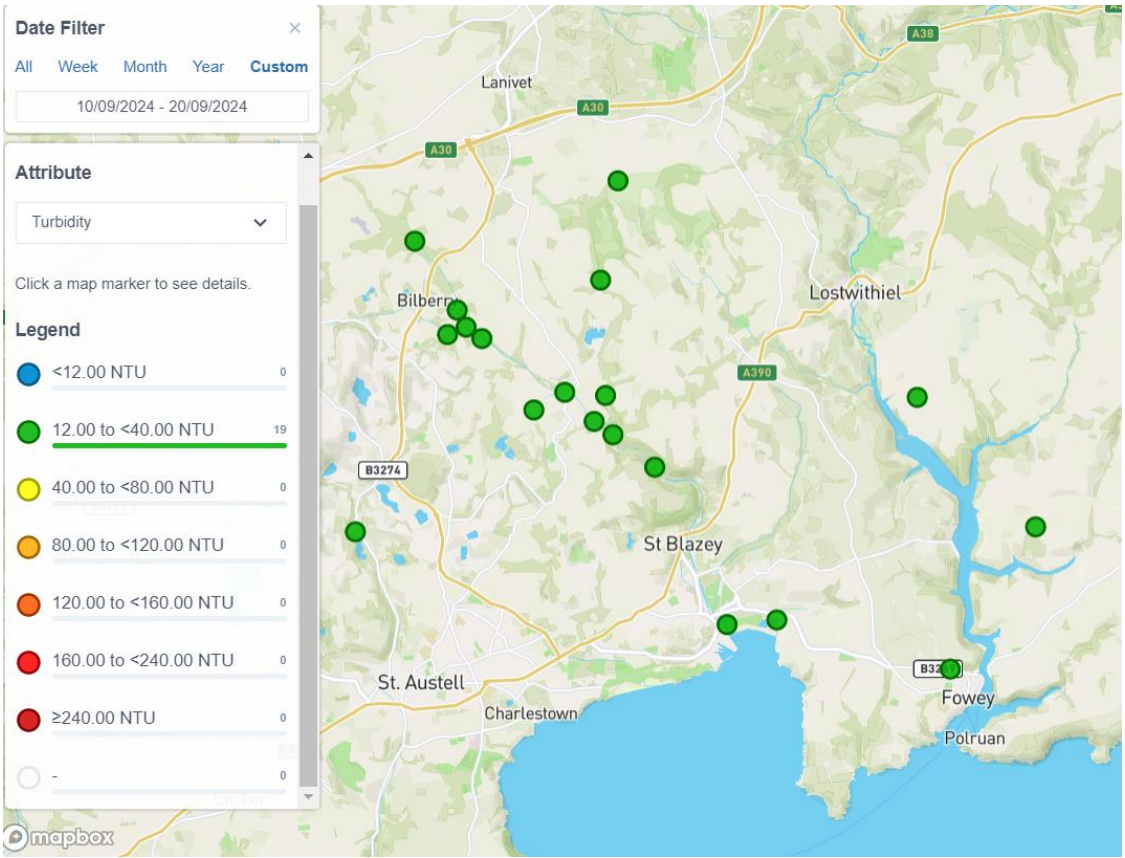
1. This is the WRT explanation of this measure:

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.

The Yealm Estuary to Moor Project (YEM) in Devon considers that the upper safe level (USL) for turbidity is 75 NTU = 25 mg/l.

2. **Geographical comparison.** Where scores are shown as 0, it means that the reading using the Secchi tube was <12. **Source: Cartographer.** Eleven of our results should have blue dots (<12) and five should be green but Cartographer shows them all as green dots.



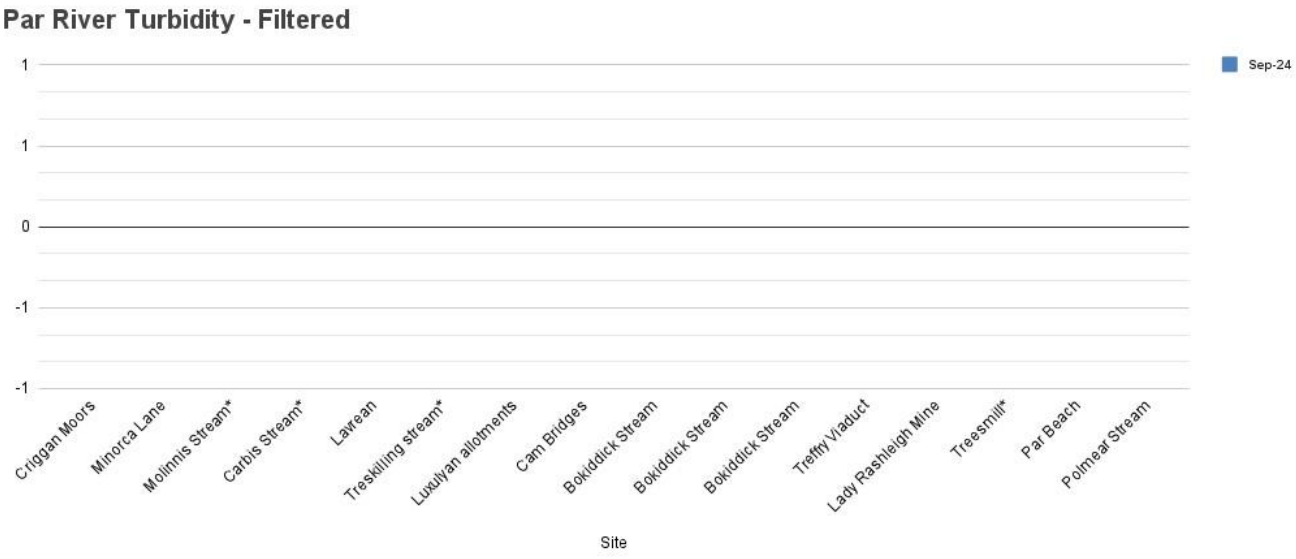


3. Results September 2024:

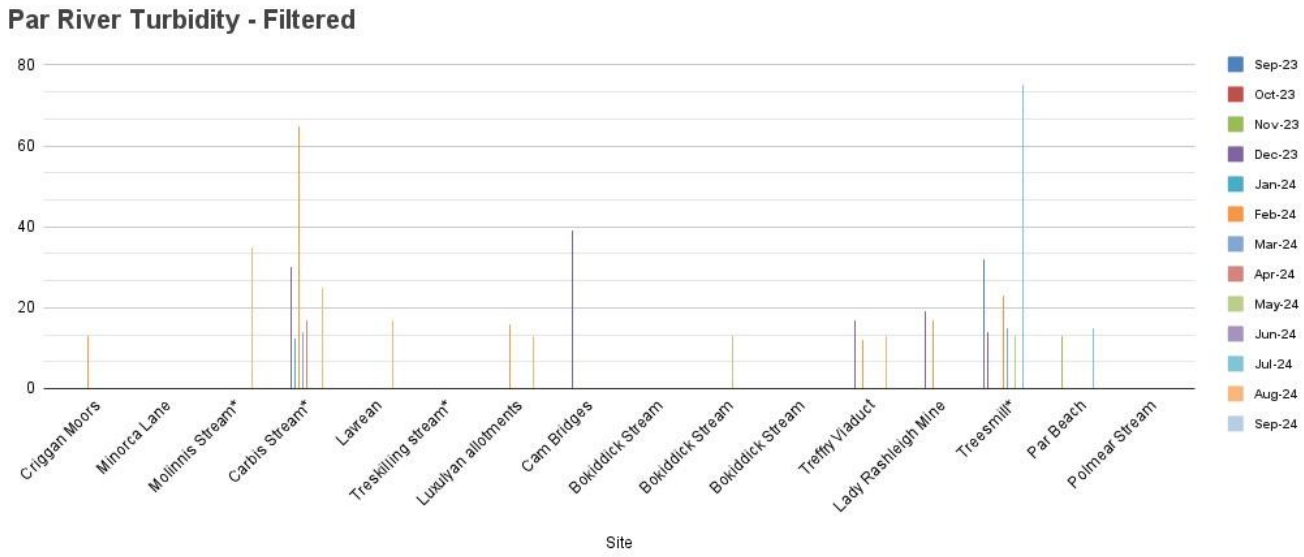
PAR RIVER/TRIBUTARY	LOCATION	Turbidity (NTU)
Par	Criggan Moors, Par River, SX 01882 61133	<12
Par	South of Minorca Lane, Par River, SX 02657 59788	<12
Secondary tributary	Near Forkandles Farm, Molinnis Stream, SX 02460 59271	<12
Tributary	Carbis Stream SX 02834 59401	<12
Par	Lavrean, Par River SX 03134 59164	<12
Tributary	Treskilling, Treskilling Stream, SX 04107 57726	<12
Par	Luxulyan allotments, Par River, SX 04732 58045	<12
Par	Cam Bridges, Par River, SX 05292 57454	<12
Tributary	Trebell Green, Bokiddick Stream SX 0551960226	<12
Tributary	Corgee Moor, Bokiddick Stream SX 0593462167	<12
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	<12
Par	Treffry Viaduct, Par River, SX 05650 57179	13
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	<12
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	<12
Par	Par Beach slipway, SX 0776 53261	<12
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	<12

4. Graphs

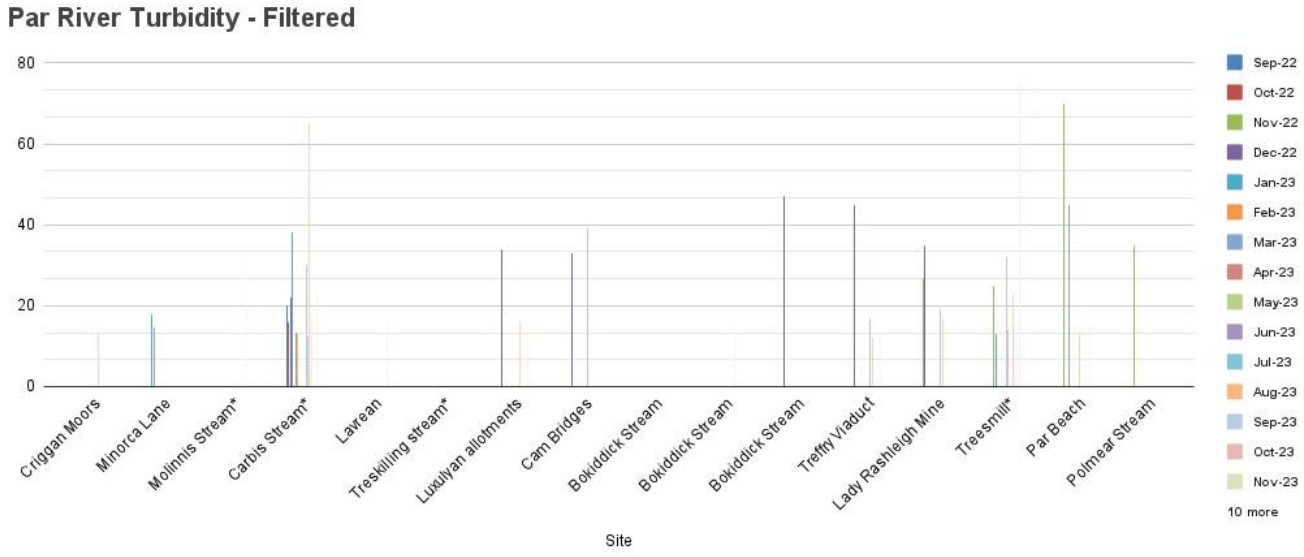
(a) This month:



(b) From 1st September 2023 until now:



(c) From 1st September 2022 until now:



F. 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.)

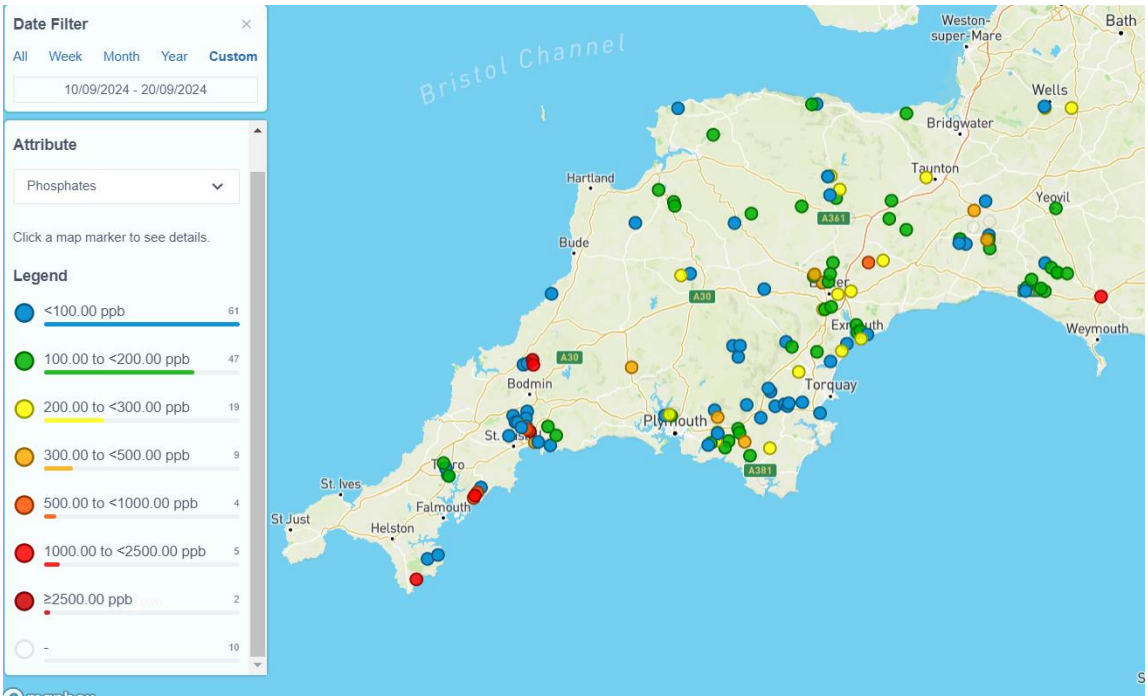
Ranges on phosphate diagnostic colour chart:

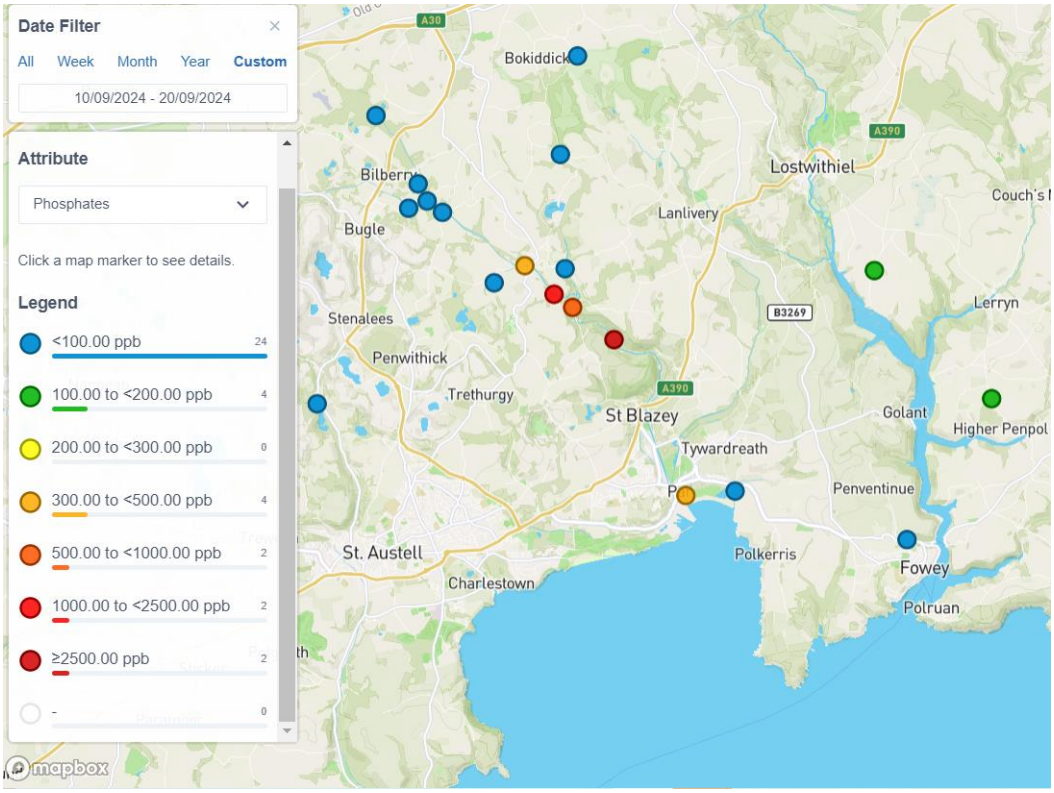
0 – 100 OK

200 – 300 HIGH

500 – 2500 – TOO HIGH

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





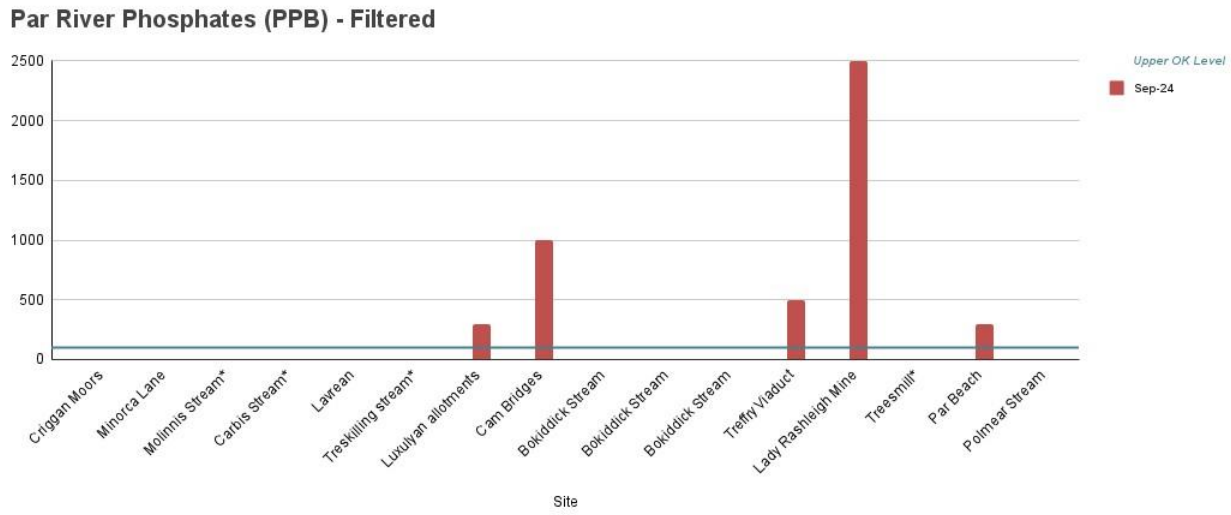
3. Results September 2024

Results in red show phosphate levels that are classified as 'High' (above the upper safe level). WRT advice is that this is 100 Parts per Billion (0.1 mg/l).

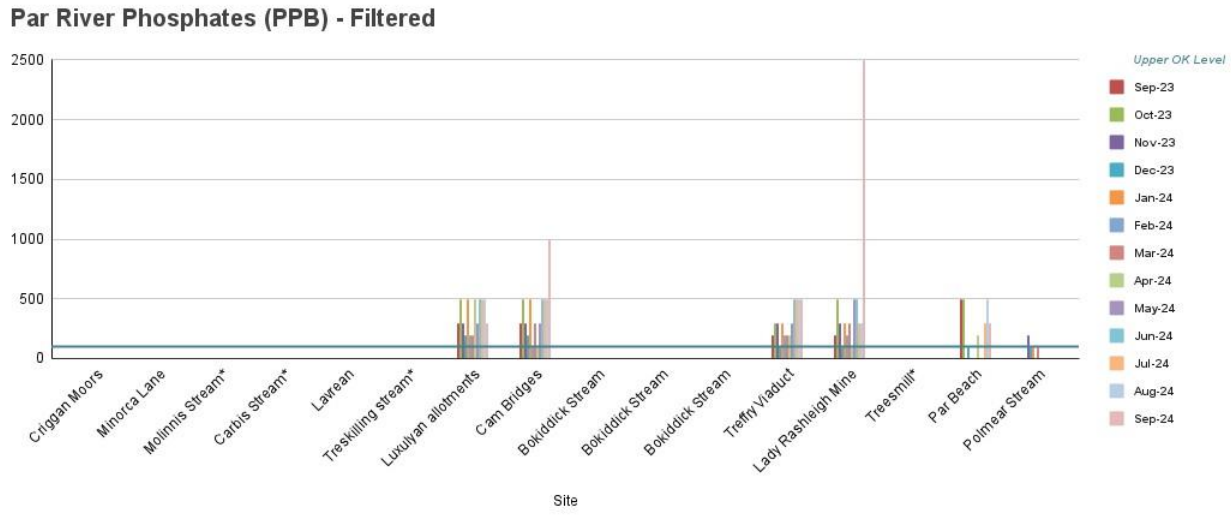
PAR RIVER/TRIBUTARY	LOCATION	Phosphates PPB
Par	Criggan Moors, Par River, SX 01882 61133	0
Par	South of Minorca Lane, Par River, SX 02657 59788	0
Secondary tributary	Near Forkandles Farm, Molinnis Stream, SX 02460 59271	0
Tributary	Carbis Stream SX 02834 59401	0
Par	Lavrean, Par River SX 03134 59164	0
Tributary	Treskilling, Treskilling Stream, SX 04107 57726	0
Par	Luxulyan allotments, Par River, SX 04732 58045	**300**
Par	Cam Bridges, Par River, SX 05292 57454	**1000**
Tributary	Trebell Green, Bokiddick Stream SX 0551960226	0
Tributary	Corgee Moor, Bokiddick Stream SX 0593462167	0
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	0
Par	Treffry Viaduct, Par River, SX 05650 57179	**500**
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	**2500**
Par	Par Beach slipway, SX 0776 53261	**300**
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	0

4. Graphs

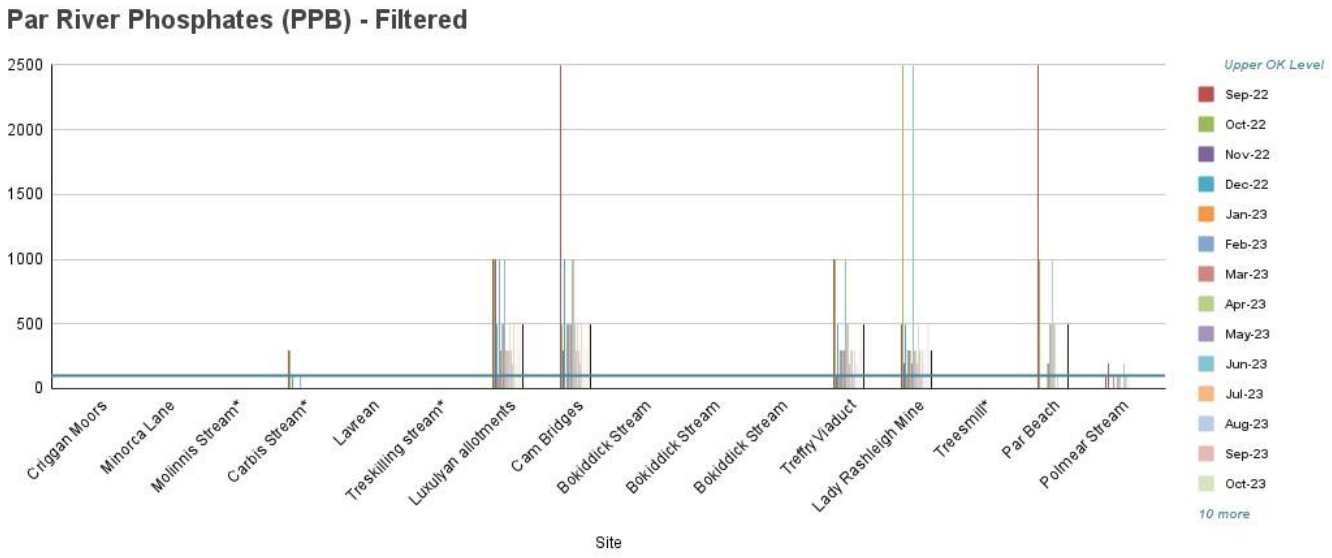
(a) This month:



(b) From 1st September 2023 until now:



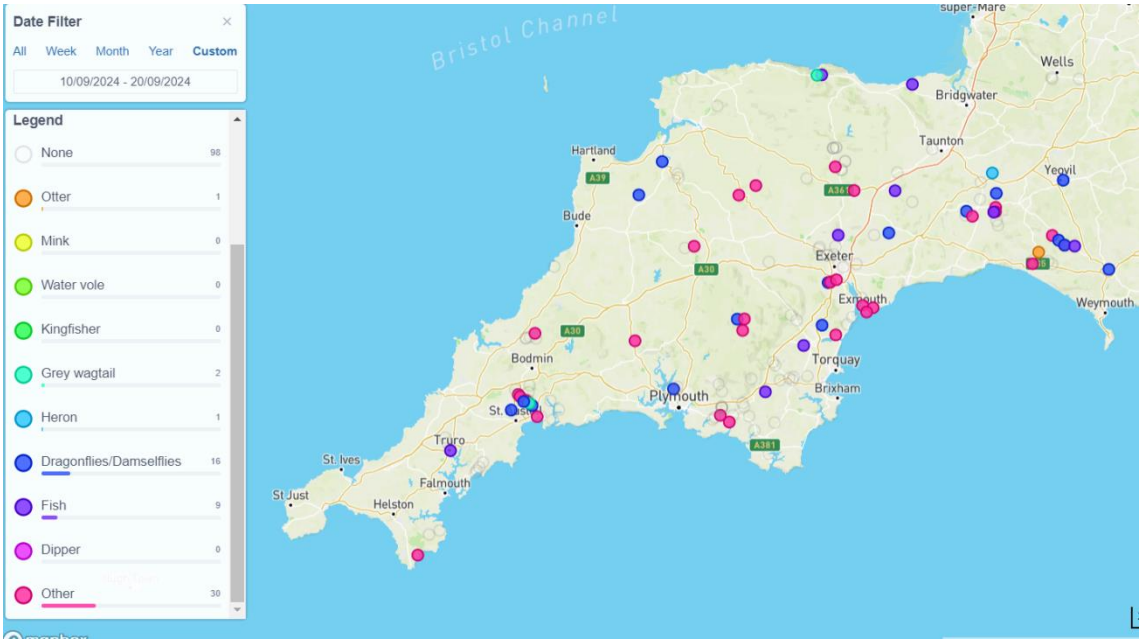
(c) From 1st September 2022 until now:

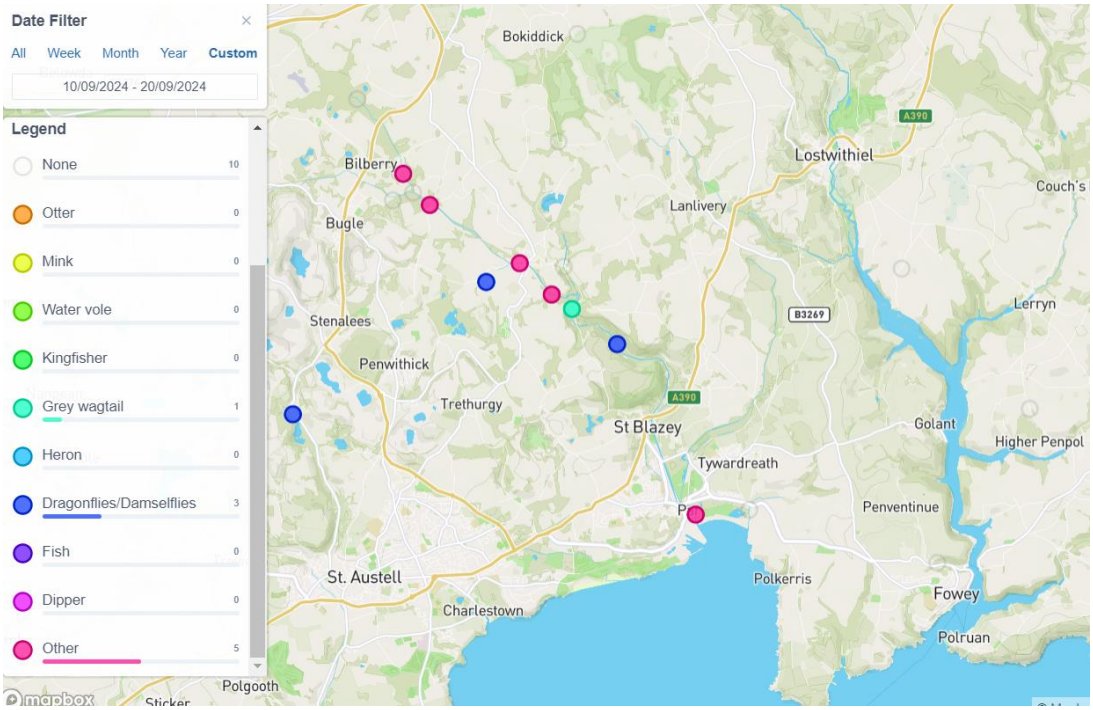


G. WILDLIFE & INVASIVE PLANTS

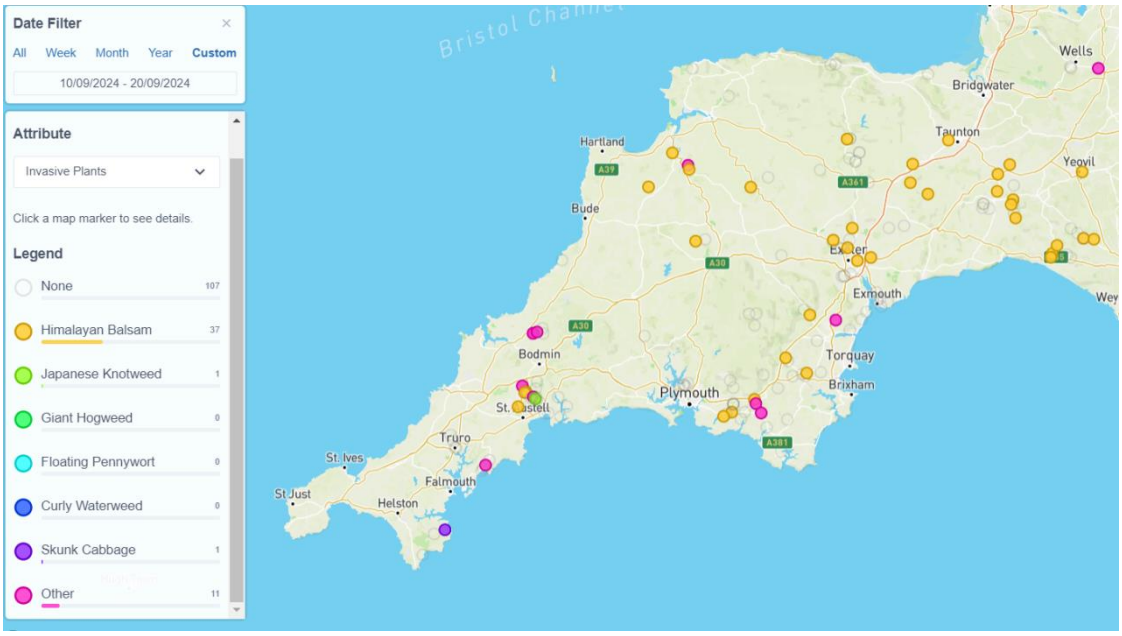
(a) Wildlife maps

Evidence of otters is found nearly every month, but frequently it is not found at our monitoring points and when it is it will be entered under 'Other' because live sightings are extremely rare.





(b) Invasive plants maps



(c) Wildlife & Invasive Plants sightings at the monitoring points included:

LOCATION	WILDLIFE NOTED	INVASIVE PLANTS NOTED
Criggan Moors, SX 01882 61133	None	Hemlock Water Dropwort
South of Minorca Lane, Par River, SX 02657 59788	Pond skaters	Himalayan Balsam
Forkandles Farm, Molinnis Stream, SX 02460 59271	None	Himalayan Balsam Japanese Knotweed
Carbis Stream SX 02834 59401	None	Hemlock Water Dropwort Himalayan Balsam
Lavrean, Par River SX 03134 59164	Pond skaters	None
Treskilling, Treskilling Stream, SX 04107 57726	Damselfly	None
Luxulyan allotments, Par River, SX 04732 58045	Otter spraint, otter anal jelly	Hemlock Water Dropwort
Cam Bridges, Par River, SX 05292 57454	Butterfly	Japanese Knotweed
Trebell Green, Bokiddick Stream SX 0551960226	None	None
Corgee Moor, Bokiddick Stream SX 0593462167	None	None
Gatty's Bridge, Bokiddick Stream SX 05531 57953	None	None
Treffry Viaduct, Par River, SX 05650 57179	Grey wagtail	Hemlock Water Dropwort
Lady Rashleigh Mine, Par River, SX 06451 56509	Dragonflies, Red Admiral butterfly, riverfly nymphs (Cased Caddis, Flat-bodied Upwings, Olives, Stoneflies, Gammarus)	None
Par Beach slipway, SX 0776 53261	Swan & 7 cygnets, 5 Mallard ducks	None
Polmear Stream, Ship Inn, SX 08749 53417	None	None

The check for the presence of otters was again very limited. However, spraint and anal jelly were found near Luxulyan allotments. It was clear from the spraint that fish had been eaten.

Otter spraint containing fish bones found next to the Upper Par near Luxulyan allotments.

A lake on the Upper Bokiddick near Helman Tor created by a beaver dam downstream. There is no public access here.

H. ARMI RIVERFLY SURVEY AT LADY RASHLEIGH MINE

Four of the group (Joan Farmer, Veronica Jones, Roger Smith, and Simon Tagney) have undertaken the training to carry out Riverfly Surveys under the Anglers' Riverfly Monitoring Initiative (https://www.riverflies.org/rp-riverfly-monitoring-initiative). In short, sampling for 8 riverfly groups is carried out using standardised methods with scores calculated for their abundance. Information is passed to ARMI and the ORKS database. If the score does not reach a trigger level (in our case trigger level was raised from 5 to 6 in May 2022), the Environment Agency must be informed immediately since it is highly likely to indicate that the water is polluted. Our group received approval to sample at two sites: Luxulyan allotments (SX 04743 58054) and Lady Rashleigh Mine (SX 06453 56500). We have decided, for the time being, to concentrate on the latter, but from May 2024 have moved the kick-sampling site a few metres downstream of the bridge where conditions are safer and easier. This amended site will be known as Lady Rashleigh 2 in the ARMI/ORKS record. Recently, Simon and Brian have started to look at 2 locations on the Treesmill Stream, one upstream at SX SX0887055340 and the other near the outlet from St Andrew's Pond at SX SX0768054310.

It is impossible to count every invertebrate so this counting method is used:

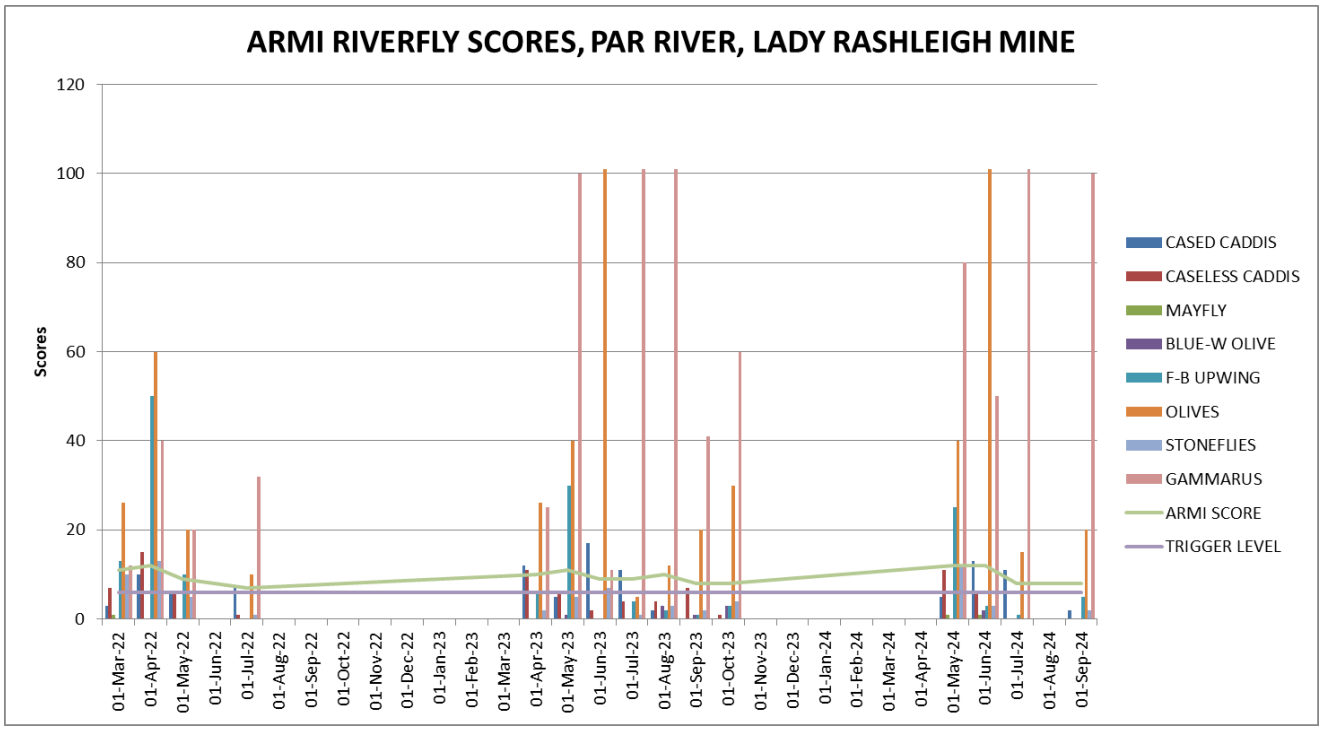
Abundance	Score	Estimated Number
1-9	1	Quick count
10-99	2	Nearest 10
100-999	3	Nearest 100
>1000	4	Nearest 1000

Results of survey at Lady Rashleigh Mine (SX 06451 56509) carried out by Joan Farmer, Veronica Jones and Roger Smith on 18th September 2024:

	SPECIES	NUMBER	CATEGORY
Trichoptera			
1	Cased Caddisfly	2	1
2	Caseless Caddisfly	0	0
Ephemeroptera 3 tails			
3	Mayfly (Ephemeridae)	0	0
4	Blue-winged olive (Ephemerellidae)	0	0
5	Flat-bodied up-wings (Heptageniidae)	5	1
6	Olives (Baetidae)	20	2
Plecoptera 2 tails			
7	Stoneflies	2	1
Gammaridae			
8	Freshwater Shrimp	100	3
			8

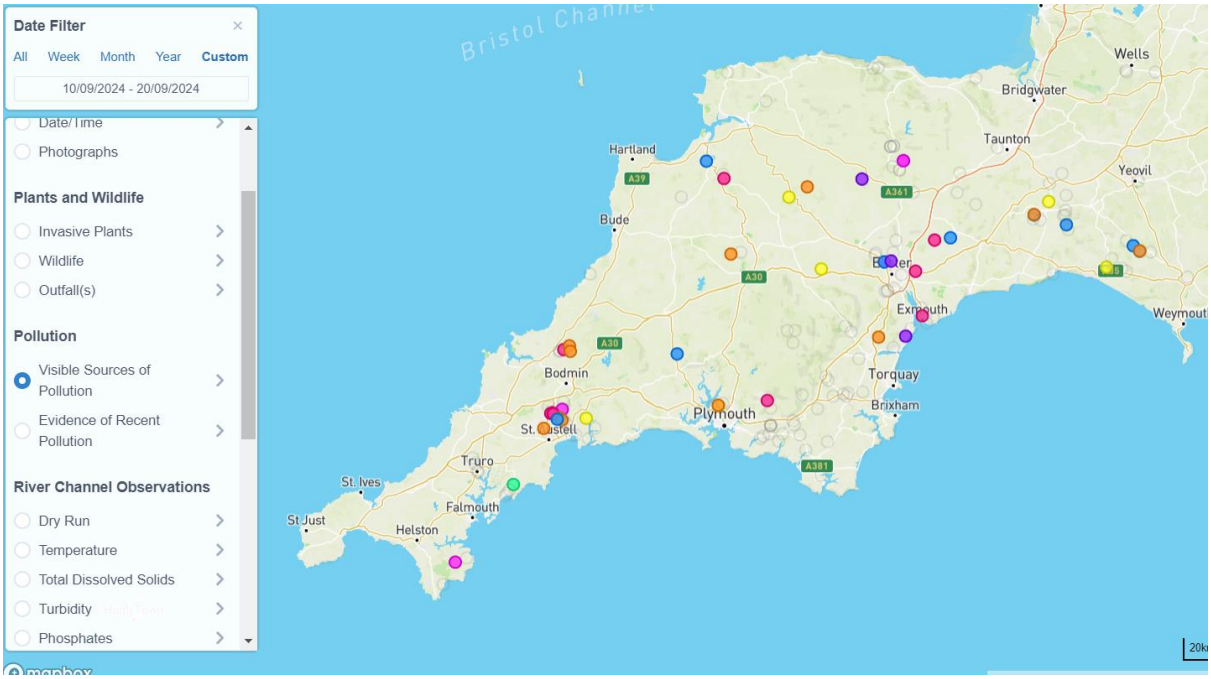
CATEGORY TOTAL	**8**
TRIGGER LEVEL	**6**

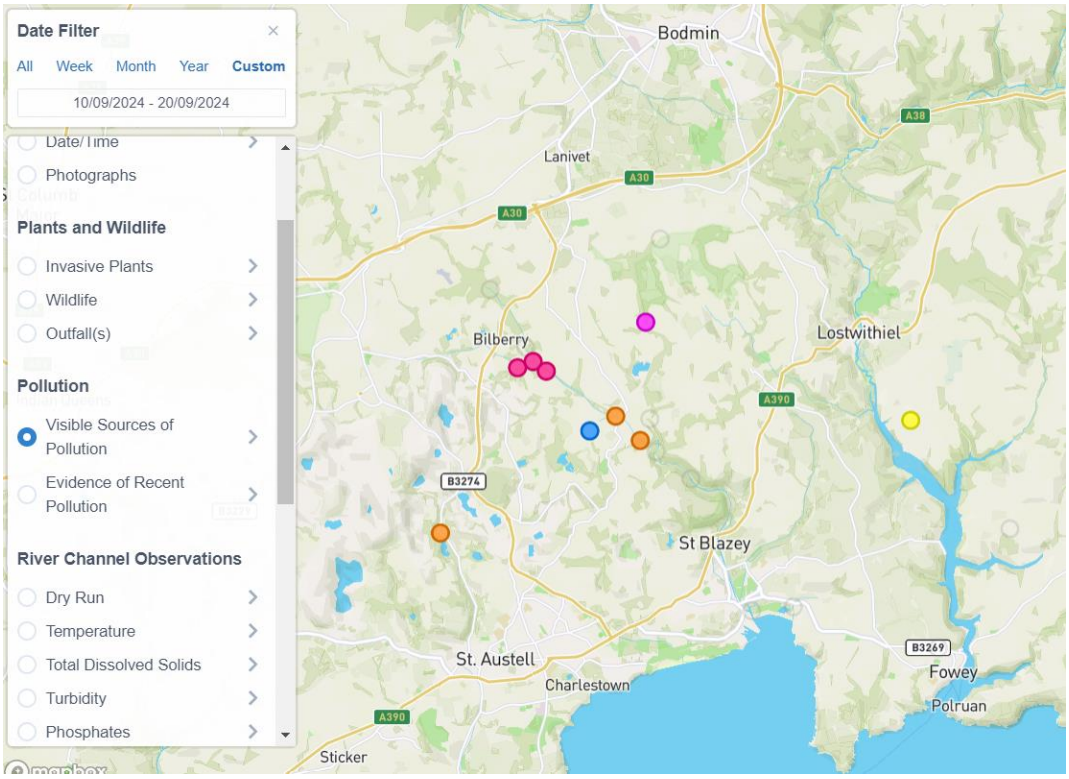
N.B. From May 2024 sampling has been done at Lady Rashleigh 2, downstream from the bridge.



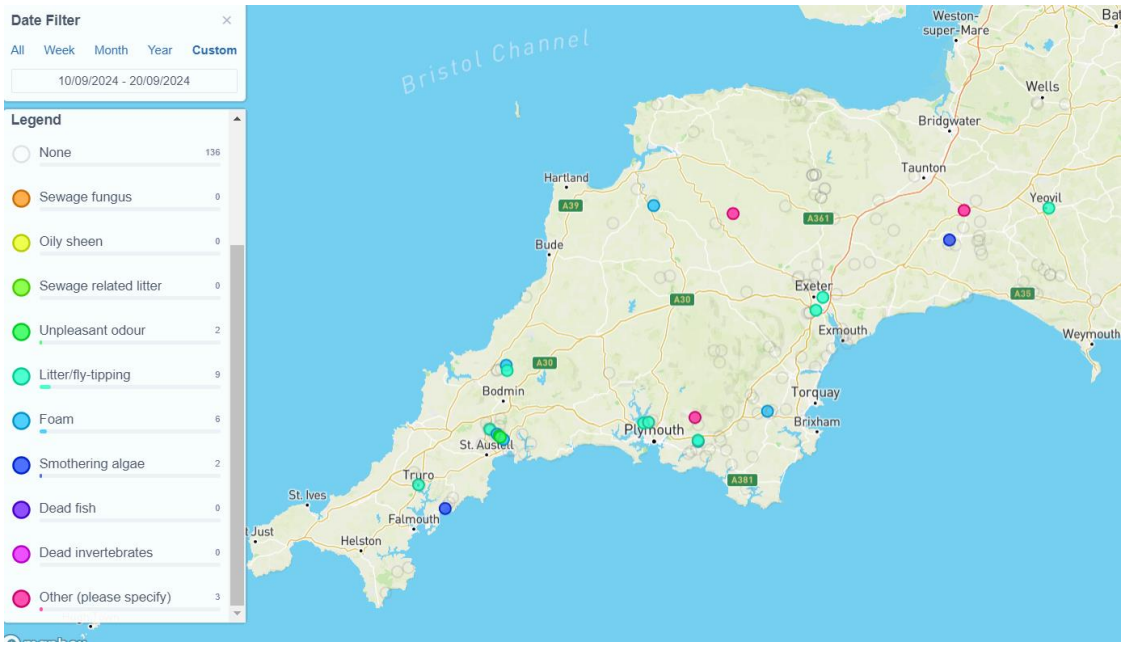
H. POLLUTION SOURCES AND EVIDENCE

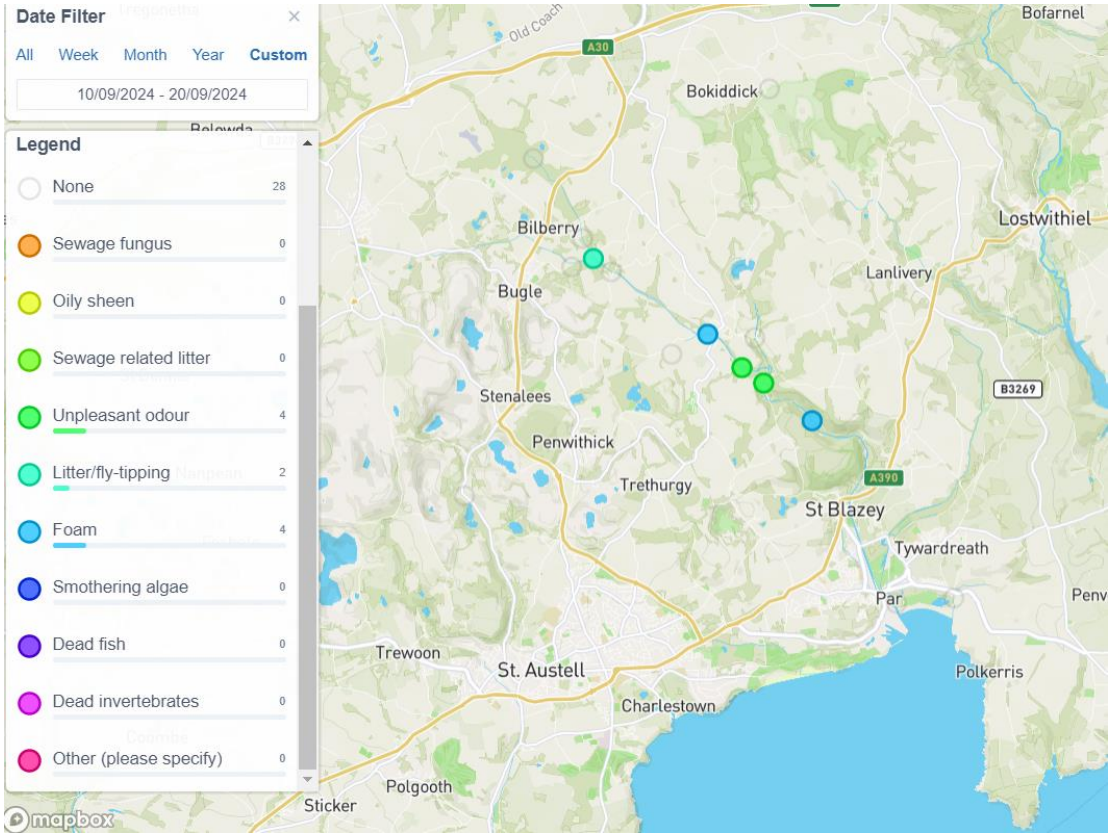
1. Pollution sources





2. Recent evidence of pollution



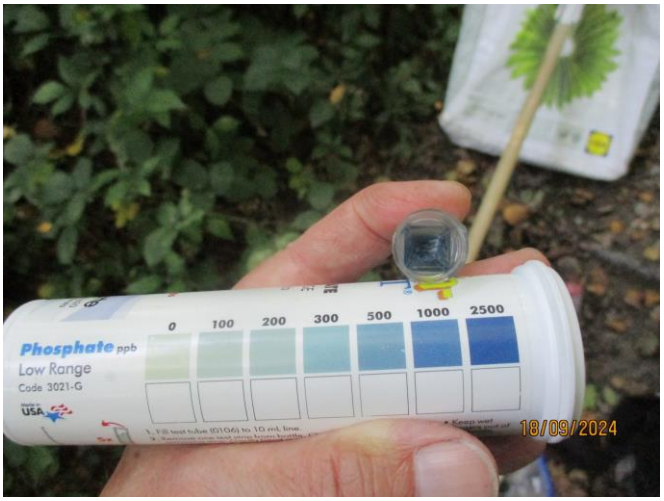


As mentioned above, despite similar weather conditions, river depth and flow, the Carbis Stream was grey/white with china clay in August yet clear in September. The same pattern was observed in the Molinnis Stream.

August 2024: The Carbis Stream at SX 02834 59401 polluted with china clay.

September 2024: The Carbis Stream at SX 02834 59401 polluted with china clay.

At Cam Bridges, a phosphate score of 1000 PPB was recorded yet it was 300 PPB a couple of hours before at Luxulyan allotments, which is closer to St Austell North STW. In the following photograph the Cam Bridges sample looks even darker than was recorded on site:



A smell, possibly sewage related, is often noticeable at Cam Bridges, yet not upstream at the allotments, despite it being closer to the St Austell North STW. There is a SWW pumping station at SX 0504 5783 from the vicinity of which redundant blockwork was removed by SWW but there no evidence of spillages here is known to our group.

J. OUR GROUP AND SUPPORTERS

Monitoring is part of the Citizen Science programme run by the West Country Rivers Trust (WCRT) and is carried out monthly by volunteers, including Joan Farmer; Veronica Jones; 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, Lloyd Paynter, Chloe Lake, David Edwards, Claire and Gary Phillips, Jenny Heskett, Nick Taylor, Jeremy Roberts, Mat Bateman, Colin Pringle, Matt Healey, Simon Browning, Lydia Deacon, Jack Middleton, Anna Seal, Anna Crane, Zoe Connelly, Jade Neville, Lauren Jasper and Callum Lewis is greatly appreciated. The work carried out by the late Dave Burrell both in the field and in checking reports will not be forgotten. The interest and encouragement offered by Environment Agency officers, especially Lisa Best, Lisa Goodall, Layla Ousley, Jenny Davies, Leah Steward, Nicola Rogers and Peter Scobie, have been invaluable.

A late summer's day on the Lower Par River.

Roger Smith, 9th October 2024