

# 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

## OCTOBER 2023.



Foam on the outer bend of the river at Lady Rashleigh Mine (SX 06451 56509)

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## A. OCTOBER 2023 FINDINGS AT A GLANCE

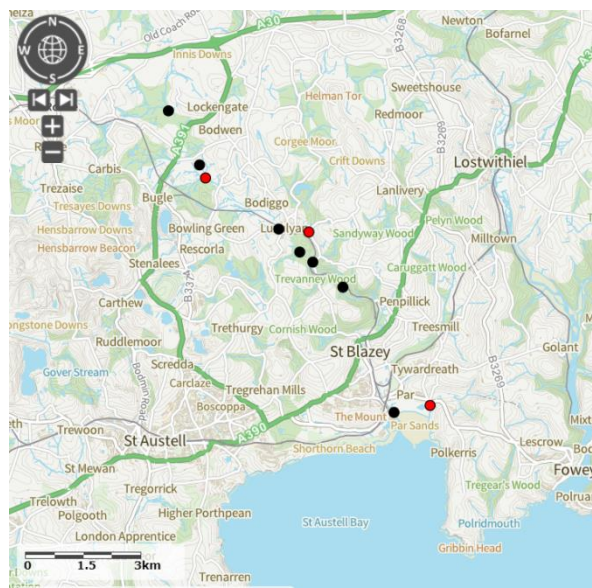
### A. OUR OCTOBER 2023 FINDINGS AT A GLANCE (SEE SECTIONS C TO J FOR FULL PICTURE)

We sampled at 11 locations. The **red** highlighting shows points of concern.

CRITERIA	UPPER PAR (UPSTREAM OF CONFLUENCE WITH BOKIDDICK STREAM NEAR BLACK HILL CAR PARK) 4 TESTING LOCATIONS	LOWER PAR (FROM CONFLUENCE WITH BOKIDDICK STREAM TO SEA) 3 TESTING LOCATIONS	TRIBUTARIES OF UPPER PAR (CARBIS STREAM, BOKIDDICK STREAM) 2 TESTING LOCATIONS	TRIBUTARY OF LOWER PAR (POLMEAR STREAM) 2 TESTING LOCATIONS
TEMPERATURE (SHOULD NOT EXCEED 18° CELSIUS)	Average 12.8° Celsius	Average 14.63° Celsius	Average 13.3° Celsius	Average 14.55° Celsius
TOTAL DISSOLVED SOLIDS (SHOULD NOT EXCEED 300 PPM)	121 PPM	273.66 PPM	151.5 PPM	144 PPM
TURBIDITY (SHOULD BE <12 ON SECCHI TUBE. FOR AVERAGING ANY READING <12 IS COUNTED AS 11)	0	0	0	7
PHOSPHATES (SHOULD NOT EXCEED 100 PPB)	<b>250 PPB</b>	<b>433.33 PPB</b>	0 PPB	0 PPB
RIVERFLY TRIGGER LEVEL (SHOULD BE ≥ 6)	N/A	8 (1 location)	N/A	N/A
WILDLIFE EVIDENCE	None.	6 types of riverfly larvae (out of 8 sought), otter spraint, grey wagtail.	None	None
VISIBLE EVIDENCE OF POLLUTION	Foam	Smell (Cam Bridges), foam.	Debris	None

## B. OCTOBER 2023 MONITORING POINTS

This month monitoring occurred at 11 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	18/10/2023	CSI sample & Cartographer record.	Roger Smith
South of Minorca Lane, Par River, SX02668 59747	18/10/2023	CSI sampling. Cartographer record.	Roger Smith
Carbis Stream SX 02834 59401	18/10/2023	CSI sampling. Cartographer record.	Roger Smith
Luxulyan allotments, Par River, SX 04732 58045	18/10/2023	CSI sampling. Cartographer record.	Roger Smith
Cam Bridges, Par River, SX 05292 57454	18/10/2023	CSI sampling. Cartographer record.	Roger Smith
Gatty's Bridge, Bokiddick Stream SX 05531 57953	18/10/2023	CSI sampling. Cartographer record.	Joan Farmer
Treffry Viaduct, Par River, SX 05650 57179	18/10/2023	CSI sampling. Cartographer record.	Joan Farmer
Lady Rashleigh Mine, Par River, SX 06451 56509	18/10/2023	CSI sampling. Cartographer record. Riverfly.	Veronica Jones, Joan Farmer, Roger Smith
Treesmill, Tywardreath Stream, SX 08873 55385	16/10/2023	CSI sampling. Cartographer record.	Maggie Tagney
Par Beach slipway, SX 0776 53261	21/10/2023	CSI sampling. Cartographer record.	Brian Harrisson
Polmear Stream, Ship Inn SX 08749 53417	20/10/2023	CSI sampling. Cartographer record.	Simon Tagney

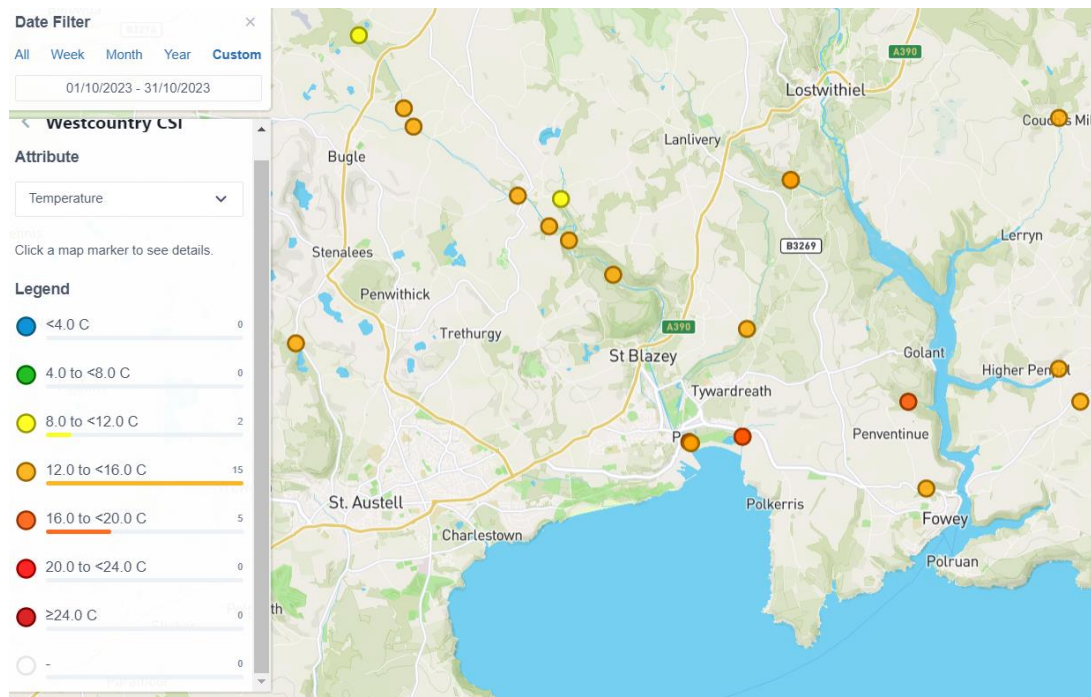
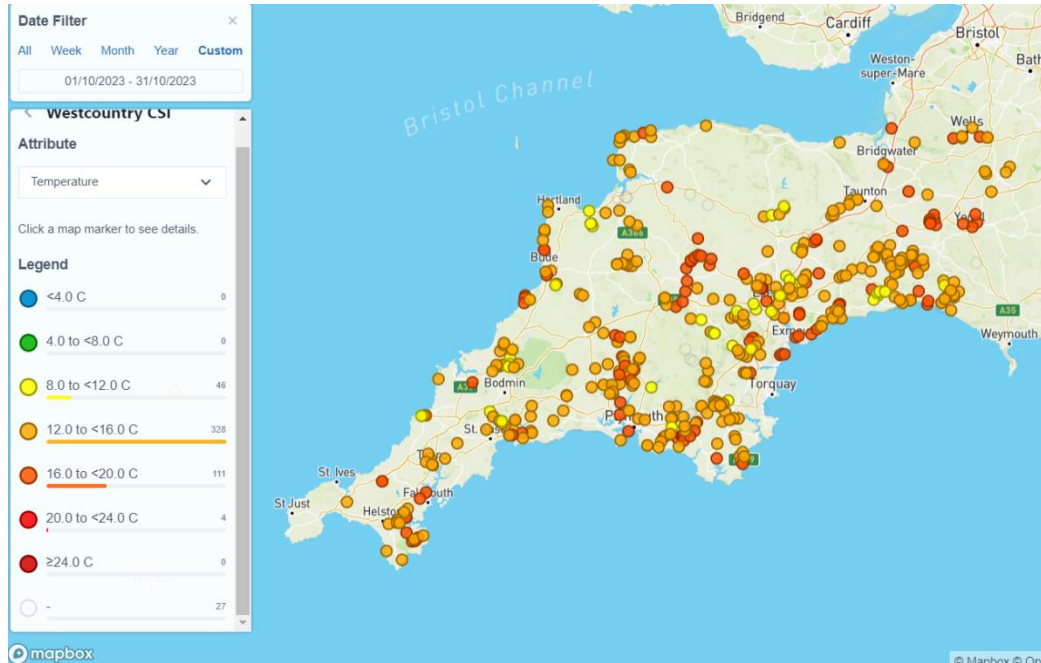
## C. TEMPERATURE

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.

## 2. Geographical comparison. Source: Cartographer.



**3. Results October 2023**

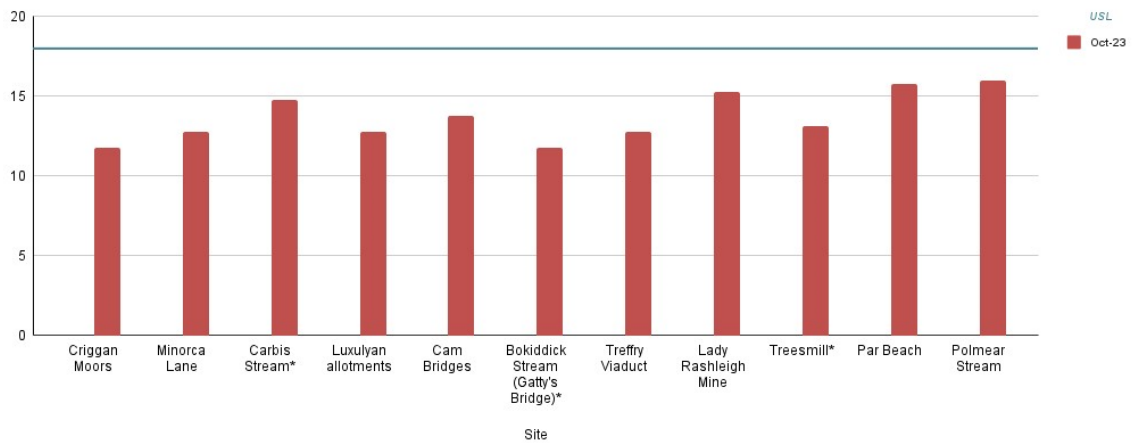
PAR RIVER/TRIBUTARY	LOCATION	Temperature °Celsius
Par	Criggan Moors, SX 01882 61133	11.8
Par	South of Minorca Lane, Par River, SX 02657 59788	12.8
Tributary	Carbis Stream SX 02834 59401	14.8
Par	Luxulyan allotments, Par River, SX 04732 58045	12.8
Par	Cam Bridges, Par River, SX 05292 57454	13.8
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	11.8
Par	Treffry Viaduct, Par River, SX 05650 57179	12.8
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	15.3
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	13.1
Par	Par Beach slipway, SX 0776 53261	15.8
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	16

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 recently been suggested by WRT instead.

**4. Graphs**

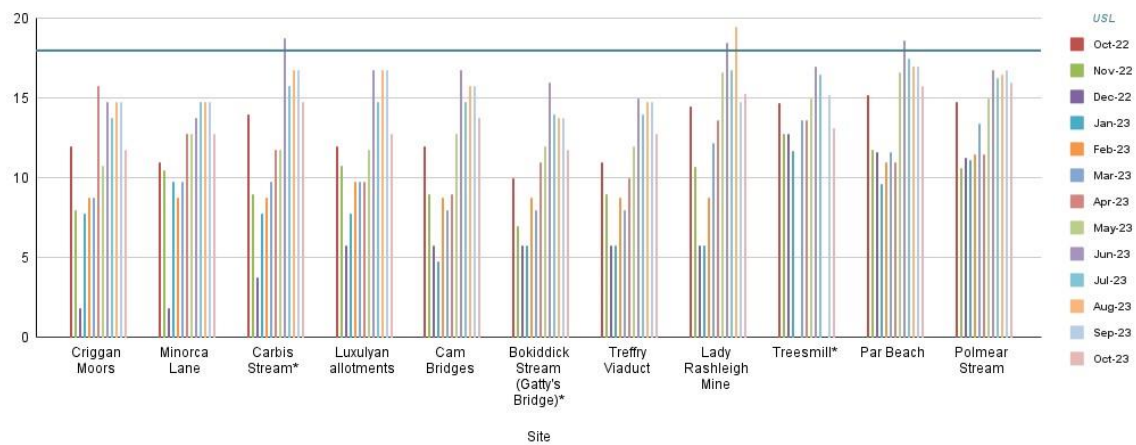
**(a) This month**

**Par River Temperature (°Celsius) - Filtered**



\*Indicates a tributary.



**(b) From 1<sup>st</sup> October 2022 to now****Par River Temperature (°Celsius) - Filtered**

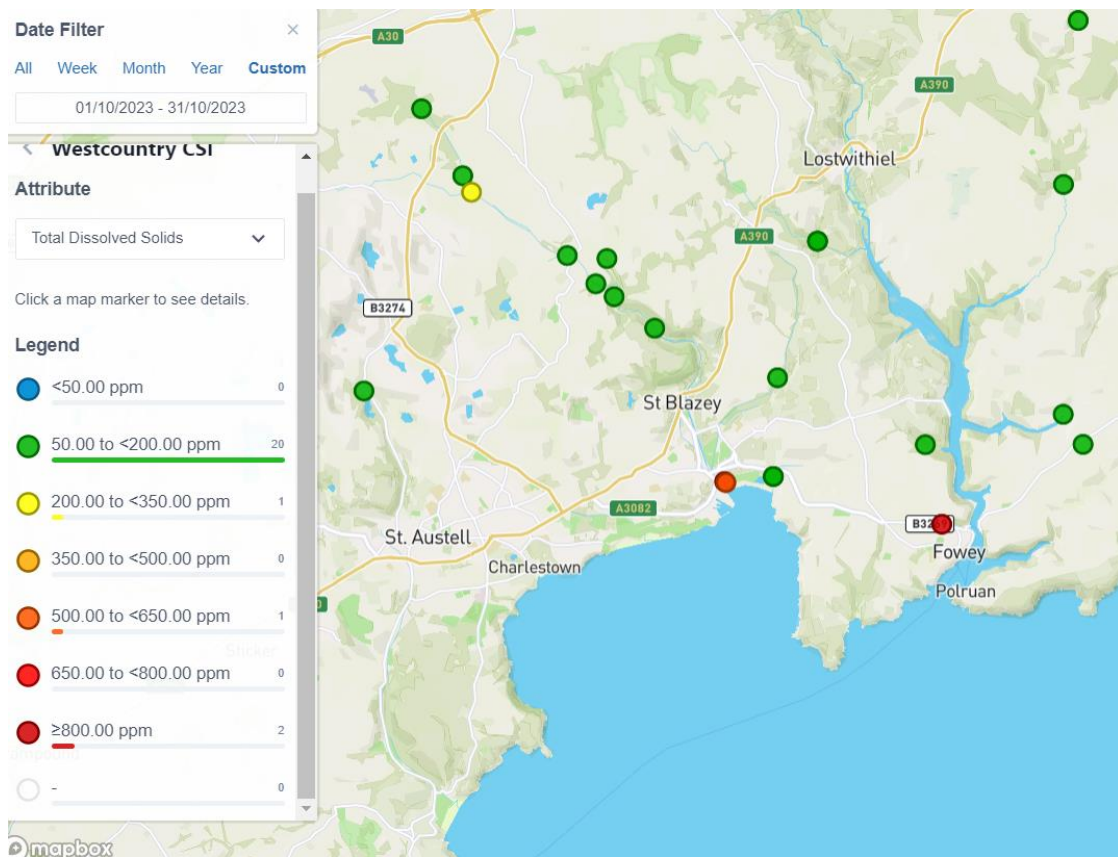
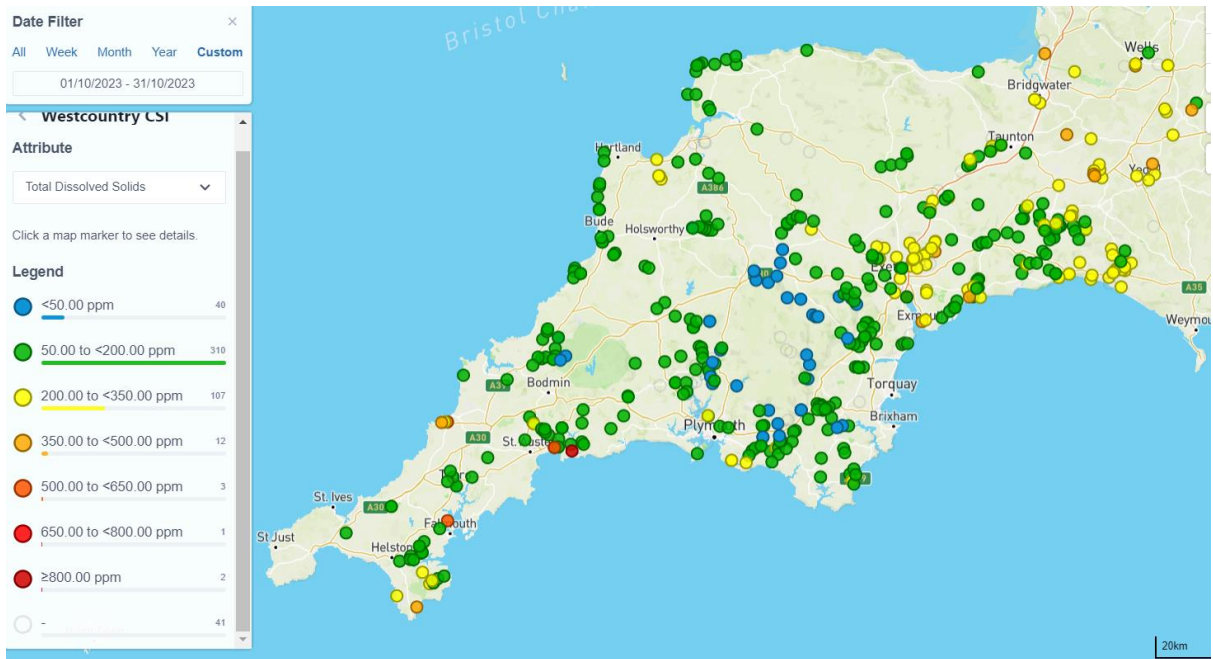
\*Indicates a tributary.

**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 October 2023

PAR RIVER/TRIBUTARY	LOCATION	Total Dissolved Solids PPM
Par	Criggan Moors, SX 01882 61133	81
Par	South of Minorca Lane, Par River, SX 02657 59788	70
Tributary	Carbis Stream SX 02834 59401	211
Par	Luxulyan allotments, Par River, SX 04732 58045	170
Par	Cam Bridges, Par River, SX 05292 57454	163
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	92
Par	Treffry Viaduct, Par River, SX 05650 57179	164
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	123
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	126
Par	Par Beach slipway, SX 0776 53261	534
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	162

\*Indicates a tributary.

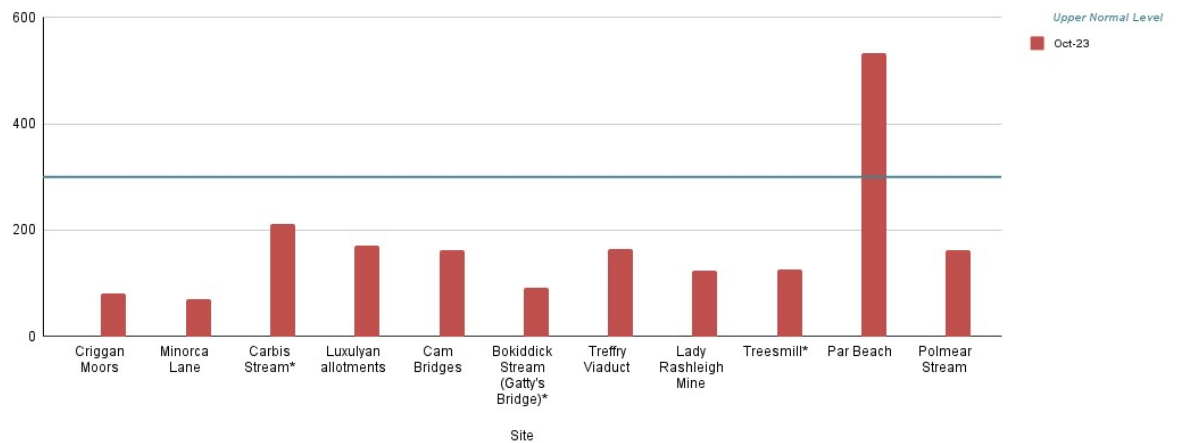
#### Upper Normal Level

The WRT advice for this river is that it should not exceed 300 ppb.

### 4. Graphs

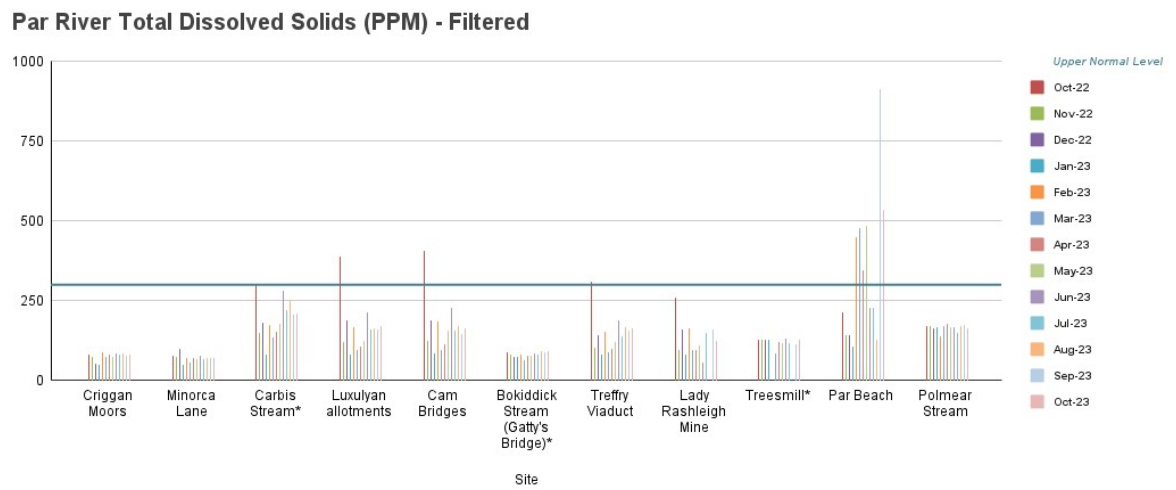
#### (a) This month

Par River Total Dissolved Solids (PPM) - Filtered



\*Indicates a tributary.



**(b) From 1<sup>st</sup> October 2022 to now**

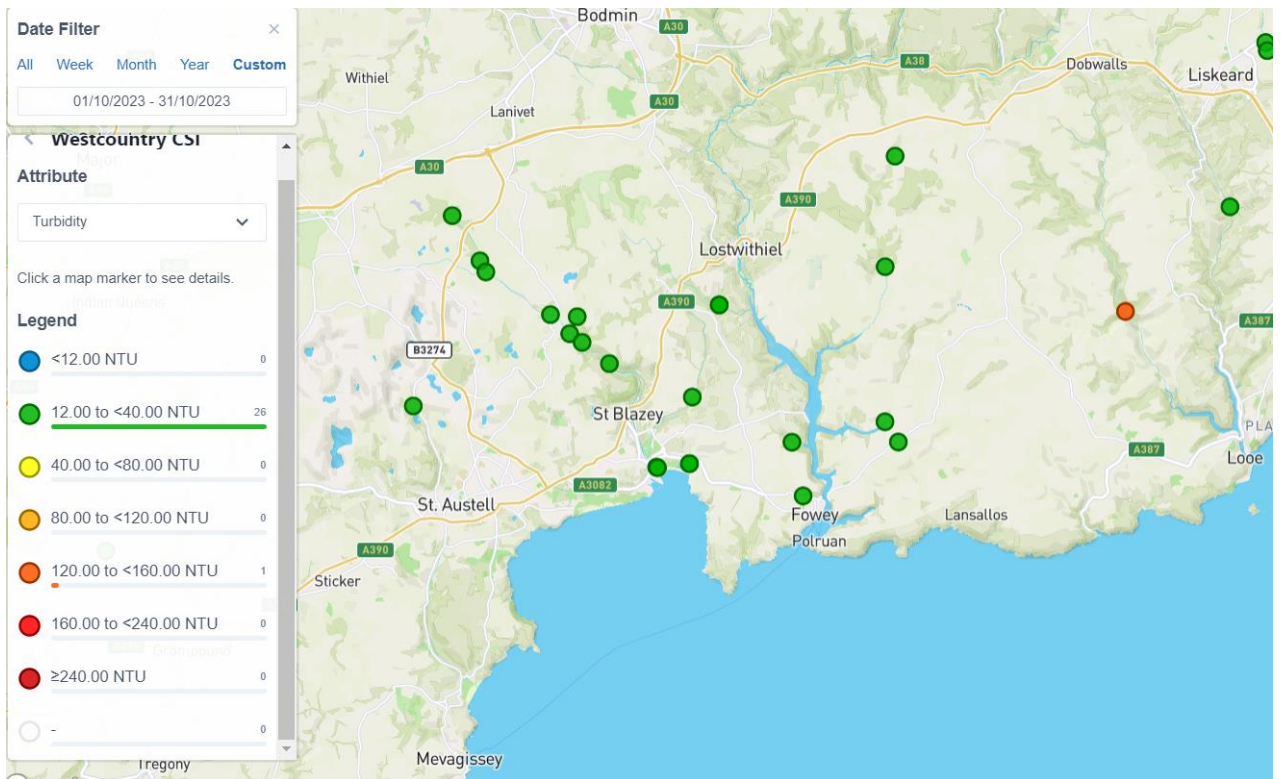
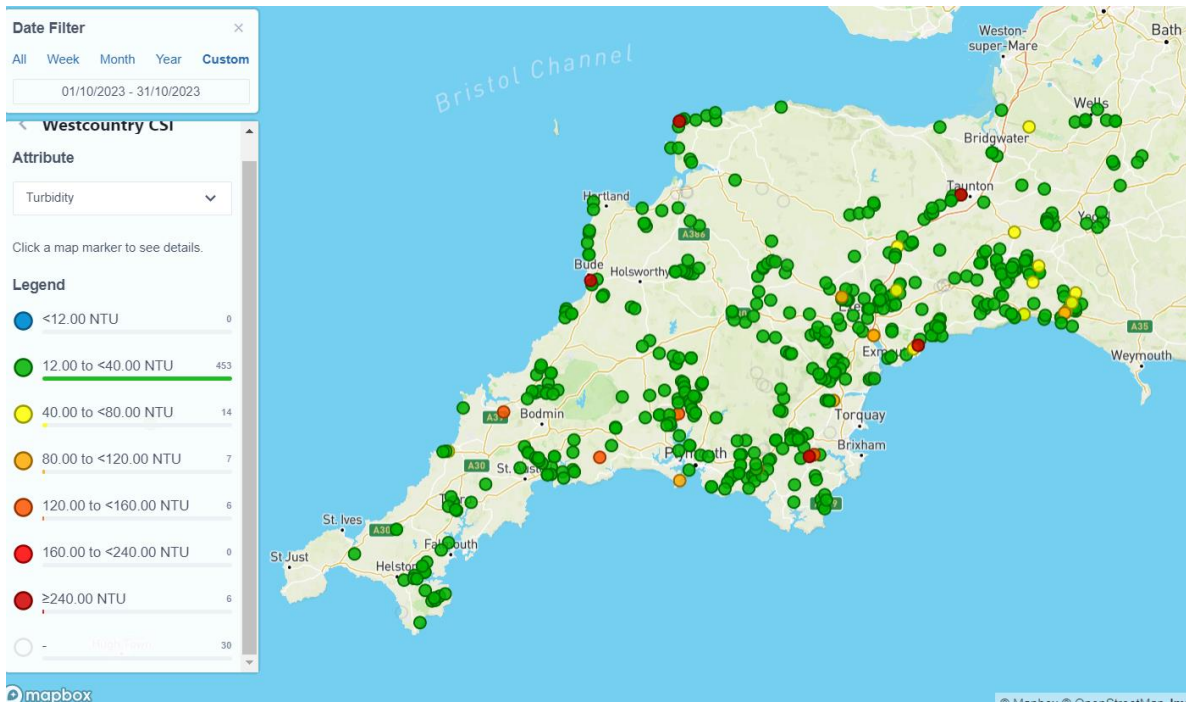
\*Indicates a tributary.

**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.*

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



**3. Results September 2023**

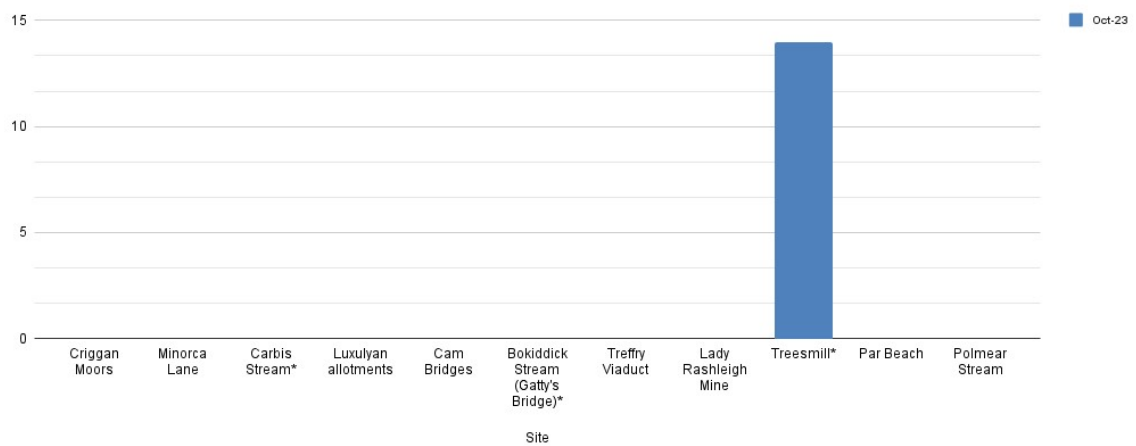
PAR RIVER/TRIBUTARY	LOCATION	Turbidity
Par	Criggan Moors, SX 01882 61133	0
Par	South of Minorca Lane, Par River, SX 02657 59788	0
Tributary	Carbis Stream SX 02834 59401	0
Par	Luxulyan allotments, Par River, SX 04732 58045	0
Par	Cam Bridges, Par River, SX 05292 57454	0
Tributary	Gatty's Bridge, Bokiddick 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	14
Par	Par Beach slipway, SX 0776 53261	0
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	0

\*Indicates a tributary.

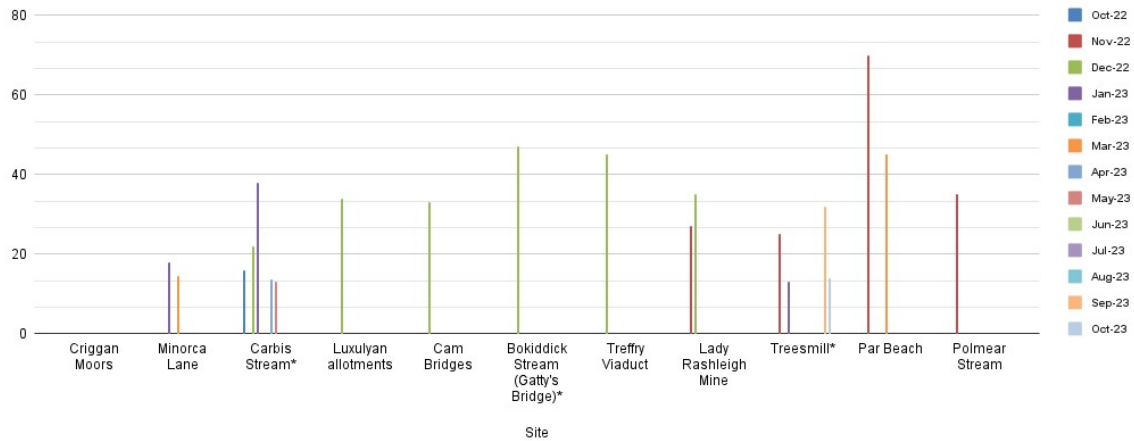
**4. Graphs**

**(a) This month**

**Par River Turbidity - Filtered**



\*Indicates a tributary.

**(b) From 1<sup>st</sup> October 2022 to now****Par River Turbidity - Filtered**

\*Indicates a tributary.

**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.)*

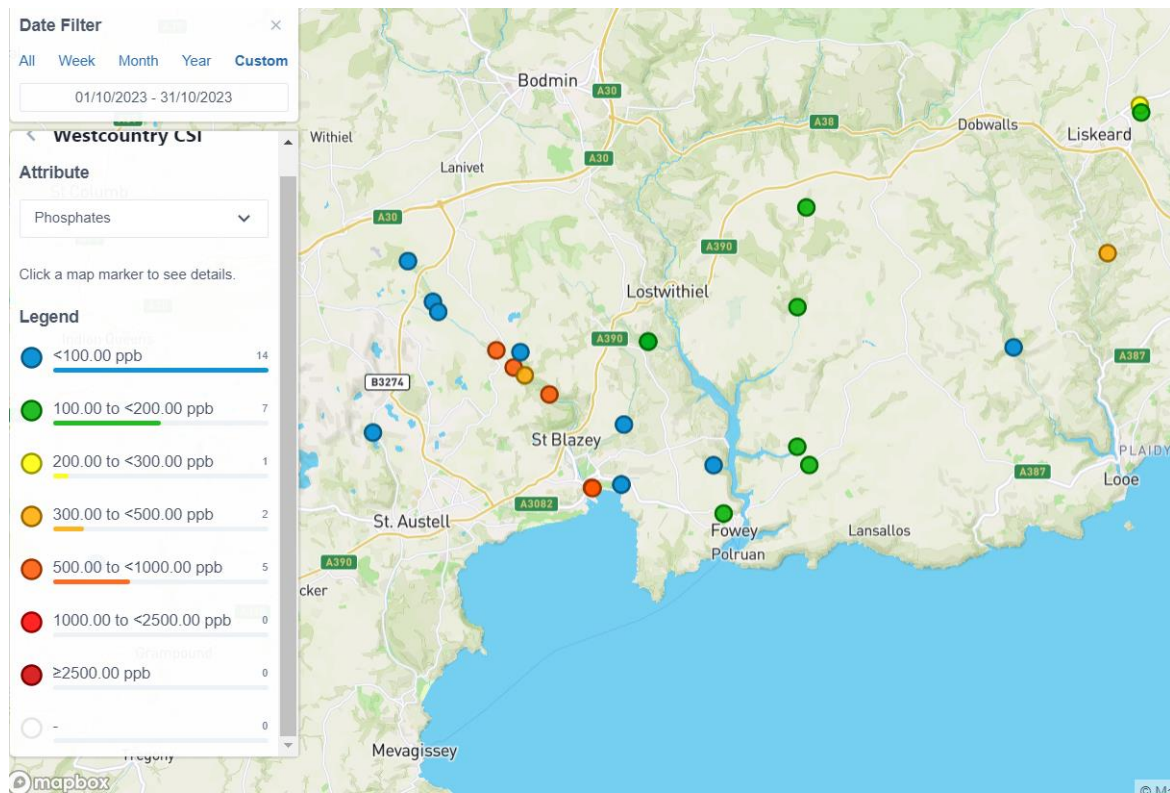
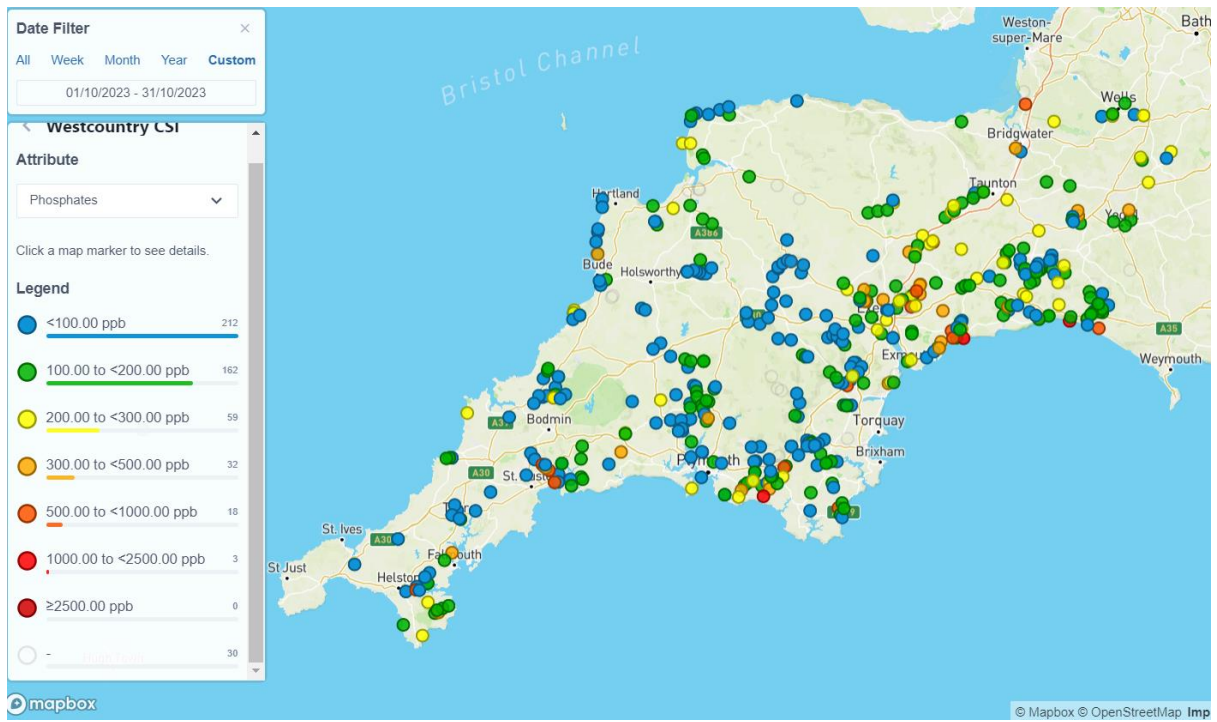
*Ranges on phosphate diagnostic colour chart:*

*0 – 100 OK*

*200 – 300 HIGH*

*500 – 2500 – TOO HIGH*

2. Geographical comparison. Source: Cartographer





**3. Results October 2023**

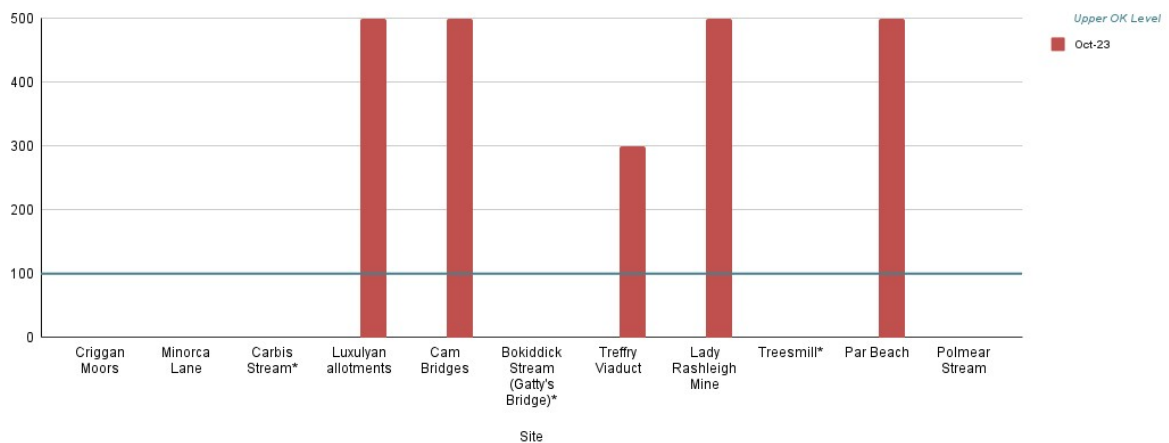
PAR RIVER/TRIBUTARY	LOCATION	Phosphates PPB
Par	Criggan Moors, SX 01882 61133	0
Par	South of Minorca Lane, Par River, SX 02657 59788	0
Tributary	Carbis Stream SX 02834 59401	0
Par	Luxulyan allotments, Par River, SX 04732 58045	500
Par	Cam Bridges, Par River, SX 05292 57454	500
Tributary	Gatty's Bridge,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

Results in red show phosphate levels that are Too High (WRT advice).

**4. Graphs**

**(a) This month**

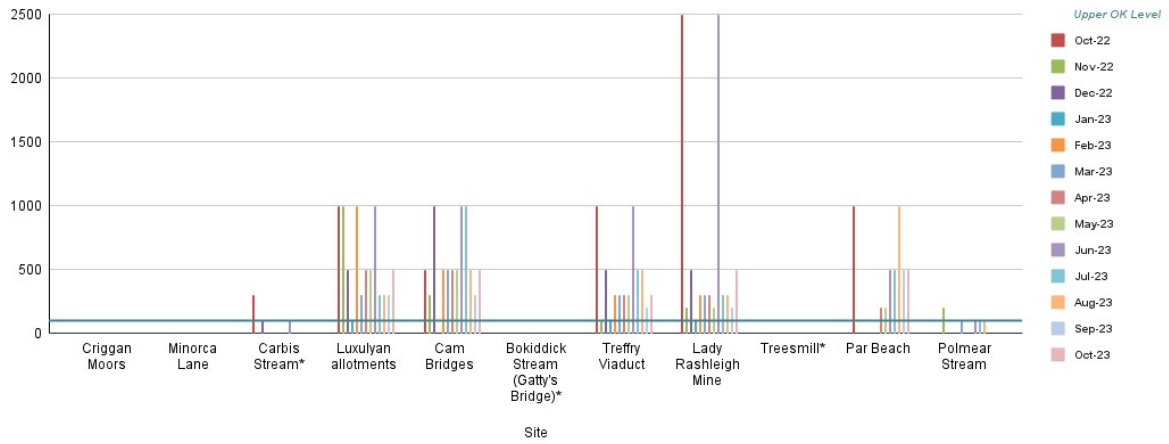
**Par River Phosphates (PPB) - Filtered**



\*Indicates a tributary.

**(b) From 1<sup>st</sup> October 2022 to now**

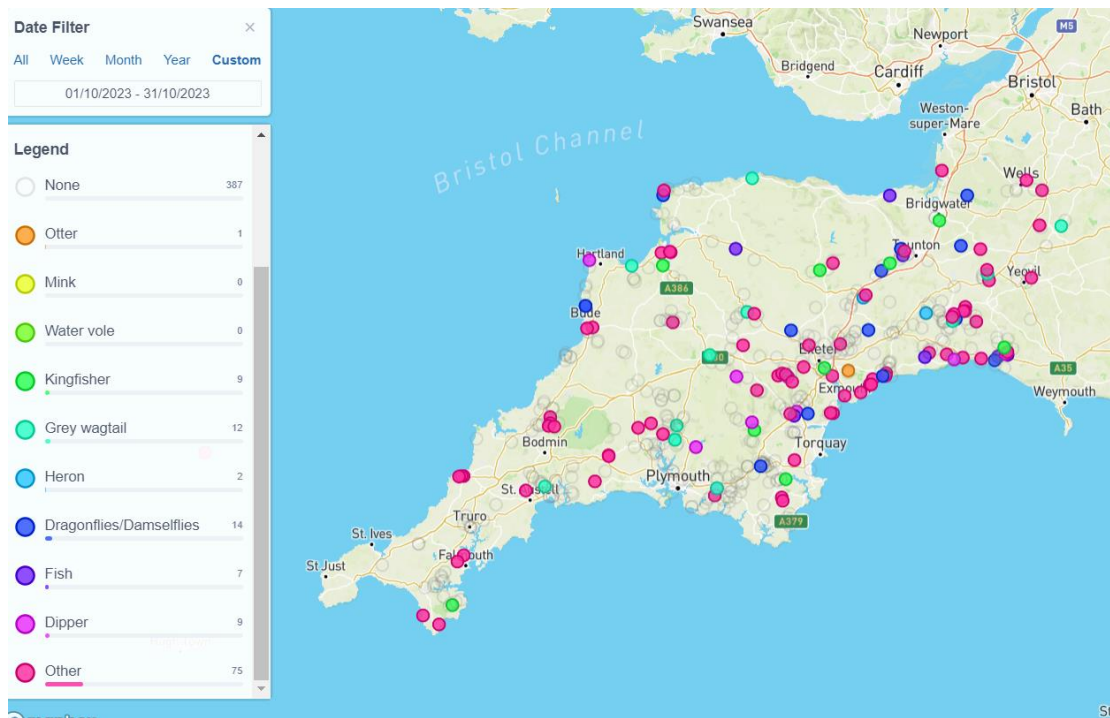
**Par River Phosphates (PPB) - Filtered**

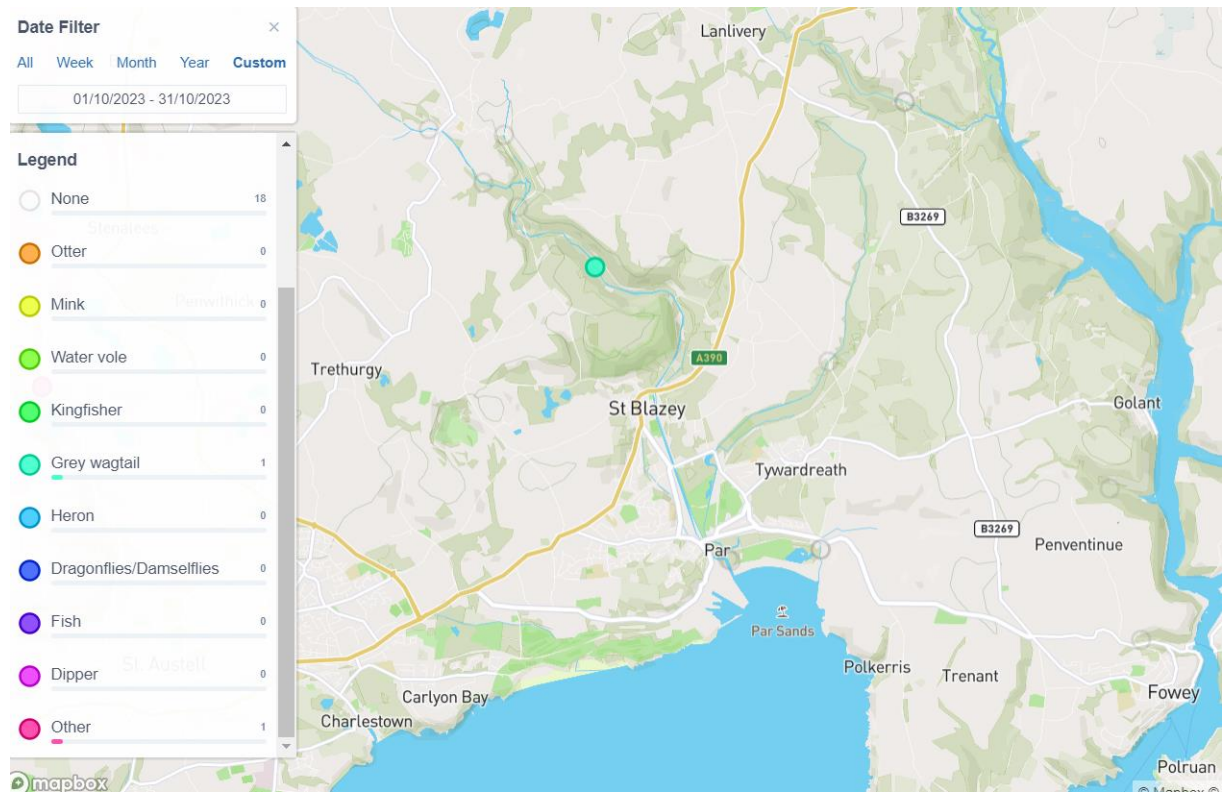


\*Indicates a tributary.

**G. WILDLIFE (FOR OTTER REPORT SEE SECTION I) & INVASIVE PLANTS**

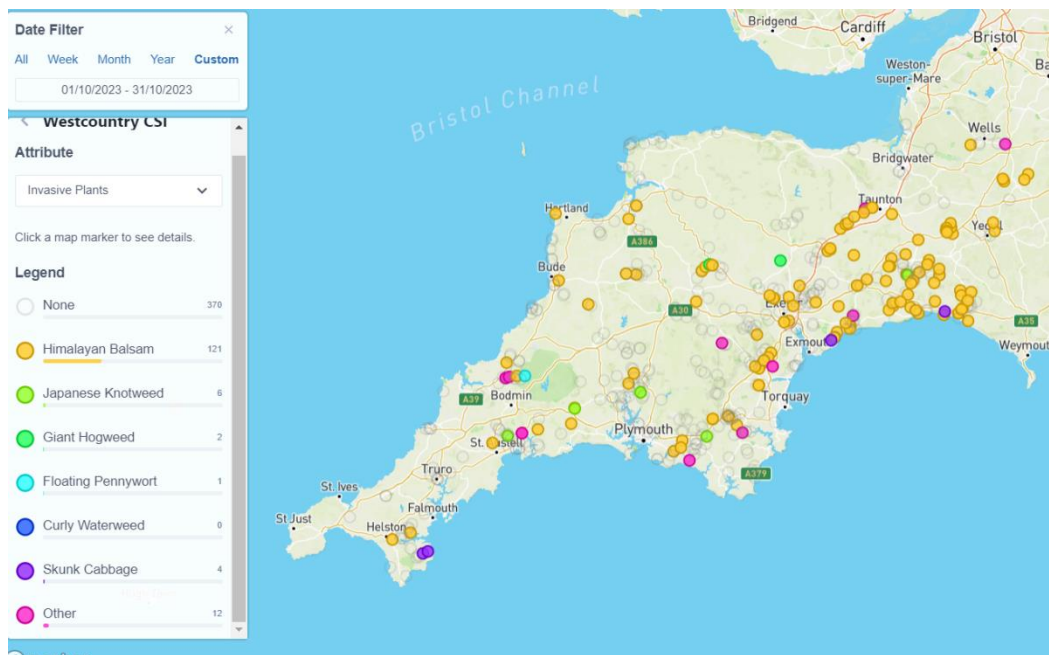
**(a) Wildlife maps**

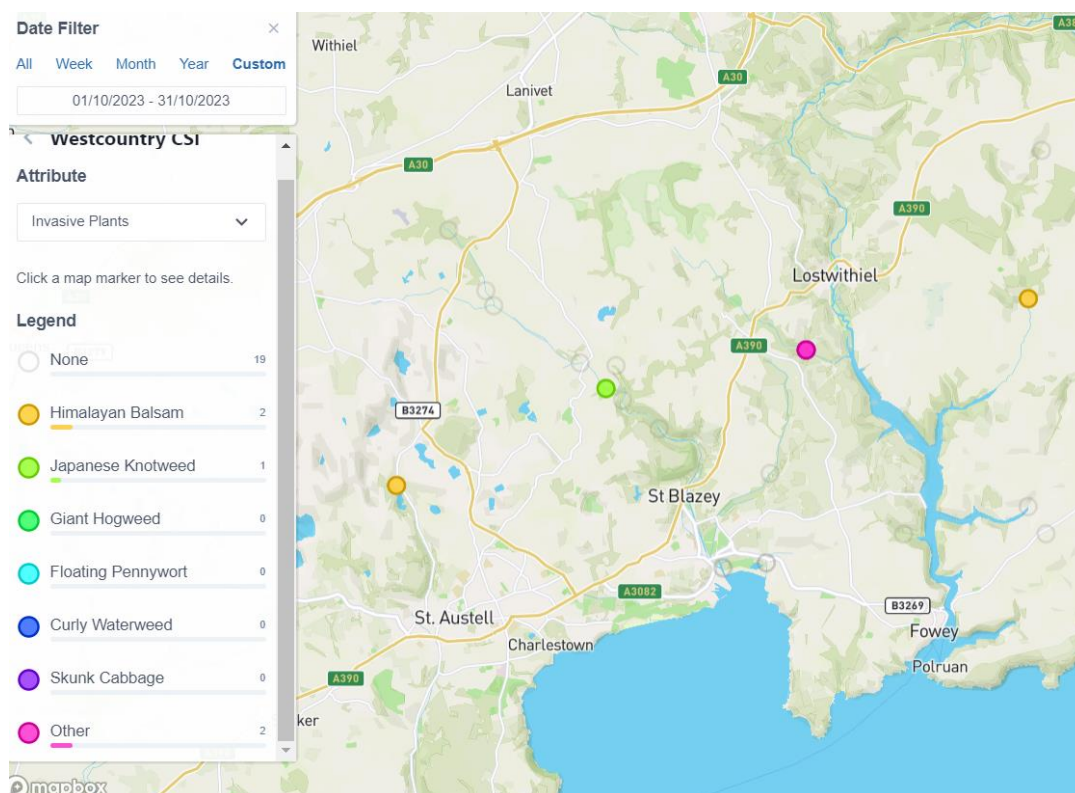




The old otter spraint found at Lady Rashleigh Mine and entered as 'Other' has not been plotted on this map.

**(b) Invasive plants maps**





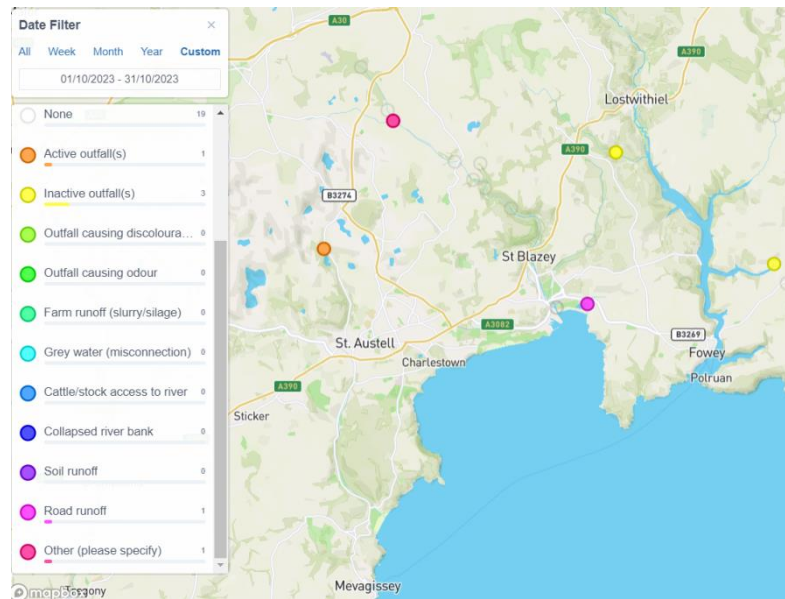
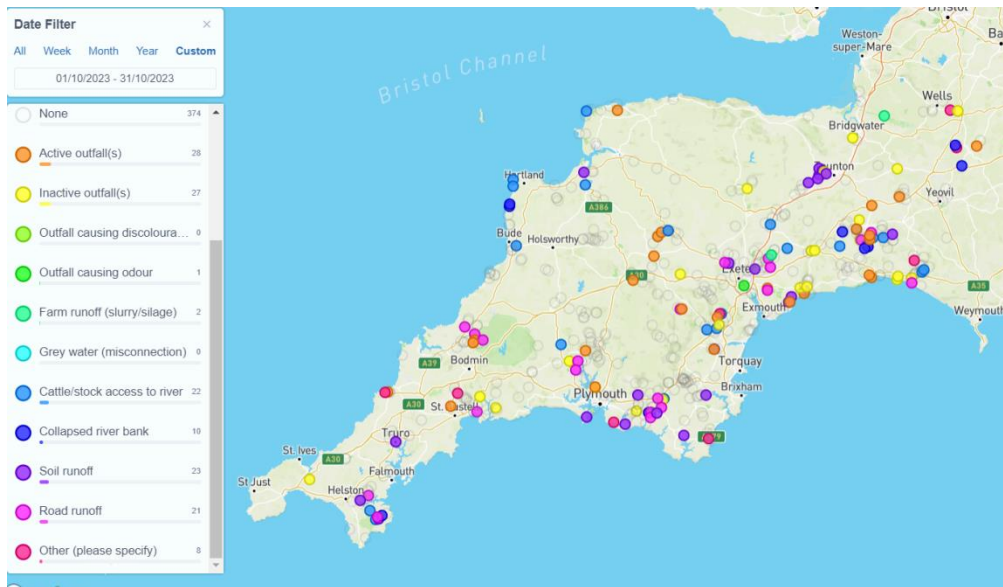
**(c) Wildlife & Invasive Plants sightings at the monitoring points included:**

PAR RIVER/TRIBUTARY	LOCATION	WILDLIFE NOTED	INVASIVE PLANTS NOTED
Par	Criggan Moors, SX 01882 61133	None	None
Par	South of Minorca Lane, Par River, SX 02657 59788	None	None
Tributary	Carbis Stream SX 02834 59401	None	None
Par	Luxulyan allotments, Par River, SX 04732 58045	None	None
Par	Cam Bridges, Par River, SX 05292 57454	None	Japanese Knotweed
Tributary	Gatty's Bridge, Bokiddick Stream SX 05531 57953	None	None
Par	Treffry Viaduct, Par River, SX 05650 57179	None	None
Par	Lady Rashleigh Mine, Par River, SX 06451 56509	Otter spraint. Grey wagtail. Riverfly nymphs: Caseless Caddisfly, Blue-winged Olive, Olives, Flat-bodied Upwing, Stoneflies, and Freshwater Shrimps.	None
Tributary	Treesmill, Tywardreath Stream, SX 08873 55385	None	None
Par	Par Beach slipway, SX 0776 53261	Mallard duck.	None
Tributary	Polmear Stream, Ship Inn, SX 08749 53417	None	None



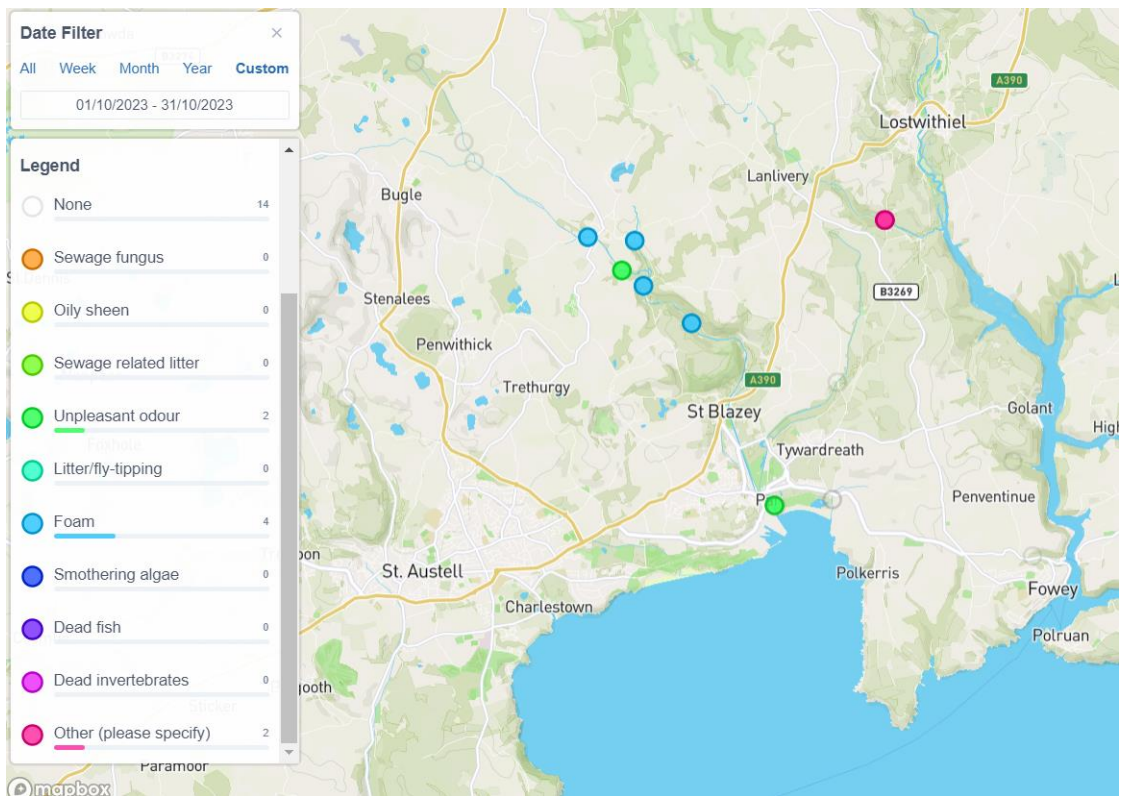
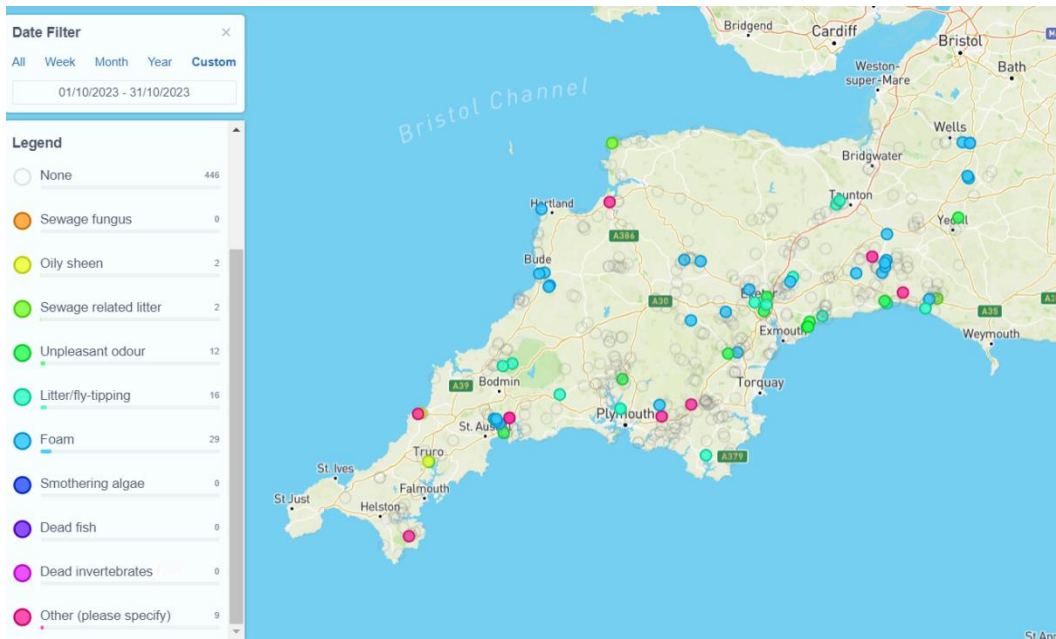
## H. POLLUTION SOURCES AND EVIDENCE

### 1. Pollution sources





## 2. Evidence of recent pollution



## I. OTTER SURVEY, OCTOBER 2023

### 1. SURVEY CONDITIONS

<b>Date &amp; time</b>	18/10/2023
<b>Surveyors</b>	Roger Smith, Joan Farmer, Veronica Jones
<b>Areas surveyed</b>	Upper Par (Criggan Moors and Minorca Lane); Par River from STW to Cam Bridges; Par River from Treffry Viaduct to Lady Rashleigh Mine.
<b>Weather</b>	Heavy rain in previous 24 hours
<b>River level</b>	Average
<b>River flow</b>	Steady
<b>Water quality</b>	Phosphate readings 500 PPB at the highest (Luxulyan allotments), 500 at Cam Bridges, 300 at Treffry Viaduct and 200 at Lady Rashleigh Mine and 500 at Par Beach slipway. All readings zero upstream from the allotments.
<b>Other wildlife</b>	Riverfly nymphs and grey wagtail at Lady Rashleigh Mine.

### 2. EVIDENCE FOR OTTERS ✓

EVIDENCE	SEEN/ ORKS*	LOCATION	NOTES
Spraint - fresh			
Spraint – recent			
Spraint - old	✓* ✓*	SX 06456 56498 Lady Rashleigh Mine – boulder in river SX 06471 56497 DLRM - boulder in river*	
Anal jelly			
Sign heap			
Staining			
Tracks			
Path			
Slide			
Holt			
Hover			
Couch			
Live sighting			
Corpse			

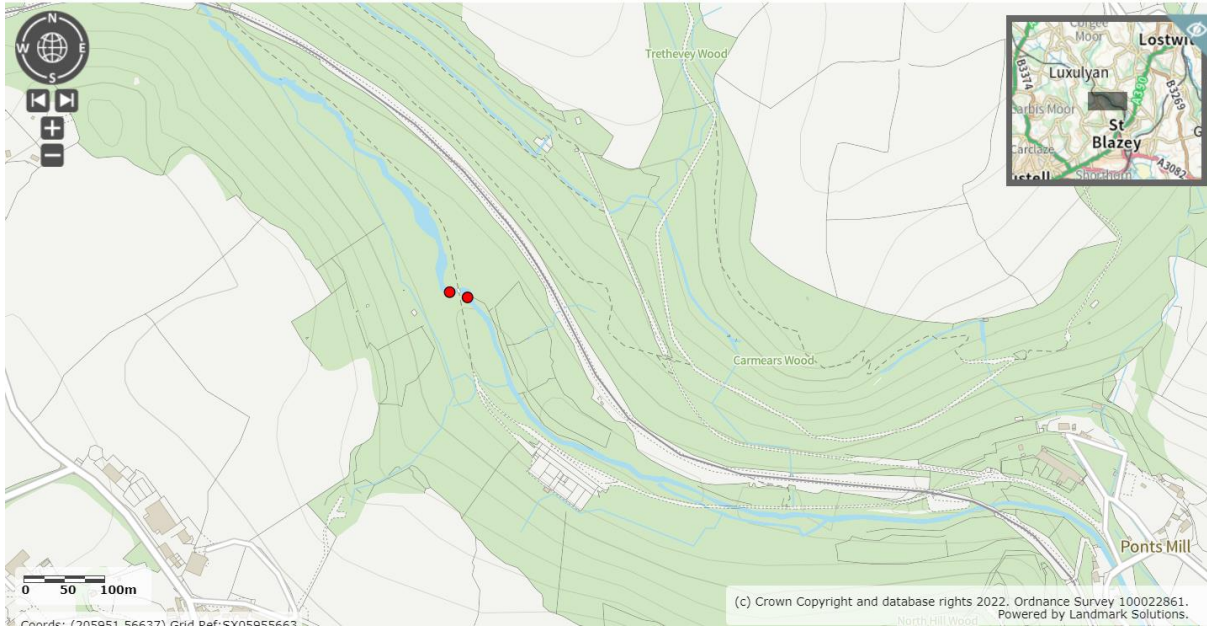
\*Report sent to ORKS: <https://ercis.org.uk/>

### 3. MAP

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.



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

### 4. PHOTOGRAPHS

Spraint on boulder at Lady Rashleigh Mine (Lower Par):



## 5. COMMENTS

Few signs were found last month but spraint was found at two locations at Lady Rashleigh Mine. Other possible locations, such as Ponto Mill, were not visited. The boulder at Luxulyan allotments was not checked because I wasn't wearing waders.

## J. ARMI RIVERFLY SURVEY

Three of the group (Joan Farmer, Veronica Jones and Roger Smith) 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.

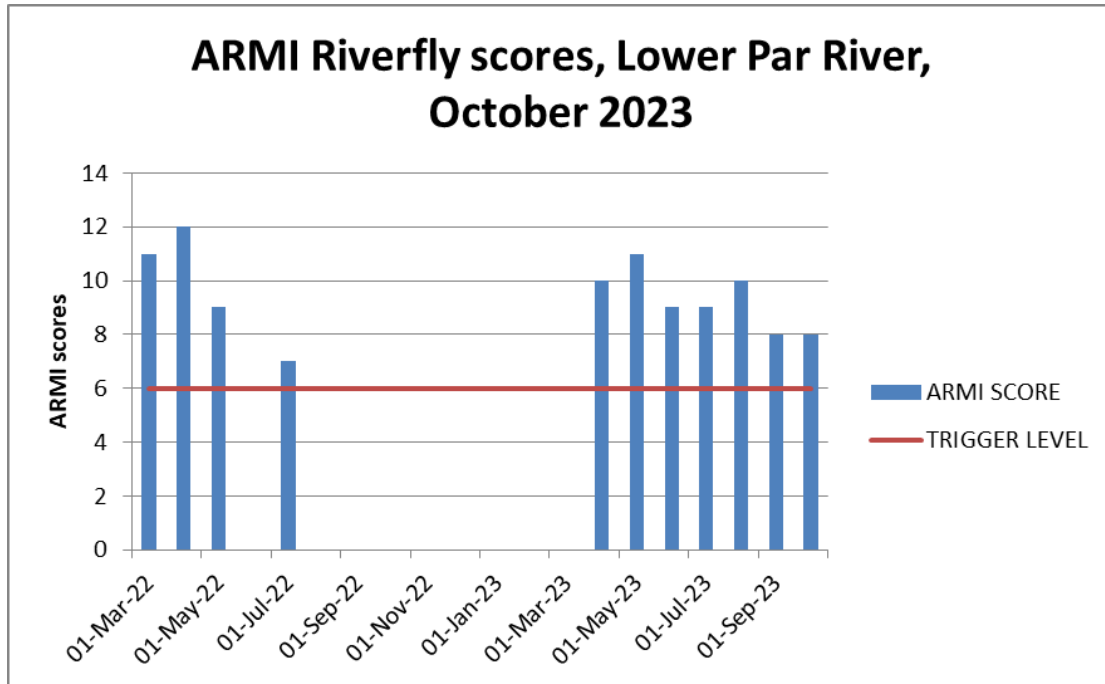
It is impossible to count every invertebrate so this counting method is used:

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 18<sup>th</sup> October 2023

	SPECIES	NUMBER	CATEGORY
<b>Trichoptera</b>			
1	Cased Caddisfly	0	0
2	Caseless Caddisfly	1	1
<b>Ephemeroptera 3 tails</b>			
3	Mayfly (Ephemeridae)	0	0
4	Blue-winged olive (Ephemerellidae)	3	1
5	Flat-bodied up-wings (Heptageniidae)	3	1
6	Olives (Baetidae)	30	2
<b>Plecoptera 2 tails</b>			
7	Stoneflies	4	1
<b>Gammaridae</b>			
8	Freshwater Shrimp	60+	2
			<b>8</b>

<b>CATEGORY TOTAL</b>	<b>8</b>
<b>TRIGGER LEVEL</b>	<b>6</b>



These are estimated numbers, especially when there are large numbers of a particular type. For example, there were more than 40 Gammarus but this has been recorded for the purposes of the graph as 41. Our riverfly surveys are not conducted during the winter months.

#### **K. RESPONSE FROM SOUTH WEST WATER TO LETTER SENT IN SEPTEMBER 2023**

##### **LETTER SENT TO SOUTH WEST WATER, 12<sup>TH</sup> SEPTEMBER 2023**

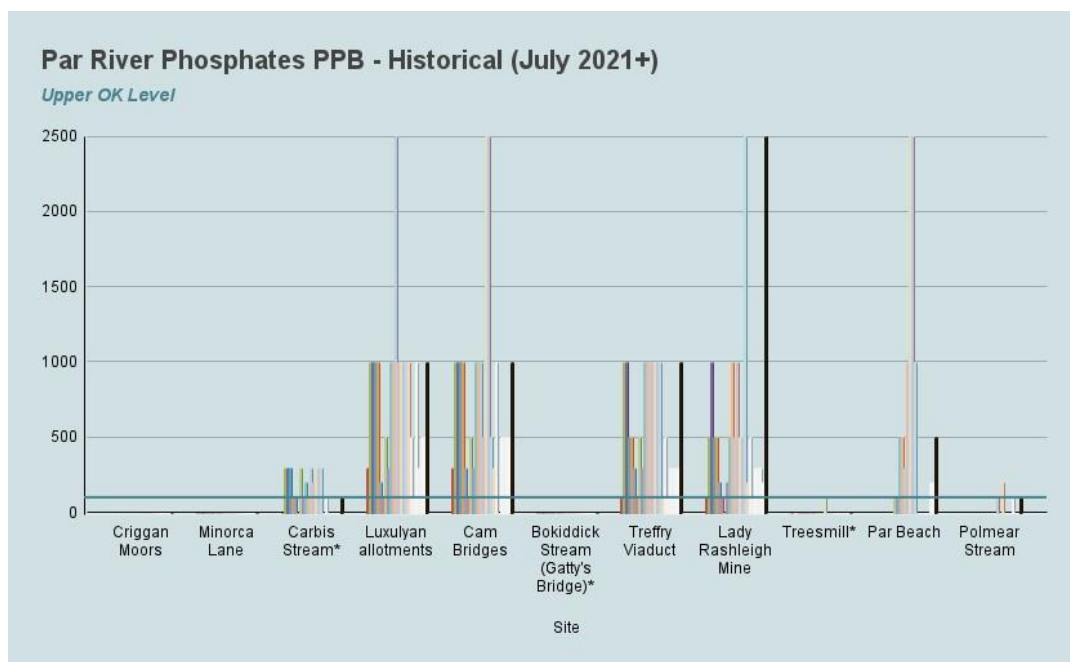
##### **Re. South West Water St Austell North STW and Luxulyan sewage pumping station**

I am a customer of South West Water, as well as being part of a group carrying out citizen science river-monitoring in the Par/Luxulyan River catchment under a scheme run by the Westcountry Rivers Trust. I am hoping you will be able to provide me with information regarding the sewage treatment works and the pumping station at Luxulyan and the impacts on the water quality in the river.

##### **1. Phosphates and ammonia entering the Par River**

We have consistently detected excessive levels of phosphate in our sampling downstream from the STW at Luxulyan (St Austell North STW). The following graph shows phosphate samples taken from the river since July 2021. Locations with an asterisk are for tributaries so may be ignored. The monitoring point at Luxulyan allotments is approximately 400 metres downstream from the treated effluent outfall at the STW. Our advice is that levels of phosphate exceeding 100 parts per billion are harmful and may lead to eutrophication.





The Environment Agency has been able to confirm that the St Austell North STW is a source of elevated levels of phosphate and ammonia and Defra has identified the Lower Par River in this report: [Urban waste water treatment: identification of sensitive areas notice 2023 schedule - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/114444/Urban_waste_water_treatment_identification_of_sensitive_areas_notice_2023_schedule.pdf). As the population equivalent of the area has exceeded 10,000, it means that a suitable level of treatment is required. Although there are no firm plans yet, something will be done in the 2025-2030 cycle, which is great news.

Could you please tell me:

- (a) Is the current renovation being carried out at St Austell North STW including work to reduce levels of phosphate and ammonia in the Lower Par River?
- (b) Will the current renovation reduce pollution of the river in any other way, for example by stopping or reducing the use of the CSO, which according to the Rivers Trust Sewage Map (<https://theriverstrust.org/sewage-map>), spilled 36 times for a total of 574.84 hours in 2022?

## 2. Bacteria

Our citizen science group has undertaken a trial to monitor levels of E.coli and Total Coliforms in the Par River. This used testing kit produced by a U.S. company called Aquagenx, with judgements based on US environmental standards for recreational bathing waters, so not directly applicable to this country. However, our findings (which I would be happy to share) presented a prima facie case for concern about bacteria levels. The EA monitoring, which is far more authoritative, also indicates high levels of E.coli and Intestinal Enterococci in the Par River.

While I would not suggest that SWW treatment works are solely responsible for this, please could you tell me what measures are currently taken to prevent harmful bacteria being discharged into the river and what plans, if any, you have to reduce levels of harmful bacteria in the water discharged into the river?

### **3. SWW pumping station (SX 0503 5790) and discharge point (your grid reference: SX 0504 5783) near Luxulyan**

In May 2021, I contacted SWW about the pumping station downstream from St Austell North STW and a pipe and concrete headwall that had fallen into the river nearby (correspondence reference: South West Water reply case 9773631). You advised me that you had a permit to discharge sewage at this point and kindly sent me a copy of the permit. According to your reply, 'Luxulyan SPS was checked via telemetry and was operating as normal.' You also wrote: 'Thank you for the photos of the pipe and headwall, these have now been passed for repair.'

Please can you answer these questions?

(a) Is the sewage pumping station still operating? It no longer appears on The Rivers Trust's Sewage Map (<https://theriverstrust.org/sewage-map>).

(b) If the sewage pumping station continues to operate, has the electronic monitoring shown any sewage discharges into the river since 2021?

(c) I know from the landowner that your colleagues have made a number of visits to the site but the collapsed pipe and headwall remain in the river. When will they be removed?

### **4. River smell at Cam Bridges (SX 05292 57454)**

Recently a member of the public who once worked for South West water reported that the river at Cam Bridges (which is about 1200 metres downstream from St Austell North STW and about 500 metres downstream from the discharge point near the pumping station) had a distinct smell of sewage, an observation that others have made at various times. Are you able to offer an explanation please?

I realise that I have asked for a lot of information. South West Water is, I am sure, committed to the improvement of water quality in rivers and the sea, so I hope that these questions will be of constructive use in gaining a better understanding of how to make things better. If it would be of any use I would be more than happy to share our monthly reports with you.

Regards,

Roger Smith

### **REPLY FROM SOUTH WEST WATER RECEIVED ON 17<sup>TH</sup> OCTOBER 2023:**

As you have requested information under the Environmental Information Regulations 2004 ("the Regulations") SWW has a duty to make environmental information that it holds available on request, unless one of the exceptions contained within the Regulations applies. Information is provided as follows.

**Question1** The Water Framework Directive classification of the Lower Par River indicates that the waste water treatment works (WWTW) is one of many sectors contributing to Reasons for Not Achieving Good (RNAG). Ammonia reduction works at Luxulyan WWTW are already in progress and due for completion by March 2025. The works is currently included in the planned 2025-2030 Water Industry National Environment Programme (WINEP) for phosphorus reduction improvements. If that

WINEP is not changed during the Price Review, a Phosphorus limit of 0.5mg/l will be imposed at Luxulyan WWTW in the period 2025-30. The current works are indeed associated with ammonia reduction obligations under the current WINEP programme, and due for completion by March 2025. The works has already benefited from storm overflow reduction works with the construction of 300m<sup>3</sup> of additional storm storage completed in March 2021.

**Question 2** The works performs as per its design standards within the terms of the permit issued by the Environment Agency (EA) which includes Ultra-Violet disinfection on our final effluent. This disinfection significantly reduces bacteria within our final effluent discharges. Please note that there are many other sources of bacteria in a waterbody catchment rather than just a STW discharge. Water quality in rivers can be temporarily impacted by many factors, including rainwater running off roads and roofs, run-off from agricultural land, privately owned septic tanks, animals such as livestock, dogs or birds, as well as by discharges from our networks. The latest data from the EA suggests that SWW operations are responsible for around 12% of the reasons for rivers in our region not achieving good ecological status, with storm overflows accounting for some of this impact. It is part of our current and future plans to take action to address our impact on rivers through reducing storm overflows, as well as continuing our important work with farmers, developers and others to protect and enhance our natural environment. SWW is committed to protecting rivers and the sea from pollution and this has included extensive upgrades to wastewater treatment works and continued investment in our region. SWW have published information about storm overflows, which explains why they are needed and when they operate - Storm overflows | South West Water SWW's WaterFit programme will dramatically reduce our use of storm overflows, maintain our region's excellent bathing water quality standards all year round and reduce and then remove our impact on river water quality by 2030. We also want to put nature on everyone's doorstep, look to introduce inland bathing, create and restore habitats, inspire local champions to help us make lasting improvements and work towards a more sustainable future. Our WaterFit commitment to target no more than 10 spills a year on average at designated bathing waters and to target an average of 20 spills on average by 2025 across all locations (bathing waters and rivers), will reduce storm overflow spills by targeting wastewater treatment works, pumping stations and combined storm overflows for upgrades, delivering increased storage as well as network and treatment capacity. More information can be found at [www.southwestwater.co.uk/waterfit](http://www.southwestwater.co.uk/waterfit) .

**Question 3** We have established that this is a legacy structure and isn't related to the current pump station emergency overflow or the operation of the sewerage network. Due to sensitive wildlife habitats Ecological surveys are being undertaken. Work is underway to establish the most appropriate way to remove the structure from the river which will also take into account the difficulty of accessing the location. The pumping station is operational and receives foul only flows. It does not have a storm overflow but does have an emergency overflow in case of mechanical or power failure. Emergency discharges are not included in the annual storm overflow returns to the EA, neither are they included in SWW's WaterFit Live storm overflow notifications. An annual emergency overflow report is provided to the EA. SWW cannot comment on the data being provided/published by the Rivers Trust.

**Question 4** Event Duration Monitoring equipment was installed in 2022 and there has been no activation of the emergency overflow from installation to the present. There have been no pollution incidents associated with this PS. We have checked our pollution records for August 2023 onwards

and there is nothing recorded in the area of Luxulyan/Cam Bridges. We are unable to provide any update on the contact you refer to in your request. To enable us to make further checks please could you provide the name of the person who made the report, the date and time of their contact with SWW and the method of contact (telephone, email, social media etc). Any suspected sewage pollution should be reported to us immediately by calling 0344 346 2020.

## **L. DISCUSSION**

### **1. Positive observations**

- (a) The ARMI Riverfly trigger level was exceeded.
- (b) Despite a very restricted otter survey, spraint was found in Luxulyan Valley.
- (c) The water on the Carbis Stream appeared clear for another month, with no evidence of china clay pollution.
- (d) A clear, informative reply to the group's questions was received from South West Water (see section K above). This acknowledged that St Austell North STW at Luxulyan was one source of levels of ammonia and phosphate that exceeded the levels stipulated by the Water Framework Directive. Work to reduce ammonia levels is underway. Phosphate reduction will commence after 2025. SWW also intends to remove redundant infrastructure from the river near the pumping station south of Luxulyan and confirms that there have been no spillages.

### **2. Points of concern**

- (a) Phosphate levels remain unacceptably high.
- (b) The Total Dissolved Solids reading at Par Beach was, once again, above the guidance of 300 parts per million.
- (c) Hardly any wildlife was noted.
- (d) The smell at Cam Bridges has been reported by various people as coming from sewage. This evidence is anecdotal but some of the observers do have relevant knowledge. It has probably been under-reported in our monitoring at that spot. The smell is not noticeable closer to the STW at Luxulyan allotments, so it is assumed that the turbulence caused by the weir is releasing the smell. Nonetheless, it is concerning that the presence of sewage can be detected.
- (e) More foam was noted on the 18<sup>th</sup> October than usual. Besides the familiar line of bubbles, assumed to come from the treated effluent outfall at St Austell North STW, larger quantities were seen (see photo on page 1).

### **3. Areas of doubt**

- (a) We still do not know if our bacteria testing, using the US Aquagenx kit, was valid, or if our readings for E.coli and Total Coliforms were of any significance. In their reply, SWW mentions

that 'disinfection significantly reduces bacteria within our final effluent discharges', but this does not allow us to know if bacteria levels are safe. It would be folly to draw conclusions from our own, unevaluated, amateur investigations but the data provided by the Environment Agency, while undoubtedly robust and accurate, is impenetrable for those of us who are unqualified. It is important that members of the public, for whom the state of our rivers is of growing concern, can have access to simple, accurate information.

(b) SWW makes a valid point pointing out that numerous factors affect the quality of water in our rivers: 'Water quality in rivers can be temporarily impacted by many factors, including rainwater running off roads and roofs, run-off from agricultural land, privately owned septic tanks, animals such as livestock, dogs or birds, as well as by discharges from our networks. The latest data from the EA suggests that SWW operations are responsible for around 12% of the reasons for rivers in our region not achieving good ecological status, with storm overflows accounting for some of this impact.' For good reasons, the financial and operational arrangements of privatised water companies are being subjected to increasing scrutiny nationally but it would be unwise to direct attention only to them when there are other factors having a damaging impact on rivers. The second map in section H (1) above shows our group has identified a few potential sources of pollution but it may be worth looking more closely to see if there are more.

#### **M. 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 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, 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, Layla Ousley, Eva Edgeworth, Jack Middleton, Anna Seal, Jade Neville, Nicola Rogers and Callum Lewis is greatly appreciated. The interest and encouragement offered by Environment Agency officers, especially Lisa Best, Lisa Goodall and Peter Scobie, have been invaluable.

**Report compiled by Dave Burrell, Joan Farmer and Roger Smith, November 2023**