# 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.**

# APRIL 2024

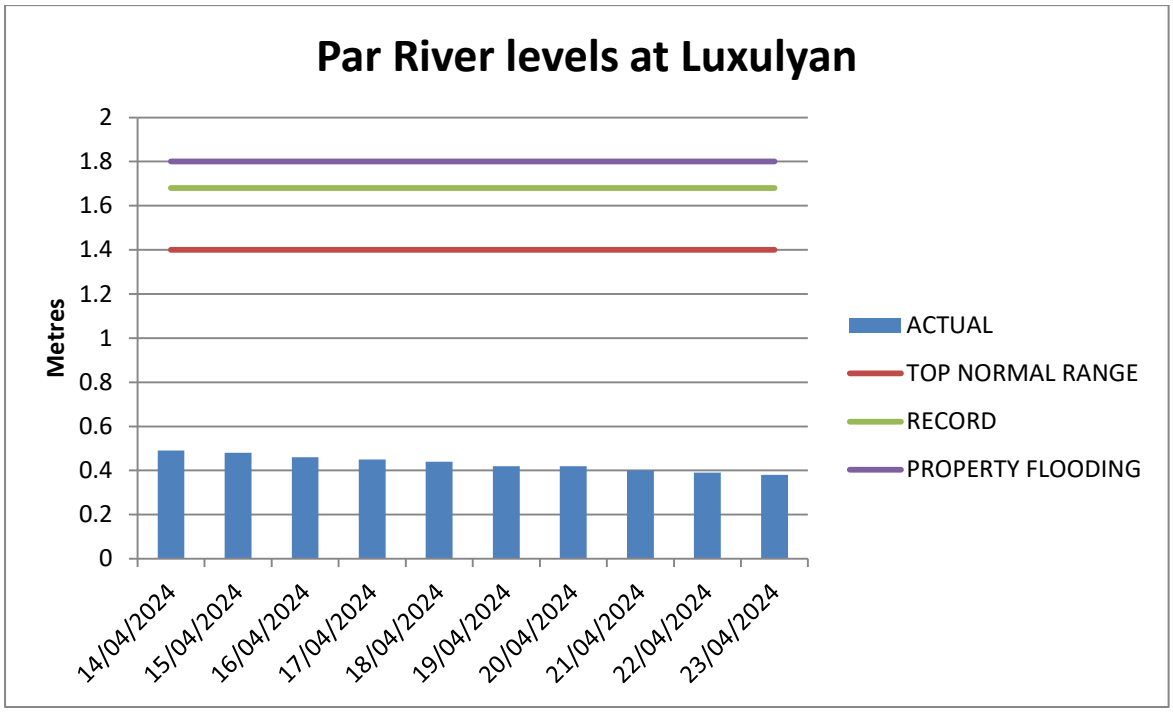
**Ducks enjoying the spring sunshine in Luxulyan Valley.**

## A. OUR APRIL 2024 FINDINGS AT A GLANCE (SEE SECTIONS C TO J FOR FULL PICTURE)

**1. We sampled at 16 locations, including 2 new locations on the Bokiddick Stream and 2 locations on the Treskilling that we visit periodically. The red highlighting shows points 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, BOKIDDICK STREAM) 6 TESTING LOCATIONS | TRIBUTARY OF LOWER PAR (POLMEAR STREAM) 2 TESTING LOCATIONS |
|---|---|---|---|---|
| TEMPERATURE (SHOULD NOT EXCEED 18˚ CELSIUS) | Average 11˚ Celsius | Average 11.63˚ Celsius | Average 12.68˚ Celsius | Average 13.35˚ Celsius |
| TOTAL DISSOLVED SOLIDS (SHOULD NOT EXCEED 300 PPM) | 78 PPM | 111.66 PPM | 74 PPM | 136 PPM |
| TURBIDITY (SHOULD BE <12 ON SECCHI TUBE. FOR AVERAGING ANY READING <12 IS COUNTED AS 11) | 0 | 0 | 2.83 | 0 |
| PHOSPHATES (SHOULD NOT EXCEED 100 PPB) | **120 PPB** | **166.6 PPB** | 0 PPB | 0 PPB |
| RIVERFLY TRIGGER LEVEL (SHOULD BE ≥ 6) | N/A | N/A | 4 (same at 2 sites) | N/A |
| WILDLIFE EVIDENCE | Wren, robin, chiffchaff, fox dung & deer tracks | Wren, nuthatch, coal tit, mallards, dipper | Fish, otter prints, chiffchaff | Sparrows, chiffchaff, great tit, buzzard, mallard, song thrush, dunnock |
| EVIDENCE OF POLLUTION | Foam. | None | China clay | None |

2. Par River levels at Luxulyan preceding and during surveys (https://check-for-flooding.service.gov.uk/station/3159 )

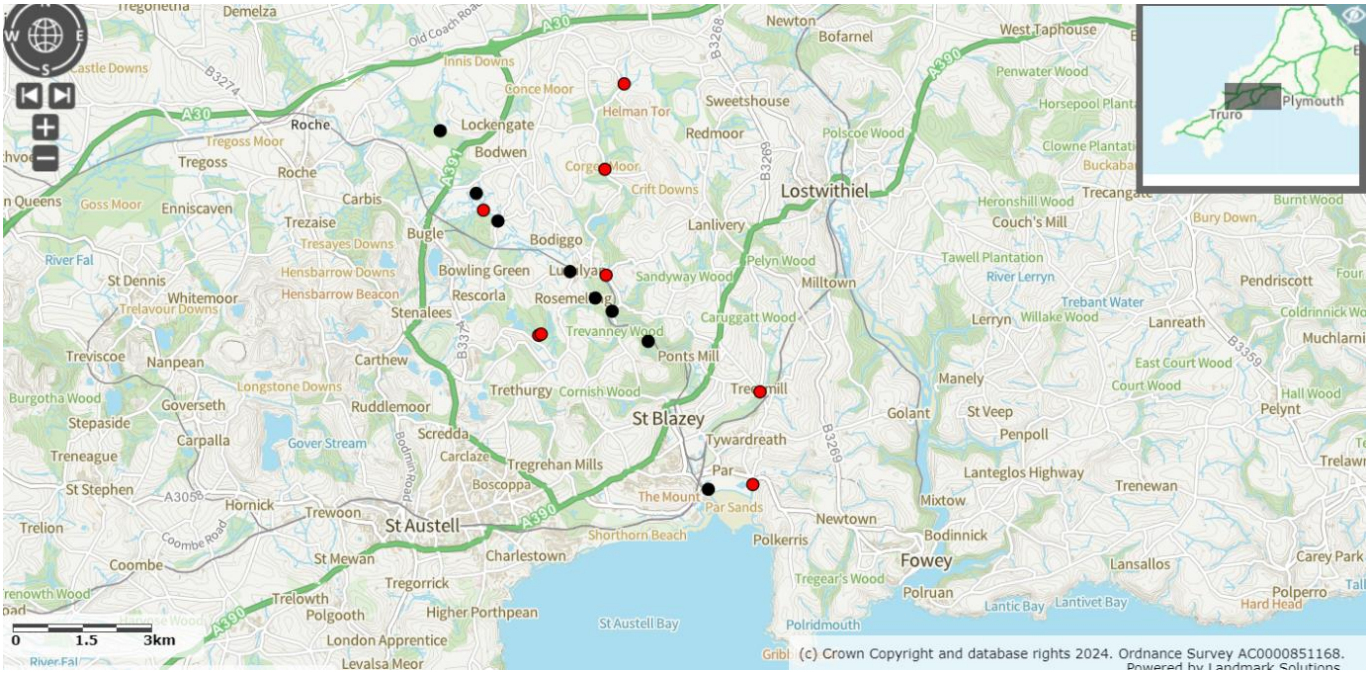



**How levels here could affect nearby areas**

| | |
|---|---|
| **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 |

## B. APRIL 2024 MONITORING POINTS

This month monitoring occurred at 12 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



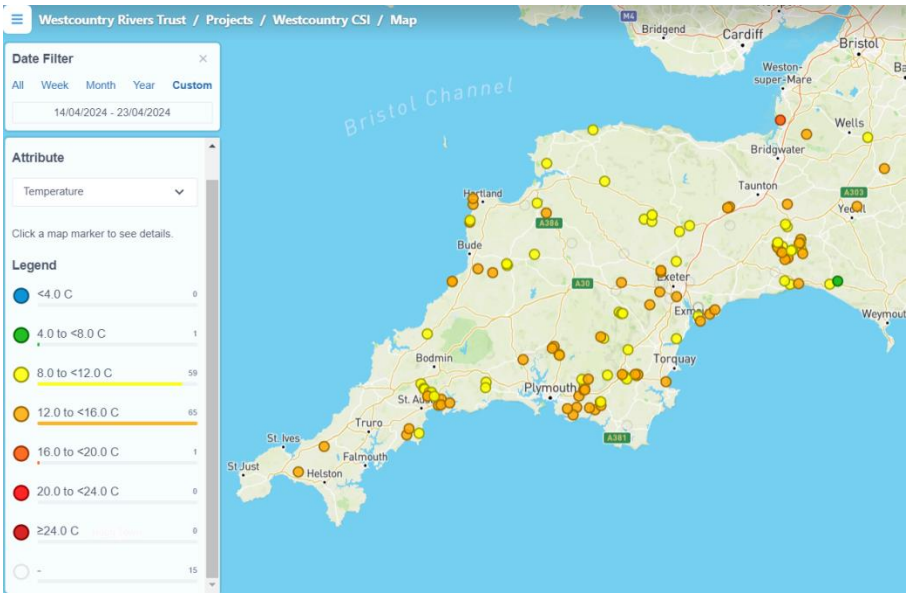

| LOCATION | PAR/TRIBUTARY | DATE | TYPE OF CHECK | MONITORED BY |
|---|---|---|---|---|
| **Criggan Moors, Par River, SX 01882 61133** | **PAR** | 17/4/2024 | CSI sample & Cartographer record. | Roger Smith |
| **South of Minorca Lane, Par River, SX02668 59747** | **PAR** | 17/4/2024 | CSI sampling. Cartographer record. | Roger Smith |
| **Carbis Stream SX 02834 59401** | **TRIBUTARY** | 17/4/2024 | CSI sampling. Cartographer record. | Roger Smith |
| **Lavrean, Par River SX 03134 59164** | **PAR** | 17/4/2024 | CSI sampling. Cartographer record. | Roger Smith |
| **Innis 1, Treskilling Stream SX 0405756650** | **TRIBUTARY** | 17/4/2024 | CSI sampling. Cartographer record. Riverfly. | Dave Burrell, Joan Farmer, Veronica Jones, Roger Smith |
| **Innis 2, Treskilling Stream SX 0411356670** | **TRIBUTARY** | 17/4/2024 | CSI sampling. Cartographer record. Riverfly. | Dave Burrell, Joan Farmer, Veronica Jones, Roger Smith |
| **Luxulyan allotments, Par River, SX 04732 58045** | **PAR** | 17/4/2024 | CSI sampling. Cartographer record. | Roger Smith |
| **Cam Bridges, Par River, SX 05292 57454** | **PAR** | 17/4/2024 | CSI sampling. Cartographer record. | Joan Farmer |
| **Trebell Green, Bokiddick Stream SX 0551960226 NEW SITE** | **TRIBUTARY** | 23/4/2024 | CSI sampling. Cartographer record. | Roger Smith |
| **Corgee Moor, Bokiddick Stream SX 0593462167 NEW SITE** | **TRIBUTARY** | 23/4/2024 | CSI sampling. Cartographer record. | Roger Smith |
| **Gatty's Bridge, Bokiddick Stream SX 05531 57953** | **TRIBUTARY** | 17/4/2024 | CSI sampling. Cartographer record. | Joan Farmer |
| **Treffry Viaduct, Par River, SX 05650 57179** | **PAR** | 17/4/2024 | CSI sampling. Cartographer record. | Joan Farmer |
| **Lady Rashleigh Mine, Par River, SX 06451 56509** | **PAR** | 20/4/2024 | CSI sampling. Cartographer record. | Roger Smith |
| **Treesmill, Tywardreath Stream, SX 08873 55385** | **TRIBUTARY** | 14/4/2024 | CSI sampling. Cartographer record. | Maggie Tagney |
| **Par Beach slipway, SX 0776 53261** | **PAR** | 19/4/2024 | CSI sampling. Cartographer record. | Brian Harrisson |
| **Polmear Stream, Ship Inn SX 08749 53417** | **TRIBUTARY** | 19/4/2024 | CSI sampling. Cartographer record. | Simon Tagney |

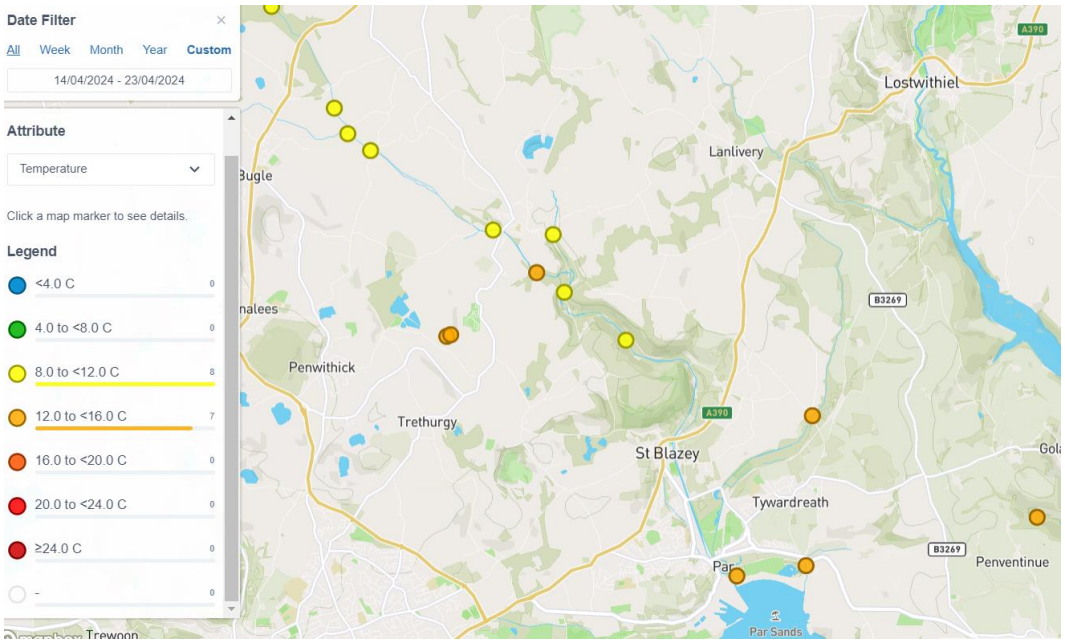
## C. TEMPERATURE

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.



| PAR RIVER/TRIBUTARY | LOCATION | Temperature ˚Celsius |
|---|---|---|
| Par | Criggan Moors, SX 01882 61133 | 10.2 |
| Par | South of Minorca Lane, Par River, SX 02657 59788 | 10.3 |
| Tributary | Carbis Stream SX 02834 59401 | 10.2 |
| Par | Lavrean, Par River SX 03134 59164 | 10.9 |
| Tributary | Innis 1, Treskilling Stream SX 0405756650 | 13.1 |
| Tributary | Innis 2, Treskilling Stream SX 0411356670 | 13.1 |
| Par | Luxulyan allotments, Par River, SX 04732 58045 | 11.2 |
| Par | Cam Bridges, Par River, SX 05292 57454 | 12.4 |
| Tributary | Trebell Green, Bokiddick Stream SX 0551960226 NEW SITE | 14.6 |
| Tributary | Corgee Moor, Bokiddick Stream SX 0593462167 NEW SITE | 13.7 |
| Tributary | Gatty's Bridge, Bokiddick Stream SX 05531 57953 | 11.4 |
| Par | Treffry Viaduct, Par River, SX 05650 57179 | 11.3 |
| Par | Lady Rashleigh Mine, Par River, SX 06451 56509 | 10.9 |
| Tributary | Treesmill, Tywardreath Stream, SX 08873 55385 | 14 |
| Par | Par Beach slipway, SX 0776 53261 | 12.7 |
| Tributary | Polmear Stream, Ship Inn, SX 08749 53417 | 13 |

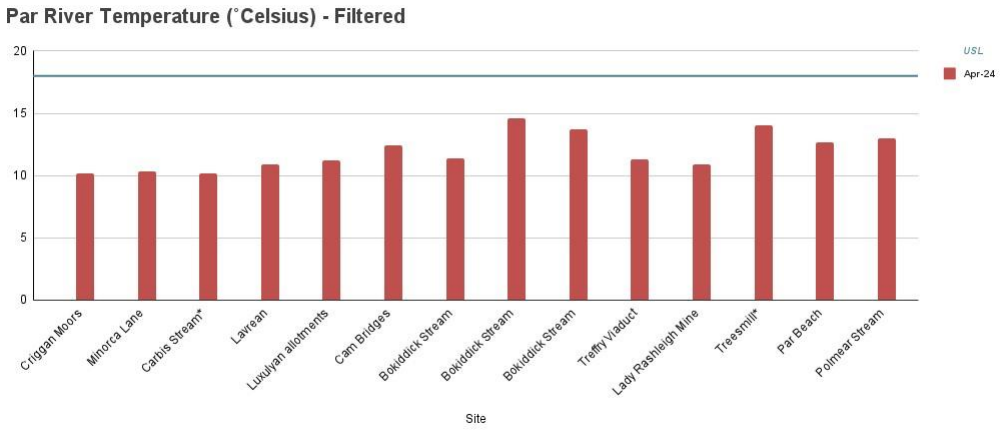
Results above the temperature at which fish and other organisms can function healthily will be shown in red. At present, 18 ˚Celsius is being used as the upper safe limit for fish and other creatures, although 20˚ Celsius has recently been suggested by WRT instead. The Yealm Estuary to Moor Project (YEM)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

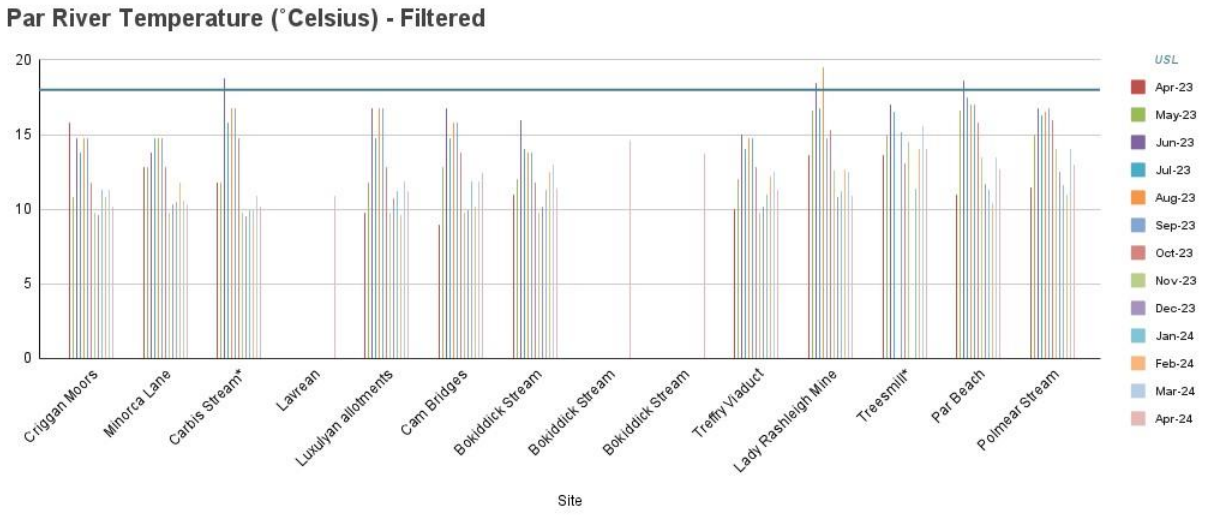
## 4. Graphs

**N.B. The third site shown for the Bokiddick Stream should be the first, i.e. at Trebell Green. This is due to a temporary technical insuperability and will be remedied in due course.**

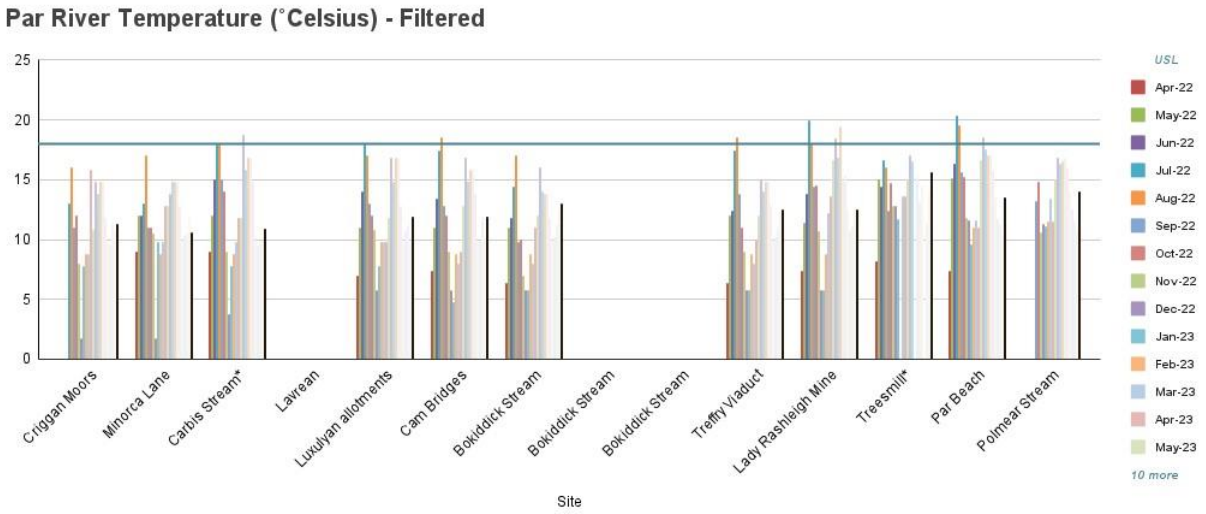
### (a) This month



**(b) From 1st April 2023 until now**




(c) From 1st April 2024 until now



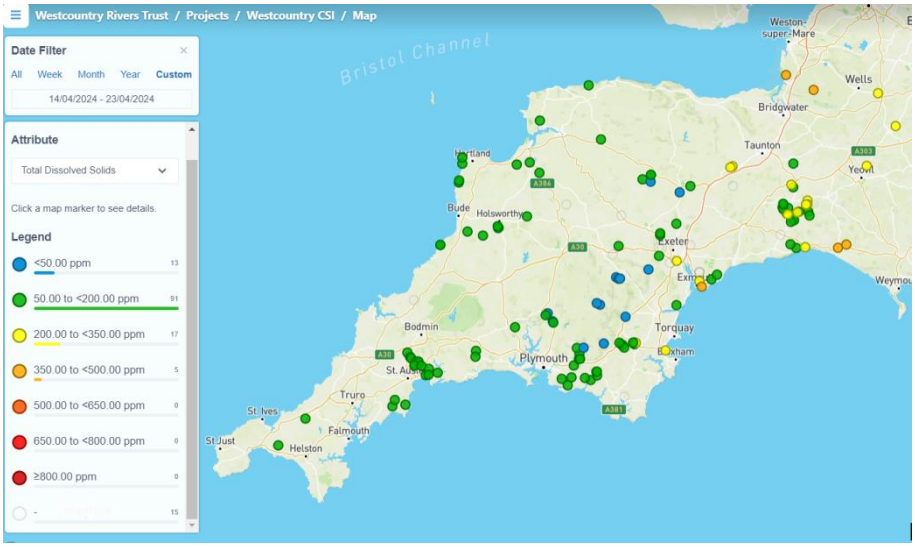

**D. TOTAL DISSOLVED SOLIDS**

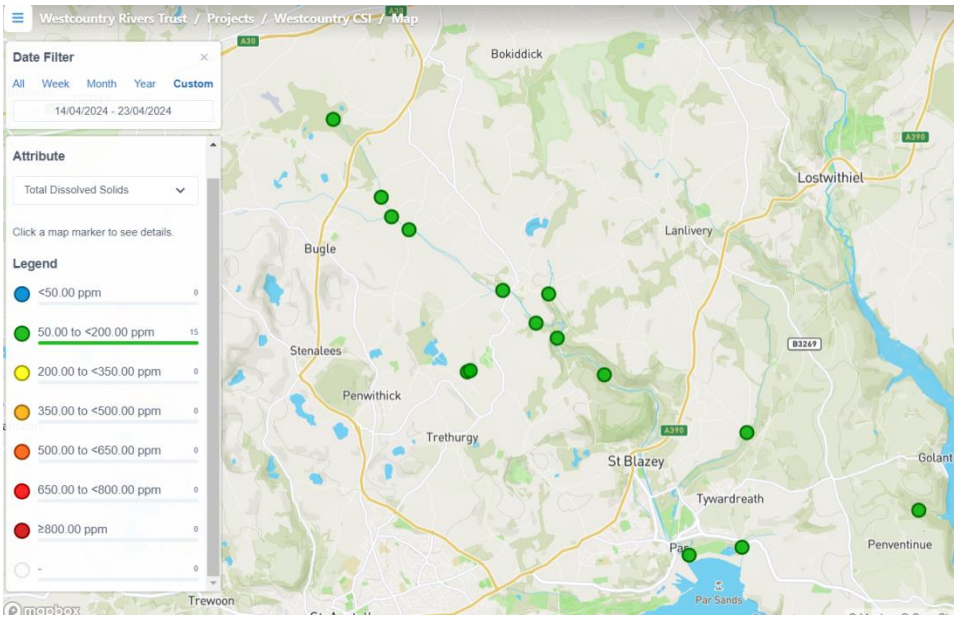
1. We measure these in ppm (parts per million). This is the WRT's explanation:

*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.**



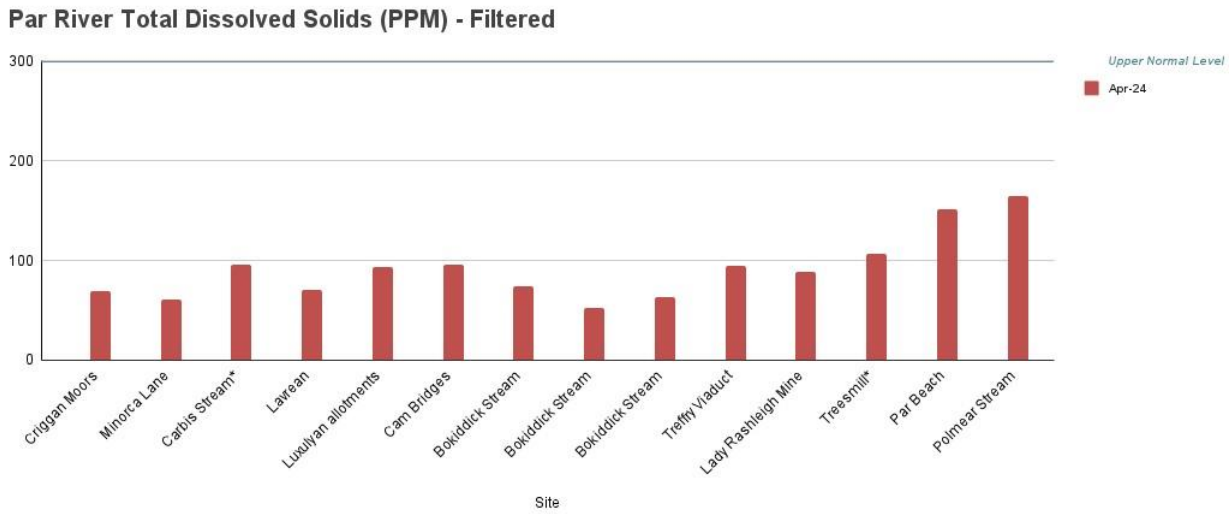



**3. Results April 2024**

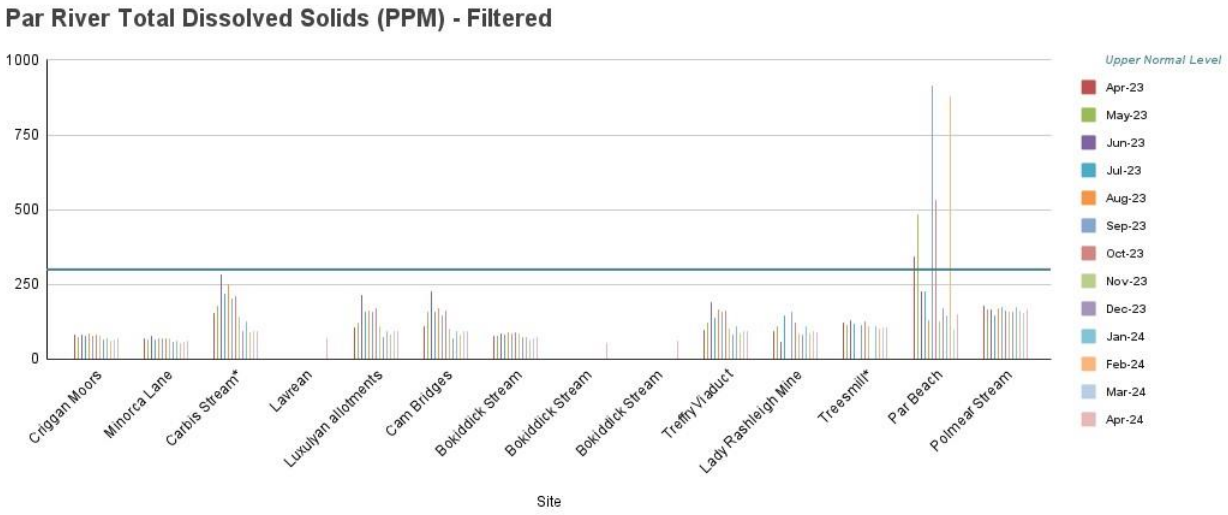
| PAR RIVER/TRIBUTARY | LOCATION | Total Dissolved Solids PPM |
|---|---|---|
| Par | Criggan Moors, SX 01882 61133 | 69 |
| Par | South of Minorca Lane, Par River, SX 02657 59788 | 61 |
| Tributary | Carbis Stream SX 02834 59401 | 96 |
| Par | Lavrean, Par River SX 03134 59164 | 71 |
| Tributary | Innis 1, Treskilling Stream SX 0405756650 | 69 |
| Tributary | Innis 2, Treskilling Stream SX 0411356670 | 89 |
| Par | Luxulyan allotments, Par River, SX 04732 58045 | 93 |
| Par | Cam Bridges, Par River, SX 05292 57454 | 96 |
| Tributary | Trebell Green, Bokiddick Stream SX 0551960226 NEW SITE | 53 |
| Tributary | Corgee Moor, Bokiddick Stream SX 0593462167 NEW SITE | 63 |
| Tributary | Gatty's Bridge, Bokiddick Stream SX 05531 57953 | 74 |
| Par | Treffry Viaduct, Par River, SX 05650 57179 | 95 |
| Par | Lady Rashleigh Mine, Par River, SX 06451 56509 | 89 |
| Tributary | Treesmill, Tywardreath Stream, SX 08873 55385 | 107 |
| Par | Par Beach slipway, SX 0776 53261 | 151 |
| Tributary | Polmear Stream, Ship Inn, SX 08749 53417 | 165 |

**4. Graphs**

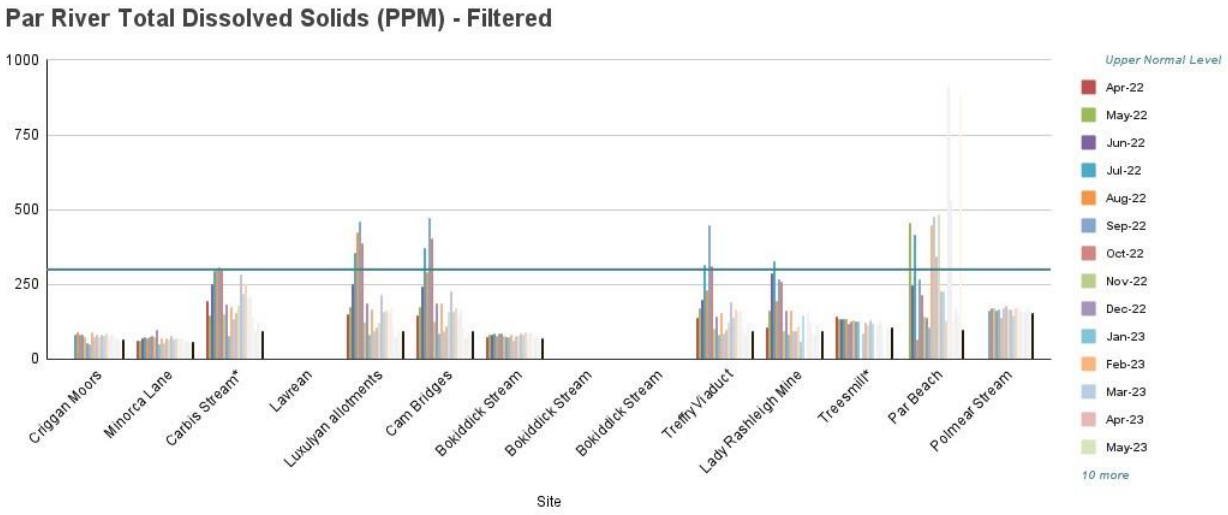
**(a) This month**



**(b) From 1st April 2023 until now**




**(c) From 1st April 2022 until now**



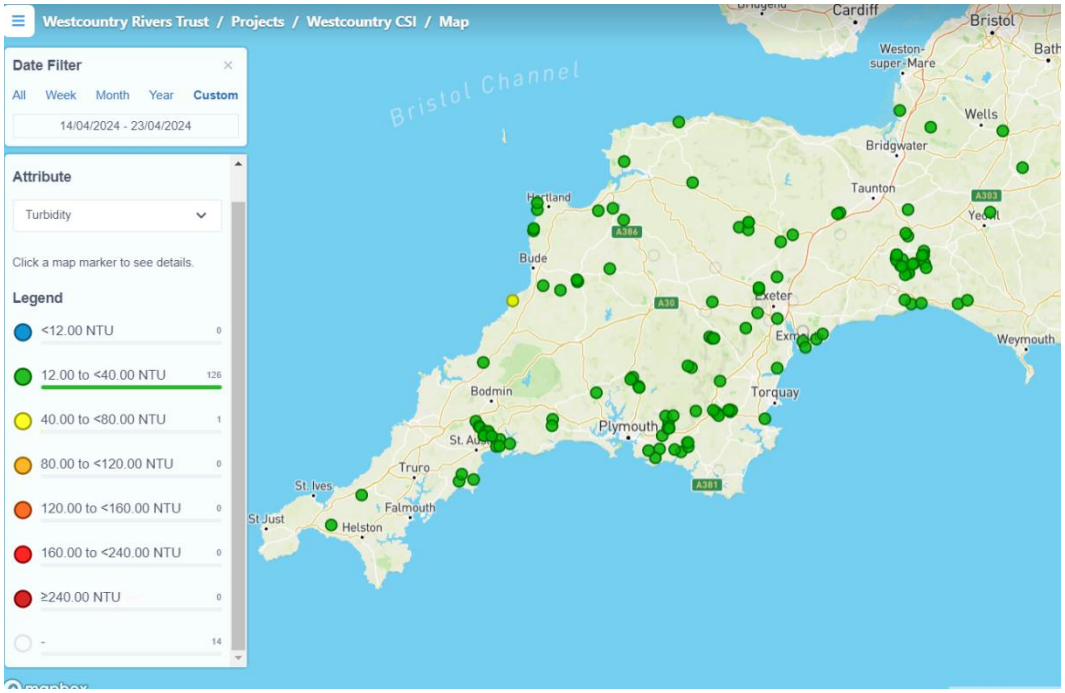

**E. TURBIDITY**

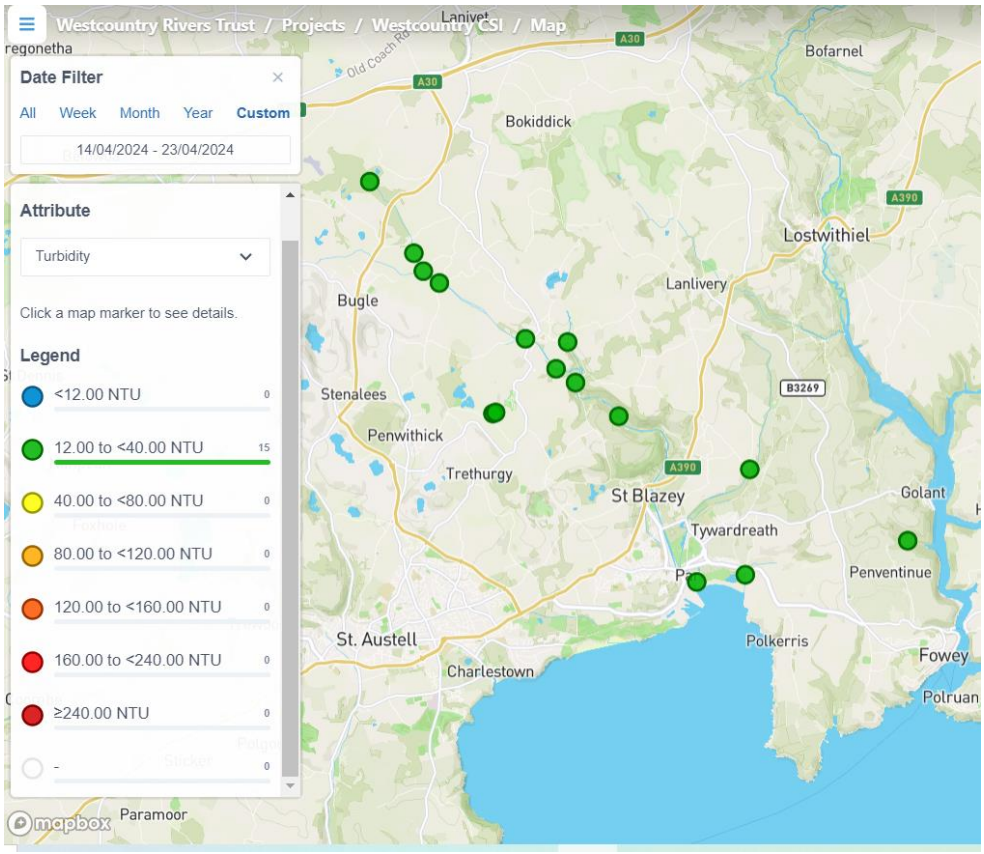
1. This is the WRT explanation of this measure:

*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. Most of our results should have blue dots (<12) but Cartographer shows them as 12 (green dots).



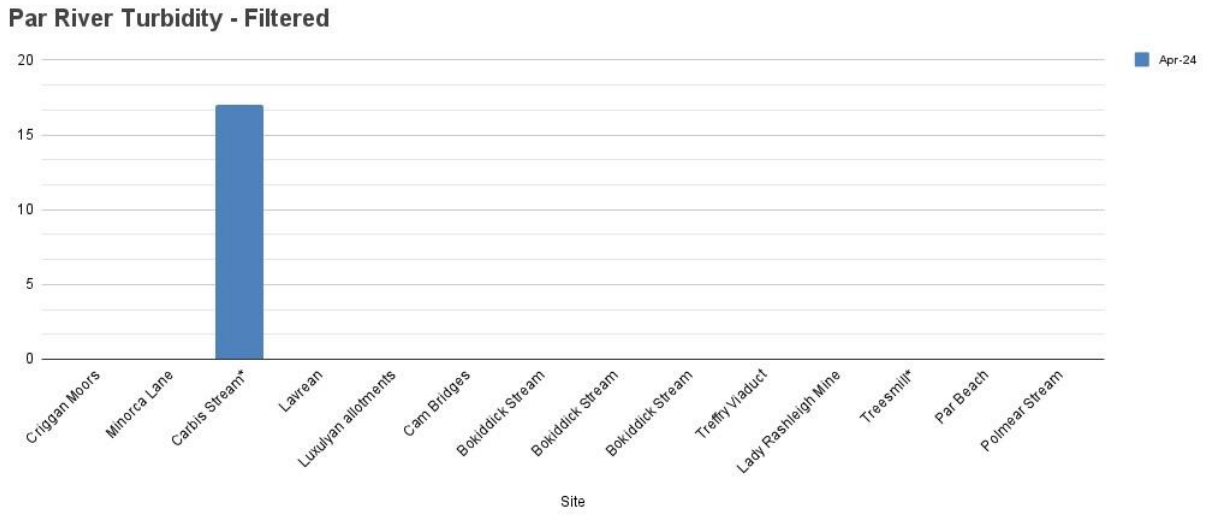
### 3. Results April 2024

| PAR RIVER/TRIBUTARY | LOCATION | Turbidity (NTU) |
|---|---|---|
| Par | Criggan Moors, SX 01882 61133 | <12 |
| Par | South of Minorca Lane, Par River, SX 02657 59788 | <12 |
| Tributary | Carbis Stream SX 02834 59401 | 17 |
| Par | Lavrean, Par River SX 03134 59164 | <12 |
| Tributary | Innis 1, Treskilling Stream SX 0405756650 | <12 |
| Tributary | Innis 2, Treskilling Stream SX 0411356670 | <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 NEW SITE | <12 |
| Tributary | Corgee Moor, Bokiddick Stream SX 0593462167 NEW SITE | <12 |
| Tributary | Gatty's Bridge, Bokiddick Stream SX 05531 57953 | <12 |
| Par | Treffry Viaduct, Par River, SX 05650 57179 | <12 |
| 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 |

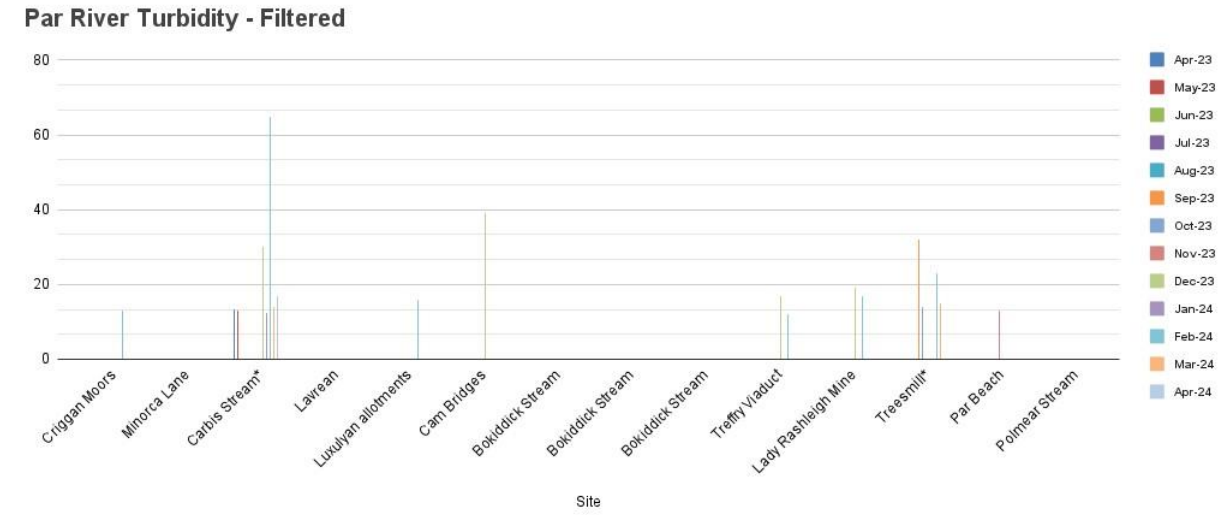
### 4. Graphs

**N.B. The third site shown for the Bokiddick Stream should be the first, i.e. at Trebell Green. This is due to a temporary technical insuperability and will be remedied in due course.**

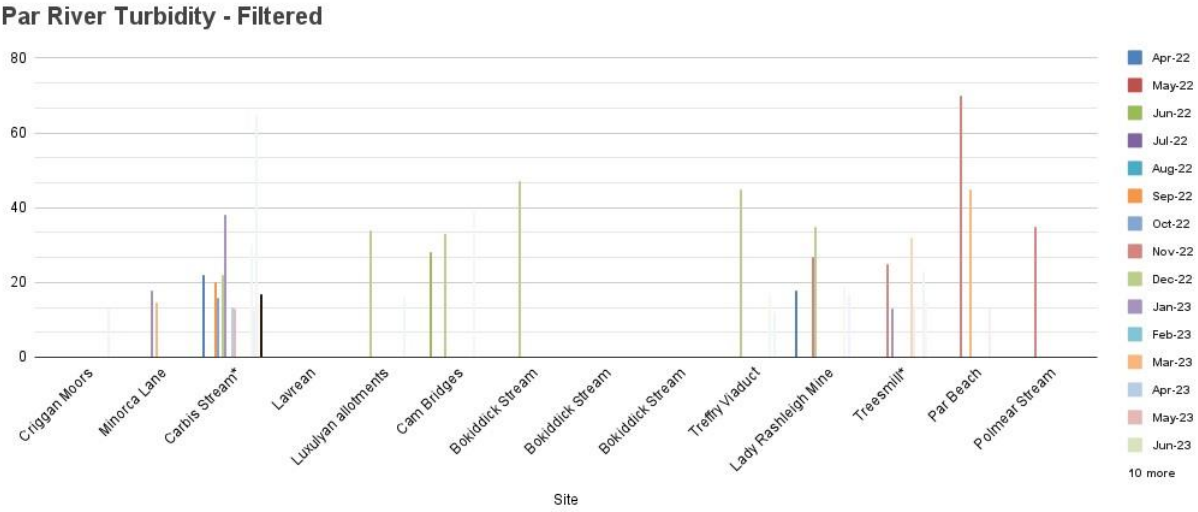
### (a) This month



**(b) From 1st April 2023 until now**




**(c) From 1st April 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.)*

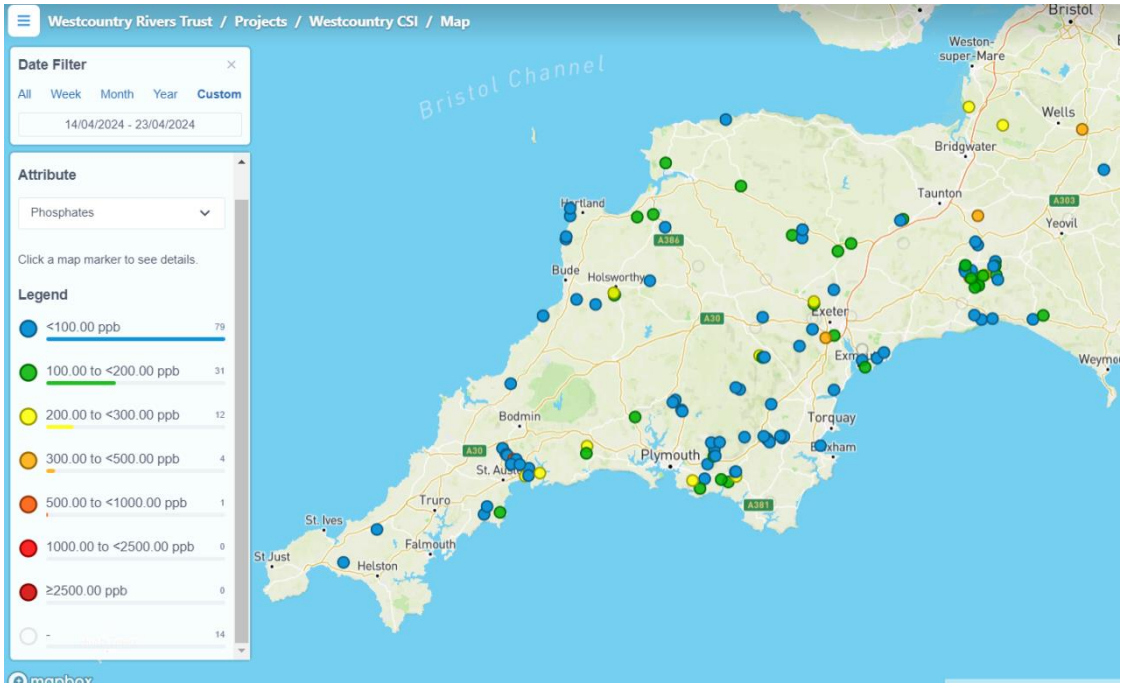
*Ranges on phosphate diagnostic colour chart:*

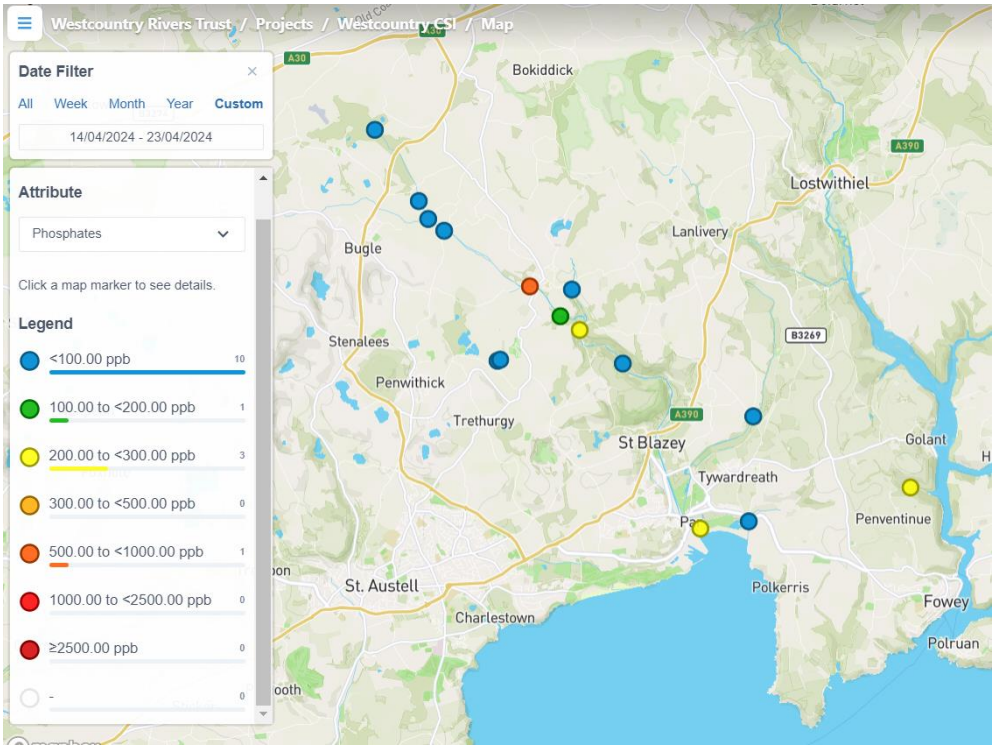
*0 – 100 OK*

*200 – 300 HIGH*

*500 – 2500 – TOO HIGH*

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



### 3. Results April 2024

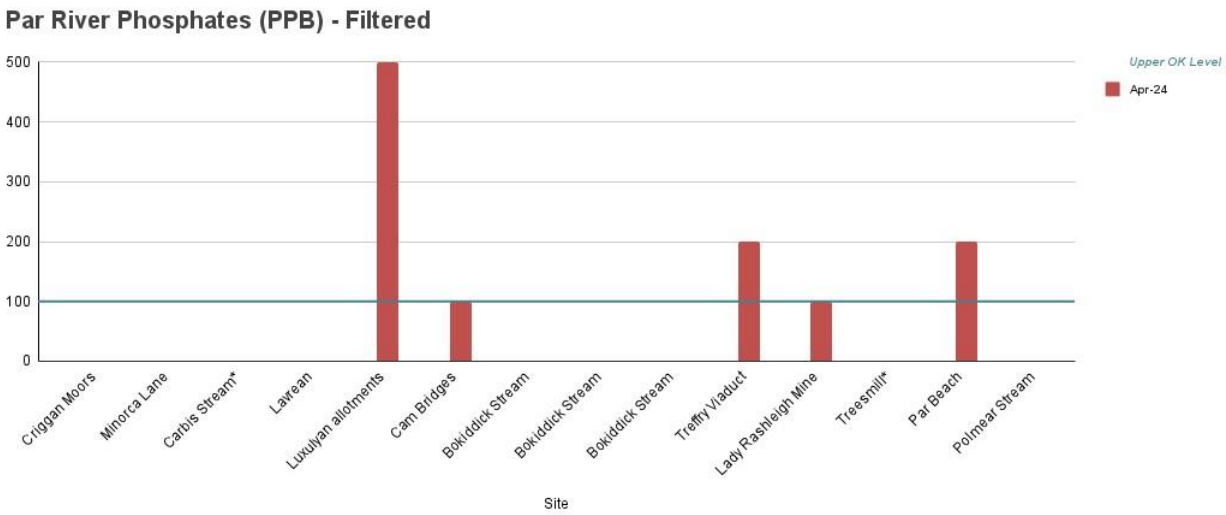
Results in red show phosphate levels that are 'High'/above the upper safe level. WRT advice is that this is 100 Parts Per Billion (0.1 mg/l).

| PAR RIVER/TRIBUTARY | LOCATION | Phosphates PPB |
|---|---|---|
| Par | Criggan Moors, SX 01882 61133 | 0 |
| Par | South of Minorca Lane, Par River, SX 02657 59788 | 0 |
| Tributary | Carbis Stream SX 02834 59401 | 0 |
| Par | Lavrean, Par River SX 03134 59164 | 0 |
| Tributary | Innis 1, Treskilling Stream SX 0405756650 | 0 |
| Tributary | Innis 2, Treskilling Stream SX 0411356670 | 0 |
| Par | Luxulyan allotments, Par River, SX 04732 58045 | 500 |
| Par | Cam Bridges, Par River, SX 05292 57454 | 100 |
| Tributary | Trebell Green, Bokiddick Stream SX 0551960226 NEW SITE | 0 |
| Tributary | Corgee Moor, Bokiddick Stream SX 0593462167 NEW SITE | 0 |
| Tributary | Gatty's Bridge, Bokiddick Stream SX 05531 57953 | 0 |
| Par | Treffry Viaduct, Par River, SX 05650 57179 | 200 |
| Par | Lady Rashleigh Mine, Par River, SX 06451 56509 | 100 |
| Tributary | Treesmill, Tywardreath Stream, SX 08873 55385 | 0 |
| Par | Par Beach slipway, SX 0776 53261 | 200 |
| Tributary | Polmear Stream, Ship Inn, SX 08749 53417 | 0 |

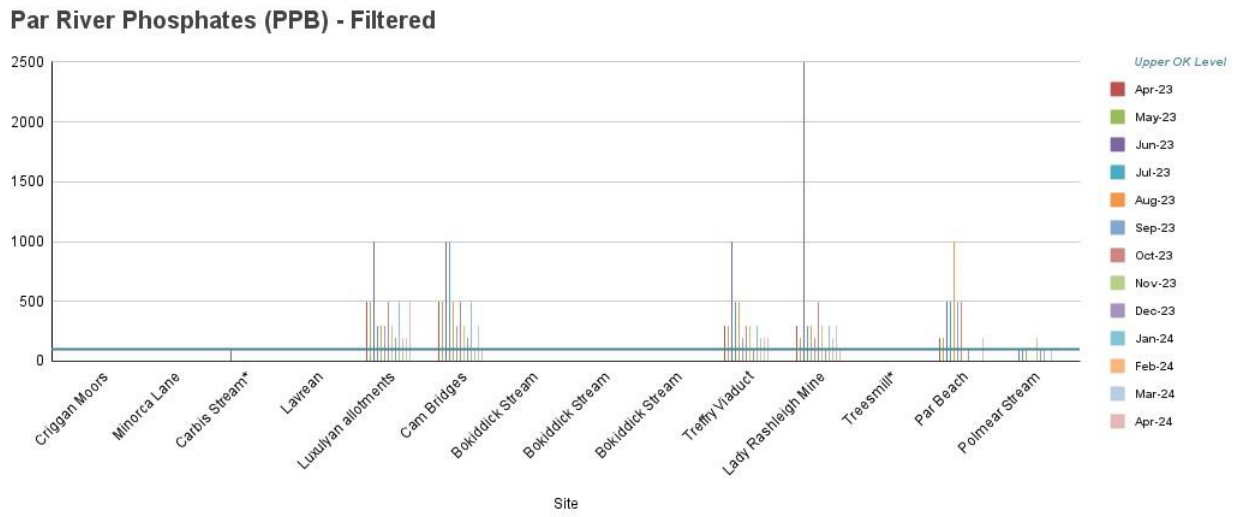
### 4. Graphs

**N.B. The third site shown for the Bokiddick Stream should be the first, i.e. at Trebell Green. This is due to a temporary technical insuperability and will be remedied in due course.**

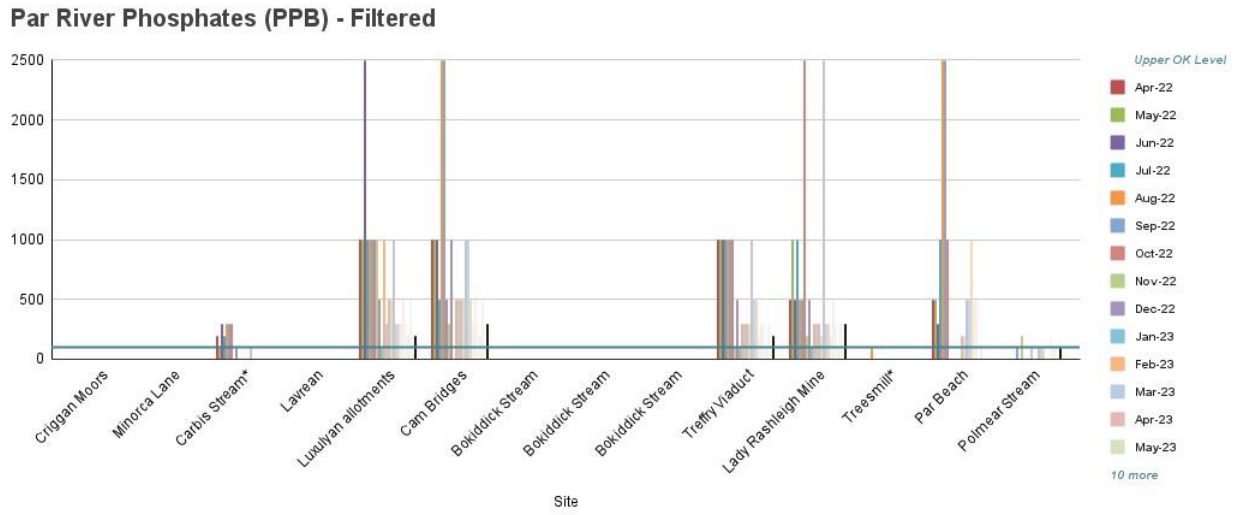
### (a) This month



**(b) From 1st April 2023 until now**

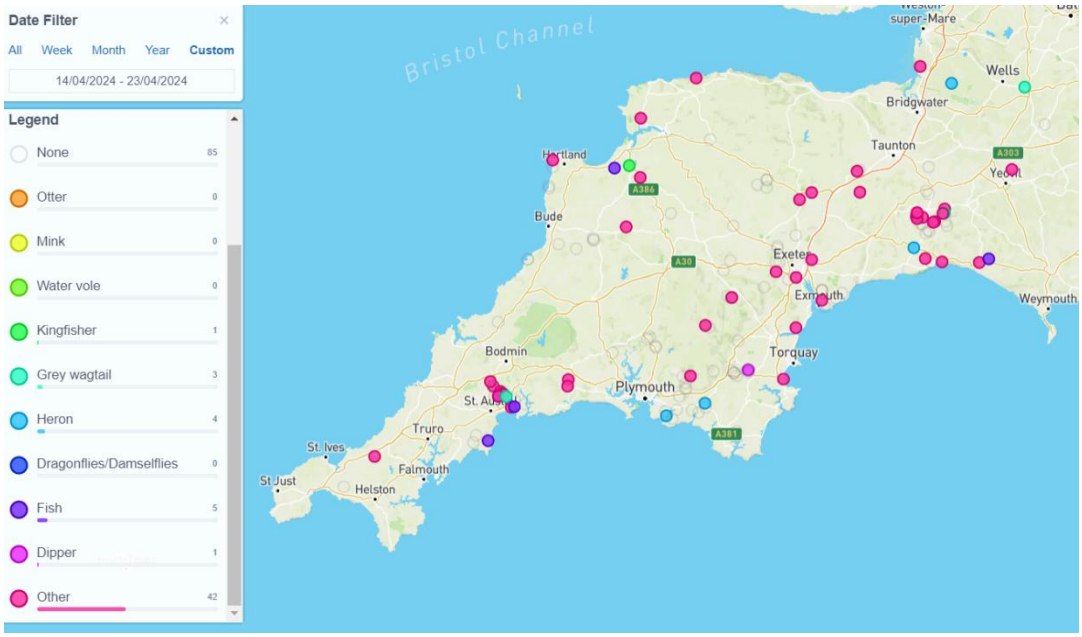


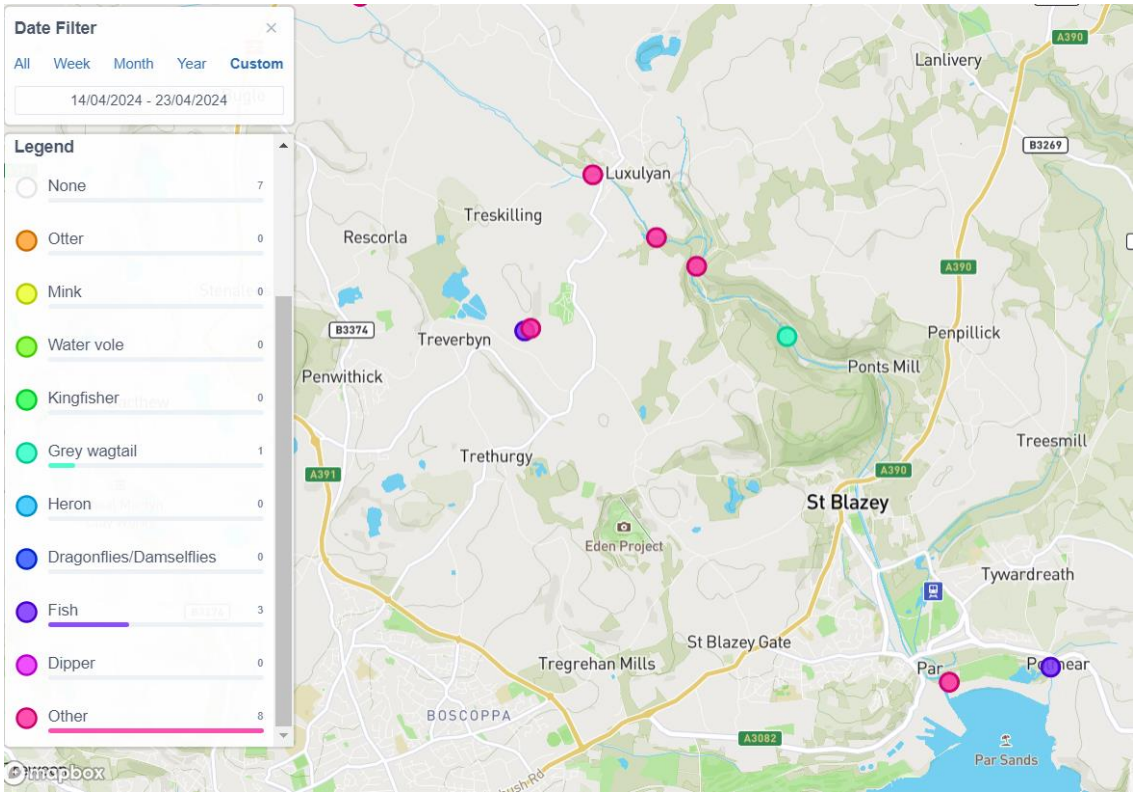

**(c) From 1st April 2022 until now**



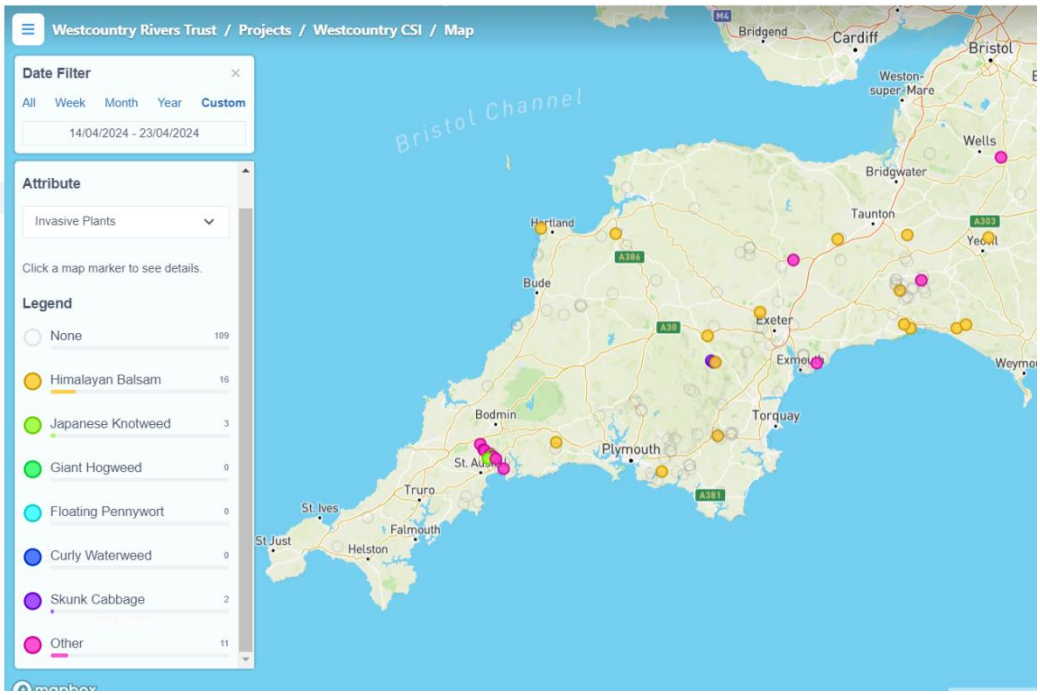
## G. WILDLIFE (FOR OTTER REPORT SEE SECTION I) & INVASIVE PLANTS

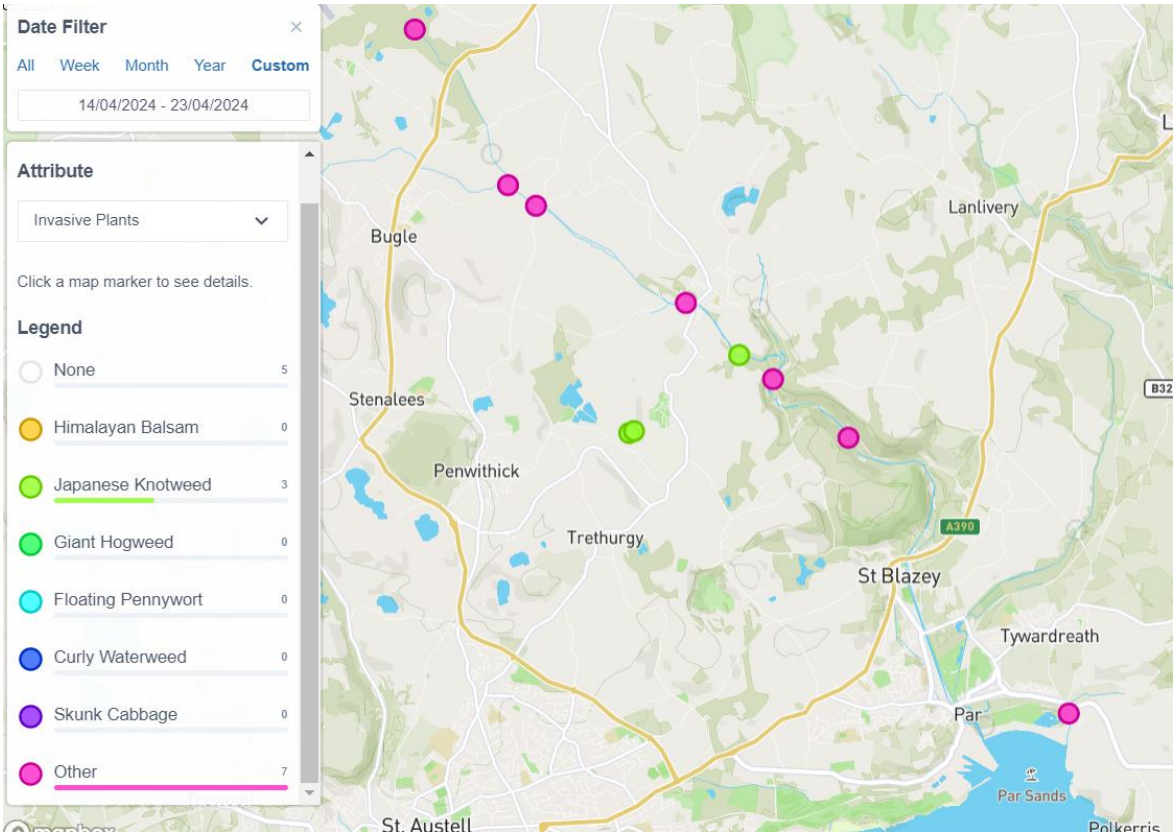
### (a) Wildlife maps



**(b) Invasive plants maps**



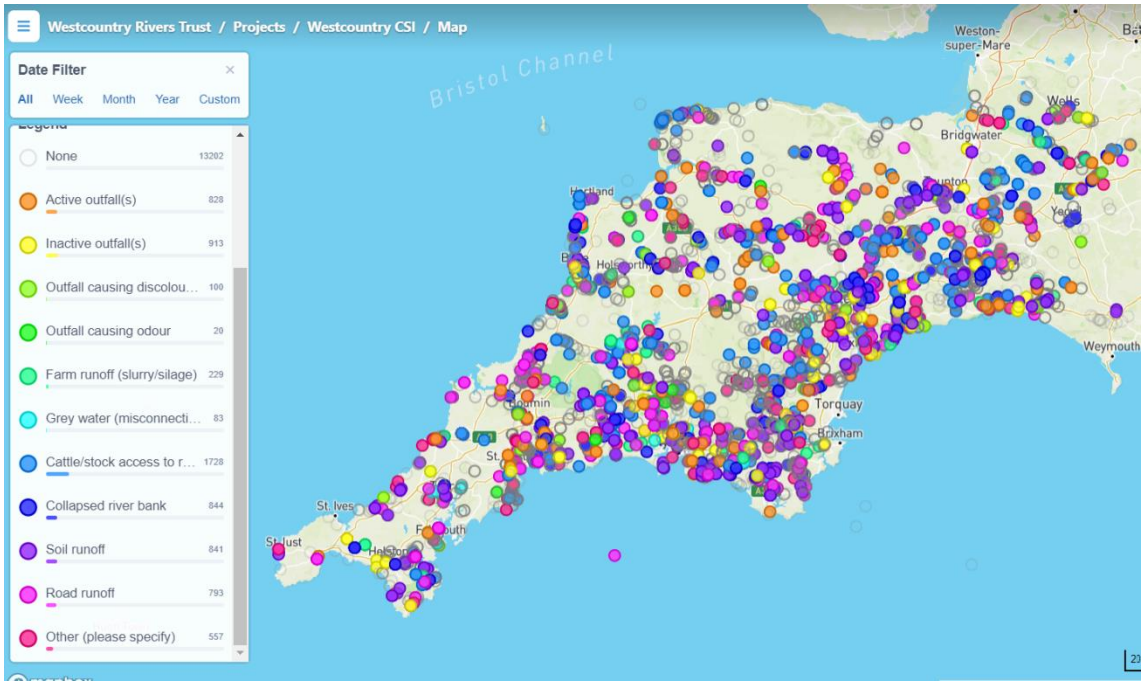



**(c) Wildlife & Invasive Plants sightings at the monitoring points included:**

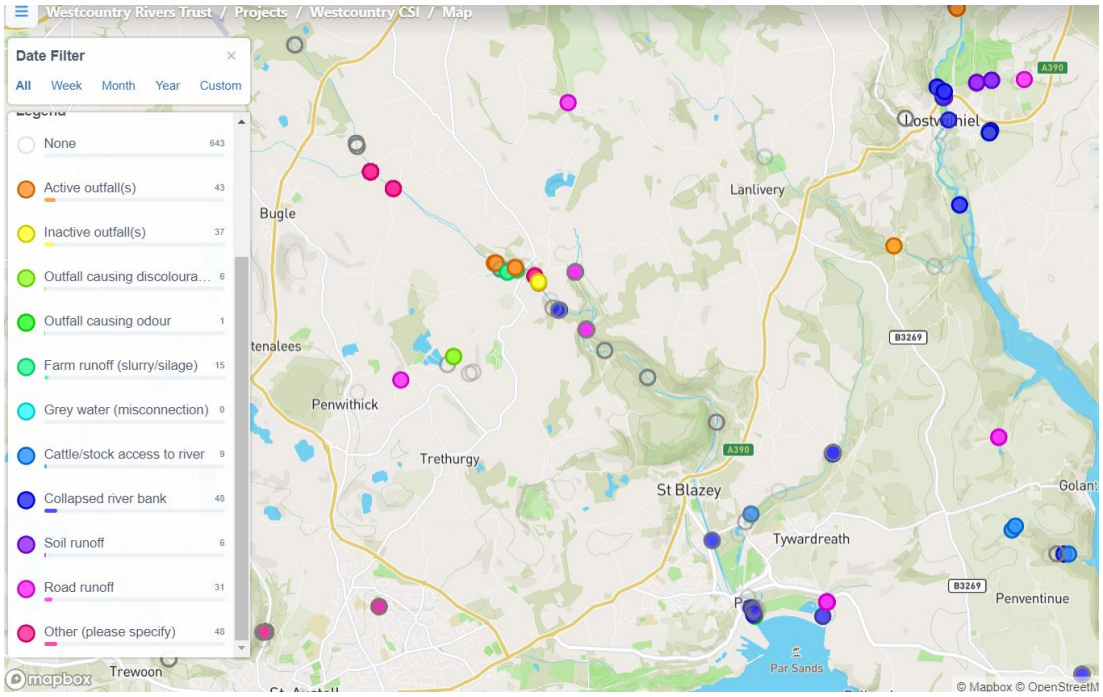
| PAR RIVER/ TRIBUTARY | LOCATION | WILDLIFE NOTED | INVASIVE PLANTS NOTED |
|---|---|---|---|
| Par | Criggan Moors, SX 01882 61133 | Chiffchaff | Hemlock Water Dropwort |
| Par | South of Minorca Lane, Par River, SX 02657 59788 | Deer tracks | None |
| Tributary | Carbis Stream SX 02834 59401 | None | Hemlock Water Dropwort |
| Par | Lavrean, Par River SX 03134 59164 | None | Hemlock Water Dropwort |
| Tributary | Innis 1, Treskilling Stream SX 0405756650 | Fish | Japanese Knotweed |
| Tributary | Innis 2, Treskilling Stream SX 0411356670 | Otter prints, chiffchaff | Japanese Knotweed |
| Par | Luxulyan allotments, Par River, SX 04732 58045 | Chiffchaff, fox droppings | Hemlock Water Dropwort |
| Par | Cam Bridges, Par River, SX 05292 57454 | Wren, robin, chiffchaff | Hemlock Water Dropwort, Japanese Knotweed |
| Tributary | Trebell Green, Bokiddick Stream SX 0551960226 NEW SITE | None | Hemlock Water Dropwort |
| Tributary | Corgee Moor, Bokiddick Stream SX 0593462167 NEW SITE | None | Hemlock Water Dropwort |
| Tributary | Gatty's Bridge, Bokiddick Stream SX 05531 57953 | Hemlock Water Dropwort | Hemlock Water Dropwort |
| Par | Treffry Viaduct, Par River, SX 05650 57179 | Wren, nuthatch, coal tit | Hemlock Water Dropwort |
| Par | Lady Rashleigh Mine, Par River, SX 06451 56509 | Dipper, mallards | Hemlock Water Dropwort |
| Tributary | Treesmill, Tywardreath Stream, SX 08873 55385 | Sparrows, chiffchaff, great tit, buzzard, song thrush, dunnock, mallards | None |
| Par | Par Beach slipway, SX 0776 53261 | Geese | None |
| Tributary | Polmear Stream, Ship Inn, SX 08749 53417 | Fish | Hemlock Water Dropwort |

## H. POLLUTION SOURCES AND EVIDENCE

### 1. Pollution sources




### 2. Evidence of recent pollution



## I. OTTER SURVEY, APRIL 2024

### 1. SURVEY CONDITIONS

| | |
|---|---|
| **Date & time** | 17/4/2024; 20/4/2024; 23/4/2024 |
| **Surveyors** | Roger Smith, Dave Burrell, Joan Farmer and Veronica Jones |
| **Areas surveyed** | Upper Par (Criggan Moors and Minorca Lane); Par River from STW to Cam Bridges; Par River from Treffry Viaduct to Ponts Mill sluice gates; Treskilling Stream near Innis mica dam, Bokiddick Stream. |
| **Weather** | Light rain or none in previous 24 hours. |
| **River level** | Average |
| **River flow** | Steady to surging |
| **Water quality** | Phosphate readings 500 PPB at the highest (Luxulyan allotments) 200 at Treffry Viaduct) and 100 at Cam Bridges and Lady Rashleigh Mine. All readings zero upstream from the allotments. |
| **Other wildlife** | Fish, deer tracks, fox droppings, dipper, chiffchaff, wren, robin, nuthatch, coal tit, mallards. |

### 2. EVIDENCE FOR OTTERS ✓

| EVIDENCE | SEEN/ ORKS* | LOCATION | NOTES |
|---|---|---|---|
| **Spraint - fresh** | | | |
| **Spraint – recent** | ✓<br><br>✓ | Lower Tramway, south of Carmears Wood, upstream of confluence with watercourse (LTSCW)<br>Gully upstream side Canal Bridge Ponts Mill) | |
| **Spraint - old** | ✓<br><br>✓ | Under the canal bridge at Ponts Mill.<br><br>Lower Tramway, south of Carmears Wood, upstream of confluence with watercourse (LTSCW) | |
| **Anal jelly** | | | |
| **Sign heap** | | | |
| **Staining** | | | |
| **Tracks** | ✓ | Treskilling Stream near Innis mica dam | |
| **Path** | | | |
| **Slide** | | | |
| **Holt** | | | |
| **Hover** | | | |
| **Couch** | | | |
| **Live sighting** | | | |
| **Corpse** | | | |

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

**Otter prints near Innis mica dam**

**Spraint near Lower Tramway**

**Rock where spraint was found near Lower Tramway, Luxukyan Valley**

**Spraint under Ponts Mill canal bridge**

**Spraint in gully upstream of Ponts Mill canal bridge**

## 5. COMMENTS

Evidence was found at two locations in Luxulyan Valley. Unfortunately, the closure of the footbridge downstream from Ponts Mill sluice gates limited the extent of the survey. Otter prints were found on the Treskilling (or Treverbyn) Stream near Innis mica dam (and close to Innis fishing lakes). A fish (roach) was caught during the riverfly survey at the latter site.

## J. SPECIAL SURVEY ON TRESKILLING STREAM

### TRESKILLING STREAM MONITORING: ARMI RIVERFLY AND CSI SOUTH-EAST OF INNIS FISHERY, NEAR PENWITHICK

**Date:** 17th April 2024

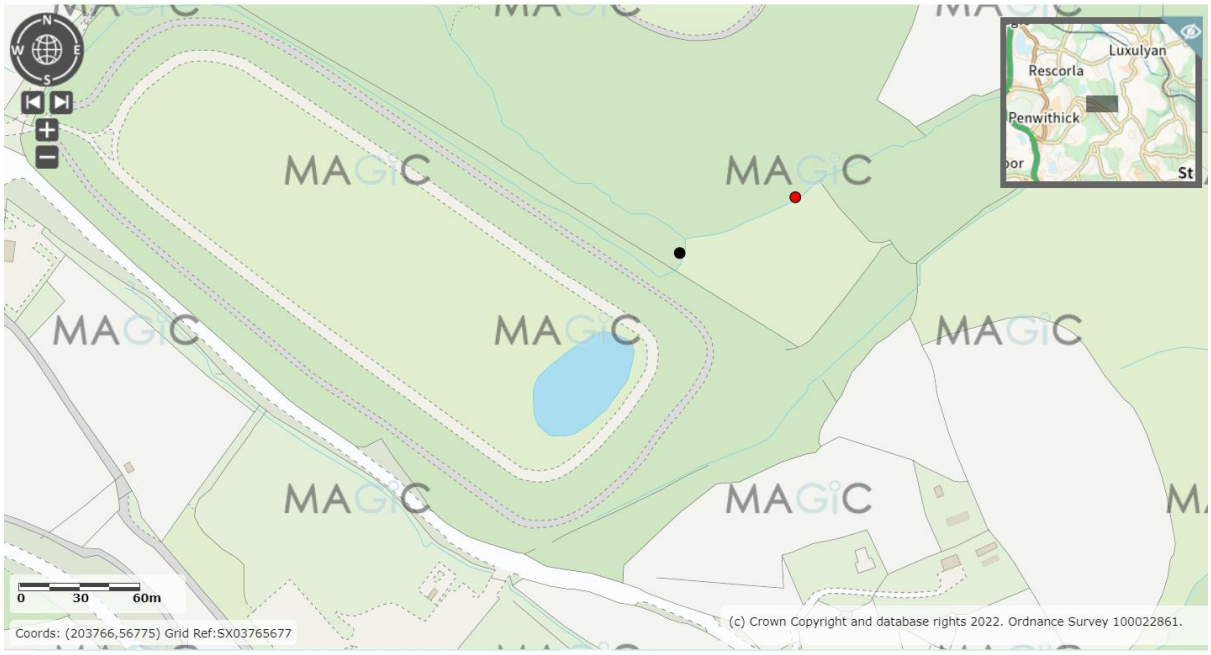
### A. INTRODUCTION

**Monitoring**

Today's CSI, riverfly and otter monitoring was carried out by Dave Burrell, Joan Farmer, Veronica Jones and Roger Smith.

**Locations**

Monitoring was conducted on the Treverbyn/Treskilling Stream upstream and downstream of the confluence with the Innis Stream, which is ochre-stained as a result of flowing through former tin-streaming ground.




**Site 1 Black dot SX 04058 56650:** Treverbyn/Treskilling Stream upstream from confluence with Innis Stream.

**Site 2 Red dot SX 04113 56670:** Treverbyn/Treskilling Stream downstream from confluence with Innis Stream.

**B. RIVERFLY**

**Method**

Three of the Par River monitoring 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. 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 |

**Site 1 Black dot SX 04058 56650** Treverbyn/Treskilling Stream upstream from confluence with Innis Stream. Results for the survey dated 8th December 2022 are in brackets.

| | SPECIES | NUMBER | CATEGORY |
|---|---|---|---|
| **Trichoptera** | | | |
| 1 | Cased Caddisfly | 2 (0) | 1 (0) |
| 2 | Caseless Caddisfly | 1 (2) | 1 (1) |
| **Ephemeroptera** 3 tails | | | |
| 3 | Mayfly (Ephemeridae) | 0 (0) | 0 (0) |
| 4 | Blue-winged olive (Ephemerellidae) | 0 (0) | 0 (0) |
| 5 | Flat-bodied up-wings (Heptageniidae) | 0 (0) | 0 (0) |
| 6 | Olives (Baetidae) | 0 (0) | 0 (0) |
| **Plecoptera** 2 tails | | | |
| 7 | Stoneflies | 0 (0) | 0 (0) |
| **Gammaridae** | | | |
| 8 | Freshwater Shrimp | 99+ (15+) | 2 (2) |
| | | | **4 (3)** |

| | | |
|---|---|---|
| **CATEGORY TOTAL** | | **4 (3)** |
| **TRIGGER LEVEL** | **n/a** | |

Other creatures were found, including 7 Dragonfly nymphs. A fish was caught in the riverfly net. This has been identified as a roach by Ross Tonkin:

**Photo: Dave Burrell**

Ross has provided this extra information:

*'The Treskilling river use to contain a lot of brown trout and some samon paar and years ago rainbow trout.*
*About twenty five plus years ago a storm caused the bank to burst at the Innis trout farm, as the trout lakes overflows into the Treskilling stream numerous trout entered the stream. I discovered large rainbow trout in the river Par and put two and two together and assumed that this is how they entered.*
*Rainbow trout are sterile and would have died out by now.*
*The Innis lakes also contained Roach and Rudd so they probably escaped at the same time.*
*The Penwithick pond also contains Roach and the overflow from there also enters the same stream that goes to Innis/Treskilling stream.'*

**Site 2 Red dot SX 04113 56670** Treverbyn/Treskilling Stream, downstream from confluence with Innis Stream. Results for the survey dated 8th December 2022 are in brackets.

| | SPECIES | NUMBER | CATEGORY |
|---|---|---|---|
| **Trichoptera** | | | |
| **1** | **Cased Caddisfly** | **0 (2)** | **0 (1)** |
| **2** | **Caseless Caddisfly** | **0 (0)** | **0 (0)** |
| **Ephemeroptera** 3 tails | | | |
| **3** | **Mayfly (Ephemeridae)** | **0 (? dead)** | **0 (0)** |
| **4** | **Blue-winged olive (Ephemerellidae)** | **0 (0)** | **0 (0)** |
| **5** | **Flat-bodied up-wings (Heptageniidae)** | **0 (0)** | **0 (0)** |
| **6** | **Olives (Baetidae)** | **8 (2)** | **1 (1)** |
| **Plecoptera** 2 tails | | | |
| **7** | **Stoneflies** | **3 (0)** | **1 (0)** |
| **Gammaridae** | | | |
| **8** | **Freshwater Shrimp** | **12+ (10)** | **2 (2)** |
| | | | **4 (4)** |

| | |
|---|---|
| **CATEGORY TOTAL** | **4 (4)** |
| **TRIGGER LEVEL** | **n/a** |

For context, the ARMI category trigger level at Lady Rashleigh Mine in Luxulyan Valley is 6.

Also found: a Freshwater Hoglouse, a leech and 3 Dragonfly nymphs.

**C. CSI WATER QUALITY MONITORING**

The full reports are available on Cartographer but this is a summary:

| | **SX 04058 56650:** Treverbyn/Treskilling Stream upstream from confluence with Innis Stream. | **SX 04113 56670** Treverbyn/Treskilling Stream, downstream from confluence with Innis Stream |
|---|---|---|
| **TEMPERATURE ˚ CELSIUS** | 13.1 | 13.1 |
| **TOTAL DISSOLVED SOLIDS PPM** | 69 | 89 |
| **PHOSPHATES PPB** | 0 | 0 |
| **TURBIDITY** | <12 | <12 |
| **DEPTH IN METRES** | 0.22 | 0.2 |
| **FLOW** | STEADY | STEADY |
| **LEVEL** | AVERAGE | AVERAGE |
| **POLLUTION EVIDENCE** | NONE | OLD TYRES |
| **INVASIVE SPECIES** | JAPANESE KNOTWEED | JAPANESE KNOTWEED |
| **WILDLIFE** | 1 FISH, RIVERFLIES (CASED CADDIS, CASELESS CADDIS, GAMMARUS), DRAGONFLY NYMPHS, FOX DROPPINGS, POSSIBLE OWL PELLET. | OTTER PRINTS, RIVERFLIES (OLIVES, STONEFLIES, GAMMARUS), DRAGONFLY NYMPHS, FRESHWATER HOGLOUSE, LEECH. |

## D. PHOTOGRAPHS

**Site 1 Black dot SX 04058 56650:** Treverbyn/Treskilling Stream upstream from confluence with Innis Stream.

**Looking upstream**

**Looking downstream towards confluebce with Innis Stream**

**Japanese Knotweed**

**Leaky dam on Innis stream upstream of confluence with the Treskilling Stream**

**Site 2 Red dot SX 04113 56670:** Treverbyn/Treskilling Stream downstream from confluence with Innis Stream.

**Looking upstream. Note brash placed in stream.**

**Looking downstream. Note slight tinge of ochre.**


**Otter footprint. Photo: Dave Burrell**

Our opinion is that the amount of Japanese Knotweed has increased significantly, especially at the downstream site but we can't provide evidence for this.

## J. DISCUSSION

### 1. Positive observations

(a) The number of wildlife sightings is higher this month. This may be due to greater vigilance by observers but it is pleasing to see such a variety, including fish and evidence of otters on the main river and the Treskilling Stream.

(b) The habitat work carried out on the Treskilling Stream by WRT and the EA, including a leaky dam is creating an impressive, pleasant location on a former industrial site, showing what can be achieved in difficult locations. One sign seems to be a reduction in ochre downstream from the dam.

(c) While the riverfly score on the Treskilling Stream was low in comparison with what might be expected on the main river, some interesting species were found.

### 2. Points of concern

(a) Phosphate levels were not as high as has been recorded at times but 500 PPB and 200 PPB near the Treffry Viaduct and at Par Beach respectively is unacceptable.

(b) Japanese Knotweed on the Treskilling Stream near Innis mica dam is a concern.

### 3. Areas of doubt

It wasn't possible to conduct an ARMI riverfly survey at Lady Rashleigh Mine in Luxulyan Valley.

## K. 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, Chris Bartram, Jenny Heskett, Nick Taylor, Jeremy Roberts, Mat Bateman, Colin Pringle, Matt Healey, Simon Browning, Lydia Deacon, Eva Edgeworth, Jack Middleton, Anna Seal, Jade Neville, Nicola Rogers, Tony Hawkins (River Co-ordinator YEM), Lauren Jasper and Callum Lewis is greatly appreciated. The interest and encouragement offered by Environment Agency officers, especially Lisa Best, Lisa Goodall, Jenny Davies, Layla Ousley and Peter Scobie, have been invaluable.

The CSI work being undertaken by Tony Hawkins and colleagues in the YEM group looking at the River Yealm in Devon is an exemplar for us all: https://yemcorridor.com/. Their most recent report is here: https://yemcorridor.com/images/YealmDipperReportofWRTCSIfindingsCIRCULATED07Mar241.pdf .

**Report compiled by Dave Burrell, Joan Farmer and Roger Smith, May 2024**