

# Riverfly Monitoring Newsletter

Southwest Wales

Spring 2014

## A word from your Natural Resources Wales Co-ordinator

Welcome to your latest Riverfly Newsletter!! This has been a fantastic season for volunteers getting out and about, and it was great to see lots of results coming in and many new sites being covered. The combination of low flows and nice summery weather has really helped with getting as many people out and about as possible, including ourselves at NRW, where our monitoring programmes have all got a head start. Let's hope it continues!!

### Pembrokeshire Rivers Trust Sampling Day at Llys Y Fran Reservoir

On the 14<sup>th</sup> July, a keen group of Pems Rivers Trust volunteers undertook a day of intensive sampling on the tributaries entering into Llys Y Fran Reservoir. The Reservoir is known to have eutrophication issues, which in past years have led to the formation of blue green algal blooms. This survey was carried out to identify any problem tributaries, with a view to working with landowners to improve their practices.

The results from this survey are included later in the report. Huge thanks to Ro Rogers and Jo Cunningham for organising it all (and providing yummy cakes!), it was a very successful day.

### Invertebrate Families and what they tell us about water quality.

I thought it was about time that this was covered again for the benefit of our new samplers that we recruited back in the Spring. Here is a list of some of the key indicator invertebrate families and what their presence or absence in a sample could mean. It's still best not to jump to immediately conclusions on the basis of this list, as a number of other factors such as seasonality, temperature and low flows can also have an effect.

Invertebrate Family	Sensitive to:	Tolerant of:
Heptageniidae (Flat Bodied Mayflies) Ephemerebellidae (Blue Winged Olives)	Organic Pollution (Very sensitive!) Acidification Sheep Dip Siltation	Not very much! These mayflies only live in the cleanest conditions.
Stoneflies	Sheep Dip (very sensitive!) Organic Pollution Siltation	Acidification
Gammarus (Freshwater Shrimps)	Sheep Dip (Very sensitive!) Acidification	Organic Pollution (up to a certain point, even Gammarus will disappear in heavily enriched streams). Lots of Gammarus and not much else usually indicates an organically enriched environment.
Baetidae (Olives) Oligochaetes (Worms) Chironomidae (Midge Larvae, Bloodworms)	Not very much!	Organic Pollution – if there are loads of them and not much else, then this is likely to be the cause. Baetidae will be absent from streams of extremely low pH.

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## Common ID Pitfalls – The slimy legless things!!!

No, we are not talking about the lecherous drunk down your local pub (!), this quarter we will be focusing on flatworms, fly larvae and leeches. These invertebrate groups can sometimes be easily confused and misidentified, leading to inaccuracies in sample results, so I thought a few guidelines would be useful.

### Flatworms



These are completely flat (as the name suggests!), usually up to about 1cm long and move by gliding about on the bottom of your tray. They have no suckers on either end, and sometimes have two small hornlike projections at the head end. The one in the picture above is *Polycelis felina*, which has two projections a bit like cat ears at the head end. Another species we get is *Dugesia*, an American invader, which has more of a diamond shaped head and is up to 2cm long. We've definitely recorded this at the lower ends of several catchments, so it's one to look out for.

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## Blackfly Larvae, Simuliidae.



Blackfly larvae are about 1cm long, and usually attached to rocks (or the bottom of your tray!) via tiny silk threads at the fatter end. They don't really move about very much in the tray. The thinner end has a filter feeding head, which wafts about in the current sifting out tasty particles. These can occur in very high numbers during warm weather.

## Leeches



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Leeches have suckers at both ends, and are sometimes strikingly marked. They move by attaching and detaching each sucker and stretching from long and thin to short and fat. The species we usually get in our samples vary from 2cm to 5cm long. None of them are harmful to humans and tend to feed on snails. The only British species that is capable of biting a human is the medicinal leech, which is very rare and only found in a handful of lakes.

## Cranefly Larvae



These look like aquatic versions of the “Leatherjackets” that you find buried in the soil in gardens. Some have little prolegs and some don’t, and they vary from about 2cm long to 5cm long.

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## TRIM Results – March

Due to an oddity with my junk mail filter these results ended up in the wrong folder and didn't make it into the last report!! Apologies to the volunteers involved, here is my interpretation of these results, if a little late!

### Ceri Catchment

River Name		Ceri	Ceri	Ceri Dulas	Ceri
Site Name		Pont Wnda	Felin Gwm	Beddgeraint	Cwmdu
NGR		SN368446	SN344481	SN315466	SN309432
Samplers		Bob Montgomery, Christian Vine			
Conditions					
Caddis Flies	Cased Caddis	50	50	50	100
	Caseless Caddis	5	5	6	2
Mayfly nymphs	Up-wing (Ephemeraeidae)				
	Blue-winged Olive up-wing				
	Flat-bodied up-wing (Heptageniidae)	70	100	10	
	Olive up-wing (Baetidae)	50	100	120	50
Stonefly nymphs	Stonefly nymphs	2	10		100
Freshwater shrimps	Freshwater shrimps	7	3	2	5
Leeches	Leeches			1	2
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		184	268	189	259
Other	Fish				
	Other				
Comments					

No obvious problems at any of the sites. The absence of stoneflies at the Beddgeraint site is unusual, and one to be kept an eye on.

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## Middle Teifi Catchment

River Name		Cwerchyr	Gran	Talog	Tyweli
Site Name					
NGR		SN368446	SN368466	SN464376	SN442379
Samplers		Ian Thomas/ Eric Davies			
Conditions					
Caddis Flies	Cased Caddis	0	1		5
	Caseless Caddis	4	5		2
Mayfly nymphs	Up-wing (Ephemeraidae)				
	Blue-winged Olive up-wing				
	Flat-bodied up-wing (Heptageniidae)	20	20	15	10
	Olive up-wing (Baetidae)	50	100	50	100
Stonefly nymphs	Stonefly nymphs	20	10	20	10
Freshwater shrimps	Freshwater shrimps	20			
Leeches	Leeches				
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		114	136	85	127
Other	Fish				
	Other				5 Saucer bugs

No major issues at any of these sites. The Talog has a fairly low biomass total for this time of year, but the sensitive Heptagenids and Stoneflies are still present.

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## Middle Teifi Catchment

River Name		Clettwr	Clettwr Fawr	Clettwr Fach
Site Name		10	9	8
NGR		SN448436	SN425469	SN440483
Samplers		Ieuan Thomas/ Gwil Jones		
Conditions				
Caddis Flies	Cased Caddis	2	1	2
	Caseless Caddis	6	6	4
Mayfly nymphs	Up-wing (Ephemeraeidae)			
	Blue-winged Olive up-wing			
	Flat-bodied up-wing (Heptageniidae)	25	16	35
	Olive up-wing (Baetidae)	35	90	40
Stonefly nymphs	Stonefly nymphs	10	6	
Freshwater shrimps	Freshwater shrimps		2	11
Leeches	Leeches			
Snails	Spire shells			
	Ramshorn			
Hoglouse	Hoglouse			
Density/biomass indicator (totals)		78	121	92
Other	Fish			
	Other			

All three sites are looking fairly healthy.

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## Upper Teifi

River Name		Brennig	Brefi	Teifi/Abercarfan	Teifi Penrallt
Site Name		26	27	31	32
NGR					
Samplers					
Conditions					
Caddis Flies	Cased Caddis	34	15		7
	Caseless Caddis	2	12	13	19
Mayfly nymphs	Up-wing (Ephemeroidea)				
	Blue-winged Olive up-wing				
	Flat-bodied up-wing (Heptageniidae)	99	21	34	70
	Olive up-wing (Baetidae)	89	61	160	194
Stonefly nymphs	Stonefly nymphs	53	14	36	15
Freshwater shrimps	Freshwater shrimps		1	2	1
Leeches	Leeches		1	3	1
Snails	Spire shells		1		1
	Ramshorn				
Hoglouse	Hoglouse		1		8
Density/biomass indicator (totals)		277	127	248	316
Other	Fish		1 Lamprey, 1 Bullhead		2 stone loach, 1 minnow
	Other	2 worms, 6 midge larvae	11 Saucer bugs, 5 worms, 6 midge larvae	1 Saucer Bug, 130 midge larvae	2 horsefly larvae, 6 midge larvae

Again, all sites looking to have had very good biological quality



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## TRIM Results – July

### Lower Teifi

River Name		Ceri	Ceri	Ceri Dulas	Ceri
Site Name		Pont Wnda	Felin Gwm	Beddgeraint	Cwmdu
NGR		SN368446	SN344481	SN315466	SN309432
Samplers		Bob Montgomery, Christian Vine			
Conditions					
Caddis Flies	Cased Caddis	50	100	100	500
	Caseless Caddis	2	10	5	50
Mayfly nymphs	Up-wing (Ephemeraidae)				
	Blue-winged Olive up-wing				
	Flat-bodied up-wing (Heptageniidae)	2	2	50	
	Olive up-wing (Baetidae)	50	100	50	150
Stonefly nymphs	Stonefly nymphs	5	10	5	
Freshwater shrimps	Freshwater shrimps	5	10	5	
Leeches	Leeches			20	
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		114	232	280	700
Other	Fish				
	Other				
Comments					

The site on the Ceri is a bit strange, with a total absence of sensitive mayflies and stoneflies but masses of caddis! I'm suspecting seasonality of sampling to be the cause, as in July stoneflies and mayflies are often even at a very tiny stage of their life cycle or still in an egg stage. If this site continues to look a bit odd in the next seasons sample, we'll go and take a look at the site.



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## Middle Teifi

River Name		Cwerchyr	Gran	Talog	Tyweli
Site Name					
NGR		SN368446	SN368466	SN464376	SN442379
Samplers		Ian Thomas/ Eric Davies			
Conditions					
Caddis Flies	Cased Caddis	6	1		1
	Caseless Caddis	6	6	10	5
Mayfly nymphs	Up-wing (Ephemeraidae)				
	Blue-winged Olive up-wing				
	Flat-bodied up-wing (Heptageniidae)	1	20	10	10
	Olive up-wing (Baetidae)	50	150	120	200
Stonefly nymphs	Stonefly nymphs	2	20	20	10
Freshwater shrimps	Freshwater shrimps	8			4
Leeches	Leeches				
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		73	197	160	230
Other	Fish				
	Other	10 Saucer bugs			

No issues at any of these sites.

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## Clettwr Catchment

River Name		Clettwr	Clettwr Fawr	Clettwr Fach
Site Name		10	9	8
NGR		SN448436	SN425469	SN440483
Samplers		Ieuan Thomas/ Gwil Jones		
Conditions				
Caddis Flies	Cased Caddis		3	
	Caseless Caddis	14	1	11
Mayfly nymphs	Up-wing (Ephemeroidea)			
	Blue-winged Olive up-wing			
	Flat-bodied up-wing (Heptageniidae)	30		18
	Olive up-wing (Baetidae)	32	60	45
Stonefly nymphs	Stonefly nymphs	6	2	8
Freshwater shrimps	Freshwater shrimps	10	1	6
Leeches	Leeches			
Snails	Spire shells			
	Ramshorn			
Hoglouse	Hoglouse			
Density/biomass indicator (totals)				
Other	Fish			
	Other			

Sewage fungus was also reported at the Clettwr Fawr site. This has been reported to the Ceredigion EM team who are now dealing with it, as the absence of Heptagenids and Blue Winged Olives is also worrying.

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## Upper Teifi

River Name		Brennig	Brefi	Teifi/Abercarfan	Teifi Penrallt
Site Name					
NGR					
Samplers					
Conditions					
Caddis Flies	Cased Caddis	5	8	64	15
	Caseless Caddis	33	3	11	2
Mayfly nymphs	Up-wing (Ephemeraidae)				
	Blue-winged Olive up-wing	32	9	13	11
	Flat-bodied up-wing (Heptageniidae)	5	9	30	6
	Olive up-wing (Baetidae)	261	52	66	338
Stonefly nymphs	Stonefly nymphs	10	5	21	13
Freshwater shrimps	Freshwater shrimps		3	4	4
Leeches	Leeches	1		1	3
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)					
Other	Fish	1 stone loach	1 stone loach		3 minnows
	Other	2 worms, 2 horsefly larvae, 6 disc beetles	54 disc beetles, many midge larvae	many midge larvae, 1 horsefly larva, 33 disc beetles	few midge larvae

All sites looking fine, it's definitely been a good year for horseflies, unfortunately for us field workers!!

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## Pembrokeshire results

### Western Cleddau

Summer 2014		St Catherines Bridge		Cutty Bridge		Cartlett Brook		Anghof Beulah Bridge		Anghof St Dogwells	
Location code [for future interactive]		1		2		16		31		38	
GPS		SM945198		SM941188		SM983 181		SM98090 28397		SM97012 28143	
Date		16/06/2014 2pm		16/06/2014 3.30pm		22/03/2014		28/05/2014		23/07/2014	
Name of Monitors		DN/JC		DN/JC		WE/BE		JCu/PP		JCu/RT	
Conditions		PH – 5 to my indicator papers. Temp 14C. Water had a slight colour.		Slight colour to water, temperature 14C. PH 5, definitely not the pH 6 we have recorded previously.		Fairy high, slightly coloured.		Low flows.		Low flows, hot weather. Silty gravel area.	
Caddis Flies	Cased Caddis	B	40	C	400	B	15	B	10	A	5
	Caseless Caddis	B	20	A	6	A	2	A	8	B	10
Mayfly nymphs	Up-w ing	A	1	-	0	A	5	-	0	-	0
	Blue-w inged Olive up-w ing	B	15	A	6	B	50	B	30	B	30
	Flat-bodied up-w ing (Heptageniidae)	B	85	B	30	B	50	B	10	A	2
	Olive up-w ing (Baetidae)	B	75	B	40	C	150	C	140	C	250
Stonefly	Stonefly nymphs	-	0	B	20	-	0	B	10	B	10
Freshwater shrimps	Freshwater shrimps	B	15	A	9	B	30	A	4	A	3
Leeches	Leeches	-	0	A	1	A	3	-	0	A	1
Snails	Spire shells/ramshorn	A	2	-	0	-	0	A	2	A	6
Hoglouse	Hoglouse	-	0	-	0	B	30	-	0	-	0
<b>Density/biomass indicator (totals)</b>		<b>253</b>		<b>512</b>		<b>335</b>		<b>214</b>		<b>317</b>	
Previous Density/biomass indicator (totals)		22.3.14 = 335		14.04.14 = 199							
Previous Density/biomass indicator (totals)		30.09.13 = 294		07.10.13 = 126				15.09.13 = 173		-	
Previous Density/biomass indicator (totals)		24.6.13 = 1074		25.6.13 = 447		7.5.13 = 142		-		-	
Previous Density/biomass indicator (totals)		16.4.13 = 434		16.4.13 = 101		-		-		-	
Other	Fish	3 Bullheads									
	Other	20 beetles and 5 earthworms. 'Snails' were both freshwater Limpet.				Large quantity of small beetles and a number of earth worms.		2 limpets, one worm. Lots of very small Baetids and		Most baetids extremely small. Gammarus very small. Many flatworms.	
Comments		No signs of a hatch. DN attributes the water colour to diatoms. No Stoneflies!!		No hatch. No weed at this site this time perhaps due to tree shade. An estimated 350 of the cased caddis were small units attached to large stones from the area of sample.				Stony shallow area.		40+ cattle currently have free access to river along 200m bank.	

The absence of any stoneflies at St Catherine's Bridge is a bit odd, but could be due to seasonally tiny larval stages of the species usually present going unnoticed. They may also have not hatched yet at all!! There are good numbers of heptagenids present, so organic pollution is unlikely to be an issue. All other sites look fine, the abundant cased caddis

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sound like Glossiphonia or Agapetus species, which reach high numbers in the summer and build little rocky "igloos" that attach to large rocks.

## Eastern Cleddau

Summer 2014		Narberth Brook - Shipping Factory		Narberth Brook - Canaston Bridge		Syfni - Gelli Bridge		Eastern Cleddau - Glanleddau Farm		Afon Wern - Tir Bach south	
Location code [for future interactive map]		6		27		12		13		14	
GPS		SN 09582 14482		SN 06727 15105		SN 082 195		SN 098 212		SN 12923 28476	
Date		26/06/2014		23/07/2014		19/06/2014		19/06/2014		21/05/2014	
Name of Monitors		JH/JeH		JH/JeH		RB/CB		RB/CB		JS	
Conditions		Depth 15 cms average.				Warm and low.		Warm and low.		Cold, clear, medium height.	
Caddis Flies	Cased Caddis	B	24	B	40	A	8	B	20	A	7
	Caseless Caddis	B	14	-	0	B	15	B	25	A	2
Mayfly nymphs	Up-wing (Ephemeroidea)	-	0	-	0	-	0	-	0	-	0
	Blue-winged Olive up-wing	B	24	A	5	-	0	-	0	A	5
	Flat-bodied up-wing (Heptageniidae)	B	14	B	10	B	12	B	12	B	14
	Olive up-wing (Baetidae)	A	7	A	5	B	30	B	60	B	50
Stonefly nymphs	Stonefly nymphs	A	1	-	0	A	2	B	12	B	20
Freshwater shrimp	Freshwater shrimps	B	76	B	10	B	20	A	4	A	4
Leeches	Leeches	A	1	-	0	C	200	B	12	-	0
Snails	Spire shells/ramshorn	A	6	B	10	-	0	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0	A	4	C	110	-	0
<b>Density/biomass indicator (totals)</b>		<b>167</b>		<b>80</b>		<b>291</b>		<b>255</b>		<b>102</b>	
Previous Density/biomass indicator (totals)		10.3.14 = 225		12.3.14 = 289		16.5.14 = 367		16.5.14 = 270			
Previous Density/biomass indicator (totals)		11.9.13 = 118		29.9.13 = 71		12.03.14 = 98		12.03.14 = 397		10.7.13 = 105	
Previous Density/biomass indicator (totals)		3.7.13 = 217		5.8.13 = 105		11.12.13 = 394		11.12.13 = 185		8.5.13 = 110	
Other	Fish					1 bullhead		1 bullhead			
	Other			11 fly larva found in samples or attached to rock.		10 earthworms.		1 earthworms.			
Comments		A row of small rocks has been placed across the stream partially limiting the flow. This is just below the normal sample point and has led to a shallow pool effect at the sample point. This has increased the silt and debris. The sample was therefore taken both at the normal site and below the barrier. The barrier would not prevent movement of fish and may have been created to increase habitat diversity?		Water depth lower at an average of 10cm. More 'mosslike water weed approx 305% now. More red coating on rocks upper surface.		Not a lot of life in sample (except leeches).					

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## NeVERN

Summer 2014		NeVERN - Crosswell Bridge		Afon Gamman - Pont Carreg		Afon Duad - 2nd ford	
Location code [for future interactive map]		11		19		39	
GPS		SN 12597 37014		SN 083 401		SN 10924 38830	
Date		17/05/2014		30/03/2014		25/07/2014	
Name of Monitors		DS/PL		RR/SR		DS/Jcu	
Conditions		River fairly low and clear.		Average flow.		Low flow, clear.	
Caddis Flies	Cased Caddis	B	10	A	1	B	20
	Caseless Caddis	B	18	-	0	A	3
Mayfly nymph	Up-wing (Ephemeraidae)	-	0	-	0	-	0
	Blue-winged Olive up-wing	B	10	-	0	A	2
	Flat-bodied up-wing (Heptageniidae)	B	25	-	0	A	8
	Olive up-wing (Baetidae)	A	5	B	30	B	20
Stonefly nymph	Stonefly nymphs	B	15	A	2	B	30
Freshwater sh	Freshwater shrimps	B	50	B	10	B	70
Leeches	Leeches	A	1	-	0	-	0
Snails	Spire shells	-	0	-	0	-	0
	Ramshorn	-	0	-	0	-	0
Hoglouse	Hoglouse	A	2	-	0	-	0
<b>Density/biomass indicator (totals)</b>		<b>136</b>		<b>43</b>		<b>153</b>	
<b>Previous density/biomass indicator (totals)</b>		10.09.13 = 207		26.5.13 = 148			
<b>Previous density/biomass indicator (totals)</b>		29.4.13 = 390					
Other	Fish					Small trout seen in water.	
	Other					Hairworms, beetle	
<b>Comments</b>				River bed scoured by recent fast flowing high water levels.		Entrance approach to ford blocked so not in use. Evidence of high flows and realigned channel with gravel piles but still currently accessible to sewin even with low flows.	

The Gamman is still looking very poor. The Pembrokeshire EM team are continuing to work with landowners within the catchment to try and rectify the obvious pollution issues.

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## Gwaun

Summer 2014		Goodwick Brook		Gwaun Cilhedryn Bridge		Gwaun Llanychaer	
Location code [for future interactive map]		4		21		22	
GPS		SM 94741 37427		SN 005348		SM 987354	
Date		19/07/2014		16/05/2014		16/05/2014	
Name of Monitors		JCu/PP		MT/HR		MT/HR	
Conditions		Low flows.		Good levels.		Good levels.	
Caddis Flies	Cased Caddis	B	20	A	3	A	8
	Caseless Caddis	B	30	A	4	B	12
Mayfly nymphs	Up-wing (Ephemeraidae)	-	0	-	20	-	0
	Blue-winged Olive up-wing	B	20	-	0	B	12
	Flat-bodied up-wing (Hepta)	-	0	A	1	B	24
	Olive up-wing (Baetidae)	A	1	B	24	B	28
Stonefly nymphs	Stonefly nymphs	B	20	A	8	B	16
Freshwater shrimp	Freshwater shrimps	A	2	-	0	A	1
Leeches	Leeches	-	0	A	1	-	0
Snails	Spire shells/ramshorn	C	200	A	4	A	8
Hoglouse	Hoglouse	B	10	-	0	-	0
<b>Density/biomass indicator (totals)</b>		<b>303</b>		<b>65</b>		<b>109</b>	
Previous Density/biomass indicator (totals)		24.08.13 = 99		29.08.13 = 25		29.08.13 = 81	
Previous Density/biomass indicator (totals)		16.3.13 = 102		29.5.13 = 110		29.5.13 = 127	
Previous Density/biomass indicator (totals)		13.10.12 = 178					
Previous Density/biomass indicator (totals)		1.9.12 = 198					
Previous Density/biomass indicator (totals)		30.5.12 = 31					
Other	Fish	4 small fry, identified as					
	Other	Many round beetles.					
Comments		Thick trails of filamentous brown algae on overhanging plants and stones. Larger fish seen in sample area and above.		Good Flow Running Clear Colony of Rats close to test site, ?? extreme caution taken surgical gloves used.			

No major issues, the Cilrhedyn site is doing a lot better than it did last summer, despite the furry residents!



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## Taf Results

Summer 2014		Taf - Cwm Milles	
Location code [for future interactive map]		10	
GPS		SN 16136 21610	
Date		12/07/2014	
Name of Monitors		DS/CS	
Conditions		River low and clear. Air temp 15°C.	
Caddis Flies	Cased Caddis	A	9
	Caseless Caddis	A	8
Mayfly nymphs	Up-wing (Ephemeraidae)	-	0
	Blue-winged Olive up-wing	B	20
	Flat-bodied up-wing (Heptageniidae)	B	80
	Olive up-wing (Baetidae)	B	40
Stonefly nymphs	Stonefly nymphs	B	30
Freshwater shrimps	Freshwater shrimps	A	9
Leeches	Leeches	A	5
Snails	Spire shells/ramshorn	A	1
Hoglouse	Hoglouse	A	8
<b>Density/biomass indicator (totals)</b>		<b>210</b>	
Previous density/biomass indicator (totals)		16.05.14 = 156	
Previous density/biomass indicator (totals)		11.09.13 = 110	
Previous density/biomass indicator (totals)		30.4.13 = 48	
Other	Fish		
	Other	2 worms	
Comments		Gammarus have reappeared at this site; none found in previous sample, May 2014.	

No problems here, it's also good to see the return of Gammarus to the site.

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## Colby Stream Results

Summer 2014 River invertebrate monitoring results		Colby HW to tidal limit		Colby HW to tidal limit	
Location code [for future interactive map]		35		36	
GPS		SN 15538 08514		SN 15734 08194	
Date		02/07/2014		02/07/2014	
Name of Monitors		LJ/GJ		LJ/GJ	
Conditions		Warm day (20oc) water temperature		Warm day (20oc) water	
Caddis Flies	Cased Caddis	A	2	A	4
	Caseless Caddis	A	2	B	12
Mayfly nymphs	Up-wing (Ephemeraidae)	A	3	A	1
	Blue-winged Olive up-wing	-	0	B	10
	Flat-bodied up-wing (Heptageniida)	A	8	B	13
	Olive up-wing (Baetidae)	B	14	A	1
Stonefly nymphs	Stonefly nymphs	A	7	A	1
Freshwater shrimp	Freshwater shrimps	B	15	B	95
Leeches	Leeches	-	0	-	0
Snails	Spire shells/ramshorn	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0
Density/biomass indicator (totals)		51		137	
Other	Fish	Around half a dozen brown trout			
	Other			A few water flea type insects	
Comments		Sampling point is pool amidst overhanging vegetation (typical of rest of woodland). Shaley gravel bottom covered with loose sediment disturbed by kick but quickly clearing		Sampling point just off public footpath; shale bottom to stream covered in fine sediment disturbed by kick but running clear quickly. Low summer flow level	

Both sites have good numbers of sensitive taxa, the presence of brown trout is also a very good sign. It will be interesting to see how these sites perform over the winter months when we generally see more agricultural pollution issues (and have done in the past on the streams discharging to Amroth Beach).

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## Llys Y Fran Catchment

Summer 2014		Syfynwy upstream of Farthings Hook		Sychpant trib at Farthings Hook		Syfynwy upstream of Llys-y-Fran		Tufton trib at Farthings Hook		Tufton trib downstream of Ty Canol		Poll Tax trib upstream of reservoir		Poll Tax trib upstream of B4329 at Glannant	
GPS		SN 04758 26969		SN 048 268		SN 042266		SN 046270		SN 044275		SN040266		SN033276	
Date		14/07/2014		14/07/2014		14/07/2014		14/07/2014		14/07/2014		14/07/2014		14/07/2014	
Name of Monitors		LE/JCu		DN/JC		GJ/LJ/RD/DB		DN/JC		LE/JCu		GJ/LJ/RD/DB		GJ/LJ/RD/DB	
Conditions		River bed relatively shallow and covered with various size boulders and rocks which are slippery.				River bed hard stone with little gravel, clear and fast flowing with pools and rocks, slippery. Low light conditions caused by overhanging vegetation.				This site mainly bedrock with no loose stones, slippery with green algae growing in places, thick canopy overhead and very low flows.		Pool and riffle with good overhead cover but not too shaded. Water clean and clear, river bed small gravels interspersed with larger stones.		Water clean and clear, low summer flow; river bed of small gravels of mixed size with larger stones.	
Caddis Flies	Cased Caddis	B	10	B	30	-	0	B	30	B	20	B	40	A	4
	Caseless Caddis	A	7	B	40	A	4	B	40	B	20	B	30	-	0
Mayfly nymphs	Up-wing (Ephemera)	-	0	-	0	-	0	-	0	-	0	-	0	-	0
	Blue-winged Olive up	B	10	A	1	A	3	B	10	A	1	-	0	A	3
	Flat-bodied up-wing (C)	-	0	-	0	A	1	-	0	-	0	-	0	-	0
	Olive up-wing (Baetis)	B	30	-	0	A	1	-	0	B	20	A	1	B	20
Stonefly nymphs	Stonefly nymphs	B	10	A	8	B	30	B	10	A	1	A	9	A	5
Freshwater shrimp	Freshwater shrimps	A	6	B	80	-	0	A	1	-	0	A	1	A	1
Leeches	Leeches	-	0	B	10	-	0	-	0	A	2	-	0	-	0
Snails	Spire shells/ramshorn	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Density/biomass indicator (totals)		73		169		39		91		64		81		33	
Other	Fish			3 parr.											
	Other	Many beetles. 6 snails = freshwater limpets found during rock pick. Many flatworms. Midge larvae present.		1 hairworm, 2 earthworms, 3 limpet shells, 1 beetle. Ancyliidae.				Several slugs, 2 pupae, 1 earthworm, 1 worm, several limpet shells.		Midge larvae present.		Large dragonfly nymph. 1 small beetle.		One worm	
Comments				2 minute kick sample, 1 minute rock-pick. 30 stone-clinging cased caddis found during rock-pick.		Kingfisher sighted flying upstream. Evidence of cattle roaming in the woods above the reservoir here.		2 minute kick sample, 1 minute rock-pick.		The majority of the caseless caddis were small.					

None of the sites look disastrously poor, although the Poll Tax tributary seems quite sparse at the top end. The Syfynwy immediately upstream of the reservoir doesn't have very much in it, although this could be a habitat issue as it has improved by the time you go further upstream to Farthings Hook Bridge. Interestingly, there were hardly any Heptagenid larvae found at all, most probably due to the time of year. Large heptagenid larvae are generally found in the winter and early spring, and if present in the summer they are usually newly hatched and very tiny, or still in egg form!

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## Carmarthenshire Results

### Cothi Catchment

River Name		Cothi		Cothi	
Site Name		Twrch, Pumpsaint		Clydach, Brechfa	
NGR					
Samplers		Peter John / Mke Heckler		Peter John / Mike Heckler	
Conditions					
		Category	Number found	Category	Number Found
Caddis Flies	Cased Caddis	B	29	B	24
	Caseless Caddis	B	34	B	53
Mayfly nymphs	Up-wing (Ephemeroidea)				
	Blue-winged Olive up-wing	A	7	A	7
	Flat-bodied up-wing (Heptageniidae)	C	344	B	89
	Olive up-wing (Baetidae)	C	690	B	39
Stonefly nymphs	Stonefly nymphs	C	184	B	64
Freshwater shrimp	Freshwater shrimps	A	1		
Leeches	Leeches				
Snails	Snails	A	1		
Hoglouse	Hoglouse				
<b>Density/biomass indicator (totals)</b>		1290		276	
<b>Notes</b>		Sample taken mainly in		Stones well embedded	
<b>Biological Quality</b>		Exceptionally good		Good	
<b>Comments</b>		6th May, 2014		6th May, 2014	

Both samples showing extremely good biological quality.

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## Llandovery Bran Catchment

River Name		Bran		Crychan	
Site Name		Ystradwallter		Road Bridge	
NGR					
Samplers		Lee Lucas / Chris Beynon		Lee Lucas / Chris Beynon	
Conditions		Sunny, good flow. 2' deep. Midday. Sample taken in unshaded part of river.		Sunny, Good Flow. 0.5' deep. 70% shaded due to weeds over growing from each side.	
		Category	Number found	Category	Number Found
<b>Caddis Flies</b>	Cased Caddis				
	Caseless Caddis	A	3		
<b>Mayfly nymphs</b>	Up-wing (Ephemeraidae)				
	Blue-winged Olive up-wing				
	Flat-bodied up-wing (Heptageniidae)	B	23		
	Olive up-wing (Baetidae)	B	12		
<b>Stonefly nymphs</b>	Stonefly nymphs	A	9		12
<b>Freshwater shrimp</b>	Freshwater shrimps	A	2		2
<b>Leeches</b>	Leeches	A	1		
<b>Snails</b>	Snails				
<b>Hoglouse</b>	Hoglouse				
<b>Density/biomass indicator (totals)</b>		50		14	
<b>Notes</b>		<b>100+ fish fry</b> , not an expert but noticed otter spraints on the ledge of the bridge. 3 blood worms & 8 beetles also.		15 Beetles, water spider, <b>1 bullhead</b> ,	
<b>Biological Quality</b>					
<b>Comments</b>		22nd June, 2014		19th July, 2014	

The Crychan is looking very poor indeed, which is unusual as this stream usually has good water quality. We are due to sample this stream in September so will have a look and see if there has been any improvement.

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## Lower Tywi

River Name		Pibwr		Gwili		Cwmffrwd	
Site Name		u/s Cwmffrwd		u/s Abergwili RB		d/s Nant Y Glasdwr	
NGR							
Samplers		Lee Lucas		Lee Lucas		Lee Lucas	
Conditions		Sunny, 80% coverage,		Sunny, No Coverage,		Sunny, 60% coverage,	
		Category	Number found	Category	Number found	Category	Number found
Caddis Flies	Cased Caddis	A	2				
	Caseless Caddis						
Mayfly nymph	Up-wing (Ephemeraeidae)	A	4			A	7
	Blue-winged Olive up-wing					A	2
	Flat-bodied up-wing (Heptageniidae)					B	18
	Olive up-wing (Baetidae)						
Stonefly nymph	Stonefly nymphs	B	16			B	30
Freshwater	Freshwater shrimps					A	5
Leeches	Leeches	A	1				
Snails	Snails						
Hoglouse	Hoglouse						
<b>Density/biomass indicator (totals)</b>		23		0		62	
<b>Notes</b>		15 red worms		100+ fish fry. 8 dippers			
<b>Biological Quality</b>							
<b>Comments</b>		19th July, 2014		19th July, 2014		19th July, 2014	

The Pibwr doesn't look great at the moment, and the presence of the red worms indicates some sort of agricultural input as they favour polluted streams - they are red coloured due to lots of haemoglobin in their bodies, an adaptation for low-oxygen environments. We are sampling on the Pibwr next month so will see how it is performing. I'm presuming the Gwili data is missing rather than the river not having anything in it at all, especially with the presence of dippers and fish fry.

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## Doethie Catchment – June 2014

River Name		Doethie		Pysgotw r		Doethie		Doethie		Pysgotw r	
Site Name		Above Pysgotw r Confluence		Above Doethie Confluence		Faw r (Fach Confluence)		Fach (Faw r Confluence)		Nant Gwernog	
NGR											
Samplers		Caroline Orr / Gethyn Thomas		Caroline Orr / Gethyn Thomas		Caroline Orr / Gethyn Thomas		Caroline Orr / Gethyn Thomas		Caroline Orr / Gethyn Thomas	
Conditions											
		Category	Number Found	Category	Number found	Category	Number found	Category	Number Found	Category	Number found
<b>Caddis Flies</b>	Cased Caddis	A	1	A	7	B	16			A	2
	Caseless Caddis	B	14	B	17	B	31	A	5	B	11
<b>Mayfly nymphs</b>	Up-w ing (Ephemeraidae)										
	Blue-w inged Olive up-w ing										
	Flat-bodied up-w ing (Heptageniidae)	A	4	A	5	A	1				
	Olive up-w ing (Baetidae)	B	10	B	23	B	26	B	14	B	54
<b>Stonefly nymphs</b>	Stonefly nymphs	A	3	B	23	B	19	B	19	B	25
<b>Freshwater shrimps</b>	Freshw ater shrimps										
<b>Leeches</b>	Leeches										
<b>Snails</b>	Snails										
<b>Hoglouse</b>	Hoglouse										
<b>Density/biomass indicator (totals)</b>		32		75		93		38		92	
<b>Notes</b>											
<b>Biological Quality</b>											
<b>Comments</b>		3rd June, 2014		3rd June, 2014		5th June, 2014		5th June, 2014		5th June, 2014	

All sites looking better than they did in the early spring samples, and I am hoping that this is a reflection of the rise in pH following the recent limestone sand application.

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## Doethie catchment – July 2014

River Name		Doethie Fach		Doethie Faw r		Blaendoethie		Pysgotw r	
Site Name		u/s Confluence Faw r		u/s Confluence Fach		u/s road bridge		Nant Gw ernog	
NGR									
Samplers		Caroline Orr		Caroline Orr		Caroline Orr		Caroline Orr	
Conditions		Low flow s		Low Flow s, water		Low Flow s & brow n		Low Flow s	
		Category	Number found	Category	Number found	Category	Number Found	Category	Number found
<b>Caddis Flies</b>	Cased Caddis	A	2	A	5	A	1	A	4
	Caseless Caddis	A	3	A	7	A	6	A	7
<b>Mayfly nymphs</b>	Up-w ing (Ephemeridae)								
	Blue-w inged Olive up-w ing	B	28	B	19	B	13	A	7
	Flat-bodied up-w ing (Heptageniidae)							A	1
	Olive up-w ing (Baetidae)	B	10	A	8	B	18	A	3
<b>Stonefly nymph</b>	Stonefly nymphs	A	8	A	8	B	27	B	16
<b>Freshwater sh</b>	Freshwater shrimps								
<b>Leeches</b>	Leeches								
<b>Snails</b>	Snails								
<b>Hoglouse</b>	Hoglouse								
<b>Density/biomass indicator (totals)</b>		51		47		65		38	
<b>Notes</b>		Lots of Elmis Aenea		Lots of Elmis Aenea		Nice array of beetles		Lots of Dytiscidae	
<b>Biological Quality</b>									
<b>Comments</b>		19th July, 2014		19th July, 2014		19th July, 2014		19th July, 2014	

Again, all sites looking better than usual, particularly the Nant Gwernog Site on the Pysgotwr Fawr, which has shown a really big improvement since the winter.