

Riverfly Monitoring Newsletter

Southwest Wales

Spring 2013

A word from your Environment Agency Co-ordinator

Hello all, and welcome to your first Riverfly Newsletter produced by Natural Resources Wales! As you are probably aware, Environment Agency Wales, the Countryside Council for Wales and Forestry Commission Wales have joined forces to become a new public body, so you will have a new logo at the top of my newsletters from now on.

Volunteer Training Days in Pembrokeshire

An extremely successful couple of training days for Pembrokeshire Rivers Trust and Teifi volunteers took place at the end of April. Huge thanks to Jo Cunningham for arranging this, to Dai Roberts for carrying out the training, and Lloyd and Glyn for helping out. I attended both days and found it a really positive experience, and am looking forward to receiving many more results from the new volunteers. We are now covering a record number of sites in Pembrokeshire since the start of the project in SW Wales, which is excellent news, and means we have even more coverage of rivers that are otherwise not included in NRW monitoring programmes. Huge thanks to all new volunteers for wanting to get involved in the partnership, it really is a very worthwhile project!

Thanks to Lloyd for sending me this picture from the Sunday:



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Invertebrate Families and what they tell us about pollution type.

I was asked by a number of people on the course whether the presence or absence of particular families can help give us an idea of the type of pollution the river might be impacted by...the answer is yes, they do! There are several key indicator families whose absence can indicate a particular water quality issue. Having said that, it's still best not to jump to immediate conclusions, as invertebrates can be influenced by a combination of factors.

As a rough guide, here is a list of key indicator families for different pollutants.

Invertebrate Family	Sensitive to:	Tolerant of:
Heptageniidae (Flat Bodied Mayflies) Ephemereleididae (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.

New Co-ordinator for the Carmarthenshire Rivers Trust

Finally, we are pleased to welcome Caroline Orr, who has kindly volunteered to co-ordinate the Carmarthenshire volunteers following Brian Jones' retirement from the scheme. She will be carrying on the good work where Brian left off, and has already thrown herself into the role with enthusiasm!

Nicola Broadbridge

Environmental Monitoring Officer
Environmental Monitoring (Analysis and Reporting)

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TRIM Results

December Sampling:

River Name		Teifi	Teifi	Duar	Cledlyn	Grannell
Site Name		d/s Duar	u/s Duar	Llanybydder		Llanwnnen
NGR		SN524445	SN529447	SN524444	SN492431	SN534471
Samplers		Meurig Davies	Meurig Davies	Meurig Davies	Meurig Davies	Meurig Davies
Conditions						
Caddis Flies	Cased Caddis	50	3	10	0	10
	Caseless Caddis	5	2	10	10	4
Mayfly nymphs	(Ephemeroidea)	0				
	up-wing	0				
	(Heptageniidae)	20	20	30	50	30
	(Baetidae)	10	5	20	200	20
Stonefly nymphs	Stonefly nymphs	1	1	20	10	5
shrimps	shrimps	50	10	2	10	
Leeches	Leeches		1	2	5	
Snails	Spire shells	1				
	Ramshorn					
Hoglouse	Hoglouse					
Density/biomass indicator (totals)						
Other	Fish					
	Other					
Comments						

No major problems with any of these sites.

River Name		Cwerchyr	Gran	Talog	Tyweli
Site Name					
NGR		SN368446	SN368466	SN464376	SN442379
Samplers		Ian Thomas/ Eric Davies			
Conditions					
Caddis Flies	Cased Caddis	4	3	1	1
	Caseless Caddis	6	2		
Mayfly nymphs	Up-wing (Ephemeroidea)				
	wing				
	(Heptageniidae)				
	Olive up-wing (Baetidae)	100	100	80	100
Stonefly nymphs	Stonefly nymphs	50	10	10	20
shrimps	Freshwater shrimps	50	4		20
Leeches	Leeches				
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)					
Other	Fish				
	Other				

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There are no flat-bodied mayflies in any of the samples, which is quite worrying as there were none recorded in the autumn either. The Talog in particular looks to have very low numbers of invertebrates in general. However, there are good numbers of other sensitive families such as stoneflies. As the spring sample results received at the same time as these had good numbers of flat bodied mayflies, this is possibly a seasonal issue? It will be interesting to see if the same occurs in 2013, in which case further investigation will definitely take place by NRW biologists.

March/April Sampling:

River Name	Teifi	Teifi	Duar	Cledlyn	Grannell	
Site Name	d/s Duar	u/s Duar	Llanybydder		Llanwnnen	
NGR	SN524445	SN529447	SN524444	SN492431	SN534471	
Samplers	Meurig Davies	Meurig Davies	Meurig Davies	Meurig Davies	Meurig Davies	
Conditions						
Caddis Flies	Cased Caddis	20		6	1	2
	Caseless Caddis (Ephemeridae)	4	3	10		3
Mayfly nymphs	up-wing (Heptageniidae)	70	20	40	60	50
	(Baetidae)	80	40	70	100	60
	Stonefly nymphs	2		40	10	20
shrimps	shrimps	40	20	1	3	4
Leeches	Leeches	2	1			
Snails	Spire shells					
	Ramshorn					
Hoglouse	Hoglouse	1			2	
Density/biomass indicator (totals)						
Other	Fish					
	Other		1 Saucer Bug			
Comments						

No major problems with any of these sites.

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River Name		Cwerchyr	Gran	Talog	Tyweli
Site Name					
NGR		SN368446	SN368466	SN464376	SN442379
Samplers		Ian Thomas/ Eric Davies			
Conditions					
Caddis Flies	Cased Caddis		1	5	2
	Caseless Caddis	2	1	2	
Mayfly nymphs	Up-wing (Ephemeroidea)				
	wing (Heptageniidae)	10	20	20	20
	Olive up-wing (Baetidae)	50	200	200	100
Stonefly nymphs	Stonefly nymphs	5	5	20	5
shrimps	Freshwater shrimps	4		5	1
Leeches	Leeches				
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)					
Other	Fish				
	Other				

The flat bodied mayflies (Heptageniidae) have returned!! These sites look very healthy now overall.

River Name		Clettwr	Clettwr Fawr	Clettwr Fach
Site Name				
NGR		SN368446	SN368466	SN464376
Samplers		Ieuan Thomas, Gwil Jones		
Conditions				
Caddis Flies	Cased Caddis			2
	Caseless Caddis	4	1	2
Mayfly nymphs	Up-wing (Ephemeroidea)			
	wing (Heptageniidae)	45	38	8
	Olive up-wing (Baetidae)	30	70	50
Stonefly nymphs	Stonefly nymphs	12	10	16
shrimps	Freshwater shrimps	6	6	15
Leeches	Leeches			
Snails	Spire shells			
	Ramshorn			
Hoglouse	Hoglouse			
Density/biomass indicator (totals)				
Other	Fish			
	Other			

No major issues for any of these sites either, which is very encouraging to see considering problems we've had on this catchment in the past.

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Pembrokeshire results

Western Cleddau

Spring 2013		St Catherines Bridge		Cutty Bridge		Pelcombe Brook		Cartlett Brook		Rosemarket stream	
Location Code		1		2		3		16		20	
GPS		SM 94489 19787		SM 94129 18729		SM 93910 17740		SM 983 181		SM 96045 07411	
Date		16/04/2013		16/04/2013		03/03/2013		07/05/2013		30/05/2013	
Name of Monitors		DN/JC		DN/JC		Dst		WE/BE		Jcu/RT	
Conditions		11°C, pH 5.5		13°C, pH 5.5 (temp difference - am & pm)		Weather fine, stream low.		Low flow.		Low flow. Rocky stream bed, less silt than previously observed.	
Caddis Flies	Cased Caddis	B	70	B	14	A	9	A	5	A	6
	Caseless Caddis	B	16	B	22	A	6	-	0	A	8
Mayfly nymphs	Up-wing (Ephemeraeidae)	-	0	-	0	A	1	-	0	A	4
	Blue-winged Olive up-wing	-	0	-	0	-	0	-	0	B	15
	Flat-bodied up-wing (Heptageniidae)	C	200	B	45	B	11	B	50	A	7
	Olive up-wing (Baetidae)	B	100	B	13	C	220	B	40	A	2
Stonefly nymphs	Stonefly nymphs	B	15	A	3	-	0	B	30	A	9
Freshwater shrimps	Freshwater shrimps	B	30	A	4	B	35	B	15	B	80
Leeches	Leeches	A	3	-	0	B	19	A	2	A	1
Snails	Spire shells	-	0	-	0	A	1	-	0	-	0
	Ramshorn	-	0	-	0	-	0	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0	-	0	-	0	-	0
Density/biomass indicator (totals)		434		101		302		142		132	
Previous Winter		103		54		-		-		-	
Previous Autumn		558		-		-		-		-	
Previous Summer		1037		184		-		-		-	
Previous Spring		590		274		152		-		-	
Other	Fish	2 bullheads, 1 brook lamprey		-		-		1 stone loach found		Fish scales and bones observed on rock nearby	
	Other	10 earthworms, 3 beetles. No blackfly.		Many bloodworms, no weed. No sign of fish.		-		-		otter debris.	
Comments		We used Chinese universal pH indicators, which showed a decrease of .5 from 6 to 5.5 since last reading		pH has dropped by 0.5 over previous last readings		Ongoing silt problems from quarry upstream		Sewage fungus present, growth on vegetation and stones. Reported to Authority, Cathy Lloyd dealing.		Some sewage fungus observed.	

The St Catherine's Bridge site is looking fairly good and far less shrimp and olive dominated than it was in the autumn sample, which is a good sign that organic pollution impacts have probably lessened.

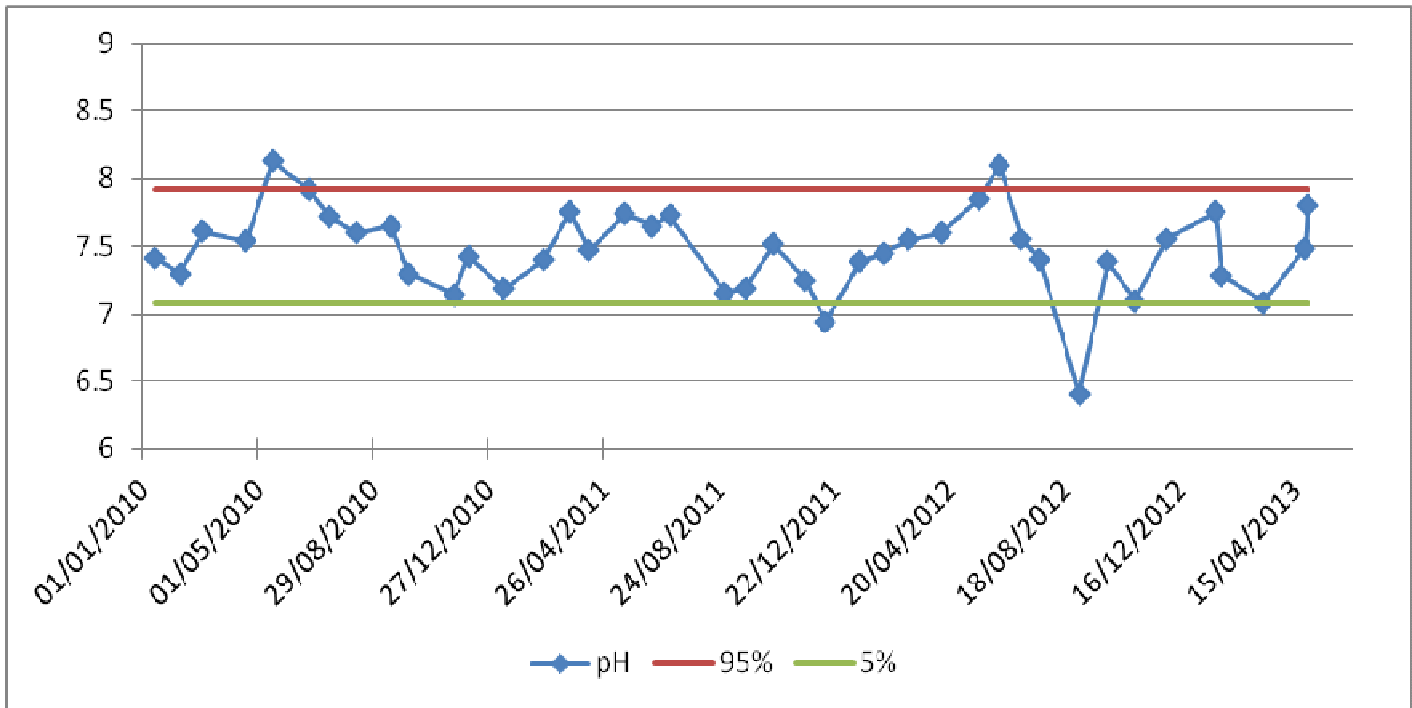
The drop in pH readings using pH indicator paper is probably not too significant, as the pH of a river can fluctuate due to many natural factors, particularly flow level. NRW have a routine water quality monitoring point just downstream at

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Prendergast Gauging Station, so I've attached a graph showing the general pH range for the Western Cleddau over the past 3 years, this also demonstrates how variable it can be!



There have been ongoing issues on the Knock Brook, and an extensive catchment survey was carried out by NRW biologists in liaison with the Pembrokeshire Environment Management team. A very obvious single organic pollution source (basically a large heap of manure adjacent to the river!) was found towards the top of the Knock Brook, which is in the process of being resolved with the landowner. Hopefully once this has been cleared completely we should see some improvements.

The Pelcomb Brook has also been the subject of a biological investigation in the past few months, and several problem tributaries were found. The responsible landowners have been visited since and remediation work carried out, so we should see improvements here too.

The invertebrate population on the Cartlett Brook seems pretty healthy, but the presence of sewage fungus is indicative of a mild organic input somewhere in the catchment. The sample sent to us via Cathy Lloyd showed a mixture of heavy diatom growth mixed with the sewage fungus *Sphaerotilis*, which confirms that there is definitely some organic enrichment at the site.

Suspected sewage fungus was also observed at the Rosemarket Stream site, and the general invertebrate numbers were also fairly poor and dominated by shrimp. This catchment may also be a good candidate for a more intensive biological survey in order to pinpoint any pollution sources.

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Eastern Cleddau

Spring 2013		Narberth Brook - Shipping Factory		Syfni - Gelli Bridge		Eastern Cleddau - Glandceddau Farm		Afon Wern - Tir Bach south		Afon Wern - Tir Bach north		Eastern Cleddau - slate works	
Location code [for future interactive map]		6		12		13		14		18		15	
GPS		SN 09582 14482		SN 195 085		SN 098 212		SN 12923 28476		SN 12620 28875		SN 12954 27434	
Date		17/03/2013		21/05/2013		21/05/2013		08/05/2013		21/05/2013		12/05/2013	
Name of Monitors		JH/JeH		RB/CB		RB/CB		JS/GJ		JS		PT/Jcu	
Conditions		Depth of main sample shallower 18cm average		Water low, 9°C		Water low, 9°C		Cool overcast day with blustery SW		Average height, Cool, Clear.		Heavy rain but low flow/level.	
Caddis Flies	Cased Caddis	B	11	B	20	B	20	B	15	B	25	A	2
	Caseless Caddis	B	13	A	8	B	40	A	5	A	4	B	18
Mayfly nymphs	Up-wing (Ephemeroidea)	-	0	A	2	-	0	-	0	A	1	A	1
	Blue-winged Olive up-wing	B	15	B	10	A	1	-	0	-	0	A	2
	wing (Heptageniida)	C	133	B	30	C	150	B	18	A	2	-	0
	Olive up-wing (Baetidae)	B	17	B	20	B	25	B	30	B	30	B	25
Stonefly nymphs		A	6	B	90	B	40	B	35	A	6	A	6
Freshwater shrimps		C	147	B	80	-	0	A	7	A	6	A	2
Leeches		-	0	-	0	A	1	-	0	-	0	-	0
Snails	Spire shells	A	2	-	0	-	0	-	0	-	0	-	0
	Ramshorn	-	0	-	0	-	0	-	0	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0	B	30	-	0	-	0	-	0
Density/biomass indicator (totals)		344		260		307		110		74		56	
Previous Density/biomass indicator (totals)		262		135		146							
Summer Density/biomass indicator (totals)		204											
Spring/Summer Density/biomass indicator		410											
Other	Fish	-											
	Other	Freshwater limpets 2.											
Comments		Fallen large branches & flooding have altered flow. Current is over a wider shallower area, silt has been washed away. Branches lopped & not limiting movement of fauna.								This is an overgrown section of the stream tested for comparison with our official testing site grid reference SN 12923 28476		Downstream of bridge 10 metres above weir. Stones, gravel, weed. No Heptagenids found whatsoever. 2 very small blue-winged olives.	

The Narberth Brook, Syfynwy and Eastern Cleddau sites all have very good biology, with decent numbers of sensitive families and no other signs of pollution.

The less overgrown site on the Wern performed better than the overgrown one, most probably because overgrown sites tend to trap more silt and therefore become less favourable for the key invertebrates used in the Riverfly classification.

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The low numbers of flat-bodied Heptagenid mayflies below the Slate Works Bridge, is probably due to the depth of the site, admittedly the new weir built there hasn't helped! Heptagenids thrive in shallow riffles. I'd suggest moving the site upstream for future samples, provided that access is available via the slate works itself.

Gwaun

Spring 2013		Goodwick Brook		River Gwaun		River Gwaun - Cilhedryn Br		River Gwaun - Llanychaer	
Location code [for future interactive map]		4		8		21		22	
GPS		SM 94741 37427		SM 962369 36868		SN 005348		SM 987354	
Date		16/03/2013				29/05/2013		29/05/2013	
Name of Monitors		JCu/PP		JCu/PP		MT/HR		MT/HR	
Conditions		Slow low flow, very silty, banks eroded.				Running clear and good flow.		Running clear and good flow.	
Caddis Flies	Cased Caddis	B	18			A	5	A	5
	Caseless Caddis	A	8			B	28	B	42
Mayfly nymphs	Up-wing (Ephemerae)	-	0			-	0	-	0
	Blue-winged Olive up-wing	-	0			-	0	A	1
	Flat-bodied up-wing (Heptageniidae)	B	41			B	36	B	24
	Olive up-wing (Baetidae)	B	14			B	20	A	8
Stonefly nymphs		A	2			B	20	B	42
Freshwater shrimps		A	6			A	1	A	5
Leeches		A	5			-	0	-	0
Snails	Spire shells	A	4			-	0	-	0
	Ramshorn	-	0			-	0	-	0
Hoglouse		A	4			-	0	-	0
Density/biomass indicator (totals)		102				110		127	
Autumn Density/biomass indicator (totals)		178		155					
Summer Density/biomass indicator (totals)		198		492					
Spring Density/biomass indicator (totals)		31							
Other	Fish								
	Other								
Comments									

All three of these sites have good numbers of sensitive taxa, which is a good sign that there aren't any major issues with water quality at present. The Goodwick Brook site seems to be considerably improved since this time last year.

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Nevern Results

Spring 2013		Gloyne - Felindre Farchog		Nevern - Crosswell Bridge		Llwyngwair Mill tributary		Afon Gamman - Pont Carreg		Clydach - Cilgwyn Fford		Nevern - Sheepdip pool, Felindre	
Location code [for future		9		11		17		19		23		24	
GPS		SN 10132 39113		SN 12597 37014		SN 069 393		SN 083 402		SN 078 370		SN 096 388	
Date		19/02/2013		29/04/2013		05/05/2013		26/05/2013		07/06/2013		07/06/2013	
Name of Monitors		JCu/PP		DS/PL		LB/LB/Jcu		RR/SR/Jcu		DP/DP/Jcu		DP/DP/Jcu	
Conditions		Cold, fast flowing, very small stream.		Low water. Air temp 8°C		Low flow.		Very low leve/low flow. Canopy, end of steep gorge		Low flows.		Low flows.	
Caddis Flies	Cased Caddis	A	5	B	14	B	21	B	32	B	27	A	8
	Caseless Caddis	A	4	B	15	A	5	A	1	A	3	A	2
Mayfly nymphs	Up-wing (Ephemeroidea)	-	0	-	0	-	0	-	0	-	0	A	1
	Blue-winged Olive up-wing	-	0	B	12	-	0	A	5	-	0	A	5
	Flat-bodied up-wing (Heptageniidae)	B	33	C	150	A	6	A	4	A	5	A	5
	Olive up-wing (Baetidae)	A	3	B	30	-	0	B	26	A	6	B	30
Stonefly nymphs	Stonefly nymphs	B	27	B	15	A	1	A	5	-	0	B	10
Freshwater shrimps	Freshwater shrimps	A	7	C	150	C	300	B	70	B	37	B	15
Leeches	Leeches	A	6	A	4	-	0	A	4	-	0	A	4
Snails	Spire shells	A	6	-	0	-	0	A	1	-	0	-	0
	Ramshorn	-	0	-	0	-	0	-	0	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0	-	0	-	0	-	0	-	0
Density/biomass indicator (totals)		91		390		333		148		78		80	
Other	Fish	-	-	-	-	15 cm Eel		-	-	-	-	Minnow.	
	Other	-	-	-	-	Worm		3 Freshwater limpets, worm.		-	-	Dragonfly nymph	
Comments		Stony/gravelly. Canopy overhead. 2 worms. 1 large stonefly.		Excellent water clarity and river bed very clean.		Trial survey at this site which is just within the tidal reach.		A lot of silt covering the stones and bedrock here. Small of slurry.		Lots of biting midges. Overhead canopy.		Large stones and riffles. Overhead canopy.	

Most of these sites seem to have very good biological quality, and decent numbers of sensitive taxa. I'm suspecting that there is a bit of a tidal influence at the Llwyngwair Mill tributary site, as there is a huge amount of Gammarus present and fairly low numbers of everything else! The sites on the Clydach and the Nevern at Felindre are also a little bit disappointing numbers-wise, although there is a good selection of invertebrate families present. It will be interesting to see what future samples are like here.

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Carmarthenshire Results

Taf Results

Spring 2013		Taf - Cwm Milles	
Location code [for future interactive map]		10	
GPS		SN 16191 21803	
Date		30/04/2013	
Name of Monitors		DS/PL	
Conditions		River low. Air temp 10°C	
Caddis Flies	Cased Caddis	A	7
	Caseless Caddis	A	3
Mayfly nymph	Up-wing (Ephemeraidae)	-	0
	Blue-winged Olive up-wing	A	1
	Flat-bodied up-wing (Heptageniidae)	B	30
	Olive up-wing (Baetidae)	A	2
Stonefly nymph	Stonefly nymphs	-	0
Freshwater sh	Freshwater shrimps	A	5
Leeches	Leeches	-	0
Snails	Spire shells	-	0
	Ramshorn	-	0
Hoglouse	Hoglouse	-	0
Density/biomass indicator (totals)		48	
Other	Fish		
	Other		
Comments		Brown alga forming on the bottom. A lot of dead plant matter	

This site has fairly low numbers of invertebrates in general, although the Heptagenid population seems good. The brown algae is most likely to be diatom growth, which is common in unshaded parts of the river during the spring and summer months. An excessive amount can be indicative of an organic input to the water.

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Tawe Results

River Name		Giedd		Llynfell		Twrch	
Site Name		Cwmgiedd		Cwmllynfell		Cwmtwrch	
NGR		SN78851112					
Samplers		Rob Bending/ Mark Hughes					
Conditions							
		Category	Number found	Category	Number Found	Category	Number found
Caddis Flies	Cased Caddis	A	8				
	Caseless Caddis	B	16	B	56	B	32
Mayfly nymphs	Up-wing (Ephemeraeidae)						
	Blue-winged Olive up-wing						
	Flat-bodied up-wing (Heptageniidae)	C	122	B	24	C	104
	Olive up-wing (Baetidae)	C	168	C	184	C	240
Stonefly nymphs		C	112	B	32	B	64
Freshwater shrimps		B	16	B	24		
Leeches		B	24	B	32	B	48
Snails							
Hoglouse							
Density/biomass indicator (totals)		466		352		488	
Notes							
Biological Quality							
Comments							

Good numbers were recorded of all of the invertebrate families we'd expect to find at this time of year, and no other signs of pollution were recorded.

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Cothi Results

River Name		Cothi		Cothi		Cothi Twrch		Cothi Clydach		Cothi Annell	
Site Name		Pumsaint		Cwrt Y Cadno		Pumsaint		Cwm Mawr du		Island Farm	
NGR											
Samplers		P John, M Heckler		P John, M Heckler		P John, M Heckler		P John, M Heckler		P John, M Heckler	
Conditions											
		Category	Number found	Category	Number Found	Category	Number found	Category	Number found	Category	Number found
Caddis Flies	Cased Caddis	B	15	B	15	B	24	B	22	B	20
	Caseless Caddis	B	16	A	2	A	8	B	13	B	22
Mayfly nymphs	Up-wing (Ephemeroidea)					A	1				
	Blue-winged Olive up-wing	B	15			A	5				
	Flat-bodied up-wing (Heptageniidae)	C	275	B	11	B	52	C	164	C	596
	Olive up-wing (Baetidae)	C	120	B	19	A	4	B	85	C	119
Stonefly nymphs	Stonefly nymphs	C	105	B	36	C	225	C	142	C	321
Freshwater shrimps	Freshwater shrimps					A	6	A	1	A	9
Leeches	Leeches			A	3					A	2
Snails	Snails										
Hoglouse	Hoglouse									A	7
Density/biomass indicator (totals)		546		86		325		427		1096	
Notes				Clearing spate may have affected count.						Prolific Sample.	
Biological Quality		Excellent		Acceptable		Very good		Excellent		Exceptionally Good.	
Date Taken		13th May, 2013		15th April, 2013		13th May, 2013		13th May, 2013		15th April, 2013	

Very good results were recorded for all of the Cothi sites this spring. The assumption that the low numbers at Cwrt Y Cadno are due to recent high flows is probably correct, as there is still a good range of taxa present, just low numbers of individuals.

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Brechfa Results

River Name		Gorlech		Melindwr	
Site Name		Abergorlech			
Samplers		Dave Harry		Dave Harry	
		Category	Number found	Category	Number Found
Caddis Flies	Cased Caddis	A	2	B	10
	Caseless Caddis	A	4		1
Mayfly nymph	Up-wing (Ephemeraidae)				
	Blue-winged Olive up-wing				
	Flat-bodied up-wing (Heptageniidae)	C	670	C	400
	Olive up-wing (Baetidae)	C	500	C	100
Stonefly nymph	Stonefly nymphs	C	600	C	420
Freshwater sh	Freshwater shrimps				
Leeches	Leeches				
Snails	Snails				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		1776		931	
Notes					
Biological Quality					
Comments					

Massive numbers of sensitive heptagenids and stoneflies were recorded at both sites, which is excellent. No other signs of pollution were recorded.

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Doethie Results

River Name		Doethie		Pysgotwr		Nant Gwernog	
Site Name		U/S confl. Pysgotwr		U/S confl. Doethie		Pysgotwr Fawr	
NGR							
Samplers		Gethyn Thomas, Caroline Orr		Gethyn Thomas, Caroline Orr		Gethyn Thomas, Caroline Orr	
Conditions							
		Category	Number found	Category	Number Found	Category	Number Found
Caddis Flies	Cased Caddis			A	5	A	2
	Caseless Caddis	B	10	B	37	A	5
Mayfly nymphs	Up-wing (Ephemeraidae)						
	Blue-winged Olive up-wing						
	Flat-bodied up-wing (Heptageniidae)	B	15	C	105		
	Olive up-wing (Baetidae)	A	9	B	41	A	1
Stonefly nymphs		B	46	B	44	B	68
Freshwater shrimps							
Leeches							
Snails							
Hoglouse							
Density/biomass indicator (totals)		80		232		76	
Notes							
Biological Quality							
Comments		20th May, 2013		20th May, 2013		20th May, 2013	

Very good numbers were recorded on the Pysgotwr upstream of the Doethie confluence and Heptagenids were particularly abundant which is great to see. The Doethie site and upper Pysgotwr, were less good, and showed obvious signs of acidification impact. The Upper Pysgotwr site in particular had very low numbers of everything apart from acidity resistant stoneflies.

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Gwaun Cae Gurwen Anglers Sites

River Name		Araeth		Breinant	
Site Name		Manor Afon Farm			
Samplers		Lyn Martinson / Arwynn Morgan			
NGR		SN6602323670		SN6370422124	
		Category	Number found	Category	Number found
Caddis Flies	Cased Caddis	A	8	A	3
	Caseless Caddis	A	3		
Mayfly nymphs	Up-wing (Ephemeraeidae)			A	2
	Blue-winged Olive up-win	A	6	A	9
	Flat-bodied up-wing (Hep	B	26	C	120+/-
	Olive up-wing (Baetidae)	B	20	B	15
Stonefly nymphs	Stonefly nymphs				
Freshwater shrimps	Freshwater shrimps	B	60	C	120+/-
Leeches	Leeches			A	1
Snails	Snails				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		123			
Notes					
Biological Quality					
Comments		21st May, 2013		21st May, 2013	

There are no obvious issues with either of these sites this season, with good numbers of sensitive species recorded in both locations.