

Riverfly Monitoring Newsletter

Southwest Wales

Winter 2017/2018

A word from your Natural Resources Wales Co-ordinator

Hello all, and welcome to your final newsletter from 2017! We've had a busy year here at NRW with a move to our new laboratory based at Swansea University and the subsequent settling down and getting used to working with our new colleagues who have joined us from the Analytical Services lab (formerly based in Llanelli). Being based at the University should hopefully also benefit us in the form of access to the Biological Sciences department, library and knowledgeable staff. We're currently ploughing through a large quantity of Water Framework Directive samples to the point of dreaming about stoneflies!

We've had a reasonable number of riverfly samples taken despite the wet weather which seems to have been never-ending from July onwards, so many thanks to all of our volunteers. Jo Cunningham and I recently carried out some survey work on the Anghof catchment in Pembrokeshire to follow up some worrying findings in a couple of our riverfly samples, luckily the catchment wasn't looking too bad as a whole, and had improved since previous NRW surveys. Hopefully Jo found the day useful (massive thanks to Jo for coming out with me!), and we hope to visit some other "problem" sites flagged by volunteers over the next few weeks as long as the weather allows!

Nicola Broadbridge
Biodiversity Officer/ Swyddog Bioamrywiaeth
Cyfoeth Naturiol Cymru / Natural Resources Wales

What to do if you discover a pollution incident



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Unfortunately, we've had a few pollution incidents over the past year that have been severe enough to result in fish mortality, and attending these reminded me of the need to share these guidelines (first written in a riverfly report 5 years ago!) to follow in case volunteers discover dead fish when carrying out riverfly surveys.

If dead fish or any other obvious signs of pollution are discovered, the first thing to do is RING OUR 24 HOUR INCIDENT HOTLINE on 0300 065 3000. This will ensure that the appropriate officers attend the incident.

Please do not touch or collect any dead fish, they could be contaminated with harmful substances, plus leaving them in situ is also helpful for NRW officers to carry out an accurate carcass count, which is then used to categorise the incident and to recover costs for fish stocks lost. Also, do not attempt to locate the source of pollution, in case of hostile landowners or other hazards. Leave it to the warranted NRW officers who are trained to deal with these situations.

Sewage Fungus V Diatoms

Several people have asked me how to tell the difference between diatom growth and sewage fungus on the river bed, so here is a quick guide to their main features:

Diatoms:



Usually brown in colour, and doesn't have any sulphurous smell. It can vary from a thin brown film in rocks to heavy trailing growth as shown the picture above.

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Sewage Fungus:



Usually grey or white clumps, and often has a strong odour.

NRW Monitoring Methods

In light of our new advanced riverfly recording methodology, I thought that some of you might be interested in the methods we use in-house at NRW.

The primary scoring system that we use both for pollution investigations is the BMWP method. This involves identifying invertebrates to family level, which are then given a score from 1-10 depending on their sensitivity to organic pollution. Stoneflies, most cased caddis and mayflies (apart from olives which are less sensitive) score 10. Caseless caddis mostly score 7 or 8, freshwater shrimps 6, beetles, crane fly and blackfly larvae and flatworms score 5, olives score 4, snails, pea mussels and leeches score 3, chironomid midges score 2, and oligochaete worms score 1.



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Family level FW macro-invertebrate recording and audit data sheet

Region	Area/Laboratory	Site	Site code
Watercourse			
1 st sort Lab	AQC Lab		Sample Id
Sampler name	Sample date		Lab AQC code
1 st sorter code	1 st sort date		1 st sort condition
AQC inspector code	AQC inspection date		AQC inspection condition

Notes: 1) Inset taxa (e.g. *Crangonyctidae*) only score for BMWP as part of the non-inset family above (in this example, Gammaridae). 2) Abundance categories should be taken from BIOSYS. 3) Audit samples will be assessed against the data on this sheet.

THIS FORM MUST BE EASILY LEGIBLE BY THE AUDITORS – IF NOT, YOU WILL BE ASKED TO SEND ANOTHER

BMWP 10			BMWP 6			BMWP 3		
est no.	ab cat:	1 st AQC	est no.	ab cat:	1 st AQC	est no.	ab cat:	1 st AQC
Siphonuridae			Neritidae			Valvatidae		
Heptageniidae			Vivipandae			Hydrobiidae		
Leptophlebiidae			Ancyridae			Bitryniidae		
Ephemereidae			Acroloxidae			Lymnaeidae		
Potamanthidae			Unioridae			Physidae		
Ephemeraeidae			Corophiidae			Planorbidae		
Taeniopterygidae			Gammaridae			Sphaeriidae		
Leuctridae			Niphargidae			Glossophoniidae		
Capniidae			Crangonyctidae			Hirudiniidae		
Perlidae			Platycnemididae			Ephemeroidea		
Perlidae			Coenagrionidae			Asellidae		
Chloroperlidae			Hydroptilidae			Sub total n-Taxa		
Apheloceridae			Sub total n-Taxa			BMWP 2	est no.	ab cat: 1 st AQC
Phryganeidae			BMWP 5	est no.	ab cat: 1 st AQC	Chironomidae		
Molannidae			Planariidae			Sub total n-Taxa		
Beraeidae			Dugesidae			BMWP 1	est no.	ab cat: 1 st AQC
Odontoceridae			Dendrocoelidae			Oligochaeta		
Leptoceridae			Mesoveliidae			Sub total n-Taxa		
Goeridae			Hydrometridae			LIFE scoring taxa	est no.	ab cat: 1 st AQC
Lepidostomatidae			Gerridae			Margarinellidae		
Brachycentridae			Nepidae			Dreissenidae		
Sericostomatidae			Naucoridae			Agoteniidae		
Sub total N-Taxa			Notonectidae			Artemiidae		
BMWP 8	est no.	ab cat: 1 st AQC	Pleidae			Chirocephalidae		
Astaciidae			Corixidae			Triopsidae		
Leptidae			Halipidae			Mysidae		
Calopterygidae			Hygrobiidae			Talitridae		
Gomphidae			Dytiscidae			Hebridae		
Cordulegasteridae			Noteridae			Veliidae		
Aeshnidae			Gyrinidae			Osmiidae		
Corduliidae			Hydrophilidae			Sisyridae		
Libellulidae			Hydraenidae			Chaoboridae		
Psychomyiidae			Scirtidae			Culicidae		
Ecnomidae			Dryopidae			Ptychopteridae		
Philopotamidae			Elmidae			Syrphidae		
Sub total N-Taxa			Hydropsychidae			Non-scoring taxa	est no.	ab cat: 1 st AQC
BMWP 7	est no.	ab cat: 1 st AQC	Tipulidae					
Caenidae			Limoniidae					
Nemouridae			Pediciidae					
Rhyacophilidae			Cyrtodromiidae					
Glossosomatidae			Simuliidae					
Polycentropodidae			Sub total N-Taxa					
Limnephilidae			BMWP 4	est no.	ab cat: 1 st AQC			
Sub total N-Taxa			Pisicoidae					
General comments			Baetidae					
			Stalidae					
			Sub total n-Taxa					
			AQC Inspector's comments – see WI section 9.1					
						Total BMWP Score	1 st AQC	
						Total n-Taxa		
						ASPT		
						Total LIFE Score		

For our routine 3 minute samples Silt Pollution impacts (PSI), and effects of reduced flow, e.g. through over-abstraction or drought, which is called a LIFE Score can also be calculated alongside BMWP. The PSI and LIFE methods are mainly used for our routine surveys, but can be incorporated into pollution investigation work if required.

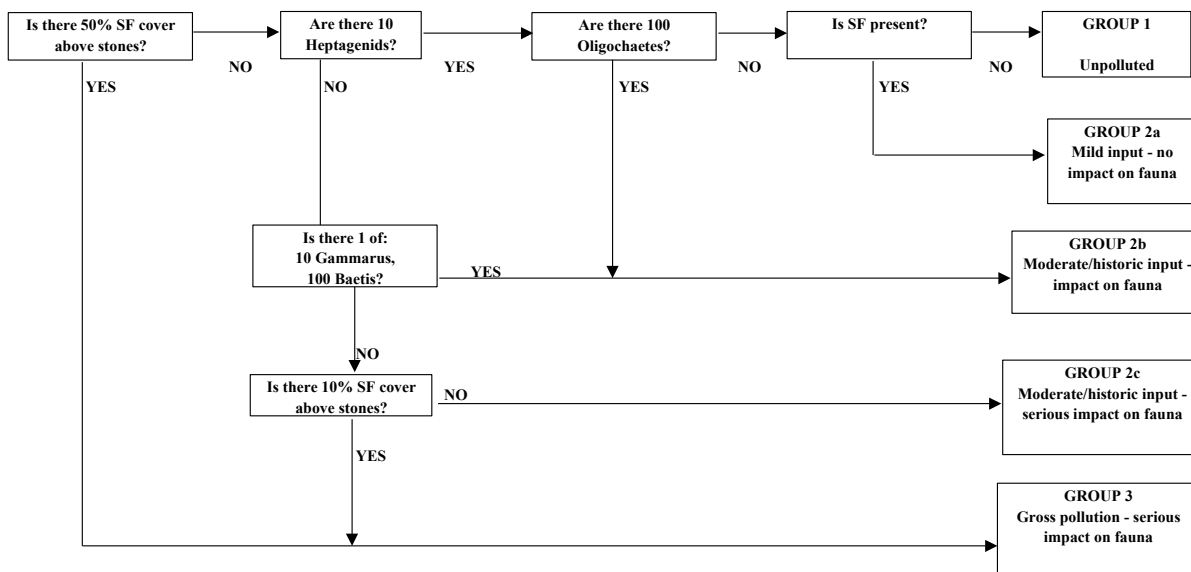
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This system works well for pollution investigations and routine WFD samples, but doesn't take into account other signs of pollution that might be present such as sewage fungus and can be time consuming. In order to address this (and provide a more rapid method of assessing the overall health of a stream without having to identify the full suite of invertebrate families) we also use a method called the Farm Pollution Rapid Assessment (FPRAS).

The key is shown in the table below and is very simple to use. It's great for identifying obvious organic pollution impacts but doesn't work for other impacts such as pesticides or acidification.



We also have a similar (although more complex) rapid assessment key for assessing acidification impacts (AWIC Score).



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Organisation/Group	Carmarthenshire Rivers Trust	Coordinator	Brian Jones
Site name		Site code	
Catchment	Tywi (Doethie)	River/stream	
NGR		Date sampled	
Sampler name(s)	Bryan Jones, identification by Andrew Weatherly & Graham Rutt		

SCORE 6 taxa	+	No. indiv.	SCORE 6 taxa (continued)	+	No. indiv.
1. Ephemeroidea - Large Mayfly Upwing			32. Oligochaeta - Freshwater Worms		
2. Physidae - Bladder Snails			33. Rhyacophilidae - Rhyac Caddis and Glossosomatidae - Saddle Case Caddis		
3. Piscicolidae - Fish Leech			34. Elmidae - Riffle Beetles		
4. Planorbidae - Ramshorn Snails			Total number of taxa/indiv. scoring 6		
5. Valvatidae - Valve Snails			SCORE 4 taxa		
6. Asellidae - Hog Louse			35. Hydropsychidae - Hydro Caddis		
7. Halipidae - Halipus Beetle			36. Chironomidae - Midge Larvae		
8. Corixidae - Lesser Water Boatman			37. Sericostomatidae - Peephole Sand Caddis		
9. Lymnaeidae - Wandering/Pond snails			38. Limnephilidae - Grit Cased Caddis		
10. Hydroptilidae - Micro Caddis			39. Goeridae - Ballast Case Caddis		
11. Gammaridae - Fresh Water Shrimp			40. Planariidae - Flatworms		
12. Leptophlebiidae - Hair Gill Upwings			Total number of taxa/indiv. scoring 4		
13. Glossiphoniidae - Flat Pear Leech			SCORE 3 taxa		
14. Calopterygidae - Demoiselle Nymph			41. Gyrinidae - Whirligig Beetle		
15. Sialidae - Alder-fly Larva			42. Simuliidae - Blackfly Larva		
16. Ephemerellidae - Blue-winged Olive Upwing			43. Philopotamidae - Orange Head Caddis		
17. Coenagrionidae - Damselfly Nymphs			Total number of taxa/indiv. scoring 3		
18. Psychomyiidae - Gallery-tube Caddis			SCORE 2 taxa		
19. Sphaeriidae - Orb/Pea Shell Cockles			44. Perlodidae - Medium/Large Stonefly		
20. Leptoceridae - Long-legged Sand Caddis			45. Lepidostomatidae - Square Ended Sand Caddis		
21. Caenidae - Caenis Upwing			46. Taeniopterygidae - Feb Red Stonefly		
22. Ancyliidae - River Limpet			Total number of taxa/indiv. scoring 2		
23. Hydrobiidae - Spire-shell Snail			SCORE 1 taxa		
24. Perlidae - Large Hairy-pit Stonefly			47. Polycentropidae - Polyspot Caddis		
25. Erpobdellidae - Worm Leech			48. Leuctridae - Needle/Willow Stonefly		
26. Odontoceridae - Smooth Sand Caddis			49. Nemouridae - Brown Stoneflies		
27. Baetidae - Olive Upwings			50. Chloroperlidae - Small Yellow Sally Stonefly		
28. Dytiscidae - Diving Beetles			Total number of taxa/indiv. scoring 1		
29. Scirtidae - Long Horn Beetle Larva			Total number of taxa in sample (+)		
30. Hydrophilidae - Scavenger Beetles			AWIC SCORE for this sample		
31. Heptageniidae - Flat-bodied Upwing			Total number of individuals		
AWIC INDEX (AWIC score divided by the number of taxa present)					

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TRIM Results

Middle Teifi Results

Sites 8 & 9

		SITE NO 10		SITE NO 9		SITE NO 8		SITE NO.		SITE NO.	
		SN448436		SN425469		SN440483					
		CLETTWR		CLETTWR FAWR		CLETTWR FACH					
Date: 29th June 2017		Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded
CADDIS FLIES	Caseless			A	3	A	3				
	Cased			A	1	A	3				
UPWINGED FLIES	Baetidae (Clives)			B	40	B	30				
	Ephemeroidea (Mayfly)										
	Ephemeroidea (B.W.O)										
	Heptageniidae (Yellow May)			B	10	A	8				
STONEFLIES	Stoneflies			A	1	A	3				
SHRIMPS	Shrimps (Gammarus)			A	5	A	4				
	Leeches										
	Snails										
	Hog louse										
	Saucer Bugs										

CATEGORY	Abundance	Record	CATEGORY	Abundance	Record
A	1 to 9	Count	C	100 - 99	Nearest 100
B	10 - 99	Nearest 10	D	Over 1000	Nearest 100

NOTES - Ian Thomas


Fry in sample

No obvious problems with either site. Numbers of individual invertebrates are a bit low but sensitive taxa are present.

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		COLLECTION POINT 11 SN368446 RIVER CWERCHYR		COLLECTION POINT 12 SN368466 RIVER GRAN		COLLECTION POINT 13 SN464376 RIVER TALOG		COLLECTION POINT 14 SN442379 RIVER TWELY		COLLECTION POINT	
		Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded
Date : 27 June 2017											
CADDIS FLIES	Caseless	A	3	A	3			A	5		
	Cased	A	7		0	A	4				
UPWINGED FLIES	Baetidae (Olives)	B	50			B	50	B	50		
	Ephemeroidea (Mayfly)										
	Ephemerellidae (B.W.O)										
	Heptageniidae (Yellow May)	A	3	A	5	A	5	B	10		
STONEFLIES	Stoneflies	A	2	A	5	B	10	B	20		
SHRIMPS	Shrimps (Gammarus)	B	40	A	2	A	3	A	4		
	Leeches										
	Snails										
	Hog louse										
	Saucer Bugs										

CATEGORY	Abundance	Record	CATEGORY	Abundance	Record
A	1 to 9	Count	C	100 - 99	Nearest 100
B	10 - 99	Nearest 10	D	Over 1000	Nearest 100


NOTES- Collectors Ian Thomas & Eric Davies

Sensitive taxa present at all of these sites, although in quite low numbers at all sites except for point 14 on the Tyweli. The Cwerchyr also has high numbers of Gammarus which could indicate a minor level of organic enrichment going on.

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		COLLECTION POINT 11 SN368446 RIVER CWERCHYR		COLLECTION POINT 12 SN368466 RIVER GRAN		COLLECTION POINT 13 SN464376 RIVER TALOG		COLLECTION POINT 14 SN442379 RIVER TWELY		COLLECTION POINT	
		Date : 10 Sep 2017	Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded	Category
CADDIS FLIES	Caseless	A	3	A	3			A	5		
	Cased	A	7			A	4				
UPWINGED FLIES	Baetidae (Olives)	B	50	B	50	B	50	B	50		
	Ephemeroidea (Mayfly)										
	Ephemeroidea (B.W.O)										
	Heptageniidae (Yellow May)	A	3	A	5	A	5	B	10		
STONEFLIES	Stoneflies			A	5	B	20	B	20		
SHRIMPS	Shrimps (Gammarus)	B	40	A	2	A	3	A	4		
	Leeches										
	Snails										
	Hog louse										
	Saucer Bugs										

CATEGORY	Abundance	Record	CATEGORY	Abundance	Record
A	1 to 9	Count	C	100 - 99	Nearest 100
B	10 - 99	Nearest 10	D	Over 1000	Nearest 100


NOTES- Collectors Ian Thomas & Eric Davies

These results were very similar to those observed during the summer, with the Cwerchyr still showing signs of a mild organic input. This catchment could be a potential candidate for a WFD investigation to have a more comprehensive look at what's going on.

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		COLLECTION POINT 11 SN368446 RIVER CWERCHYR		COLLECTION POINT 12 SN368466 RIVER GRAN		COLLECTION POINT 13 SN464376 RIVER TALOG		COLLECTION POINT 14 SN442379 RIVER TWELY		COLLECTION POINT	
		Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded
Date : 11 Jan 2018											
CADDIS FLIES	Caseless	A	4	A	1	A	1	A	1		
	Cased	B	10	A	2	A	2				
UPWINGED FLIES	Baetidae (Olives)	B	10	B	50	B	50	C	120		
	Ephemeridae (Mayfly)										
	Ephemerellidae (B.W.O)										
	Heptageniidae (Yellow May)	B	20	A	5	B	10	B	30		
STONEFLIES	Stoneflies	A	2	B	15	A	4	B	30		
SHRIMPS	Shrimps (Gammarus)	B	60	A	2	A	2	A	1		
	Leeches										
	Snails										
	Hog louse										
	Saucer Bugs										

CATEGORY	Abundance	Record	CATEGORY	Abundance	Record
A	1 to 9	Count	C	100 - 99	Nearest 100
B	10 - 99	Nearest 10	D	Over 1000	Nearest 100

NOTES- Collectors Ian Thomas & Eric Davies


The Cwerchyr is looking a lot better than it was in the June and September samples, so hopefully there are no longer any potential organic pollution issues at present (although still one to keep an eye on!). all other sites looking healthy.

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Sites 19-23

		SITE NO.19 TEIFI 1 SN524445		SITE NO.20 TEIFI 2 SN529447		SITE NO.21 DUAR SN524444		SITE NO.22 CLEDLYN SN492431		SITE NO.23 GRANNELL SN534471	
		Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded	Category	Recorded
Autumn 2017											
CADDIS FLIES	Caseless	B	10	A	4	B	10	A	6	B	20
	Cased	B	10	B	10	B	30	B	10	B	20
UPWINGED FLIES	Baetidae (Olives)	B	30	B	10	B	60	B	50	B	70
	Ephemeroidea (Mayfly)										
	Ephemerellidae (B.W.O)					A	1				
	Heptageniidae (Yellow May)	B	10	B	10	B	10	B	30	B	40
STONEFLIES	Stoneflies	B	20	B	30	B	10	B	70	B	30
SHRIMPS	Shrimps (Gammarus)	A	1	B	20	B	20	A	1		
Leeches	Leeches	A	5	A	2			A	2	A	1
Snails	Snails	A	1					A	1		
Hog louse	Hog Louse										
Saucer Bugs	Saucer Bugs										

CATEGORY	Abundance	Record	CATEGORY	Abundance	Record
A	1 to 9	Count	C	100 - 99	Nearest 100
B	10 - 99	Nearest 10	D	Over 1000	Nearest 100

NOTES - collectors Meurig Davies

Site 19: Teifi 1: 1 Bullhead, 40+ Beetles

Site 20: Teifi 2: 1 Bullhead, 40+ Beetles

Site 21: Duar : Huge numbers of tiny river limpets

All sites looking very healthy!

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Pembrokeshire results

Eastern Cleddau Catchment – Syfynwy

		Syfni - Gelli Bridge		Syfni - Gelli Bridge		Syfni - Gelli Bridge	
Location code		12		12		12	
GPS		SN 082 195		SN 082 195		SN 082 195	
Date		15/06/2017		17/07/2017		27/08/2017	
Name of Monitors		RB/CB		RB/CB		RB/CB	
Conditions		High, clear warm water		Warm low clear water		Low, warm, slightly coloured	
Caddis Flies	Cased Caddis	B	16	A	7	B=2	15
	Caseless Caddis	A	2	A	2	A=1	6
Mayfly nymphs	Up-wing (Ephemerae)		0		0	-	0
	Blue-winged Olive up-wing	B	25	A	4	A=1	1
	Flat-bodied up-wing (Heptageniidae)	A	2	A	8	B=2	15
	Olive up-wing (Baetidae)	B	25	B	20	B=2	25
Stonefly nymphs	Stonefly nymphs		0		0	A=1	8
Freshwater shrimps	Freshwater shrimps	B	25	B	20	B=2	20
Leeches	Leeches		0	A	1	-	0
Snails	Spire shells/Ramshorn		0		0	-	0
Hoglouse	Hoglouse		0		0	-	0
Density/biomass indicator (totals)		95		62		90	
		12/05/2017	96	15/06/2017	95	17/07/2017	62
		11/04/2017	114	12/05/2017	96	15/06/2017	95
		19/12/2016	73	11/04/2017	114	12/05/2017	96
		30/09/2016	99	19/12/2016	73	11/04/2017	114
		18/07/2016	171	30/09/2016	99	19/12/2016	73
		01/06/2016	122	18/07/2016	171	30/09/2016	99
		19/01/2016	32	01/06/2016	122	18/07/2016	171
		02/10/2015	233	19/01/2016	32	01/06/2016	122
		20/08/2015	167	02/10/2015	233	19/01/2016	32
		09/07/2015	99	20/08/2015	167	02/10/2015	233
		20/05/2015	144	09/07/2015	99	20/08/2015	167
	Fish						
	Other			Thousands of tiny midge pupae. 6 aquatic worms, and 6 crane fly larvae.		Crane fly pupae, 3 beetles, 10 worms, several midge pupae	
Comments		Very gravelly sample. Took 4 handfuls of gravel out of sample. White & red threadworms. Earthworms. Thousands of midge pupae under stones. ARMI score=10.		ARMI score = 8		Score=11	

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Eastern Cleddau Catchment – Syfynwy (Continued)

		Syfni - Gelli Bridge		Syfni - Gelli Bridge	
Location code		12		12	
GPS		SN 082 195		SN 082 195	
Date		30/09/2017		01/11/2017	
Name of Monitors		RB/CB		RB/CB	
Conditions		High warm and slightly cloudy		Clear warm water, high level	
Caddis Flies	Cased Caddis	B	30	A	4
	Caseless Caddis	A	2	A	4
Mayfly nymphs	Up-wing (Ephemeraeidae)		0		0
	Blue-winged Olive up-wing	A	2		0
	Flat-bodied up-wing (Heptageniidae)	B	25	B	25
	Olive up-wing (Baetidae)	B	30	B	25
Stonefly nymphs	Stonefly nymphs	A	8	B	20
Freshwater shrimps	Freshwater shrimps	B	12	A	12
Leeches	Leeches	A	1	A	1
Snails	Spire shells/ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		110		91	
		27/08/2017	90	30/09/2017	110
		17/07/2017	62	27/08/2017	90
		15/06/2017	95	17/07/2017	62
		12/05/2017	96	15/06/2017	95
		11/04/2017	114	12/05/2017	96
		19/12/2016	73	11/04/2017	114
		30/09/2016	99	19/12/2016	73
		18/07/2016	171	30/09/2016	99
		01/06/2016	122	18/07/2016	171
				26/04/2013	135
	Fish				
	Other			Lots of worms and true beetles.	
Comments		ARMI score=11		Lots of gravel in river bed, difficult to view sample, H Balsam and J Knotweed present. ARMI score=9	

No concerns for any of these samples...very impressed with the level of sampler dedication going on for this site too!

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Eastern Cleddau

		Eastern Cleddau - Glancleddau Farm		Eastern Cleddau - Glancleddau Farm		Eastern Cleddau - Glancleddau Farm	
Location code		13		13		13	
GPS		SN 098 212		SN 098 212		SN 098 212	
Date		15/06/2017		17/07/2017		27/08/2017	
Name of Monitors		RB/CB		RB/CB		RB/CB	
Conditions		High, clear warm water		Warm low clear water		Clear, low and warm.	
Caddis Flies	Cased Caddis	B	12	A	6	B=2	15
	Caseless Caddis	B	12	A	2	-	0
Mayfly nymphs	Up-wing (Ephemeraeidae)		0		0	-	0
	Blue-winged Olive up-wing	B	25	A	2	-	0
	Flat-bodied up-wing (Heptageniidae)	B	50	B	20	B=2	15
	Olive up-wing (Baetidae)	B	25	A	2	B=2	60
Stonefly nymphs	Stonefly nymphs	B	20	B	40	B=2	50
Freshwater shrimps	Freshwater shrimps			A	1	A=1	1
Leeches	Leeches		1			-	0
Snails	Spire shells/ramshorn					-	0
Hoglouse	Hoglouse					-	0
Density/biomass indicator (totals)		145		73		141	
		12/05/2017	206	15/06/2017	145	17/07/2017	73
		11/04/2017	292	12/05/2017	206	15/06/2017	145
		19/12/2016	112	11/04/2017	292	12/05/2017	206
		30/09/2016	85	19/12/2016	112	11/04/2017	292
		18/07/2016	175	30/09/2016	85	19/12/2016	112
		01/06/2016	206	18/07/2016	175	30/09/2016	85
		19/01/2016	121	01/06/2016	206	18/07/2016	175
		02/10/2015	140	19/01/2016	121	01/06/2016	206
		20/08/2015	186	02/10/2015	140	19/01/2016	121
		09/07/2015	189	20/08/2015	186	02/10/2015	140
		20/05/2015	135	09/07/2015	189	20/08/2015	186
		21/04/2015	314	20/05/2015	135	09/07/2015	189
		06/03/2015	215	21/04/2015	314	20/05/2015	135
						26/04/2013	146
	Fish	1 tiny fish		1 tiny fish			
	Other			A few midge pupae, 12 crane fly larvae and 20 beetles, the Riverfly Plus sheet enabled identification as beetles not hoglice.		12 crane fly pupae, 15 beetles, 10 worms, lots of midge pupae	
Comments		ARMI score=12		ARMI score = 9		Score=9	

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Winter 2017/2018

Eastern Cleddau (Continued)

		Eastern Cleddau - Glanleddau Farm		Eastern Cleddau - Glanleddau Farm	
Location code		13		13	
GPS		SN 098 212		SN 098 212	
Date		30/09/2017		01/11/2017	
Name of Monitors		RB/CB		RB/CB	
Conditions		High warm and slightly cloudy		Clear warm water, medium/high level	
Caddis Flies	Cased Caddis	B	20	A	4
	Caseless Caddis		0		0
Mayfly nymphs	Up-wing (Ephemeraeidae)	A	1		0
	Blue-winged Olive up-wing		0		0
	Flat-bodied up-wing (Heptageniidae)	B	20	A	4
	Olive up-wing (Baetidae)	B	18	A	4
Stonefly nymphs	Stonefly nymphs	A	8	A	1
Freshwater shrimps	Freshwater shrimps	A	2		0
Leeches	Leeches	A	2	A	1
Snails	Spire shells/ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)		71		14	
		27/08/2017	141	30/09/2017	71
		17/07/2017	73	27/08/2017	141
		15/06/2017	145	17/07/2017	73
		12/05/2017	206	15/06/2017	145
		11/04/2017	292	12/05/2017	206
		19/12/2016	112	11/04/2017	292
		30/09/2016	85	19/12/2016	112
		18/07/2016	175	30/09/2016	85
		01/06/2016	206	18/07/2016	175
		19/01/2016	121	01/06/2016	206
		02/10/2015	140	19/01/2016	121
		20/08/2015	186	02/10/2015	140
		09/07/2015	189	20/08/2015	186
				26/04/2013	146
	Fish				
	Other	Lots of worms. Very large skunk cabbage upstream.		6 craneflies.	
Comments		ARMI score=9		Giant skunk cabbage upstream, also H Balsam on both banks. ARMI score=4, NRW notified.	

The November sample in particular sample is looking a bit worrying, so this one will be visited by Jo and myself as part of our follow up work to see what's going on.

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Eastern Cleddau - Wern Catchment

		Afon Wern - Tir Bach, Rhos Bach south	
Location code [for future interactive map]		14	
GPS		SN 12923 28476	
Date		27/10/2017	
Name of Monitors		JS/JC	
Conditions		Slightly high a few days after rain.	
Caddis Flies	Cased Caddis	A	9
	Caseless Caddis		
Mayfly nymphs	Up-wing (Ephemeraeidae)		
	Blue-winged Olive up-wing		
	Flat-bodied up-wing (Heptageniidae)	A	3
	Olive up-wing (Baetidae)	B	50
Stonefly nymphs	Stonefly nymphs	A	7
Freshwater shrimps	Freshwater shrimps		
Leeches	Leeches		
Snails	Spire shells/ramshorn		
Hoglouse	Hoglouse		
Density/biomass indicator (totals)		69	
Previous Density/biomass indicator (totals)		08/09/2017	75
		21/04/2017	97
		18/02/2017	80
		11/11/2016	67
		13/05/2016	75
		13/01/2016	34
		20/11/2015	25
		31/08/2015	206
		18/03/2015	102
		19/10/2014	112
		16/07/2014	102
		10/07/2013	105
		08/05/2013	110
Other	Fish		
	Other		
Comments			

These results are fairly poor compared to what we've seen in the past at this site. Hopefully this site can be visited soon by Jo and myself to see what's going on.

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Southwest Wales

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Eastern Cleddau Catchment - Narberth Brook

Riverfly Plus - extended monitoring for 28 groups		Narberth Brook at Shipping Factory	
Location code		6	
NGR		SN 09582 14482	
Date		03/08/2017	
Name of Monitors		JH/AW/MB/DB/JC	
AMRI riverfly groups highlighted in Orange		Conditions: Fast flow, very coloured water following overnight heavy rain.	
		Number	Category
1	Flatworms	4	
2	Freshwater Snails	25	
3	Limpets		
4	Bivalves		
5	Aquatic worms	7	
6	Leeches	1	
7	Native Crayfish		
8	Water Hoglouse	1	
9	Freshwater shrimps	70	B=2
10	Mayflies: Olive	18	B=2
11	Mayflies: Flatbodied	85	B=2
12	Mayflies: Green Drake, Mackerel	2	A=1
13	Mayflies: Blue winged Olive	17	B=2
14	Stoneflies: Broad-bodied	6	
15	Stoneflies: Narrow-bodied	50	B=2
16	Dragonflies		
17	Damselflies		
18	True Bugs: Surface Dwellers		
19	True Bugs: Submerged		
20	Water Beetles (adults & larvae)	2	
21	Alderflies		
22	Caseless Caddisflies: Gilled	14	
23	Caseless Caddisflies: Non-gilled		B=2
24	Cased Caddisflies	41	B=2
25	Craneflies		
26	Blackflies	5	
27	Non-biting Midges		
28	Water Snipe Flies		
Overall density/biomass total		348	
ARMI (7 groups) total		303	
7 ARMI groups plus snails/leeches/hoglice total		330	
Other		4 bullheads	
Comments		First record of Mayflies here. ARMI Score=15	

Very good numbers of a wide range of invertebrate families.

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Winter 2017/2018

Western Cleddau Catchment - Pelcomb Brook

Riverfly Plus - extended monitoring for 28 groups		Above Pelcomb Bridge	
Location code		3	
NGR		SM9481217292	
Date		06/09/2017	
Name of Monitors		DS/JC	
AMRI riverfly groups highlighted in Orange		Medium flow, coloured. Warm, 14°	
		Number	Category
1	Flatworms	5	
2	Freshwater Snails	50	
3	Limpets		
4	Bivalves		
5	Aquatic worms	7	
6	Leeches	14	
7	Native Crayfish		
8	Water Hoglouse		
9	Freshwater shrimps	96	B=2
10	Mayflies: Olive	70	B=2
11	Mayflies: Flatbodied		
12	Mayflies: Green Drake, Mackerel	25	B=2
13	Mayflies: Blue winged Olive	2	A=1
14	Stoneflies: Broad-bodied	30	
15	Stoneflies: Narrow-bodied		B=2
16	Dragonflies		
17	Damselflies		
18	True Bugs: Surface Dwellers		
19	True Bugs: Submerged		
20	Water Beetles (adults & larvae)	4	
21	Alderflies		
22	Caseless Caddisflies: Gilled	4	
23	Caseless Caddisflies: Non-gilled	1	A=1
24	Cased Caddisflies	28	B=2
25	Craneflies		
26	Blackflies	20	
27	Non-biting Midges		
28	Water Snipe Flies		
Overall density/biomass total		356	
ARMI (7 groups) total		256	
7 ARMI groups plus snails/leeches/hoglice total		320	
Previous Density/biomass indicator		23.12.16=89	
Previous Density/biomass indicator		03.03.16=305	
Previous Density/biomass indicator		18.10.15=45	
Previous Density/biomass indicator		12.04.15=126	
Previous Density/biomass indicator		03.03.13=302	
Previous Density/biomass indicator		23.05.12=152	
Other		Small bullhead	
Comments		Unusual to not find Flat bodied mayfly. Unusual to have so many true Mayfly. First bullhead caught here. ARMI score = 12. Much silt covering historically good spawning gravels.	

The absence of flat bodied mayflies and abundance of Freshwater shrimps and olives indicates a mild organic input in the catchment. This is one of our priority catchments for investigations this year so it will be interesting to see what we find.

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Southwest Wales

Winter 2017/2018

Western Cleddau Catchment

Riverfly Plus - extended monitoring for 28 groups		Western Cleddau at Treffgarne Gorge		Western Cleddau at St Catherines Bridge	
Location code		48		1	
NGR		SM9591024210		SM945198	
Date		25/07/2017		31/08/2017	
Name of Monitors		JC/AP		DN/	
AMRI riverfly groups highlighted in Orange		Conditions: Medium flow, clear. Hot weather		Conditions:	
		Number	Category	Number	Category
1	Flatworms	50		3	
2	Freshwater Snails	2			
3	Limpets				
4	Bivalves				
5	Aquatic worms	10		3	
6	Leeches	7		2	
7	Native Crayfish				
8	Water Hoglouse	5			
9	Freshwater shrimps	227	C=3	21	B=2
10	Mayflies: Olive	19	B=2	67	B=2
11	Mayflies: Flatbodied	1	A=1	5	A=1
12	Mayflies: Green Drake, Mackerel				
13	Mayflies: Blue winged Olive	108	C=3	1	A=1
14	Stoneflies: Broad-bodied	33		1	
15	Stoneflies: Narrow-bodied		B=2	1	A=1
16	Dragonflies	1			
17	Damselflies	1			
18	True Bugs: Surface Dwellers				
19	True Bugs: Submerged	2			
20	Water Beetles (adults & larvae)	20		2	
21	Alderflies				
22	Caseless Caddisflies: Gilled	2		1	
23	Caseless Caddisflies: Non-gilled	3	A=1		A=1
24	Cased Caddisflies	9	A=1	3	A=1
25	Craneflies				
26	Blackflies			12	
27	Non-biting Midges				
28	Water Snipe Flies			5	
Overall density/biomass total		500		127	
ARMI (7 groups) total		402		100	
7 ARMI groups plus snails/leeches/hoglice total		416		102	
Other		Small bullhead in sample.		The majority of invertebrates were small. Noticeable were a number of small worms – very fine, less than 1 mm thick, very active, 25/30 mm long and, in most instances, sandy/red in colour, not black, at least 24, not counted them in with the aquatic worms. no small snails noticed but may have some. Pleased to have spotted flat worms and water snipe flies which I would not have identified without the additional instruction.	
Comments		Many flying Beautiful Demoiselle seen, plus a Kingfisher. ARMI Score=13		ARMI Score=9	

The tiny worms are still most likely to be due to known issues on the Western Cleddau catchment, although I'll check with the NRM team to confirm this. This catchment is definitely a potential candidate for a comprehensive investigation this winter.

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Western Cleddau - Anghof Catchment – bottom two sites

Riverfly Plus - extended monitoring for 28 groups		Angof river at Wolfscastle		Angof river at Sealyham	
Location code		28		55	
NGR		SM9585426531		SM9681928041	
Date		03/09/2017		02/09/2017	
Name of Monitors		JC/PP		JC/PP	
AMRI riverfly groups highlighted in Orange		Conditions: Medium flow, after rain, water coloured and foamy. Cool weather, raining. pH 7.64		Conditions: Low flow, mainly stoney riverbed.	
		Number	Category	Number	Category
1	Flatworms	2		6	
2	Freshwater Snails	2		15	
3	Limpets				
4	Bivalves				
5	Aquatic worms	5			
6	Leeches	1			
7	Native Crayfish				
8	Water Hoglouse				
9	Freshwater shrimps	15	B=2	3	A=1
10	Mayflies: Olive	30	B=2	17	B=2
11	Mayflies: Flatbodied	5	A=1	3	A=1
12	Mayflies: Green Drake, Mackerel				
13	Mayflies: Blue winged Olive	7	A=1		
14	Stoneflies: Broad-bodied	3			
15	Stoneflies: Narrow-bodied	33	B=2		
16	Dragonflies				
17	Damselflies				
18	True Bugs: Surface Dwellers				
19	True Bugs: Submerged				
20	Water Beetles (adults & larvae)	1			
21	Alderflies				
22	Caseless Caddisflies: Gilled	2		1	
23	Caseless Caddisflies: Non-gilled		A=1	6	A=1
24	Cased Caddisflies	9	A=1		
25	Craneflies				
26	Blackflies	30			
27	Non-biting Midges				
28	Water Snipe Flies				
Overall density/biomass total		145		51	
ARMI (7 groups) total		104		30	
7 ARMI groups plus snails/leeches/hoglice total		107		45	
Previous Density/biomass indicator		20.07.13 = 376			
Other					
Comments		Dippers. Much farm/silage plastic in river bed/banks. ARMI Score=10		Much litter in Sealyham woodland. ARMI Score=5	

There is a very obvious decline in biological quality between the sites in Wolfscastle and Sealyham. Stoneflies and Blue winged olives are totally absent and only 3 flat bodied mayflies were recorded.

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Western Cleddau - Anghof – Top two sites

Riverfly Plus - extended monitoring for 28 groups		Angof river at Beulah bridge		Angof river below Puncheston	
Location code		31		56	
NGR		SM9822428261		SN0084929301	
Date		02/09/2017		02/09/2017	
Name of Monitors		JC/PP		JC/PP	
AMRI riverfly groups highlighted in Orange		Conditions: Low flow, light coloured gravel/sediment in riverbed.		Conditions: Low flow, mainly stoney riverbed.	
		Number	Category	Number	Category
1	Flatworms			1	
2	Freshwater Snails				
3	Limpets			60	
4	Bivalves				
5	Aquatic worms				
6	Leeches				
7	Native Crayfish				
8	Water Hoglouse				
9	Freshwater shrimps	3	A=1	2	A=1
10	Mayflies: Olive	9	A=1	20	B=2
11	Mayflies: Flatbodied			2	A=1
12	Mayflies: Green Drake, Mackerel				
13	Mayflies: Blue winged Olive			1	A=1
14	Stoneflies: Broad-bodied				
15	Stoneflies: Narrow-bodied	7	A=1	10	B=2
16	Dragonflies				
17	Damselflies				
18	True Bugs: Surface Dwellers				
19	True Bugs: Submerged				
20	Water Beetles (adults & larvae)	6			
21	Alderflies				
22	Caseless Caddisflies: Gilled				
23	Caseless Caddisflies: Non-gilled			4	A=1
24	Cased Caddisflies	1	A=1	3	A=1
25	Craneflies				
26	Blackflies				
27	Non-biting Midges				
28	Water Snipe Flies				
Overall density/biomass total		26		103	
ARMI (7 groups) total		20		42	
7 ARMI groups plus snails/leeches/hoglice total		20		42	
Previous Density/biomass indicator		15.09.13 = 173			
Other					
Comments		Two kicks taken, the first in the gravel by concrete apron was dead apart from 1 gammanus. 2nd kick upstream by old bridge slightly better, see above. Much plastic in river bed/banks. Farmer has both a manure heap and many silage bales leaching into ditch on left-hand bank. Ditch is below the river but in extreme rainfall the flash flood may wash the leachate into the river. ARMI Score=4		Rampant Japanese Knotweed on riverbank and very dense Himalayan Balsam on roadway. Black silage plastic in river bed/banks. ARMI Score=9	

The site at Beulah Bridge is extremely poor, with very few invertebrate families present and very low numbers of individual animals. This catchment has been revisited this winter by NRM staff. No major issues found at the time of re-sampling, but still one to keep an eye on.

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Colby stream - Summer:

River invertebrate monitoring results		Colby HW to tidal limit GB110061030760. West tributary feeding stream through Woodland gardens		Colby HW to tidal limit GB110061030760. East tributary feeding stream through Woodland gardens.	
Location code		35		36	
GPS		SN 15538 08514		SN 15734 08194	
Date		07/07/2017		07/07/2017	
Name of Monitors		LJ/GJ		LJ/GJ	
Conditions		Algal growth in static area of pool under bridge above survey site; 3/4 small trout seen here. Monitoring site clean and clear with low flow as expected this time of year.		Low depth but good rate of flow	
Caddis Flies	Cased Caddis	-	0	A	1
	Caseless Caddis	A	2	A	3
Mayfly nymphs	Up-wing (Ephemeraeidae)	-	0	A	7
	Blue-winged Olive up-wing	A	2	B	30
	Flat-bodied up-wing (Heptageniidae)	B	40	A	2
	Olive up-wing (Baetidae)	B	37	B	26
Stonefly nymphs	Stonefly nymphs	B	15	A	5
Freshwater shrimps	Freshwater shrimps	B	90	C	120
Leeches	Leeches	-	0	-	0
Snails	Spire shells/ramshorn/limpets	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0
Density/biomass indicator (totals)		186		194	
		12/05/2017	221	12/05/2017	207
		22/02/2017	215	22/02/2017	137
		20/01/2017	59	20/01/2017	140
		09/06/2016	231	09/06/2016	225
	A	03/05/2016	78	03/05/2016	122
		30/03/2016	322	30/03/2016	169
		11/02/2016	302	11/02/2016	230
Other	Fish	Many flatworms in sample. Himalayan Balsam now showing at site and adjacent area.			
	Other				
Comments		A little less in number than last sample in May 2017 (221) but much increased on the numbers for same time last year (June 2016) which were 78 and for June 2015 which were 89. ARMI score=10		Comparable with figures for earlier years (June 2016 = 225 and July 2015 = 134). Last count May 2017 = 207. ARMI score=12	



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Colby Stream - Autumn:

River invertebrate monitoring results		Colby HW to tidal limit GB110061030760. West tributary feeding stream through Woodland gardens		Colby HW to tidal limit GB110061030760. East tributary feeding stream through Woodland gardens.	
Location code		35		36	
GPS		SN 15538 08514		SN 15734 08194	
Date		20/10/2017		20/10/2017	
Name of Monitors		LJ/GJ		LJ/GJ	
Conditions		Moderate flow, lots of leaves, slight tint to water probably as result of heavy rain the previous day		Warm day following an afternoon and evening of rain the previous day. Stream level not too high yet and a moderate flow. As expected lots of leaves in sample.	
Caddis Flies	Cased Caddis		0	A	4
	Caseless Caddis	A	5	A	1
Mayfly nymphs	Up-wing (Ephemeraidae)	A	2	A	3
	Blue-winged Olive up-wing		0		0
	Flat-bodied up-wing (Heptageniidae)	B	75	B	65
	Olive up-wing (Baetidae)	B	16	B	85
Stonefly nymphs	Stonefly nymphs	B	24	A	8
Freshwater shrimps	Freshwater shrimps	C	150	C	180
Leeches	Leeches		0		0
Snails	Spire shells/ramshorn/limpets	A	1		0
Hoglouse	Hoglouse	A	1		0
Density/biomass indicator (totals)		274		346	
		07/07/2017	186	07/07/2017	194
		12/05/2017	221	12/05/2017	207
		22/02/2017	215	22/02/2017	137
		20/01/2017	59	20/01/2017	140
		09/06/2016	231	09/06/2016	225
		03/05/2016	78	03/05/2016	122
		30/03/2016	322	30/03/2016	169
		11/02/2016	302	11/02/2016	230
Other	Fish				
	Other				
Comments		2nd highest count at this site; highest number of gammarus ever recorded here (e.150) and first time water hoglouse present. ARMI score=11		2nd highest count at this site; largely attributable to high numbers of gammarus and heptageniidae. ARMI score=11	

Sites looking good for both seasons sampling.

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Castell catchment

Riverfly Plus - extended monitoring for 28 groups		Castell Stream, Abercastle		Upper Castell Stream, Abercastle	
Location code		54		57	
NGR		SM855333280		SM854333275	
Date		02/08/2017		05/09/2017	
Name of Monitors		DG/JC		DG/JC	
AMRI riverfly groups highlighted in Orange		Conditions: Medium flow, water slightly coloured and foamy. Warm weather with showers.		Conditions: Stony shallow riverbed, medium flow, water clear. After rain, warm.	
		Number	Category	Number	Category
1	Flatworms	105		216	
2	Freshwater Snails	321		229	
3	Limpets	15		1	
4	Bivalves	2			
5	Aquatic worms	15		2	
6	Leeches	3		1	
7	Native Crayfish				
8	Water Hoglouse			6	
9	Freshwater shrimps	324	C=3	196	C=3
10	Mayflies: Olive	11	B=2	141	C=3
11	Mayflies: Flatbodied	1	A=1	3	A=1
12	Mayflies: Green Drake, Mackerel				
13	Mayflies: Blue winged Olive	6	A=1		
14	Stoneflies: Broad-bodied				
15	Stoneflies: Narrow-bodied	11	B=2	3	A=1
16	Dragonflies				
17	Damselflies				
18	True Bugs: Surface Dwellers	1			
19	True Bugs: Submerged			1	
20	Water Beetles (adults & larvae)	4			
21	Alderflies				
22	Caseless Caddisflies: Gilled			12	
23	Caseless Caddisflies: Non-gilled	20	B=2		B=2
24	Cased Caddisflies	16	B=2	10	B=2
25	Craneflies				
26	Blackflies	2		20	
27	Non-biting Midges				
28	Water Snipe Flies				
Overall density/biomass total		857		841	
ARMI (7 groups) total		389		365	
7 ARMI groups plus snails/leeches/hoglice total		713		601	
Previous Density/biomass total					
Previous Density/biomass total					
Other		One Ramshorn snail			
Comments		One Orange Spotted Gammarus = infected with <i>Pomphorhynchus</i> spp. worm. The 2 bivalves were empty shells. ARMI score = 13.		Clearer water compared to lower stream today. ARMI score = 12.	

No major problems, although there is a slight indication of an organic input due to the low numbers of flat bodied mayflies and high numbers of freshwater shrimp. (Orange spotted *Gammarus* project report expected from Environment Agency soon.)

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Allan Catchment

Riverfly Plus - extended monitoring for 28 groups		Pont y Penyd, St Davids	
Location code		37	
NGR		SM75179 25733	
Date		09/09/2017	
Name of Monitors		VS/JC	
AMRI riverfly groups highlighted in Orange		Warm, clear, after rain 16°	
		Number	Category
1	Flatworms	5	
2	Freshwater Snails	120	
3	Limpets		
4	Bivalves		
5	Aquatic worms		
6	Leeches		
7	Native Crayfish		
8	Water Hoglouse		
9	Freshwater shrimps	175	C=3
10	Mayflies: Olive	60	B=2
11	Mayflies: Flatbodied	14	B=2
12	Mayflies: Green Drake, Mackerel		
13	Mayflies: Blue winged Olive	2	A=1
14	Stoneflies: Broad-bodied		A=1
15	Stoneflies: Narrow-bodied	3	
16	Dragonflies		
17	Damselflies		
18	True Bugs: Surface Dwellers		
19	True Bugs: Submerged	2	
20	Water Beetles (adults & larvae)		
21	Alderflies		
22	Caseless Caddisflies: Gilled	1	A=1
23	Caseless Caddisflies: Non-gilled	3	
24	Cased Caddisflies	21	B=2
25	Craneflies		
26	Blackflies	15	
27	Non-biting Midges		
28	Water Snipe Flies		
Overall density/biomass total		421	
ARMI (7 groups) total		279	
7 ARMI groups plus snails/leeches/hoglice total		399	
Previous Density/biomass indicator		28.04.16=151	
Previous Density/biomass indicator		3.9.15=147	
Previous Density/biomass indicator		18.4.15=138	
Other			
Comments		ARMI Score=12 (Sum of category column)	

No major problems. Good numbers of a range of invertebrate families.

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Carmarthenshire Results

Taf Catchment

Riverfly Plus - extended monitoring for 28 groups		Taf - Cwm Milles	
Location code		10	
NGR		SN 16136 21610	
Date		27/07/2017	
Name of Monitors		DS	
AMRI riverfly groups highlighted in Orange			
		Number	Category
1	Flatworms		
2	Freshwater Snails		
3	Limpets		
4	Bivalves		
5	Aquatic worms	5	
6	Leeches	3	
7	Native Crayfish		
8	Water Hoglouse		
9	Freshwater shrimps		
10	Mayflies: Olive	50	B=2
11	Mayflies: Flatbodied	20	B=2
12	Mayflies: Green Drake, Mackerel		
13	Mayflies: Blue winged Olive	10	B=2
14	Stoneflies: Broad-bodied	5	A=1
15	Stoneflies: Narrow-bodied		
16	Dragonflies		
17	Damselflies		
18	True Bugs: Surface Dwellers		
19	True Bugs: Submerged	4	
20	Water Beetles (adults & larvae)		
21	Alderflies		
22	Caseless Caddisflies: Gilled	10	B=2
23	Caseless Caddisflies: Non-gilled		
24	Cased Caddisflies	10	B=2
25	Craneflies		
26	Blackflies		
27	Non-biting Midges	5	
28	Water Snipe Flies		
Overall density/biomass total		122	
ARMI (7 groups) total		105	
7 ARMI groups plus snails/leeches/hoglice total		3	
Other		Small bullhead	
Comments		As usual no Gammarus in an otherwise good sample, NRW advised this indicates that the river spates could be restricting numbers found. ARMI Score=11.	

Good numbers of sensitive invertebrates as usual for this site. The absence of Gammarus appears to be the norm for this particular location and due to localised habitat type.

Riverfly Monitoring Newsletter

Southwest Wales

Winter 2017/2018

Cothi Catchment

		Annell at Island Farm		Cothi Twrch at Pumpsaint		Cothi at Cwrt Y Cadno	
Date		9 th May 2017		9 th May 2017		9 th May 2017	
Name of Monitors		P John, M Heckler		P John, M Heckler		P John, M Heckler	
Conditions							
Caddis Flies	Cased Caddis	B	25	B	31	B	50
	Caseless Caddis	A	8	B	25	B	25
Mayfly nymphs	Up-wing (Ephemeroidea)						
	Blue-winged Olive up-wing						
	Flat-bodied up-wing (Heptageniidae)	C	350	C	172	B	27
	Olive up-wing (Baetidae)	B	40	C	480	B	45
Stonefly nymphs	Stonefly nymphs	B	85	B	97	B	43
Freshwater shrimps	Freshwater shrimps						
Leeches	Leeches	A	7	A	2		
Snails	Spire shells/ramshorn	B	25	B	30	A	2
Hoglouse	Hoglouse	A	4				
Other							
Comments		River level low, sample taken at animal crossing point between fencing. Numerous beetle in sample. Several 1 year and juvenile salmonids seen near site. 1 Heron seen.		River low, large shoal of minnows seen in pool at sample site. One 1yr+ juv salmonid seen. 1 grey wagtail and 1 heron seen near sample site.		Numerous beetles in sample, bright yellow snail eggs in sample. 2 unidentified v small fish (bullhead fry?) in sample. River low.	

No major issues with any of these sites, very good numbers of Heptagenids in the Annell and Twrch!