

# Riverfly Monitoring Newsletter



Cyfoeth  
Naturiol  
Cymru  
Natural  
Resources  
Wales

Southwest Wales

Summer 2013

## A word from your Environment Agency Co-ordinator

Hello again, I hope you've all enjoyed having a proper summer for the first time in years! It's been great to see all the results coming in, with the rivers all being nice and low so we can actually get in them after the disappointing spring we had.

## New Volunteers for Carmarthenshire

Huge thanks to our new potential volunteers from Swansea University who were recruited by Caroline to help with our monitoring programme. It was great meeting you all, and I'm looking forward to seeing some more results!

## What to do if you discover a pollution incident



Unfortunately, we've had a few pollution incidents this summer that have been severe enough to result in fish mortality, and attending these reminded me of the need to share some guidelines 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 0800 80 70 60. This will ensure that the appropriate officers attend the incident.

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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.

Sewage Fungus:



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

**Invasive Species Reminder**



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We have been lucky enough to gain several new volunteers in the last year, so a reminder of some of our less welcome beasts that might occur in our rivers in the form of invasive species is due again!

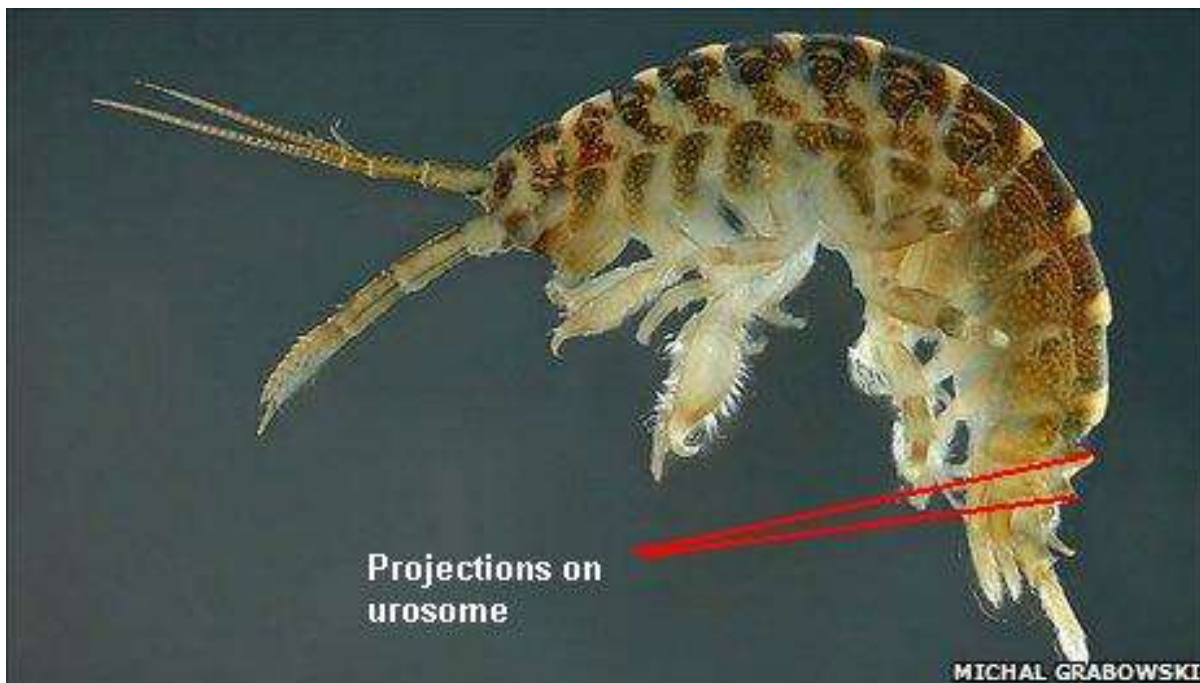
Please remember to stick to the Check, Clean, Dry Guidelines at all times when transferring nets or other equipment between sites.



## **Dikerogammarus villosus (Killer Shrimp) and Dikerogrammarus haemobaphes (Demon Shrimp)**

*Dikerogammarus villosus* are bigger than normal *Gammarus* (up to 30mm!) and often stripey in appearance. The diagnostic feature is cone-like projections on the urosome as shown in the picture. We've got them in Eglwys Nunydd reservoir, and in Cardiff Bay, but they haven't spread anywhere else so far.

*Dikerogammarus haemobaphes* are very similar in appearance to *D. villosus*, although they only grow up to 18mm, so are closer in size to normal *Gammarus pulex*. They have been recorded at a couple of sites in the Severn catchment, but thankfully haven't been found in South West Wales to date.



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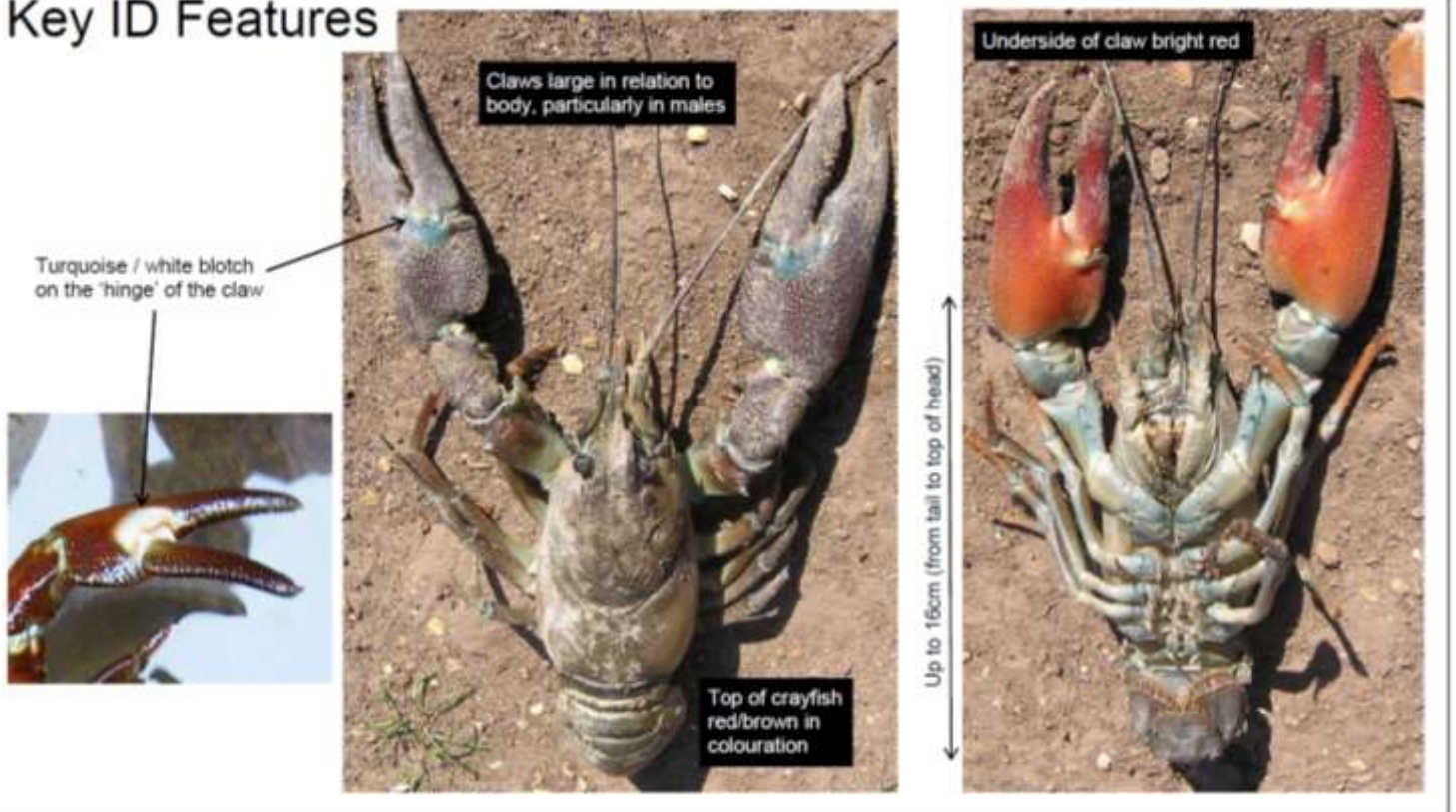
## Signal Crayfish

This invasive crustacean is unfortunately now widespread in the UK, and is extremely voracious, causing damage to ecosystems and habitats. In addition to being a fierce competitor, it also spreads crayfish plague, which has resulted in the native white clawed crayfish becoming an endangered species.

Unfortunately it has been recorded at sites in South West Wales, although the distribution of crayfish in our area is quite limited due to the slightly acidic nature of many of our streams, which don't provide sufficient calcium for them to build their exoskeletons.

Here is a quick guide to key features to look out for, taken from the Defra Website:

## Key ID Features



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Here is the native white clawed crayfish for comparison, also taken from the Defra Website:



Claws are dirty white to pink on the underside

White-clawed crayfish are considerably smaller than signal, generally have a brown to olive colour, unlike the red / brown of the signal and are usually more docile and less aggressive than the signal crayfish.

The cervical groove (line between head and body) of the white-clawed crayfish has spikes whereas the same groove in the signal crayfish is smooth.



Volunteers recently reported something in a sample that could have been a signal crayfish. Thankfully it wasn't a crayfish at all, but an equally large and menacing looking golden ringed dragonfly larva (Britains longest species as an adult).



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Here's a picture of one for comparison.



As you can see, they don't have large claws, and have compound eyes and six legs. They are usually hairy as well. They are also a lot prettier when they grow up! Here's a picture I took of one emerging up on the top of the Rheidol catchment:



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## More ID Pitfalls

Volunteers also recently had confusion when recording leeches and flatworms, as small leeches can look superficially similar to larger flatworms. Leeches have suckers at either end, and usually have some sort of striped pattern on their body. They move in a way where their body contracts and then gets longer again.



Flatworms don't have any suckers, and move around by gliding around. They often have a row of eyes around their leading end as well.

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.....and on a lighter note!!

I'm not sure how many of you have seen this before, but I thought I'd share some pictures of a brilliant idea that a French artist called Hubert Duprat came up with. Duprat removed a few caddis larvae from his local stream, carefully removed them unharmed from their natural cases and placed them in an aquarium full of tiny precious metals and jewels. The results are pretty spectacular! Maybe we'll find some like this around Dolaucothi Gold Mines!



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Nicola Broadbridge

Environmental Monitoring Officer  
Environmental Monitoring (Analysis and Reporting)

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## TRIM Results

### June 2013

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	60	40	20	20	12
	Caseless Caddis	6	1	10	10	100
Mayfly nymphs	Up-wing (Ephemeroidea)				1	
	Blue-winged Olive up-wing	5	4	10	30	10
	(Heptageniidae)	20	5	20	50	60
	Olive up-wing (Baetidae)	10	10	40	70	60
Stonefly nymphs	Stonefly nymphs	30	80	30	200	60
Freshwater shrimps	Freshwater shrimps	20	10	10	3	
Leeches	Leeches		2	2		
Snails	Spire shells				1	
	Ramshorn					
Hoglouse	Hoglouse	1	1			
Density/biomass indicator (totals)						
Other	Fish					
	Other					
Comments						

### July 2013

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	4	3	10		3
Mayfly nymphs	Up-wing (Ephemeroidea)					
	Blue-winged Olive up-wing					
	(Heptageniidae)	70	20	40	60	50
	Olive up-wing (Baetidae)	80	40	70	100	60
Stonefly nymphs	Stonefly nymphs	2		40	10	20
Freshwater shrimps	Freshwater 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		2 saucer bugs			
Comments						

No major problems with any of these sites.

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## 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	0	0		20
	Caseless Caddis	3	6		1
Mayfly nymphs	Up-wing (Ephemeraeidae)				
	Blue-winged Olive up-wing	7	30		4
	(Heptageniidae)	10	5	3	
	Olive up-wing (Baetidae)	10	30	2	
Stonefly nymphs	Stonefly nymphs	3	50	30	20
shrimps	Freshwater shrimps	20	50		30
Leeches	Leeches				
Snails	Spire shells				
	Ramshorn				
Hoglouse	Hoglouse				
Density/biomass indicator (totals)					
Other	Fish				
	Other				
Comments					

These sites all look fairly good, with the exception of the site on the Dulas, which has worrying low numbers of individuals and a poor variety of taxa present. If this site continues to perform poorly then an investigation by NRW officers may be required.



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## Upper Teifi

River Name		Brennig	Brefi	Carfan	Teifi
Site Name					Penralt
NGR		SN675910	SN641548	SN664574	SN674586
Samplers		Clive Parrish			
Conditions					
Caddis Flies	Cased Caddis	65	27	8	229
	Caseless Caddis	8	29	54	13
Mayfly nymphs	Up-wing (Ephemeraeidae)				
	Blue-winged Olive up-wing (Heptageniidae)	11	5	6	7
	Olive up-wing (Baetidae)	289	51	133	123
Stonefly nymphs	Stonefly nymphs	16	2	14	9
Freshwater shrimps			7		3
Leeches	Leeches	2	3	1	2
Snails	Spire shells				1
	Ramshorn				
Hoglouse	Hoglouse				1
Density/biomass indicator (totals)					
Other	Fish	1 bullhead	4 lamprey, 1 salmonid fry, 2 tiny fish larvae		1 salmonid, 1 lamprey
	Other		70 small beetles, 35 Saucer Bugs	4 Saucer Bugs	20 Saucer Bugs
Comments					

No problems at any of these sites.

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## Pembrokeshire results

### Western Cleddau

Summer 2013		St Catherines Bridge		Cutty Bridge		Rosemarket stream		Camrose Brook		Anghof		Treffgarne	
Location Code		1		2		20		25		28		29	
GPS		SM 945198		SM 94188		SM 96045 07411		SM 927199		SM 95828 26431		SM 95893 24306	
Date		24/06/2013 6pm		25/06/13 10.30am		01/08/2013		30/06/2013		20/07/2013		31/08/2013	
Name of Monitors		David Nattress/John Codd		David Nattress/John Codd		Jcu/PP		SH/JE/KM/Jcu		RW/Jcu		JCu/PP	
Conditions		14°C pH 6		14°C		Low flow. Rocky stream bed, very silty to day.		Average water flow, warm evening		Low flow, very sunny		Very low flow, sunny	
Caddis Flies	Cased Caddis	C	200	C	100	B	19	B	53	A	3	B	10
	Caseless Caddis	B	20	A	10	B	10	A	4	B	10	A	3
Mayfly nymphs	Up-wing (Ephemeraidae)	-	0	-	0	A	1	-	0	-	0	-	0
	Blue-winged Olive up-wing	C	300	C	100	A	5	A	4	B	90	A	3
	Flat-bodied up-wing (Heptageniidae)	B	30	A	5	-	0	A	1	A	2	-	0
	Olive up-wing (Baetidae)	C	200	B	80	B	11	B	15	B	26	B	11
Stonefly nymphs	Stonefly nymphs	B	20	B	50	B	31	A	3	C	190	A	8
Freshwater shrimps	Freshwater shrimps	C	300	C	100	B	52	A	3	B	50	B	25
Leeches	Leeches	A	3	A	2	A	3	-	0	A	5	A	8
	Spire shells	A	1	-	0	A	3	A	1	-	0	A	5
Snails	Ramshorn	-	0	-	0	-	0	-	0	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0	A	1	-	0	-	0	-	0
<b>Density/biomass indicator (totals)</b>		<b>1074</b>		<b>447</b>		<b>136</b>		<b>84</b>		<b>376</b>		<b>73</b>	
Previous Density/biomass indicator (totals)		16.4.13 = 434		16.4.13 = 101		31.5.13 = 132		-		-		-	
Previous Density/biomass indicator (totals)		26.2.13 = 103		26.2.13 = 54		-		-		-		-	
Previous Density/biomass indicator (totals)		26.10.12 = 558		-		-		-		-		-	
Previous Density/biomass indicator (totals)		9.8.12 = 1037		10.8.12 = 184		-		-		-		-	
Previous Density/biomass indicator (totals)		21.5.12 = 590		22.5.12 = 274		26.6.12 = 82		-		-		-	
Other	Fish	6 bullheads, 2 sticklebacks		-		-		2 trout seen in water.		Lots of fish seen in water, 3 bullheads in sample.		Lots of brown trout seen in water, 1 bullhead in sample.	
	Other	5 beetles 4 earthworms. Midge larvae.		3 worms, 5 beetles. Midge larvae.		-		Freshwater limpet, beetles, lots of tadpoles in adjoining water		Worm, beetles		5 flatworms, many beetles, many freshwater limpets, several larval gel/egg strings on rocks. 5 large (1cm) snails	
Comments		Prolific growth of algae on stones and weed and a grey sludge in the slacker water. Bladder snail.		Sampled 3 metres further across the river due to flow changes. New location has less shading. Grey sludge and considerable algal growth.		This location is where the old Westfield Mill diversion leat was removed by Afonydd Cymru in May 2013.		-		One small dead brown trout. Lots of silt on riverbed. Sewage fungus at outfall of Wolfscastle STW, 200m upstream.		Silt and brown filamentous algae on riverbed. Profuse Himalayan Balsam on banks.	

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The biomass indicators show good results for all sites compared to previous results, which is good to see. The St. Catherines Bridge site seems to be particularly prolific in the summer months, although the very high numbers of Olive up-wings and Gammarus indicate an organic influence, the most likely source being the Rudbaxton Water which enters the Western Cleddau just upstream of the bridge. Low flow levels and lack of dilution tend to exacerbate even minor organic pollution issues. The grey sludge is most likely a diatom issue, as we have visited St Catherines Bridge and Cutty Bridge over the summer and observed heavy algal growth at both sites.

Hopefully we will be doing some WFD survey work on the Anghof catchment this winter in order to see how it is faring compared to a survey we carried out 2 years ago.



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## Eastern Cleddau

Summer 2013		Narberth Brook - Shipping Factory		Narberth Brook - Canaston Bridge		Syfni - Gelli Bridge		Eastern Cleddau - Glandceddau Farm		Afon Wern - Tir Bach south	
Location code [for future interactive GPS]		6		27		12		13		14	
GPS		SN 09582 14482		SN 06727 15105		SN 195 085		SN 098 212		SN 12923 28476	
Date		03/07/2013		05/08/2013		22/07/2013		22/07/2013		10/07/2013	
Name of Monitors		JH/JeH		JH/JeH		RB/CB		RB/CB		JS	
Conditions		Depth 15 cm average Fallen trees create some dense canopy over part of sample area. Fish flow is not effected but continuing change in main channel direction		Depth from 0-30cm. Sample area shaded to west and from Balsam covered banks. Substrate 1/3 weed covered, with stones and silt elsew here.		Very warm and humid w eather, low water.		Very w arm and humid w eather, low water.		Warm, Clear, Low	
Caddis Flies	Cased Caddis	B	19	B	11	A	7	B	34	B	14
	Caseless Caddis	A	4	A	9	B	12	B	23	A	5
Mayfly nymphs	Up-w ing (Ephemeraidae)	-	0	-	0	-	0	-	0	-	0
	Blue-w inged Olive up-w ing	B	25	B	11	-	0	-	0	B	40
	Flat-bodied up-w ing (Heptageniidae)	A	1	A	1	B	15	A	1	A	1
	Olive up-w ing (Baetidae)	B	15	B	15	A	3	A	1	B	30
Stonefly nymphs	Stonefly nymphs	A	2	A	11	B	10	B	10	B	10
Freshwater shrimps	Freshw ater shrimps	C	150	B	40	C	100	-	0	A	5
Leeches	Leeches	-	0	A	1	A	4	-	0	-	0
Snails	Spire shells	A	1	A	6	-	0	-	0	-	0
	Ramshorn	-	0	-	0	-	0	-	0	-	0
Hoglouse	Hoglouse	-	0	-	0	A	2	B	20	-	0
Density/biomass indicator (totals)		217		105		153		89		105	
Spring 2013		17.3.13 = 344				21.05.13 = 260		21.05.13 = 307		110	
Winter 2012/2013		24.10.12 = 262				26.4.13 = 135		146			
Autumn 2012		28.07.12 = 204									
Summer 2012		19.6.12 = 410									
Other	Fish	-						Bullhead			
	Other	Freshw ater limpets						Dragonfly nymph			
Comments		Fallen large branches continued to alter the flow , growth from fallen trees near w ater level is creating dense canopy over		Recent high rainfall has increased depth and flow since risk assessment visit. Access point now much less visible		Similar quality to last sample.		Difference in quality compared to last sample.			

No obvious signs of pollution issues were shown at any of these sites, except for the Glandceddau Farm sample, which has low numbers of Mayflies. Hopefully this is just due to the warm weather and low flows, but if it continues to score poorly then investigative work may be required.

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## Gwaun

Autumn 2013		Goodwick Brook		Gwaun Lower		Gwaun Cilhedryn		Gwaun Llanychaer	
Location code [for future interactive]		4		8		21		22	
GPS		SM 94741 37427		SM 962369 36868		SN 005348		SM 987354	
Date		24/08/2013		24/08/2013		29/08/2013		29/08/2013	
Name of Monitors		JCu/PP		JCu/PP		MT/HR		MT/HR	
Conditions		Very slow flow.		River low , clear.		Running clear and good flow.		Running clear and good flow.	
Caddis Flies	Cased Caddis	B	12		7	A	1	A	4
	Caseless Caddis	B	11		6	A	1	B	18
Mayfly nymphs	Up-wing (Ephemeraeidae)	-	0		0	-	0	-	0
	Blue-winged Olive up-	A	1		2	-	0	-	0
	Flat-bodied up-wing (Heptageniidae)		0		8	-	0	A	2
	Olive up-wing (Baetidae)	A	1		37	B	20	A	4
Stonefly	Stonefly nymphs	A	8		46	A	1	B	48
Freshwater	Freshwater shrimps	B	18		7	A	1	A	5
Leeches	Leeches		0		1	A	1	-	0
Snails	Spire shells	B	46		35	-	0	-	0
	Ramshorn	-	0		0	-	0	-	0
Hoglouse	Hoglouse	A	2		0	-	0	-	0
<b>Density/biomass indicator (totals)</b>		<b>99</b>		<b>149</b>		<b>25</b>		<b>81</b>	
Previous Density/biomass indicator		16.3.13 = 102				29.5.13 = 110		29.5.13 = 127	
Previous Density/biomass indicator		13.10.12 = 178		20.10.12 = 155					
Previous Density/biomass indicator		1.9.12 = 198		28.7.12 = 492					
Previous Density/biomass indicator		30.5.12 = 31							
Other	Fish	Two small mysid shrimps.							
	Other	Beetles.							
<b>Comments</b>		Only one very tiny Baetid which seems quite unusual, usually there are more. Two mysid shrimps.				Good Flow Running Clear Colony of Rats close to test site, ?? extreme caution taken surgical gloves used.			

The site at Cilhedryn Bridge has unusually low numbers and diversity of invertebrates, if it continues to perform poorly either in subsequent samples or repeatedly at the same time of year then NRW staff will try and find out what is going on. Hopefully this is just a one off event. The other sites all seem fine, and the lone Baetid in the Goodwick Brook is unlikely to indicate anything serious.

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## Solva Results

Autumn 2013		Middle Mill		Lower Solva	
Location code [for future interactive map]		26		27	
GPS		SM 806 255		SM 807 245	
Date		01/07/2013		30/06/2013	
Name of Monitors		KM		KM	
Conditions		Dry weather flow.		Dry weather flow.	
Caddis Flies	Cased Caddis	B	19	B	23
	Caseless Caddis	A	6	A	4
Mayfly nymphs	Up-wing (Ephemeraeidae)	-	0	-	0
	Blue-winged Olive up-wing	B	82	B	25
	Flat-bodied up-wing (Heptageni	-	0	-	0
	Olive up-wing (Baetidae)	B	88	B	41
Stonefly nymphs	Stonefly nymphs	B	56	B	22
Freshwater shrimp	Freshwater shrimps	C	108	B	21
Leeches	Leeches	A	4	A	2
Snails	Spire shells	A	2	-	0
	Ramshorn	-	0	-	0
Hoglouse	Hoglouse	A	4	A	1
<b>Density/biomass indicator (totals)</b>		<b>369</b>		<b>139</b>	
<b>Previous Density/biomass indicator (totals)</b>		<b>21.5.13 = 194</b>		<b>-</b>	
Other	Fish	2 sticklebacks			
	Other	2 freshwater limpets, water boatman, 2 worms, 1 worm=horrible - 1mm dia x 120mm long, 41 small round swimming beetles.		Small round swimming beetles (55)	
<b>Comments</b>		Note 3 Otters reported in Nov 2012 by a landowner 500m downstream - during an evening when river was in strong flood. Stones in this river are coated black but when exposed and dry - the coating turns white.		Located 10 m upstream of A487 bridge close to Cambrian pub. Eel found in this area last week. Also several eels seen in River Alun by St David's cathedral.	

No obvious problems at either of these sites. The white coating on the rocks is almost certainly a species of river diatom.



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## Carmarthenshire Results

### Taf Results

Autumn 2013		Taf - Cwm Milles	Dewi Fawr - Glasfryn Ford
Location code [for future interactive map]		10	
GPS		SN 16136 21610	SN 28989 17471
Date		11/09/2013	31/08/2013
Name of Monitors		DS/CS	William Hancock-Evans
Conditions		River low. Air temp 14 c.	
Caddis Flies	Cased Caddis	12	2
	Caseless Caddis	15	2
Mayfly nymph	Up-wing (Ephemeroidea)	2	
	Blue-winged Olive up-wing	15	
	Flat-bodied up-wing (Heptageniidae)	25	
	Olive up-wing (Baetidae)	10	25-35
Stonefly nymph	Stonefly nymphs	15	6
Freshwater sh	Freshwater shrimps	15	10
Leeches	Leeches	1	2
Snails	Spire shells	0	1
	Ramshorn	0	
Hoglouse	Hoglouse	0	
<b>Density/biomass indicator (totals)</b>		<b>23</b>	
Previous density/biomass indicator (totals)		30.4.13 = 48	
Other	Fish	-	
	Other	-	
<b>Comments</b>		Site moved 500 yds to a less shaded area and better results found.	

Much better results at Cwm Milles than those recorded in the spring. No obvious problems with this site at the moment. The absence of Heptagenids at Glasfryn Ford is a little bit worrying as we'd usually expect them at this site, and they are one of the best organic pollution indicators.

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## Cothi Results

River Name		Cothi		Cothi Twrch		Cothi Clydach		Cothi Annell		Cothi Annell	
Site Name		Cwrt Y Cadno		Pumsaint		Cwm Mawr du		Island Farm		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	23	B	15		12	B	27	B	20
	Caseless Caddis	B	13	B	11		9	B	11	B	22
Mayfly nymphs	Up-wing (Ephemeroidea)										
	Blue-winged Olive up-wing	B	18	B	15		1	C	186		
	wing (Heptageniidae)			C	102		17	B	33	C	596
	Olive up-wing (Baetidae)	A	7	D	207		33	C	161	C	119
Stonefly nymphs	Stonefly nymphs	B	43	C	118		35	C	156	C	321
Freshwater shrimps	Freshwater shrimps						1	A	4	A	9
Leeches	Leeches						1	A	5	A	2
Snails	Snails							B	30		
Hoglouse	Hoglouse							A	8	A	7
Density/biomass indicator (totals)		104		468		109		621		1096	
Notes		Stoneflies are very small, Several juvenile salmonids		1 fish (some loach) in sample, 1 grey wagtail seen at site.		Stones at sample site firmly embedded and		River low, hot day, juvenile salmonids seen in pools near		Prolific Sample.	
Biological Quality		Acceptable		V.Good		Good		Excellent		Exceptionally Good.	

Good results for all sites, although numbers not as high as during the Spring. This is most likely to be due to different life cycle stages of the taxa present and lower flows.

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## Doethie Results

River Name	Doethie Faw r	Doethie Faw r	Doethie Fach	Pysgotw r	Doethie	Pysgotw r	Doethie	Doethie	Pysgotw r	
Site Name	u/s Blaendoethie road bridge	u/s Doethie Fach confluence	u/s Doethie Faw r confluence	d/s Creigiau Bach(Nant Ygeifr)	u/s Pysgotw r confluence	u/s Doethie confluence	Rhyd y Groes	Foelfraith	Nant Gw ernog	
NGR	SN-7415-	SN-7565-	SN-7570-	SN-7303-	SN-7650-	SN-7645-	SN-7705-	SN-77041-	SN 73878	
Samplers	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	Gethyn Thomas, Caroline Orr	
Conditions	pH: 4.56, River height: 0.26m	pH: 5.84, River depth: 0.26m	pH: 5.91, River depth: 0.26m	pH: 5.02, River depth: 0.26m	pH: 5.44, River depth: 0.26m	pH: 5.58, River depth: 0.26m	pH: 5.70, River depth: 0.26m	pH: 6.89, River depth: 0.08m	pH: 5.2	
	<b>Number found</b>	<b>Number found</b>	<b>Number found</b>	<b>Number found</b>	<b>Number found</b>	<b>Number found</b>	<b>Number found</b>	<b>Number found</b>	<b>Number found</b>	
Caddis Flies	Cased Caddis	3	11	2	4	2			1	
	Caseless Caddis	9	9	6		4	6	8	25	5
Mayfly nymphs	Up-w ing (Ephemeraidae)									
	Blue-w inged Olive up-w ing				6				20	
	Flat-bodied up-w ing (Heptageniidae)			4		9	5	6		1
	Olive up-w ing (Baetidae)	119	88	36	10	5	35	24	45	45
Stonefly nymphs	65	26	48	12	25	19	6	55	50	
Freshw ater shrimps										
Leeches										
Snails										
Hoglouse										
Density/biomass indicator	196	134	96	32	45	65	44	145	102	
Notes										
Biological Quality										
Comments	5th July, 2013	5th July, 2013	5th July, 2013	5th July, 2013	5th July, 2013	5th July, 2013	5th July, 2013	17th July, 2013	1st August, 2013	

As observed during the spring samples, the sites showing the greatest signs of acidification were those on the Upper Doethie Faw r, and the very top of the Pysgotw r, with no Heptagenids present. Low flows are also unlikely to have helped with the numbers of invertebrates captured in the samples.

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## Bran Results

River Name		Crychan		Bran	
Site Name		Road Bridge		Ystradwallter	
NGR		SN 79286 37156		SN 7828636281	
Samplers		Chris Beynon, Lee Lucas, Chris Restall			
Conditions		Humid/ some cloud cover		Humid/ some cloud cover	
		Category	Numbers Found	Category	Numbers Found
Caddis Flies	Cased Caddis	A	3		
	Caseless Cadis	B	11	A	3
Mayfly Nymphs	Up-wing (Ephemera)	A	2		
	Blue-winged Olive up-wing	A	2	A	4
	Flat-bodied Olive up-wing (Heptagenidae)	A	1	B	12
	Olive up-wing (Baetidae)	B	55	B	14
Stonefly nymphs	Stonefly nymphs	A	5	A	8
Freshwater shrimps	Freshwater Shrimps	B	10		
Leeches	Leeches	B	20	B	35
Snails	Snails	A	1		
Hoglouse	Hoglouse	A	1		
Density/Biomass indicator			111		76
Notes		2 Bullheads		Approx 50 Brown Trout fry observed	
Biological Quality					
Comments		27th August 2013		27th August 2013	

No obvious problems with either of these sites. Seeing so many trout fry is really encouraging too.



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### Lash Sites

River Name		Lash		Lash		Lash	
Site Name		Bottom - Under Bridge		Middle - Nant Yr Wrach		Top - By Open Cast	
NGR		SN 62218 13136		SN 61128 13836		SN 60888 14526	
Samplers		Gethyn Thomas / Caroline		Gethyn Thomas / Caroline		Gethyn Thomas / Caroline	
Conditions		Stinky - sewage works!					
		Category	Number found	Category	Number found	Category	Number Found
<b>Caddis Flies</b>	Cased Caddis						
	Caseless Caddis						
<b>Mayfly nymphs</b>	Up-wing (Ephemeraidae)						
	Blue-winged Olive up-wing					A	3
	Flat-bodied up-wing (Heptageniidae)	A	3	A	2	A	1
	Olive up-wing (Baetidae)	B	10	A	8		
<b>Stonefly nymphs</b>	Stonefly nymphs	B	20	B	15	B	15
<b>Freshwater shrimps</b>	Freshwater shrimps	A	1				
<b>Leeches</b>	Leeches						
<b>Snails</b>	Snails						
<b>Hoglouse</b>	Hoglouse						
<b>Density/biomass indicator (totals)</b>							
<b>Notes</b>		13th August, 2013		13th August, 2013		13th August, 2013	
<b>Biological Quality</b>							
<b>Comments</b>		Himalayan Balsam in riparian zone. River low. 20 Dytiscidae.		Tributary running into river red from old colliery. Lots of filamentous algae and Dytiscidae.		Murky water. 10 Dytiscidae.	

All three of these sites seem to have fairly poor biological quality. This catchment has suffered from several pollution issues in the past, and is probably in need of another investigation by NRW biologists. If the autumn samples are as poor as these then a recommendation to have the catchment surveyed thoroughly will be made as part of WFD compliance work.

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## Dunant and Gwenlais Sites

River Name		Dunant		Gwenlais	
Site Name					
NGR					
Samplers		Lyn Martinson		Lyn Martinson	
Conditions		SN7548038915		SN7564839335	
		Category	Number Found	Category	Number found
Caddis Flies	Cased Caddis		8		1
	Caseless Caddis		17		10
Mayfly nymph	Up-wing (Ephemeroidea)				
	Blue-winged Olive up-wing		179		60
	Flat-bodied up-wing (Heptageniidae)		6		4
	Olive up-wing (Baetidae)		62		41
Stonefly nymph	Stonefly nymphs		3		1
Freshwater	Freshwater shrimps		16		16
Leeches	Leeches				
Snails	Snails				1
Hoglouse	Hoglouse				
<b>Density/biomass indicator (totals)</b>		Total no. recorded: 285		Total no. recorded: 134	
<b>Notes</b>		Water, low and peaty		Water, low and very clear	
<b>Biological Quality</b>					
<b>Comments</b>					

No obvious problems with either of these sites.