

Tywi liming progress report, July – September 2011

1. Summary

This report presents the work undertaken and the progress made on the Tywi liming project in the period from July – September 2011. Approximately 90 tonnes of lime was dosed in the period from July - September. The rainfall adjusted target for the period was 142 tonnes.

Fish monitoring surveys have been conducted at six key locations to assess the benefits of the liming operation. The results of these surveys will be available later on in this quarter.

Priorities for Q2 will be to progress the lime powder delivery pipe extension at the Camddwr and utilise the telemetry system to minimise doser downtime.

2. Lime doser operation, maintenance & safety

The rainfall-adjusted liming target for this quarter was 142 tonnes. The July - September 2011 (Q2) total rainfall at Ystradffin was 95% of the quarterly total rainfall average (January 06 – June 2011). The rainfall adjusted target is calculated as 95% of the nominal quarterly target of 150 tonnes (fig. 1).

Approximately 30 tonnes of lime powder was delivered to the Camddwr doser, and 60 tonnes to the Tywi doser. The dosers have been operated on the flow dependant 'auto' setting throughout the period. It has been necessary to run a petrol generator at the Camddwr to recharge the voltage periodically to maintain operation. A mechanical fault with the feeder mechanism caused some downtime which was rectified by the Operations Delivery team. The Tywi doser has run continuously throughout the period. During periods when the voltage supplied by the solar and hydro generating facilities have been low, sufficient voltage to maintain operation has been supplied by the methanol generator which has been installed by the MEICA team (see fig 2).

It is anticipated that further work to remove a shoal established upstream of the Tywi doser is required in order to improve the hydro power generating potential, and improve the lime powder mixing capacity downstream. A method statement and consent to undertake the work are currently being prepared.

The Camddwr filler pipe extension trial which was conducted early in Q2 demonstrated that constructing a fixed delivery pipe to the top of the access track is a viable delivery method, which negates the need for the lorries to descend the access track. This will allow the larger 30 tonne articulated lorries to be used for delivering to the site safely, reducing costs and the carbon footprint associated with having to use smaller 20 tonne rigid lorries to deliver more frequently. We are currently designing the specification for the pipe to be permanently installed at the site.

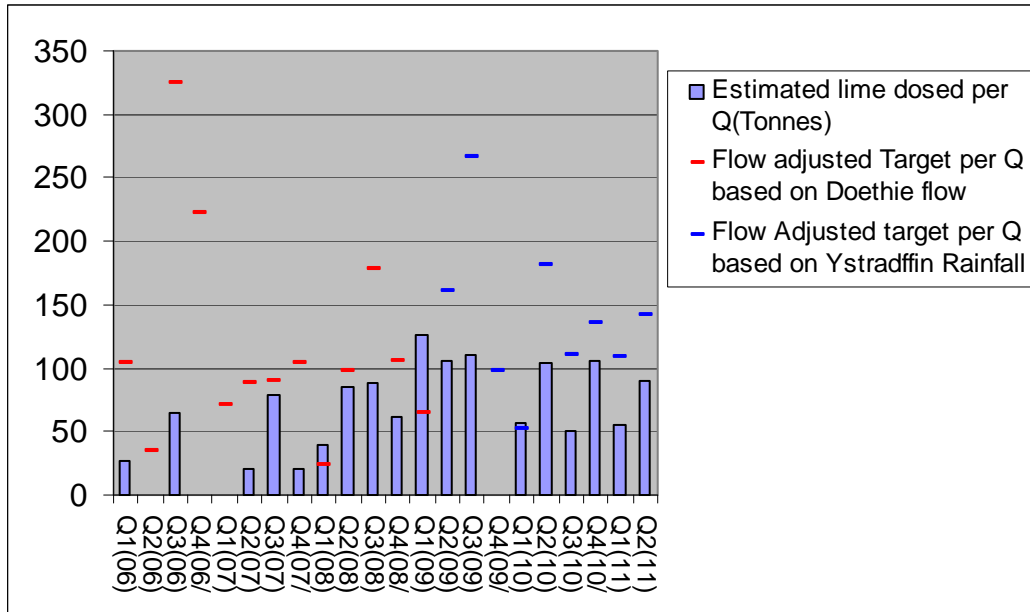


Fig. 1: Lime dosed per Quarter 2006 – September 2011.



Fig 2. Unit housing the methanol generator which is being trialled at the Tywi doser. The generator operates automatically when required, to prevent the voltage falling below a level sufficient to operate the doser minimising downtime.

The Hydrometry and Telemetry team have installed a system, that will allow us to monitor the operation of the dosers remotely via the Wales Regional Telemetry system. We will therefore be able to identify and react to downtime caused by low voltage, mechanical problems or empty silo levels as they occur. It is anticipated that once online this will improve our ability to achieve our dosing targets.

3. Water quality

pH values recorded in the Tywi at Ystradffin, 1.5 km downstream of Llyn Brienne Reservoir, were 6.79 to 6.85 for laboratory-derived data, and between 5.51 and 6.64 for field meter data during this quarter (*Fig 3 and Table 1*). The field pH value of 5.51 recorded on the 17th August 2011 was outside the target range to achieve the objectives for Good Ecological Potential in the Afon Tywi, as required by the Water Framework Directive. However, the corresponding laboratory derived pH value from a sample drawn at the same time was 6.85, which suggests that one of these results is erroneous.

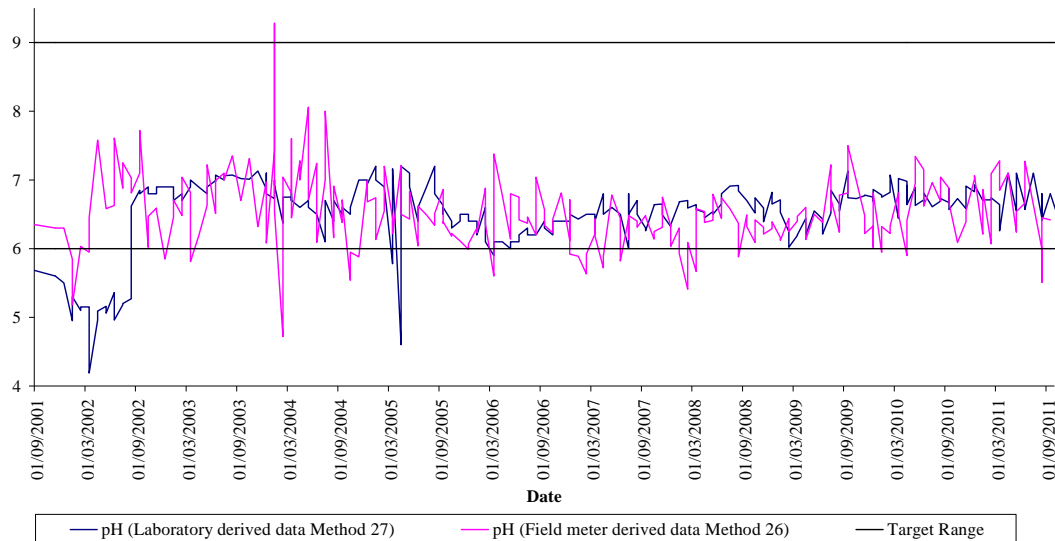


Fig. 3: pH of the Afon Tywi at Ystradffin, 1.5km downstream of Llyn Brienne Reservoir from September 2001 to September 2011.

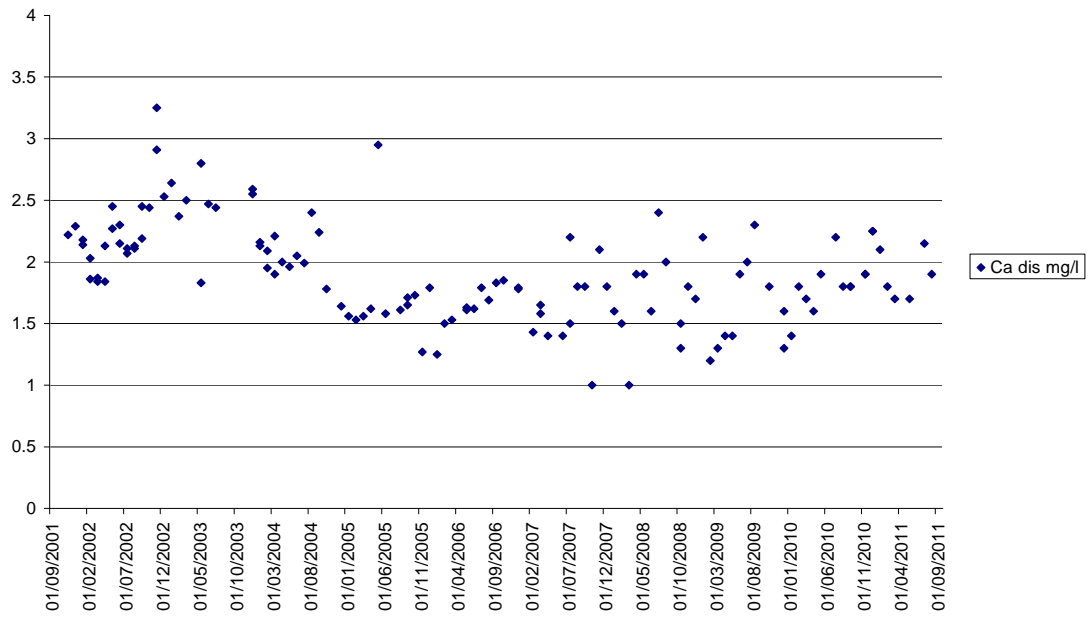


Fig. 4: Dissolved calcium in the Afon Tywi at Ystradffin, 1.5km downstream of Llyn Brienne Reservoir from September 2001 to September 2011.

Period	When Sampled	pH (laboratory)	pH (Field meter)	Dissolved Ca (mg/l)
Q1(10/11)	27/04/10	6.44	5.9	1.6
	30/04/10		6.41	
	26/05/10		6.95	
	27/05/10	6.48	7.34	1.9
	24/06/10	6.57	7.15	
	30/06/10		6.62	
Q2(10/11)	22/07/10	6.61	6.96	2.2
	02/08/10	6.59		1.8
	03/08/10		6.69	
	25/08/10		7.04	
	21/09/10	6.55	6.88	1.8
	22/09/10		6.74	
Q3(10/11)	30/09/10	6.53	6.66	1.8
	06/10/10		6.09	
	02/11/10	6.48	6.39	1.9
	19/11/10		6.55	
	06/12/10	6.76	7.01	2.25
Q4(10/11)	10/12/10		7.06	
	11/01/11	6.6	6.21	2.1
	19/01/11		6.86	
	17/02/11	7.56	6.07	1.8
	24/02/11		7.09	
	16/03/11		7.28	
Q1(11/12)	24/03/11	6.99	6.85	1.7
	19/04/11		7.1	
	18/05/11	6.88	6.24	1.7
	24/05/11		6.54	
	28/06/11	6.89	6.66	
Q2(11/12)	29/06/11		7.27	
	27/07/11	6.79	6.64	2.15
	12/08/11		6	
	17/08/11	6.85	5.51	1.9
	22/08/11		6.45	
	15/09/11		6.42	

Table 1. pH and dissolved Ca in the Afon Tywi at Ystradffin, 1.5km downstream of Llyn Brianne Reservoir for period April 2010– September 2011.

© Environment Agency Copyright and/or Database Right 2010. All rights reserved

If received externally, please note the use of the information herein is subject to the terms set out in our Standard Notice. In particular:

* The Data have not been prepared to meet your or anyone else's individual requirements so it is your responsibility to ensure that the Data meet your needs.

* The Environment Agency cannot ensure and therefore gives no promise that the Data in its possession will always be accurate, complete, up to date or valid.

If you would like to discuss your intended use of the information or you would like a copy of our Standard Notice please contact us on 08708 506 506.