



## Environment and Sustainability Committee

E&S(4)-14-14 paper 10

Natural Resources Wales – Further information following 7 May meeting

### Natural Resources Wales response to questions from Russell George AM on flood forecasting

*“In terms of the accuracy of forecast modelling, I know that this is a challenging issue for the Met Office going forward. I have been involved with incidents of flooding near the Clywedog dam, and I know that the Minister is aware of those as well. The forecasters and, perhaps more importantly, some the equipment determining weather probability for the area are based just west of Birmingham, so I wonder how our Government intends to work with its partners to improve local weather modelling.”*

**Plenary, 6 May 2014.**

*“With regard to the monitoring process of severe weather, I have raised issues in the past about Clywedog dam in my own constituency where the nearest equipment that monitors the local situation is based in Birmingham or just west of Birmingham. I would be grateful as well if you could perhaps just outline—if there is not time in this committee meeting, then perhaps separately—how you can improve local knowledge and involve local knowledge with regard to flooding.*

**Environment and Sustainability Committee, 7 May 2014.**

#### Summary

- Flood forecasts and warnings for communities at risk of coastal and river flooding in Wales are delivered by Natural Resources Wales, and the decisions on issuing warnings are made in Wales;
- We have prioritised, risk-based, programmes of work to improve our forecasting and warning services;
- We work with local and UK partners to deliver these services and share our advice and information on developing flood risk during an incident.
- This includes two-way sharing of information (i.e. from Wales to England and also from England to Wales) for the rivers that cross the Wales/England border.

#### Our forecasting services in Wales

Natural Resources Wales delivers a forecasting service for communities at risk along our coast and rivers.

Our local forecasts are used to:

- inform our decision making on the issue of our flood warnings within Wales;
- escalate our operational response (for example checking our assets are performing correctly);
- advise professional partners including those within Wales (for example local authorities).

We make forecasts of local sea and wave conditions at 80 communities at risk of coastal flooding in Wales. We also provide forecasts of river levels for 82 communities at risk of river flooding within Wales.

We have invested in our forecasting and warning service over a number of years and they continues to grow. Our investment is risk based and we expect to increase our local forecasting coverage further in the next 5 years.

Figure 1 provides an illustration of how our river forecasting service has expanded in recent years. Where we have gaps this is either because the relative risk (priority is lower), or because we need to make improvements to our measurement network to enable us to develop real time forecasting models. Assuming current funding is maintained, we plan to address these gaps on a flood risk prioritised basis between 2015 and 2020.

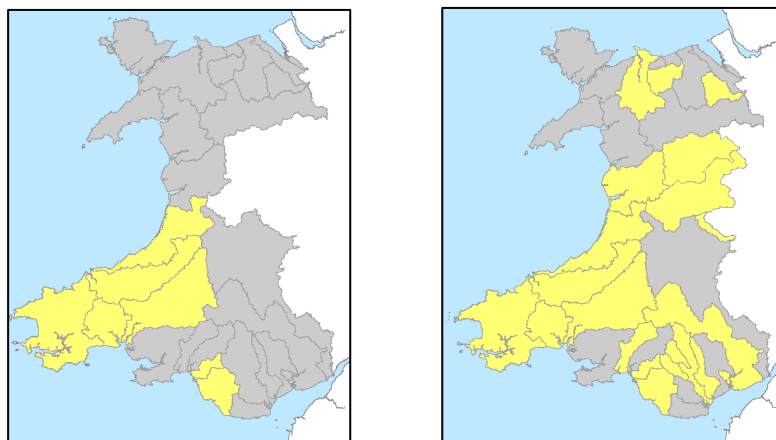


Figure 1 – Natural Resources Wales river forecasting service coverage in 2007 (left hand map) and now (right hand map). Service coverage shown in yellow.

### **Delivering locally, working with UK partners**

We deliver our flood forecasting and warning services locally within Wales using a combination of computer models which are run by Natural Resources Wales forecasting staff, real time observations from our network of over 300 rain and river gauges within Wales and the knowledge and judgement of our local staff. The combination of all of this is critical in our decision making during a flood event and the advice we provide to our professional partners and the public.

In making local forecasts, we use a combination of local rain and river gauge measurements along with weather radar and rainfall forecast model data provided to us by the Met Office. The rainfall forecast data when used appropriately gives us additional lead

time – waiting until the rain falls reduces the lead time we have, especially in large events and where we have fast responding rivers which can peak within a few hours or less.

We have a close two way working relationship with the Met Office and the joint EA-Met Office Flood Forecasting Centre. We use their meteorological data and advice in making our local forecasts which we then use to provide them with our local assessment of flood risk at a county level. For example our local forecasts are used for the Flood Guidance Statement which is issued to professional partners across England and Wales. This shows the forecast flood risk for 5 days ahead for all sources of flooding. Our advice also helps inform the Met Office National Severe Weather Warnings.

### **Challenges & opportunities**

Flood forecasting remains a challenge – storms vary in their nature and extent and inevitably some are better forecast than others.

The working relationships we have with our UK partners have been developed and strengthened over recent years and have proven their worth during recent flooding events in Wales. Natural Resources Wales, along with the Environment Agency and the Scottish Environmental Protection Agency, have benefitted from the Met Office investment in high resolution rainfall forecasting models. All operating authorities across Wales, England and Scotland use the Met Office rainfall, sea level and wave forecasts in providing their tailored local services.

For example, the improved Met Office forecasts being provided by the higher resolution models, combined with Natural Resources Wales investment in local coastal and river models enabled us to provide earlier warning of the St Asaph flooding in November 2012. This Winter, the surge and wave forecasts provided by the Met Office, coupled with locally tuned sea level and wave overtopping models enabled us to plan and prepare Wales's response to some of the worst coastal flooding seen around the Welsh coast in over 20 years.

However, we are not complacent. We continue to work with the Met Office to realise improvements in their forecasts whilst at the same time improving and expanding the coverage of our local forecasting services here in Wales. Every major flood enables us to learn lessons and refine our services.

### **Forecasting services in North Powys (Upper Severn & Vyrnwy catchments)**

We provide flood forecasting services for the Rivers Severn and Vyrnwy in Wales – these are provided by Natural Resources Wales staff based in Cardiff. The decisions on warnings and operational response are made in Wales.

Until 2010, flood risk management in the Severn and Vyrnwy catchments was delivered by the Midlands Region of the Environment Agency. However, during 2010/11 at Defra and Welsh Government's direction, we undertook a re-alignment of flood risk management operations in our cross-border catchments to align them with political boundaries. As a result, flood forecasting and warning services for the Rivers Severn and Vyrnwy in Wales were transferred to Environment Agency Wales. The Middle Wye between Hay-on-Wye and Monmouth (the English part of the catchment) was transferred to Environment Agency Midlands Region.

As part of the boundary change we also took on ownership of all of the rain and river gauges within the Severn and Vyrnwy catchments in Wales.

So, since 2011 Natural Resources Wales and its legacy body Environment Agency Wales have been delivering services from within Wales using gauges within Wales. The flood forecasting and warning services for these catchments are no longer delivered by the Environment Agency Midlands office in Solihull.

In making forecasts of flooding, we use our own gauges as well as some gauges located in England just over the border - this is because river catchments cut across political boundaries and weather systems may arrive from different directions (e.g. from the east passing over England first). We therefore share our gauge data in real time with the Environment Agency over the border and they do likewise.

We maintain a close working relationship with Environment Agency Midlands Region to manage cross-border flood incidents including the sharing of data and models at an operational level. This is supported by a Memorandum of Understanding between the Chief Executives of both our organisations.

Environment Agency Midlands Region still regulate the operation of releases from the Vyrnwy and Clywedog reservoirs as part of a long standing statutory agreement put in place for the secure management of these strategic water supplies. We work closely with Environment Agency staff on a daily basis - all decisions on releases are shared with our staff, when river levels are high we are consulted on proposed releases and any releases which are made are incorporated within our forecasts for downstream reaches.

There is a complex set of rules governing the releases which can be made at times of low and high flow in order to protect downstream interests, including those within Wales. We are currently working with the Environment Agency to review the terms of the agreement and the details of the operational rules.

**Andy Wall**  
**Flood Forecasting Team Leader**  
**13 May 2014**

## Natural Resources Wales response to question from Julie James AM on the Wales Coast Path

*“You mentioned the coastal path in your introduction, and how proud we all are of it, and many of us have walked various bits of it. However, during the coastal flooding, some of it got really quite damaged. What conversations have you had with the various councils, and so on, about the various bits of the coastal path? There are several instances that I am aware of, and I am sure that you are aware of them as well, where the route has changed as a result of the flooding. I will give you an example: in Aberdeidi in Pembrokeshire, my understanding is that the path is now not along the coast and you have to divert quite a long way inland, because they do not plan to put back the path as it existed before. What was your role in that? Did the council consult? How does that work?”*

**Environment and Sustainability Committee, 7 May 2014.**

### NRW role in Wales Coast Path diversions

Natural Resources Wales is a statutory consultee on Public Rights of Way diversions in the National Parks – elsewhere, we are not generally involved.

However, as primary funders and co-ordinators, we are usually involved in discussions regarding any diversions involving National Trails or the Wales Coast Path. These discussions are directly between the Access teams in NRW and the National Trails teams at the National Park Authorities.

The Wales Coast Path partnership group meet a few times a year, but do not discuss specific cases of damage repairs or path diversions.

### Diversion at Aberdeidi, Pembrokeshire

Following the winter storms, a section of a foot path at Aberdeidi was damaged. The Wales Coast Path / Pembrokeshire Coast Path’s route goes behind the car park (see figure 1) and was not damaged by the storms.

The path that was washed away by the sea is a private permissive path that was managed by the owner, National Trust, with help from the Pembrokeshire Coast National Park Authority. Erosion has cut off access to the seaward end of this path towards the Blue Lagoon.

If there is a diversion to the Coast Path, any changes would need extensive public consultation. But when a path is permanently eroded; the usual procedure would be to seek a new route inland, which does not need public consultation. Also, closure of a permissive path does not require public consultation.

Work has been carried out by Pembrokeshire County Council, part funded by NRW, to enable wheelchair access as was previously available on the permissive path.

Figure 1

Pink line = Pembrokeshire Coast Path / Wales Coast Path  
Blue dash line = private path

