



Ysgol Gymraeg Bro Morgannwg Water Management Survey - Case Study

At the beginning of October 2020, Year 4 pupils from Ysgol Gymraeg Bro Morgannwg (YGBM) and Council officers from the 21st Century Schools team and the Countryside team investigated the new retention basins at the YGBM site.

Why is it important for natural water management systems to be created on our sites?

Swales, retention basins and raingardens are being created on site as part of the YGBM 21st century schools programme works (contractor ISG Construction).

It is important to manage water sustainability during and after construction to ensure any new buildings or infrastructure do not contribute to local flooding issues. Traditionally this would be resolved through hard infrastructure, like pipes and tanks, moving the water elsewhere. Now we are taking an approach which utilises natural systems and treats water as a resource rather than a waste product. This changing approach is written into Welsh legislation regarding sustainable drainage.

This more natural approach has multiple benefits for people and wildlife as these systems remove urban pollutants, slows the water flow and disperse it steadily which reduces local flooding risk, increase biodiversity and provide opportunities for recreation.



Why do we want to investigate our new retention basins?

New retention basins were created on the YGBM site in March 2020. These are designed to have varying water levels depending upon rainfall patterns.

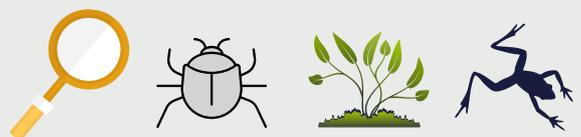
The investigation had three aims:

- **To see how the water levels were responding to recent rainfall**
- **To understand the current condition of the retention basins as a habitat for wildlife and to see whether any wildlife was already making use of these habitats**
- **To engage primary pupils and inspire them to see these habitats as an exciting learning and amenity resource**

These aims would help us understand how these resources are currently functioning and to assess their potential as a sustainable water management tool and resource for people and wildlife. This initial investigation is part of a longer-term monitoring and management process.



What did we do?



Council officers from the 21st Century Schools team and the Countryside team and six pupils from year 4 at YGBM undertook surveys of the retention basins and surrounding areas. They are located behind the sports fields and are fenced, making them accessible but secure.

Firstly, we discussed why creating retention basins is important and what plants and wildlife we might expect to see at this time of year.



The 21st Century Schools officer, explained how the retention basins enable rainwater to be collected and released safely and how they help support biodiversity by providing food and shelter for wildlife.

The Countryside officer, explained what the countryside team have been doing to improve meadows and wetland areas in the wider Vale, particularly at Porthkerry and Cosmeston country parks. One of the big successes has been the rewilding of the old golf course at Porthkerry and the ponds created last year had newts and frogs taking up residence by springtime. It is hoped these retention basins will also be inviting for wildlife.



The pupils undertook an activity from Plantlife Cymru on meadow health called, "How Healthy is Your Meadow?". The pupils looked for specific plants which indicate how beneficial the habitat is for wildlife.

Pupils were able to find clover, thistles, buttercups and other common plants still around at this time of year, suggestive that the areas around the ponds can support some wildlife.

The Countryside officer also used an app, Seek by iNaturalist, on her phone to help the pupils identify unknown plants not on the survey sheets.





Next, the officer helped the pupils with pond dipping.

She scooped up some water from the edge of the retention basins using a net and the pupils deposited it into trays. Any insects found were carefully placed into water filled jars to examine more closely (these were then safely returned to the water).



The pupils used identification sheets to find out which insects had emerged. Several common aquatic insects were found; including small and large water boatman, and water nymphs.

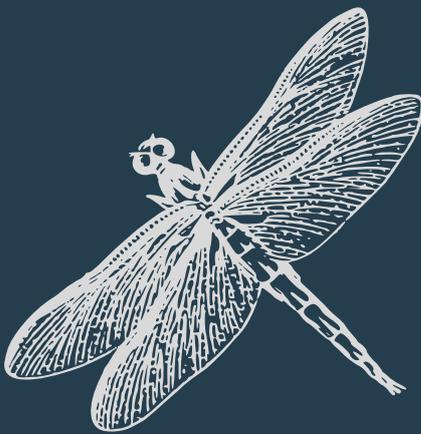


We discussed how creatures fulfil different niches in ponds by living at the bottom or on the surface, eating plants or other animals, and by living out different parts of their lifecycle in or out of the ponds. We found many insects in their larval form, ready to mature and emerge next spring.



Finally, we discussed what wildlife might move in over the coming seasons and how pupils would like to use these resources in future.

Pupils would really like to see frogs and dragonflies next spring and want to continue visiting these habitats.



What did we learn and what we will be doing in the future?

Our main conclusion is that the retention basins are in a good state to build upon, there are a positive number of plant and wildlife indicator species and the water level was at an expected point after some heavy rain.

We will be revisiting the retention basins for further surveys in spring and summer to see the progress made. We hope the pupils at YGBM will continue to conduct surveys and enjoy these resources for learning and fun.

If you would like to find out more about surveying your school grounds or ecology engagement sessions, please get in touch with the local nature partnerships or 21st century schools teams:

eshaw@valeofglamorgan.gov.uk

21stcenturyschools@valeofglamorgan.gov.uk

