

Remembering 1976

The weather this year has prompted memories of 1976, when lawns were also parched, hosepipes banned and some forests burned (e.g. Haughmond Hill). Then, as now, the flow of the River Severn reflected the low rainfall, while local trees failed to lay down normal width of growth rings (July 2011).

Normally, rainfall enters rivers by three main routes: over the surface; through the soil and via deeper bedrock. The first reaches the channel quickly, while the latter are much slower, but then maintain river flow long after wet weather has passed.

The relative contribution of each route depends upon rainfall intensity, relief, vegetation and underlying bedrock. In the rainy uplands of Wales, which supply water to the Severn, the rock is mainly impervious mudstone, which sheds the water quickly, giving sudden peaks to its flow chart or 'hydrograph'. As each wet spell passes, i.e. as passing Atlantic depressions give way to high pressure; flow soon falls to a low level. Thus 1975-6 winter showed the typical seasonal pattern, although perhaps lacking any really high 'overbank' floods.

Higher summer temperatures cause losses by 'evapotranspiration' through the vegetation, so all rivers must depend upon that winter rain still stored in the ground, but this was in short supply in 1976.

Low summer flows have always been a problem in the Severn, noted throughout history by those trying to navigate it. In more recent periods the situation has been made worse by agricultural improvements increasing runoff and reducing natural storage capacity of upland soils and lowland flood plains.

Now a new power station at Buildwas was demanding reliable supplies of cooling water... As a result, the Clywedog Dam was built above Llanidloes in the early 1960s to store that winter rain for release in dry summers, such as 1976.

As this system was proving a success, thoughts turned to finding other valleys to dam, but none were available without wrecking agricultural communities. Instead, authorities chose to exploit the water held in sandstones under the plain, into which bore-holes could be sunk to extract supplies to 'top up' the river.

One interesting by-product of this has been a better understanding of both local groundwater and the solid rock shapes beneath the thick glacial deposits which otherwise dominate our local landscape (Nov. 2009).

In the meantime, the power station has closed down, but demands for agricultural and domestic supplies are increasing, so that all those back-up systems have been doing their job this summer.

A Cedar Tree: cut section incl. 1976

