

**Flow Regimes - Natural Extremes or Man-Made Moderation**

**Skirden Beck, Bolton-By-Bowland, Clitheroe, Lancashire.**

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**What was there, what we did, did it work ?.**



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## **What was known before.**

Skirden is a spate beck in the mid part of the Ribble catchment and had been suffering from increasing problems of more severe, powerful flooding bringing large mature trees down causing erosion and silt deposition, diffuse pollution, loss of spawning grounds and wildlife habitat were also problems. The Trust were keen to try and make improvements, bearing in mind this was early in the life of the Trust when much work was done by volunteers and we were still on a sharp learning curve!

The land was intensively tenant farmed, dairy and sheep, slurry spreading and cattle poaching were both problems, but the tenant farmer and the estate owners were keen to see us carry out habitat work, the estate being particularly pro-environment improvements.

What was done .

We decided that a combination of habitat work was the only option so stock fencing and provision of drinking water troughs to exclude stock ( the troughs were supplied from a 1,000gallon tank sunk below ground fed by a spring ), flood gates, rock and log bank protection with spruce tree top brush nailed to the log work, willow stakes and willow raddling to protect and help stabilise banks and trees planted in the wide headlands which had been created inside the stock fencing.

What were the outcomes.

Cattle and sheep were excluded from the beck resulting in improved banks, less direct pollution and better stock management. Bankside vegetation was allowed to recover and flourish providing tremendous wildlife areas for increased numbers of birds, mammals and insects. Siltation was reduced and spawning gravels were increased resulting in higher redd counts than previously.

Some areas of farmland that had been at risk from erosion were saved. Some of the trees planted in the headlands became established.

This area has now been used for several years as a twice a year location for a volunteer group to carry out repairs allowing them the chance to work in a river environment and increase their knowledge of riverine life.

The Trust achieved a much better understanding of the workings of a spate beck.

What worked and what did not work.

Some of the rock bank armour remained stable and helped establish bankside recovery but other sections were prone to flood damage slipping into the beck. Like wise with the log bank support, most has remained fixed and stable but some has been liable to being washed out behind, allowing the floods to erode the bank behind the logs. Although the fencing was sited well back from the bank edges( 4 - 25mtrs), because of the size and speed of the flood levels, much has been prone to damage. Flood gates have remained in place.

With the size and power of the floods many of the trees and stakes planted in the banks and headlands have been lost. The willow raddling did not survive very long at all. Because we were able to fence out sizeable headlands on the meanders these have created superb wildlife areas with much increased bird nesting numbers such as oyster catchers, sandpipers, moorhens, mallard duck and kingfisher. We are seeing much better numbers of spawning salmon in this important nursery beck.

How was success measured.

Starting from a point where this area was suffering considerably from intensive tenant farming and regular flooding some improvements were quickly observed such as bankside condition, recovery of indigenous plant life and better stock management and reduced

siltation. The Trust quickly realised that not all their efforts would reap rewards but even small improvements on these nursery becks can provide worthwhile results.

Help and assistance.

Although contractors were used for the fencing and erection of flood gates the Trust did have a core of members and volunteers keen and able to provide manpower for willow staking, tree planting, scrub clearance and fixing spruce brush. Ongoing, year in, volunteer work has been invaluable for completing repair work.

What could have been done better.

With the knowledge of the workings of this, and other spate becks that we have now, placement of rock and log bank armour could have been better assessed and utilised. Likewise fencing type and placement could have been better thought out. Tree planting that took place on headlands which are now regularly overwashed by floods would be better organised.

Better and closer co-ordination with the Environment Agency ( which is now the case ).

## 8. Picture Library.

**Before –**

Showing commencement of log bank support on an eroding bank.



Showing initial fencing on the lower reaches with log and brush .



Showing unfenced, badly eroding banks.



Showing eroding banks with rock armour in place on the right bank. The tree in the left foreground will later become a victim of the floods.



**Damage suffered:-**

This 27ft tree trunk flood gate (not ours ! ) was washed down in a flood, large trees are regularly brought down by floods from the heavily wooded banks at the top of the stream catchment.



Showing where the trunk broke through the fencing.



Showing where the trunk broke through the rock armour which had been in place for 6 years.



Erosion starting behind log support work. Note the tree, top centre in line with the log work. April 06.



Same picture taken in February 08 ! The logs haven't moved but the bank has retreated approx 40ft!



Top ground breaking away and sliding into the beck over the clay base.



## Good results!

Showing the unfenced area with stock access adjoining the regenerating fenced area beyond the flood gate.



Stable rock work with coppiced willows inside the fence line.



Regenerated growth on both banks inside the fence line.



Stable log support work and established trees inside the fence line.

