**Stage 0 Workshop @ RRC Conference 2020**

Polls

**Poll 1**: Have you ever been involved in a Stage 0 restoration project?

* Yes (11) 32%
* No (23) 68%

**Poll 2:** Could stage zero could help us to meet our ambitions for more resilient rivers in the UK?

* Yes – let me help you, I’ve done it before (6) 16%
* I’m hopeful – more UK based evidence and tools would be helpful (17) 46%
* Maybe – could be good in theory but hard in practice, convince me (7) 19%
* Possibly locally – but it’s not a panacea for everywhere (7) 19%
* No thanks – I’ll stick with ad hoc, it’s more realistic (0) 0%

**Poll 3:** Which of the following potential constraints do you think is most likely to be a major constraint to you or your organisation in developing this approach?

* Site identification (1) 3%
* Potential conflict with existing fisheries practice and interests.  (4) 10%
* Landowner agreement (31) 78%
* Regulatory compliance (3) 8%
* Other (1) 3%

**Poll 6:** Does the name 'Stage zero river restoration’ help clarify this approach to non specialists and stakeholders, what name would you use?

* 3D river restoration (1) 3%
* full floodplain reconnection (17) 57%
* Valley floor re-set 5 (17%)
* Process based restoration (3) 10%
* Other- please add (4) 13%
  + River valley naturalisation
  + Catchment rehydration
  + Re-setting the rivers (as in re-setting the clock)
  + VFR - Valley Floor Restoration
  + The valley is the river

Workshop Chat

* The stage 0 approach is something we would all love to see more of, however, i have seen designs whereby the river is impounded at the up and downstream extents of the scheme reach to "force" the long profile required for the design. I would be keen to know what the panels thoughts on this are, as it feels counter-intuitive. Is it possible that given the constraints in this country stage 0 will be very difficult to achieve in many cases?
* Designing the upstream and downstream transitions to be morphologically-stable but passage to aquatic organisms is a challenge. It can usually be overcome, but requires care and attention!
* I think you need a spectrum of stage 0 options, so we don't see it as a one size fits all, as the way river and it's floodplain reacts to connectivity will vary massively depending on its size and whether it's a headwater high energy river or a lowland slack river.
* Each project site is unique and needs to be carefully designed. There is no cookie cutter design. Constraints exist at all sites that need to be incorporated into the design
* Yes - understanding what Peter Downs terms the 'Catchment Context' is crucial to selecting the appropriate restoration approach and design.
* Are we confident that Stage 0 works in, and applies to, all river types? e.g. lowland vs headwaters / low energy systems vs. high energy systems
* Restoration to the pre-disturbance condition (a fully-connected channel-wetland-floodplain mosaic (i.e. Stage Zero) may be appropriate in what are or should be 'Response Reaches' according to the Montgomery-Buffington stream typology.
* Definitely not everywhere - to function properly rivers must have sediment 'supply' and 'transport' reaches too.
* Should this approach (and name) be extended to stage 8 too given the extreme modification of our landscape and the complex lowland issues or are they separate?
* What's the difference between stage 0 and re-wilding? I've been pushing for many years a re-wilding approach on our local River Mease SAC as changes evolve over a more prolonged period with ecology changes being more transitional over time
* Stage 8 is often the preferable restoration target - google 'anabranching solutions' and Joe Wheaton at Utah State University. They use 'light touch process-based restoration' to move incised channels to stage 8, which is less disruptive and expensive than restoring back to stage zero.
* Rewilding includes an ecological element - to drive process change - ie reintroduction of keystone species or apex predators - in addition to other approaches to process restoration
* Stage 8 is often used where there is not a clear geomorphic control at the downstream end of the potential project
* I think the re-wilding approach, especially in rural lowland rivers is more doable to deliver quicker biodiversity and water quality benefits with little need for maintenance - especiall if we throw in a few beavers! :-)
* Many of the stage 0 projects in the US are in essence rewilding
* For first-rate, reliable and cutting edge guidance on beaver re-introduction in North America we can learn a lot from the Methow Beaver project: <https://methowbeaverproject.org/>
* I wonder whether floodplains and their importance need better recognition at a policy level. Strategies are being written for Peat and Woodland. It would be great if there were one for floodplains too to recognise their value
* Re-wetting and floodplain connectivity is re-wilding for me, not stage0 - just my view!
* do they have to be distinctly different?
* rose by any other name would smell as sweet. Stream-riparian-wetland-floodplain reconnection - that's the ticket.
* One of our key challenges is showing the benefits of freshwater wetlands for carbon sequestration and storage, to bring wetlands into the picture in funding for climate change resilience. Lots of studies for woodlands and saltmarsh/coastal stuff, a lot less for freshwater
* I like replacing floodplain with wetland complex
* I do worry that 'rewetting' could trigger alarm bells to flood managers and land owners. When engaging with less technical partners I emphasise the 'reconnection to floodplain' as Stage zero requires more explanation but reconnecting to floodplains is quite descriptive
* Karen I have a project collecting the evidence base for a range of diff habitat types to understand their potential to store carbon. We are doing this collaboratively with Natural England who are updating their carbon and habitats report
* when is that likely to be available
* A draft this Nov/Dec - email me if you want to find out more :-)
* On the carbon storage, Ellen Wohl at Colorado State University and her PhD student just started collecting samples at multiple stage 0 sites in Oregon
* I think the carbon question highlights Jenny's point about focusing on fens and headwater wetlands - sites with peat will have C benefits
* I have worked with national (I'm EA) too re literature reviews on the same - still doesn't seem to be pulling much up in terms of real evidence and is affecting funding opportunity. Partners are saying the same. Lots of emphasis on benefits of tree planting (great in the right place and right species but....), which may sometimes be at the expense of wetlands
* The main purpose of my project is to help us at the eA decide how to offset our own residual carbon, but the eveidence review of offsetting measures will pull together in one place the science to help us establish what we know and what we dont know wrt to the potential for diff habitat types to sequester CO2
* For carbon storage in restored rivers this article is a good place to start: <https://link.springer.com/article/10.1007/s10533-017-0397-7>
* How do we convince u/s landowners of beavers d/s making dams and backing up rivers into their land may cause them to object if not in favour of them?
* The beaver workshop will be looking at that but stage zero and making room for water in the valley would reduce the impact of beavers from data in Bavaria.
* Beaver Dam Analogues (BDAs) are pretty controversial in the Pacific Northwest. Some restorers swear by them, others take a dim view. For a wealth of information and technical-design guidance visit: http://www.anabranchsolutions.com/low-tech-pbr.html but be aware that the 'Anabranching Solutions' team are 'Beaver Believers'!
* possibly two options - 1) incentivise landowners to accept beaver flooding (e.g. through agri-env) 2) have a well resourced management strategy to move 'problem beavers' to other locations

Summary Notes

* Stage 0 is really different – it is new, and something different so we need to think about it in different ways and try to change people’s mind-sets about it. It requires different thinking.
* We need extensive monitoring on the channel & floodplains. Everything about stage 0 is about monitoring at larger scales – so we need a change in mind set about thinking about Stage 0. This applies to landowners, practitioners & contractors – we need to think differently
* Monitoring – that can demonstrate benefits in terms of flood risk is useful, stage zero is a type of NFM measure and there is money associated with flooding programmes. Monitoring needs to demonstrate on key risks – around fisheries and protected species. We need to demonstrate that Stage 0 does not lead to detrimental change.
* Need to demonstrate positives in terms of environmental benefits
* Yes please to Stage 0 - we need the right people involved to provide technical input – we need geomorphological input
* Need for strategic planning so the right bit is done at the right time to allow for the right environmental response
* Need evidence from demonstration sites – Stage 0 can have an emotive and human impact. We need evidence of where it has been performed successfully to engage landowners
* Delivering Stage 0 on the ground can be done through
  + Assisted natural recovery – promoting natural recovery, through deposition & erosion.
  + Dig & Dump approach – current approach at the moment.
  + Can we try and do more to encourage natural processes to lead to a stage 0?
* Positive discussion – monitoring with real purpose & clarity
* Delivery – needs to be hard wired into consent, there needs to be 5 years of monitoring of benefits and risk to species. Floodplain reconnections diverge from rewilding as there is adaptive management and rivers will still be working in service to society, but they will be more effective in providing ecosystem benefits.
* Land ownership – barrier. We need lots of examples to try and win landowners over.

Names- Colin:

“fully reconnecting the floodplain

Or “re-connecting a stream-wetland-floodplain system”

Or “restoring connectivity between the stream and its floodplain” – but ‘connectivity’ may be too technical?

Or “recreating or restoring channel and floodplain complexity”?

Or “reversing historical stream degradation”?

Or simpler still, “rewetting the floodplain”