Peer reviewed

There has been an increasing scientific literature to support the implementation of river restoration techniques which support Stage Zero as a desirable end goal. The concept was initialised as the first preliminary natural step in the Stream evolution model developed by Cluer and Thorne. This added stage zero as a preceding step when it has become apparent that the “natural” state of rivers assumed by previous channel evolution models and seminal research may in fact be a result of consistent anthropogenic influence. As well as being a more natural state, Cluer and Thorne also stipulated that by providing multiple degrees of freedom for vegetation, water and sediment that stage Zero reaches would also provide the greatest ecosystem benefits.

<IMAGE STG 0>

While Cluer and Thorne named this topic, the increasing number of names for the target of anastomosing streams and the methods by which they can be achieved represents the confluence of many different research tracks on the same ideas. This includes wetland beaver meadows which use beavers as the practitioner to create multithread streams and channels which may have been the most common cause of these anastomosing streams.

As will become apparent whilst viewing the resources provided and considering other Stage Zero streams, it is not applicable everywhere. Many of the original **UPTAKERS**  will argue that there are multiple situations and scales with which stage zero can be used where it might otherwise be dismissed, but they will also be the first to admit that it is not suitable in every environment. In fact as a process based goal it is reliant on the river beading system which is conceptual integral to the study of rivers in that there are transport and depositional reaches. As such stage zero should only be implemented where there is a clear valley confinement above and below the project. This can be seen in the Geomorphic grade line technique created by paul powers which allows for a scientific method of defining the gradient when resetting a whole flood plain.

The benefits of producing a stage zero stream in the correct place are apparent from a variety of different literature sources. Some looking at the benefits of reconnecting a flood plain. Others focus more on the benefits directly for fisheries where the results appear to be speaking for themselves with increases in fish hatcheries due to the slower flow and greater nutrients. Natural flood management techniques is also a large study area which to some extent is included in stage zero and needs to be taken account of, with the alternating side that it needs to be watched for the risk of aligning flood peaks further downstream.