

[10 years after the largest river restoration project in Northern Europe: Hydromorphological changes on multiple scales in River Skjern \(Kristensen et al 2014\) \[1\]](#)

The lower river Skjern (Denmark) historically contained a large variation in habitats and the river ran through large areas with wetlands, many backwaters, islands and oxbow lakes. During the 1960s the river was channelized and the wetland drained. A restoration during 2001–2002 transformed 19 km of channelized river into 26 km meandering river. The short-term effects of this restoration have previously been reported and for this study we revisited the river and with new data evaluated the long-term (10 years) hydrological effects of the restoration. The evaluation was done on three different scales: (1) in-stream habitats, (2) channel stability and (3) re-connection with the floodplain.

In-stream habitats had changed little over the past 10 years and the habitats today showed close similarity with the habitats recorded immediately after the restoration. Measurements of channel stability showed that erosion and sedimentation have changed the cross-sectional profiles over the last 10 years, resulting in a net input of sediment to the lower reaches of the river. However, the change of channel form was a slow process and predicted bank retreat over a 100 year period was only up to 6.8 m. Hence the formation of lost habitats (islands, backwaters and oxbow lakes) is a very slow process and the spontaneous development of these habitats will take centuries. Furthermore, the evaluation also showed that the restoration re-connected the river with its floodplain and large areas of riparian areas are today periodically flooded, but that the flooding is controlled and tamed due to the restoration design. The restoration of River Skjern has therefore failed to re-create the natural habitats formerly present and the natural dynamic processes that shape these habitats are slow. To speed up this process we therefore recommend restoration engineering using a natural guiding image when restoring lowland rivers in the future and through this restoring the lost habitats and the dynamic processes characteristic of natural rivers.

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