

Janssen et al., 2019: *Success of lake restoration depends on spatial aspects of nutrient loading in hydrology*

The lead author, Annette Janssen, is currently working as a postdoc at the Wageningen University & Research in the Netherlands. Janssen et al. offer a comprehensive and novel approach to evaluating lake restoration measures across varied nutrient/hydrology type lake systems. The author built/maintained 1-D water quality model, PCLake, was used to assess the performance of three restoration measures (nutrient load reduction, flushing, biomanipulation) for combinations of two nutrient type (point load vs diffuse load) and two hydrology type (seepage vs drainage) lake systems. The conclusions of the paper are very straightforward. Reductions in nutrient loading are beneficial (to varying degrees) for all four lake types. Biomanipulation is considered feasible in diffuse-loaded seepage lakes whereas flushing only improves water quality in diffuse-loaded lakes. In practice, it may be difficult to discern between nutrient and/or hydrology type lakes, in which case the results of this paper may not necessarily apply to all real-world scenarios. Introducing lake systems with more nuanced characteristics (e.g. 55% seepage, 45% drainage) may provide more meaningful results across a broader spectrum of lake-ecosystems. Nonetheless, this paper reinforces the notion that lake restoration measures are not universally beneficial and that a careful assessment of lake characteristics should be carried out prior to enacting any management options.