Successful restoration of the shallow urban lake Alte Donau in Vienna: A case study based on bistable theory

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Floodplain and ox-bow lakes form excellent examples of alternative stable states. Clear water, macrophyte dominated stages can alternate with turbid conditions characterised by high algal concentrations. Stable states can switch from one to the other domination through alterations of natural factors such as changes in water level, reduction in through-flow etc. Forward switches are often associated with anthropogenic pressure. In such cases, restoration to the original, macrophyte dominated stage is difficult and needs careful planning to establish sustainability. A case study from a shallow, urban, seepage lake, the 'Alte Donau' within the city property of Vienna is presented. Results on switches between stable states, causes, consequences and successful restoration measures will be detailed.