

# NATURAL SWIMMING POOLS (NSPS) – PRINCIPLES AND TRIALS WITH SITE- CONFORM VEGETATION

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### 1 ABSTRACT

*Natural swimming pools (NSPs) offer a new way to swim in fresh water that has not been treated with chemicals or preservation agents. Only biological processes purify the water. (Kircher & Thon, 2016, derived from FLL, 2006 & 2011). NSPs are purified by three different filtering methods, which effect either a phosphorus (P-) or a carbon (C-) limitation to guarantee clear water and low string-algae stock. Awareness of growth control by limitation of one nutrient is derived of basic plant nutrition research from Sprengel and v. Liebig (Liebig, 1876), transferred on anthropological NSPs including normative regulations such as FLL 2006 & 2011 and Önorm 2013. As a side product of the Phosphorus limitation, the nitrogen content in NSP waters tends to oligotrophic conditions. Most plants, which are generally used on filter bodies in NSPs, grow weakly and show severe deficiency symptoms (Kircher, 2007). The authors tested plants from oligotrophic bogs and fens on filter bodies of the "Technical Wetland" principal with three different variants of water percolation. These trials were run at Anhalt University to find resilient plant combinations for filter zones of NSPs. Good results were achieved mainly from fen plants, which are recommended for P-limited pools, since these comprise the necessary water hardness and a high pH value. For C-limited systems with low hardness, plants from acidic bogs are suitable. Sphagnum mosses however must be selected carefully since capabilities of Sphagnum species depend strongly on the water percolation.*

### 1.1 Keywords

natural swimming pool, planting design, nutrients, water purification, bog, fen, Sphagnum