The Waterharmonica
over 20 years experience with reuse of treated waste water through natural processes

Ruud Kampf
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"natural systems for wastewater reclamation"
"nature-based solutions for water pollution control"
"free water surface wetlands for tertiary wastewater treatment"
"nature-based solutions for water pollution control"
"upgrading of well treated waste water in natural constructed wetlands"
"constructed wetlands for improving wastewater quality"
"constructed wetlands for secondary effluent treatment and water reuse"
"enhancement marshes"
"wetland treatment systems"
"constructed surface flow wetlands treating effluent from wastewater treatment plants"

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"Waterharmonica: the natural link between tap water and surface water"

The Waterharmonica is a successful water innovation in The Netherlands, with 15 full scale applications for ecological upgrading of 1000 – 40.000 m³ treated waste water per day, with 5 more under design. The first ones were aimed on producing nutrient removal, buffering water and supply water for agriculture. Most of the recent Waterharmonica’s ones are focusing on creating natural values, fish spawning and migration and on natural processes for water reuse as recreational waters.

The Waterharmonica is a (natural) constructed wetland as well an ecological engineering solution for upgrading well treated waste water with relative low carbon loads. It is a special combination through of a customized selection of constructed natural processes for: biological filtration by Daphnia, phototrophic processes in algae mats on reed stems, oxygenation during day time by water plants, introducing food chains, ecotoxicological aspects, natural and recreational values, water buffering, nutrient removal, etc.

Tasks:
- Nutrient removal
- Disinfection
- Buffering water
- Supply water for agriculture and nature
- SUPly of water for a leisure centre

Tasks:
- Buffering water
- River restoration
- Surface water quality
- Fish spawning
- Making “natural habitats”
- Recreational
- Customers relation: “making friends”

Waterharmonica's: till 2006
Waterharmonica's: 2006-2016
Waterharmonica's: 2016 and beyond

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