

Dataset on stormwater bioretention column studies: Impact of temperature, salt, drying and submerged zone on the removal of metals, nutrients and suspended solids.

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This dataset presents the full input raw data from two bioretention column studies conducted at Luleå University of Technology. This data was published during 2010 and 2020 in Blecken, et al. (2007); Blecken, et al. (2010); Blecken, et al. (2011); Søberg, et al. (2014); Søberg, et al. (2017); Søberg, et al. (2020). These papers present a summary of the results (e.g. including minimum, maximum, mean and median values, standard deviation, etc.), statistical data analyses and data plots. However, the raw data is not included in these studies.

Given the large data set derived from comparable columns studies and still increasing interest in bioretention research and implementation, we provide here the raw data.

All studies were pilot-scale mesocosm studies under controlled laboratory conditions evaluating a range of factors including bioretention design features (submerged zone) and ambient conditions (temperature, salinity). The columns were constructed as illustrated in Fig 1.

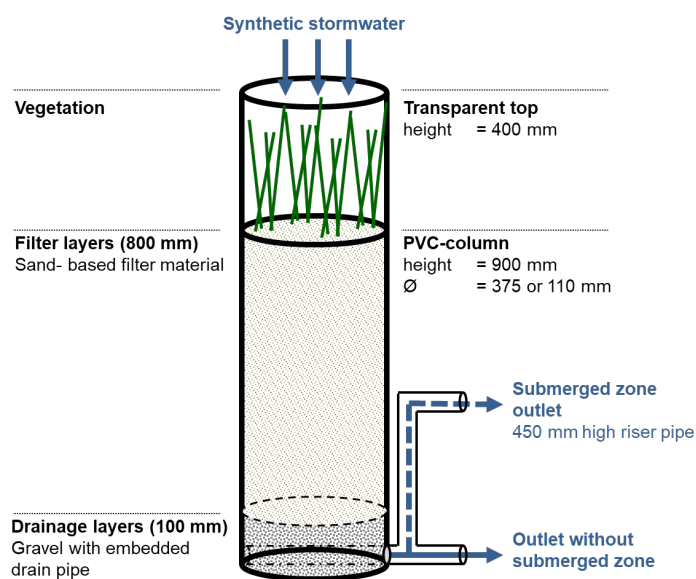


Figure 1. General column design.

Synthetic stormwater was applied twice weekly except for the columns exposed to drying. The experimental run time was around 4 to 6 months each. Before stormwater dosing, the columns were dosed with non-chlorinated tap-water or natural lake water to enable establishment of the filters.

The applied synthetic stormwater was mixed using (non-chlorinated) tap water, stormwater pond sediment and chemicals to achieve target pollutant concentrations.

Focus in these studies is on metal, nutrient and total suspended solid (TSS) treatment.

A summary of the evaluated pollutants, evaluated factors and experimental designs is provided in the file **SummarisingTable.xlsx**. A detailed descriptions of the column design, the experimental design including the evaluated factors, sampling as well as chemical analyses can be found in the papers.

We hope that the data set can be utilised for further (meta-)studies, modelling studies and be of use for practitioners.

References

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