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MUWS (Microbiology in Urban Water Systems) – an interdisciplinary approach to study microbial communities in urban water systems

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Abstract. Microbiology in Urban Water Systems (MUWS) is an integrated project, which aims to characterize the microorganisms found in both potable water distribution systems and sewer networks. These large infrastructure systems have a major impact on our quality of life, and despite the importance of these systems as major components of the water cycle, little is known about their microbial ecology. Potable water distribution systems and sewer networks are both large, highly interconnected, dynamic, subject to time and varying inputs and demands, and difficult to control. Their performance also faces increasing loading due to increasing urbanization and longer-term environmental changes. Therefore, understanding the link between microbial ecology and any potential impacts on short or long-term engineering performance within urban water infrastructure systems is important. By combining the strengths and research expertise of civil-, biochemical engineers and molecular microbial ecologists, we ultimately aim to link microbial community abundance, diversity and function to physical and engineering variables so that novel insights into the performance and management of both water distribution systems and sewer networks can be explored. By presenting the details and principals behind the molecular microbiological techniques that we use, this paper demonstrates the potential of an integrated approach to better understand how urban water system function, and so meet future challenges.

[Final Revised Paper](#) (PDF, 736 KB) [Discussion Paper](#) (DWESD)

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