

# Recycled Municipal Wastewater and Antibiotic Resistance: Is There a Connection?

**Abstract:** A fast-growing body of peer-reviewed literature exists that attempts to identify direct links between bacterial antibiotic resistance and water reclamation processes. However, it is becoming increasingly clear that such links are extremely complex, and are dependent upon physical and chemical water composition, reclamation methods, and background antibiotic resistance found in natural systems un-impacted by water reclamation. This presentation will cover the results of numerous research studies that have revealed that, although high levels of resistance and antibiotic resistance genes can be detected through the water treatment train, culturable bacteria are difficult to identify within recycled water distribution systems, suggesting that current water treatment methods are effective at removing viable resistant bacteria. The potential impact that natural antibiotic resistance may have in skewing research results will be discussed. The presentation will end with a “call to action” for environmental scientists to design more accurate research studies that fully consider natural resistance.



## Presenter

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**Professional Background:** Jean McLain has been the Associate Director and an Associate Research Scientist at University of Arizona Water Resources Research Center since 2011 following a 10-year career with the USDA-Agricultural Research Service. Jean’s work in Environmental Microbiology includes the management of an international research program focused on establishing the human health and environmental risks of using recycled municipal wastewater for crop irrigation, replenishment of surface water, and groundwater recharge.

Jean holds a Bachelor of Science Degree in Forestry from the University of Vermont, and a Master’s Degree in Forest Science from Yale University. She received her Ph.D. from Duke University in Microbial Ecology in 2002.