

The Summer Undergraduate Research Fellowship (SURF) Symposium  
7 August 2014  
Purdue University, West Lafayette, Indiana, USA

# Adoption, Maintenance and Diffusion of Stormwater Best Management Practices: Rain Barrels

Cheyenne R. Hoffa, Allison J. Turner, Nicholas Babin, Ph. D. and Linda S. Prokopy, Ph.D  
Department of Forestry and Natural Resources, Purdue University

## ABSTRACT

Urbanization increases the volume of stormwater runoff from homes, businesses and other paved areas of the urbanized landscape. Unable to infiltrate into the ground, stormwater is directed to facilities that can easily become overloaded and cause a variety of water quality issues. This study aims to assess urban homeowners' motivations to adopt and maintain rain barrels, a stormwater best management practice (BMP), and evaluate how this BMP diffuses throughout a community. This research took place in the Great Bend of the Wabash River (Lafayette-West Lafayette, Indiana) and Salt Creek (Valparaiso, Indiana) watersheds and featured a mail survey of 571 residents, site performance evaluations of 130 rain barrels, a "windshield" assessment of 242 rain barrels, and 31 in-person interviews. Our results show that 88% of homeowners in the Great Bend of the Wabash River watershed have maintained their rain barrels after two years and 65% of homeowners in Salt Creek watershed after 5 years. One of the biggest issues homeowners had with maintaining their rain barrels were issues with water pressure. We also found that 94% of rain barrel owners maintain a flower or vegetable garden and their primary motivation for adopting a rain barrel was to reduce water use for their yard or house. Outreach may need to focus more on the importance of maintaining the rain barrels as well as emphasizing the connection between rain barrels and personal gardening.

## KEYWORDS

stormwater management, rain barrels, non-point source pollution, watershed-based planning

## REFERENCES

Ando, A. & Freitas, L. P.C. (2011, December) "Consumer demand for green stormwater management technology in an urban setting: The case of Chicago rain barrels." *Water Resources Research*, 47. doi: 10.1029/2011WR011070

Brehm, J. M., Pasko, D. K., & Eisenhauer, B. W. (2013) "Identifying Key Factors in Homeowner's Adoption of Water Quality Best Management Practices." *Environmental Management*, 52 (1): 113-122. doi: 10.1007/s00267-013-0056-2

Newburn, D., Alberini, A., Rockler, A., & Karp, A. (2013) "Adoption of Household Stormwater Best Management Practices 2013 Report." *University of Maryland Extension Retrieved from <http://extension.umd.edu/>*