THE Water Research FOUNDATION

National Priorities
Water Research Grant Program Successes

About the National Priorities Water Research Grant Program

Since Fiscal Year 2012, the National Priorities Water Research Grant Program (Program) has funded research on issues of national significance and of importance to the water sector. The water sector has identified an estimated $300 million in annual research needs. The Program, informed by the Nation's water and wastewater utilities, was specifically designed to address the country's highest priority drinking water, wastewater, water reuse, and stormwater research needs through targeted applied research projects. The Program requires that grant funding be cost shared with at least a 25% matching contribution to leverage more research through partnerships. This research has already produced valuable information and tools to help meet today's water needs nationwide.

Ask

The Water Environment & Reuse Foundation and the Water Research Foundation, now integrated as The Water Research Foundation, request that policymakers continue to support the development of cost shared, applied research partnerships dealing with top priority water issues identified by water and wastewater utilities and their ratepayers nationwide.

Impact

Since 2012, the Program has invested more than $25 million in research projects of critical importance to the water sector. These funds are leveraged through partnerships with utilities and academics, resulting in an additional $7.5 million of research value. National Priorities research has resulted in 324 publications in professional conference proceedings and peer-reviewed trade journals. To date, the Program has covered five primary topics:

- Impacts of Water Conservation on Water Quality in Premise Plumbing and Water Distribution Systems
- Life Cycle Costs of Water Infrastructure Alternatives
- Systems-Based Strategies to Improve The Nation's Ability to Plan and Respond to Water Scarcity and Drought Due to Climate Change
- Centers for Water Research on National Priorities Related to a Systems View of Nutrient Management
- Development of a Community-Based Lead and Risk Mitigation Model

$25 Million Invested

$7.5 Additional Leveraged

324 Publications

Shared Across **17** States

Researchers from 17 states and the District of Columbia (shown in Figure 1) have benefitted from this competitive program.

Many of these research projects rely on strong partnerships with local water utilities who provide data, serve as test sites, and use the results to help improve their decision making.

The realized and anticipated results of the Program include:

- Data and predictive models to assess the impacts of household plumbing types, water age, disinfectant type, and flow rates on drinking water quality at the faucet.
- Tools to evaluate the costs and benefits of green and gray infrastructure with the goal of supporting integrated planning and creating more livable communities while protecting water quality.
- Improved understanding of how extreme weather events affect drinking water quality and quantity that can result in improved water management and drought response.
- Practical solutions for the management and recovery of nitrogen and phosphorus from municipal and agricultural wastewater.
- Predictive tools and mitigation strategies to reduce lead exposure through the drinking water pathway.

Successes of The Water Research Foundation

National Center for Resource Recovery and Nutrient Management

The Center, started in 2012, is providing data, demonstrations, and tools to catalyze a paradigm shift in the water quality community—one where nitrogen and phosphorus are not regarded as wastes, but rather as valuable resources. Four projects, which include eight universities and more than a dozen water utilities working across the nation, are developing innovative technologies to efficiently remove nitrogen from wastewater and recover nutrients from a variety of sources, such as households, centralized wastewater treatment plants, urban stormwater, and animal manure. Results from these studies (anticipated to be completed in 2018) are expected to significantly reduce the energy needed to treat wastewater by two-thirds, almost completely eliminate the need for chemicals, help recover nutrients from urine, convert livestock waste to fertilizer for agricultural and other purposes, and help control groundwater contamination.

An Integrated Modeling and Decision Framework to Evaluate Adaptation Strategies for Sustainable Drinking Water Utility Management under Drought and Climate Change

This 3-year project, initiated in September 2015, is investigating how drought and climate variability impact surface water and groundwater quality and availability. Working with utilities, The Water Research Foundation and The University of Colorado-Boulder are developing an integrated framework to help understand the variability of key water quality parameters and their threshold exceedances, along with a decision tool for evaluating adaptation strategies. The project results and tools will allow utility managers to quantify the risks of relevant climate extremes and natural hazards impacting water quantity, quality, and subsequent water treatment challenges.

Community-Enabled Lifecycle Analysis of Stormwater Infrastructure Costs (CLASIC)

Started in 2016, this 4-year project will develop a transparent and accessible Life Cycle Cost (LCC)/Life Cycle Analysis (LCA) framework model for stormwater infrastructure alternatives that can support integrated planning. CLASIC will serve as a screening tool to guide decision making by utilities on when, how, and where to install green infrastructure, hybrid green-gray systems, and gray infrastructure. The tool will include scenario analysis to assess the LCC of gray and green infrastructure from the neighborhood to watershed scales and include multi-criteria decision analysis to enable comparison of scenarios based on individual priorities.

Contact Information

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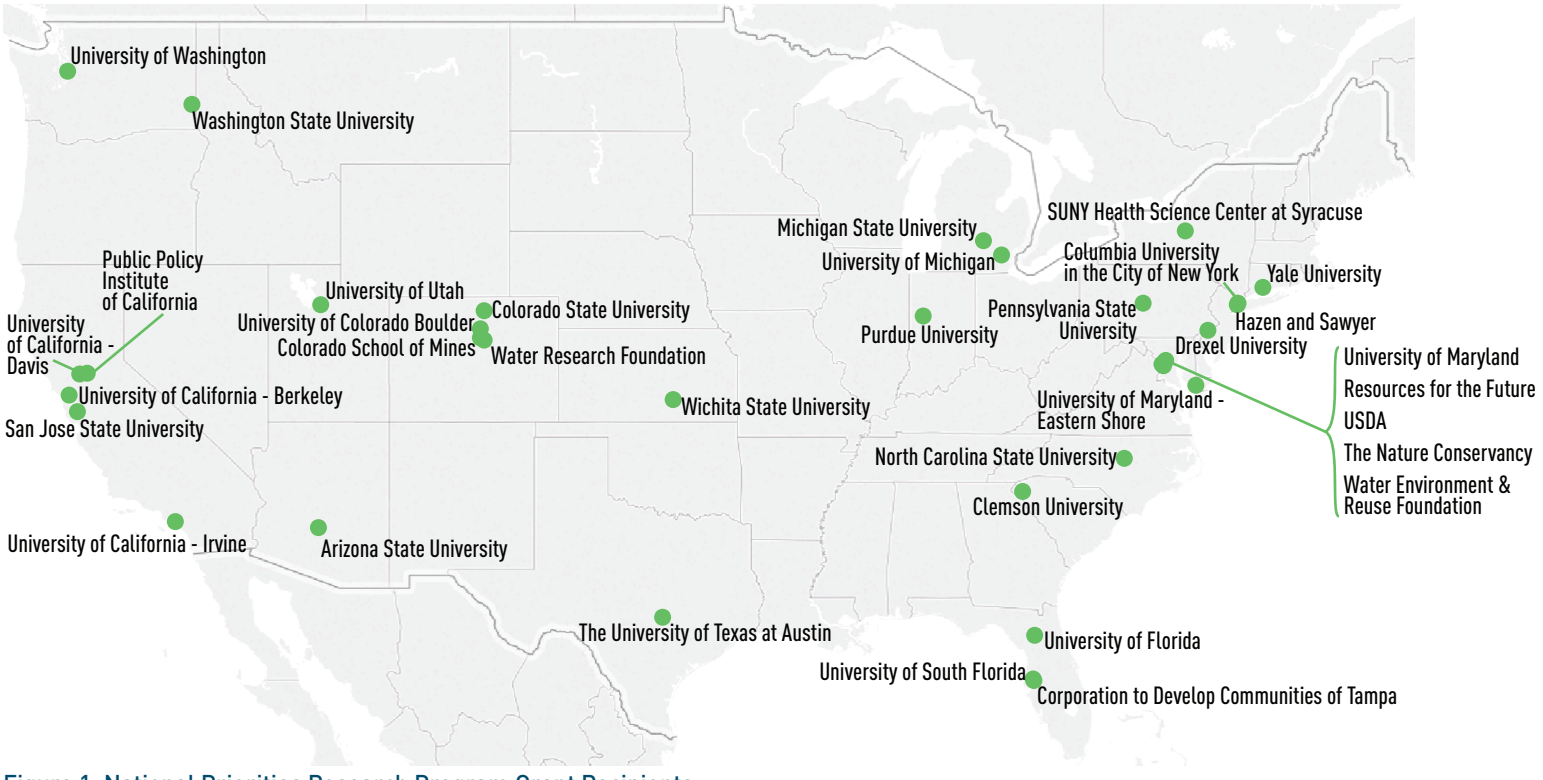

Figure 1. National Priorities Research Program Grant Recipients