2017
Annual Report

Office of Wastewater Management

EPA

Letter from the Director

I have the distinct honor of introducing the OWM Annual Report for 2017. It would be impossible to capture all that we accomplished in these pages, so let this serve as a snapshot of this year's activities.

We relaunched the PISCES recognition program to applaud excellence in the Clean Water State Revolving Fund program. We celebrated major milestones in the WIFIA program, setting us up to issue our first loans in FY 2018. And we released the Water Finance Clearinghouse, empowering communities with vital resources on financing water infrastructure. We continued implementation of the NPDES program and issued the Final MS4 General Permit Remand Rule.

We continued collaboration with our partners in states, tribes, and industry, working together to ensure clean water while working with real world scenarios. Together, our work improved the quality of life for Americans through ensuring clean water; maintaining, rebuilding, and revitalizing water infrastructure; and helping communities plan for the future.

I want to thank and congratulate my OWM colleagues for this year's achievements. I am filled with gratitude for the expertise and dedication you bring to your work each day.

WHO WE ARE

The Office of Wastewater Management (OWM) is part of the U.S. Environmental Protection Agency's Office of Water. OWM partners with federal, state and local governments, industries and tribes to provide innovative solutions for our nation's water quality and quantity challenges.

OUR VISION

We envision a nation where all communities have access to clean water. By working with stakeholders, we develop approaches to manage water as a critical resource and prevent water pollution. Our programs and initiatives protect public heath and the environment as we support a growing economy.

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Funding

Did you know? **Over the past 30 years, the CWSRF programs have provided more than $126 billion in assistance through 38,441 assistance agreements.**

CLEAN WATER STATE REVOLVING FUND

Financing Options for Nontraditional Eligibilities in the Clean Water State Revolving Fund Programs

In May 2017, EPA released a technical factsheet demonstrating how varied types of financial assistance available to the Clean Water State Revolving Fund (CWSRF) program can be deployed to fund eligibilities that do not fall within the mainstream of traditional gray infrastructure. It was prepared primarily as a reference for the 51 CWSRF programs and EPA's Regional Offices and complements the May 2016 "Overview of Clean Water State Revolving Fund Eligibilities" paper.

CWSRF Program Assistance

The CWSRF has a strong history of providing affordable financing for the nation's wastewater needs, and effective communication with stakeholders is vital to maintaining a successful program. The CWSRF Program Assistance initiative is a coordinated set of federal and state activities intended to expand awareness of the CWSRF program and build demand for assistance.

Field Surveys

Since 2016, Arkansas, Florida, New Hampshire, North Carolina, Oklahoma, and Oregon have sent out surveys to existing and potential CWSRF assistance recipients to establish a baseline level of information on the recipient community's perception and utilization of the CWSRF program. The surveys also serve to identify program assistance needs in the field. Based on the survey results, the state programs have identified several ways to make their programs more attractive to potential assistance recipients, including streamlining efforts and development of communications materials.

Focus Groups

Four states, Florida, New Hampshire, Oklahoma, and Oregon, held focus groups to further delve into specific issues raised in marketing surveys. These focus group sessions allowed for potential assistance recipients and consulting engineers to reflect candidly on why they do or do not use the CWSRF for their needs. These perspectives allow for state programs to better understand their borrowers and identify ways they can increase demand.

State/EPA Workgroup

Now entering its third year, the Program Assistance sub-workgroup of the State/EPA Workgroup convenes bi-monthly calls to discuss ongoing initiatives and share best practices between the states and regions. The workgroup has assembled a SharePoint site where users can access marketing materials from around the nation.

Performance and Innovation in the SRF Creating Environmental Success

The CWSRF's Performance and Innovation in the SRF Creating Environmental Success (PISCES) program recognizes CWSRF-funded water infrastructure projects that have demonstrated excellence in promoting EPA's mission of protecting human health and the environment. The projects recognized serve as excellent examples of distinguished performance and financial integrity. Out of the recognized projects, five projects have shown exceptional work and deserve special recognition and were highlighted at the 2017 Fall CIFA conference.

Webinars

The CWSRF webinar series features professionals from around the country sharing their expertise on a range of topics related to the CWSRF. Presenters from EPA, state CWSRF programs, and local communities came together to highlight their success stories and explain how they achieved them. In March, a webinar was held focusing on flexible funding options available to finance green infrastructure projects through the CWSRF. In April, a webinar was held focusing on the use of sponsorship programs as a unique tool for funding land conservation.

CWSRF Fact Sheets and Activity Reports

The CWSRF Branch is proud to have released five fact sheets and activity reports in 2017:

- Funding Decentralized Wastewater Treatment Systems with the CWSRF
- Funding Stormwater Management with the Clean Water State Revolving Fund
- Protecting Public Health and Water Quality with the CWSRF
- Funding Disadvantaged Communities with the CWSRF
- Funding Resilient Infrastructure with the CWSRF

State Revolving Fund Model State Marketing Plan

In 2017, the CWSRF program created the State Revolving Fund Marketing Plan, which is a tool for CWSRF state programs. The Marketing Plan will serve as a guide that states can use to start up or augment an existing SRF marketing program, and includes step-by-step worksheets to help states achieve their goals for connecting to former or new assistance recipients.

American Iron and Steel

The American Iron and Steel (AIS) provision requires CWSRF and DWSRF assistance recipients to use iron and steel products that are produced in the US. Since the enactment of the AIS provision in 2014, the Agency's AIS team provided training and outreach to SRF assistance recipients, states, and others interested groups and individuals to ensure smooth implementation of the law. The AIS team has performed over 200 outreach site visits to SRF recipients in 44 states since the AIS requirements were enacted, providing SRF recipients a thorough understanding of how to comply. The AIS team works with state SRF programs to help them better understand the requirements. In 2017, in addition to continuing outreach efforts, the AIS team is assisting the USDA Rural Utilities Service with the implementation of their new water infrastructure grants and loan AIS requirements.

WATER INFRASTRUCTURE FINANCE AND INNOVATION ACT

WIFIA Information Sessions

In fall 2016 and winter 2017, the Water Infrastructure Finance and Innovation Act (WIFIA) program hosted a series of information sessions and webinars to explain its purpose, goals, and requirements and prepare prospective borrowers to apply for WIFIA loans. The WIFIA program hosted over 200 participants at one-day information sessions in six cities: Chicago, IL; New York City, NY; Orlando, FL; San Francisco, CA; Los Angeles, CA; and Dallas, TX. The program provided the same information via webinar to hundreds of additional people. Following the publication of the Notice of Funding Availability in January 2017, the WIFA program held two more webinars reaching about 500 people. These presentations focused more specifically on how prospective borrowers could submit letters of interest and how EPA would review them for its inaugural project selection round.

WIFIA Implementation Rule

The interim final WIFIA implementation rule, Credit Assistance for Water Infrastructure Projects, was signed by the administrator on December 6, 2016, and subsequently published in the Federal Register. It establishes the guidelines for the WIFIA program and the process by which EPA will administer credit assistance.

WIFIA Fee Rule

Also on December 6, 2016, the proposed fee rule, Fees for Water Infrastructure Project Applications under WIFIA, was signed by the administrator and later published in the Federal Register. It proposed fees related to the provision of federal credit assistance under WIFIA and solicited public comments on the proposal.

The final fee rule was signed by the administrator on June 19, 2017. It establishes the fees related to the provision of federal credit assistance under WIFIA, including the application fee paid with the application submission, credit processing fee paid at loan closing, and servicing fee paid annually during loan repayment.

WIFIA Appropriations

The WIFIA program received its first appropriations for credit subsidy in FY 2017 and could request letters of interest for WIFIA loans for the first time. This funding covers the federal government's anticipated cost of providing a much larger amount of loans. In the Further Continuing and Security Assistance Appropriations Act, 2017, P.L. 114-254, signed by the President on December 10, 2016, Congress provided $17 million in budget authority for the WIFIA loans and $3 million for program administration. Additionally, Congress appropriated

$8 million in budget authority for the WIFIA loans and $2 million for program administration in the Consolidated Appropriations Act, 2017, P.L. 115-31, signed by the President on May 5, 2017. EPA made the combined amount of funding available in its inaugural project selection round.

WIFIA Notice of Funding Availability

On January 10, 2017, EPA announced the availability of funding for WIFIA loans for the first time. In its inaugural Notice of Funding Availability (NOFA), EPA solicited letters of interest from utilities, governmental entities, State Revolving Fund programs, partnerships, and private corporations to fund water infrastructure projects expected to cost at least $20 million or $5 million for small communities (less than 25,000 people).

By the April 10 deadline, the WIFIA program received 43 letters of interest from prospective borrowers for water infrastructure projects across the country. In total, prospective borrowers requested $6 billion in WIFIA loans. These letters demonstrate the need to invest in water infrastructure improvements in communities across the nation and the value that WIFIA financing can offer.

Since WIFIA funding is limited to up to 49 percent of project costs, the letters of interest indicate how EPA's investment would be combined with other sources, such as State Revolving Fund (SRF) loans, private equity, and municipal bonds, to implement projects costing over $12 billion. Entities are seeking financing for a wide array of water and wastewater projects, including repair, rehabilitation, and replacement of aging treatment plants and pipe systems and construction of new infrastructure for desalination, water recycling, and drought mitigation.

> *"This investment will empower states, municipalities, companies, and public-private partnerships to solve real environmental problems in our communities, like the need for clean and safe water."* - Administrator Pruitt

WIFIA Project Selection

In July, the WIFIA program invited 12 entities with projects in nine states to apply for more than $2 billion in WIFIA loans. Following an eligibility screening, preliminary creditworthiness and engineering reviews, and selection criteria scoring, EPA selected these projects from the 43 letters of interest submitted in April 2017. This year's projects will also leverage more than $1 billion in private capital, in addition to other funding sources including SRF loans, to help finance a total of $5.1 billion in water infrastructure investments. The selected projects are geographically diverse and demonstrate the broad range of project types that the WIFIA program can finance including wastewater, drinking water, stormwater, and water recycling projects. The selected projects are:

California

Groundwater Replenishment System Final Expansion (Orange County, California)
Pure Water San Diego (San Diego, California)
Southeast Water Pollution Control Plant Biosolids Digester Facilities Project (San Francisco, California)
Water Reclamation Project (Morro Bay, California)

Florida
Miami Ocean Outfall Reduction and Resiliency Enhancement Project (Miami, Florida)

Indiana
Indiana Finance Authority FY 2017 (Indiana)

Maine
Saco River Water Treatment Facility (Biddeford, Maine)

Maryland
Comprehensive Infrastructure Repair, Rehabilitation and Replacement Program (Baltimore, Maryland)

Missouri
Deer Creek Sanitary Tunnel and Sanitary Relief (Saint Louis, Missouri)

Nebraska
Saddle Creek Combined Sewer Overflow Retention Treatment Basin (Omaha, Nebraska)

Tennessee
Water Treatment Plant Design and Construction (Oak Ridge, Tennessee)

Washington
Georgetown Wet Weather Treatment Station (King County, Washington)

WATER FINANCE CENTER

Water Finance Clearinghouse

Communities need easy and efficient access to water infrastructure finance information. The Water Finance Center released the Water Finance Clearinghouse in July 2017 to meet this need. The Water Finance Clearinghouse is an easily navigable web-based portal to help communities locate information and resources that will assist then in making informed decisions for their drinking water, wastewater, and stormwater infrastructure needs. The Clearinghouse features two searchable data sets: one focused on available federal, state, and local funding sources for water infrastructure and the second will contain resources, such as reports, tools, and webinars on financing mechanisms and approaches. The Clearinghouse is unique in that it is updated in real-time, following a crowdsourcing model. States, federal agencies, and other water sector stakeholders have the ability to suggest edits and new resources or funding options at any time through the Contributor Portal. Stakeholders can use this interactive feature to manage how their programs and initiatives are displayed in the Clearinghouse.

"EPA's Clearinghouse is a vital portal that helps connect communities with the information and tools they need to finance much needed water infrastructure improvement projects." - Deputy Assistant Administrator D. Lee Forsgren

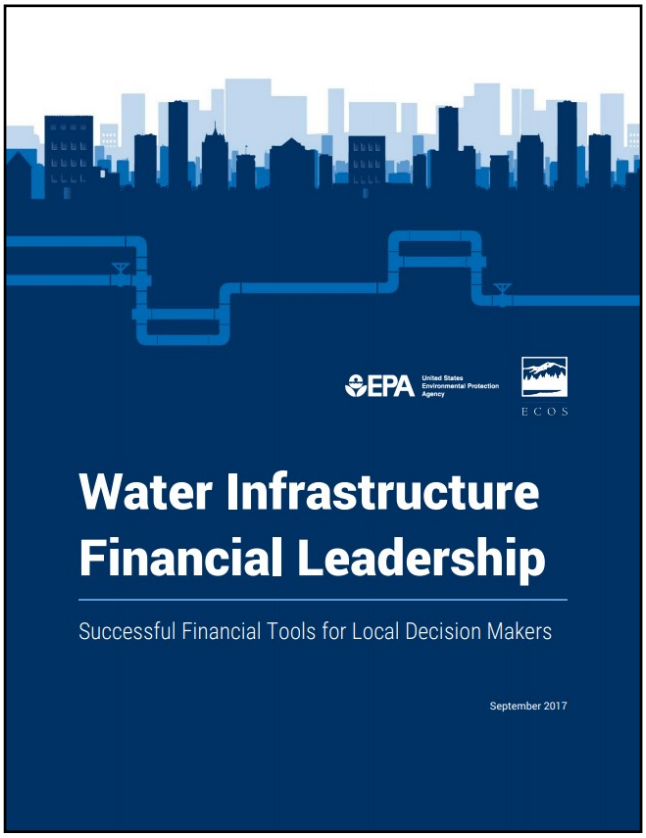
WaterCARE

The Water Finance Center provides direct financial planning technical assistance to 10 small to mid-sized communities across the country through the Water Community Assistance for Resiliency and Excellence (WaterCARE) initiative. WaterCARE provides this predevelopment financial planning assistance to selected communities that lack the resources to effectively plan needed water infrastructure development. Assistance for many of the communities includes implementing asset management practices, developing affordability

analyses and rate analyses to help with decision making, and preparing communication strategies for discussions with their boards. After assistance ends in late 2017, case studies of successful financial planning strategies and lessons learned through WaterCARE will be shared to support decision making for other communities that have similar water infrastructure financing needs.

Financial Leadership for Communities in Need

The Water Finance Center worked with the Environmental Council of States (ECOS) to discuss water financing strategies for economically challenged communities, or Communities in Need, in January 2017. The Water Infrastructure Financial Leadership: Successful Financial Tools for Local Decision Makers document was developed based on this dialogue and released in September 2017. The document helps identify what is needed for financial planning, determine how to fund and finance a project, and consider which strategic approaches can be used to protect local investments. This information can apply to any community seeking to plan or fund an infrastructure project, but specific examples of Communities in Need are included to show how communities with limited resources can achieve water infrastructure financial leadership.



EFAB Meetings

The Environmental Financial Advisory Board (EFAB) is an advisory committee chartered under the Federal Advisory Committee Act to provide advice and recommendations to EPA on creative approaches to funding environmental programs, projects, and activities. In 2017, OWM hosted two EFAB meetings to hear from informed speakers on environmental finance issues, proposed legislation, and EPA priorities; to discuss activities, progress, and preliminary recommendations on current EFAB work projects; and to consider requests for assistance from EPA program offices.

February 2017 Meeting: Environmental finance discussions covered several topics, including the WIFIA and Water Finance Center programs, DC Water's Environmental Impact Bond, financing domestic recycling programs, affordability and non-traditional project financing, financing lead risk reduction, and public-private partnerships.

August 2017 Meeting: Environmental finance discussions covered several topics, including Water Finance Center programs, the City of Wichita and Spirit Aerosystems Water Conservation/Reuse Plan Project, decentralized infrastructure financing, financing lead risk reduction, and public-private partnerships.

Environmental Impact Bond Report

The Water Finance Center developed an in-depth technical report of the first Environmental Impact Bond (EIB), DC Water's Environmental Impact Bond: A First of its Kind in April 2017. This new "Pay for Success" financing structure was developed by DC Water to privately fund the construction of green infrastructure to manage stormwater runoff as part of DC Water's Clean Rivers Project. The EIB is structured to limit financial risk to DC Water if the performance of the green infrastructure is less than anticipated and financially reward investors if the performance exceeds expectations.

Public-Private Partnerships

The Water Finance Center provides information to communities interested in establishing public and private partnerships for innovative financing. Public-Private Partnerships, Public-Public Partnerships, and Performance Based Infrastructure project delivery models are an alternative delivery method for building out needed water infrastructure. Projects utilizing P3s span the water sector in size, location, and financial profile.

Financial Impact of Alternative Water Project Delivery Models Report

In February, the Water Finance Center developed a document to accompany the Alternative Water Project Delivery Models Report, entitled Perspective: "The Financial Impact of Alternative Water Project Delivery Models" in the Water Sector. The goal of the document is to broaden understanding of this alternative procurement method.

Alternative Water Project Delivery Models Report

The Water Finance Center collaborated with the University of North Carolina (UNC) Environmental Finance Center (EFC) to develop the Alternative Water Project Delivery Models report, which was released in February. The UNC EFC report provides an in-depth examination of nine projects where communities used P3s in the water sector. The research examined the proposed benefits, the process involved in closing transactions, and the performance and realized benefits of the agreements to date.

Water Finance Forums

In partnership with EPA's Regional Offices and the regional Environmental Finance Centers, the Water Finance Center holds regional Water Finance Forums. The purpose of the forums is to bring together communities with water infrastructure financing needs in an interactive peer-to-peer networking format, share how local utilities have financed resilient water infrastructure projects, and have the opportunity to meet key regional funding and technical assistance contacts. Forums have been held in:

Durham, NH (November 2016)
Collaborated with Region 1 and New England Environmental Finance Center. Topics focused on stormwater financing including ways to maximize

the economic and social value of municipal water resources while minimizing the costs of stormwater control, creative financing strategies to augment municipal stormwater budgets, and practical steps to accurately estimate short- and long-term municipal stormwater needs.

Florence, AL (July 2017)
Collaborated with Region 4 and the Environmental Finance Center at the University of North Carolina on a forum for small systems. Topics included financial management and planning of a water system fund (including rates and rate setting), controlling costs, planning for capital expenses, benchmarking financial performance, and collaboration between nearby small systems.

Oakland & Alhambra, CA (April 2017)
Collaborated with Region 9 and the Environmental Finance Center California State (Sacramento) on two finance forums on stormwater infrastructure finance strategies. Topics included practical steps to accurately estimate short and long-term stormwater budgets, an introduction to available public and private funding sources for capital and O&M needs, and strategies for overcoming barriers to stormwater funding in California.

St. Joseph, MO (September 2017)
Collaborated with Region 7 and the Wichita State University Environmental Finance Center on a forum for small systems. Topics included maintaining water and wastewater systems, setting rates, long-term planning, and available assistance and funding options.

GRANTS & UNDERSERVED COMMUNITIES' INFRASTRUCTURE

Small and Rural Community Technical Assistance Grant

Every year, the Office of Water awards grant totalling about one million dollars to nonprofit organizations to provide technical assistance to small and rural communities for managing their wastewater and decentralized treatment systems. In FY 2017, using EPA's FY 2015 appropriated funding, the National Rural Water Association (NRWA) conducted 133 classroom training sessions and provided 1,486 hours of technical assistance on effective utility management, operation and maintenance (O&M), compliance assistance, and decentralized wastewater treatment. NRWA also completed case studies highlighting the results from utilities that attended classroom trainings and received technical assistance. EPA awarded FY 2016 funding to the Rural Community Assistance Partnership (RCAP) to provide technical assistance to wastewater and decentralized treatment systems.

Border Environmental Infrastructure Fund

In 2017, the Holtville Wastewater Treatment Plant Improvements Project upgraded an existing 0.85 MGD WWTP to meet discharge requirements for ammonia and other pollutants. The $14.4 million rehabilitation project was financed with a $6.9 million grant from the Border Environment Infrastructure Fund (BEIF) as well as a grant and loan from the California CWSRF. The project will not only tackle public health concerns but will

also address water quality issues in the impaired Salton Sea. Some of the new components installed in the remodeled facilities include an automatic bar screen and the Single Cell Activated Sludge system with high-efficiency moving flexible aeration chains to improve treatment effectiveness. These improvements will provide wastewater service to 100 percent of the service area with an estimated benefitted population of 6,594.

Tribal Wastewater Infrastructure Accomplishments

In FY 2017, OWM provided funding for 64 wastewater construction projects for tribes in Regions 1, 5, 6, 7, 8, 9, and 10. With Indian Health Service and the Regions, EPA was able to leverage $28 million in funding for projects to serve a cumulative 7,666 homes in Indian country. Loans ranged in size from $12,000 to $3 million.

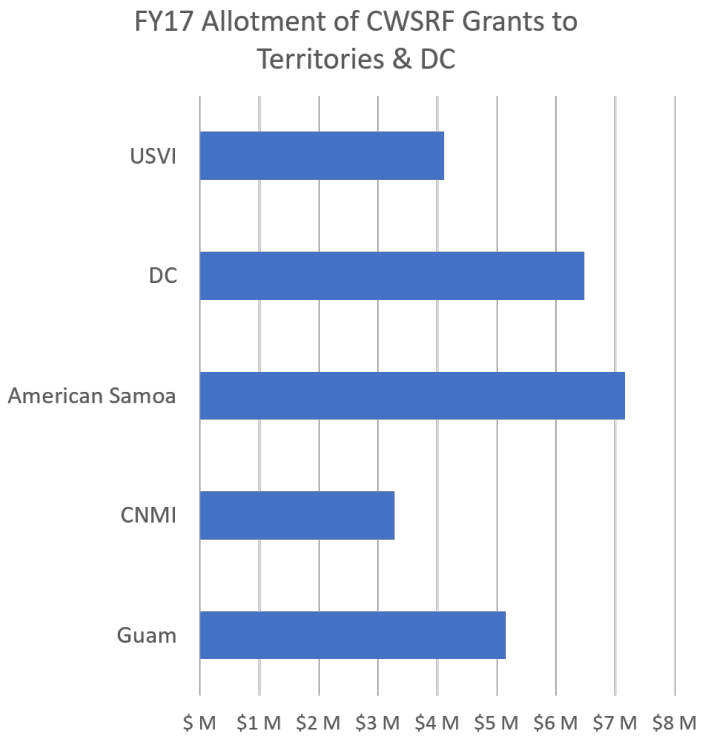
Tribal Water Pollution Control Grants

Section 106 grants are a crucial, dedicated source of funding for developing, maintaining and expanding tribal programs designed to prevent, control and eliminate water pollution. In FY 2017, the tribal set-aside was approximately $25.5 million. Of the 565 federally recognized tribes, approximately 330 meet the criteria to receive section 106 funding, and 271 of these tribes were eligible to receive grants in FY 2017.

U.S. Territories/DC Team

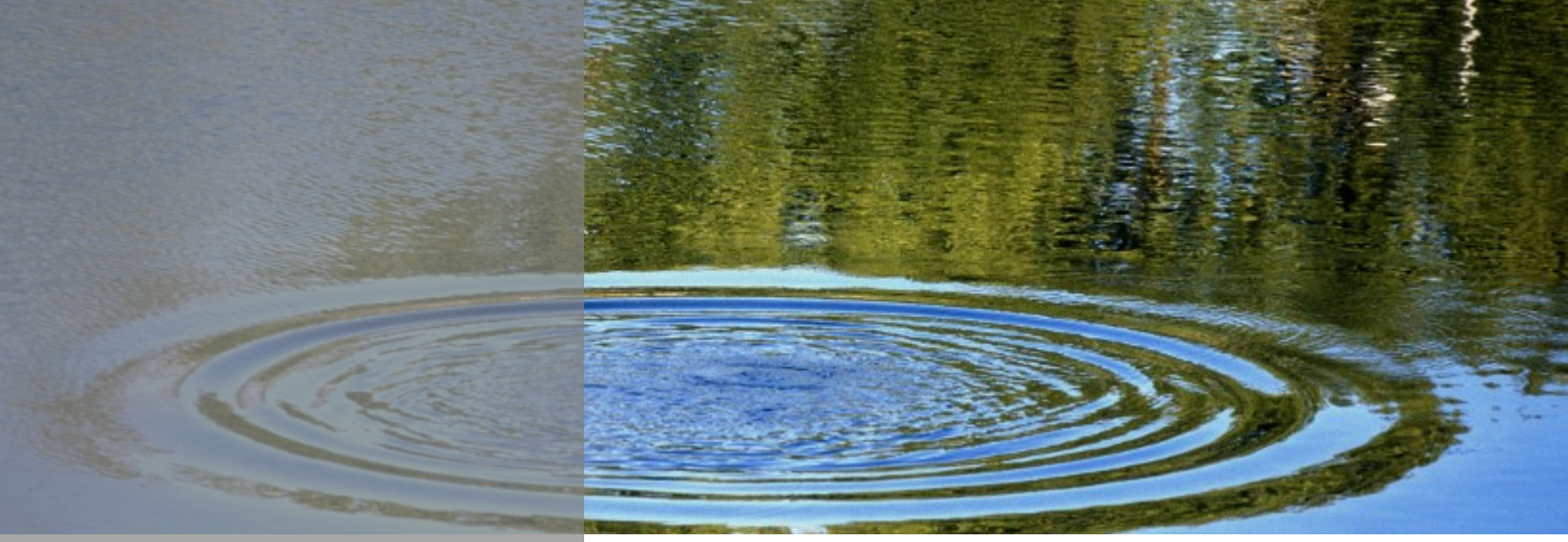
As part of the CWSRF allotment, EPA continues to provide construction grants to Washington, DC and the territories of U.S. Virgin Islands, American Samoa, Guam, and Commonwealth of Northern Mariana Islands.

In FY 2017, these programs completed over a dozen infrastructure construction projects.



State and Interstate Water Pollution Control Grants

In 2017, EPA provided $184 million in section 106 grant funding to state and interstate agencies to protect and restore water bodies. Increasingly, EPA and states are working together to develop basin-wide approaches to water quality management. The grant program encourages states to take a watershed protection approach which looks at state water quality problems holistically and targets finances to the most important problems.



Tools

Did you know? Over the past two decades, EPA has trained thousands of permit writers via the NPDES Permit Writers' Course.

SUSTAINABLE WATER UTILITES

Effective Utility Management Primer

In January, EPA updated the Effective Utility Management Primer, which serves as the foundation for the Effective Utility Management approach. The Primer provides a common framework for water sector systems to assess their strengths and areas for improvement, set priorities, and measure progress through a process of continual improvement leading to long-term sustainability. OWM also co-hosted 5 one-day workshops to help utilities use the primer in their operations. These workshops took place in Massachusetts, Pennsylvania, Oregon, Virginia, and California.

Peer-to-Peer and Workforce Convening

In March and September, OWM facilitated convenings of utility leaders and other experts to identify ways to enhance peer-to-peer assistance between higher capacity and lower capacity utilities as well as ways to encourage dialogue and collaboration among leading water organizations on water workforce issues. As a result of the convenings, participants agreed to explore the concept of a hub utility as a source of assistance for lower capacity utilities.

Utility of the Future

OWM continued to work with its partners to support the Utility of the Future (UOTF) Recognition program, which is administered by the Water Environment Foundation. EPA hosted two webinars to help interested utilities understand the application requirements and also continued to co-host 3 other UOTF webinars to highlight activities and programs by utilities that support the directions of the UOTF program. In October 2017, an additional 20 utilities were recognized at WEFTEC in Chicago, bringing the total number of utilities to 81.

FRAMEWORK AND ASSISTANCE

Innovative Wastewater Treatment Technology & Research

In 2017, OWM provided technical support to EPA Regions and Office of Water program offices on wastewater technology - including nutrient removal and recovery, energy management, and water reuse. OWM also worked closely with EPA's Office of Research and Development, supporting a range of projects in the EPA Safe and Sustainable Water Resources Research Plan.

Enhancements to the Whole Effluent Toxicity Spreadsheet

OWM developed and maintains a National Pollutant Discharge Elimination System (NPDES) Whole Effluent Toxicity (WET) Spreadsheet to provide an easy to use way for States and Regions to independently analyze and evaluate WET data submitted by NPDES permittees. The WET Spreadsheet, which EPA provides free to users, calculates acute and chronic WET endpoints based on EPA's WET test methods and recommendations from EPA's Technical Support Document (TSD).

OWM recently enhanced the existing NPDES WET spreadsheet to include additional features to support EPA and state permit writers.

Compendium of State Approaches for Manure Management

In January, OWM released the Compendium of State Approaches to Manure Management, which showcases examples of state program features for promoting good manure management at animal feeding operations. The examples are noteworthy because they are fully developed, show clear evidence of on-the-ground implementation, and focus on meaningful environmental outcomes. The first iteration of the compendium includes six case studies in the area of Permits and Regulatory Programs, six case studies in the area of Tools, Guidance and Support, and five case studies in the area of Integrated Approaches. The Compendium is web-based content and will be periodically updated with new examples as they are identified.

MS4 Compendium on Water Quality-Based Requirements

In June, EPA released a new compendium of Municipal Separate Storm Sewer System (MS4) permits that included water quality-based requirements for specific pollutant parameters that are consistent with approved Total Maximum Daily Loads (TMDLs) and protecting designated uses. This compendium is third in the MS4 Permit Compendium series. EPA reviewed existing state and EPA permits and identified different ways of implementing TMDLs through quantitative requirements or pollutant-specific management measures, or a combination of both. EPA gleaned examples of how permitting authorities measured progress implementing water quality-based requirements through review and approval of implementation plans, monitoring/modeling, and reporting requirements. EPA also include examples of water quality-based requirements related to discharges to impaired waters without approved TMDLs.

Long-Term Stormwater Planning

In October 2016, EPA released a draft guide, toolkit and technical assistance to promote comprehensive, community-wide planning approaches to manage stormwater. As communities continue to grow and develop their local economies, they look for sustainable and effective approaches to reduce these existing and emerging sources of pollution. The guide describes how to develop a comprehensive long-term community stormwater plan that integrates stormwater management with communities' broader plans for economic development, infrastructure investment and environmental compliance. Through this voluntary approach, communities can prioritize actions related to stormwater management as part of capital improvement plans, integrated plans, master plans or other planning efforts. EPA will leverage the lessons learned from these efforts by sharing information related to lowering barriers to long-term stormwater planning, making progress on human health and water quality objectives, and decreasing the costs of stormwater management. EPA continues to work with five communities, providing coordinated technical assistance to develop long-term stormwater plans to serve as national models.

Collaboration on the Development and Implementation of SWToolbox

A new software tool known as SWToolbox has been developed by the USGS and EPA to assist NPDES permit writers and other practitioners in obtaining better data and implementing consistent methods in estimating critical flow statistics such as the 7Q10. This new tool combines functionalities of two existing programs (DFLOW and SWSTAT) and improves efficiency and accuracy for estimating critical flow statistics. Training for permit writers is scheduled in 2018.

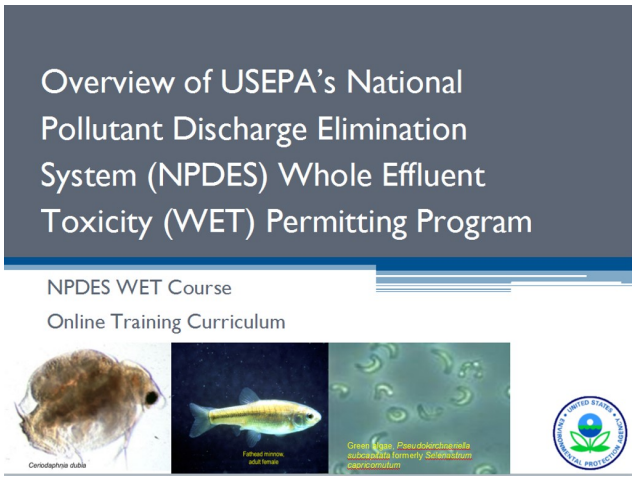
TRAINING

NPDES Permit Writers' Training Course

In FY 2017, OWM continued to support new state and EPA Regional NPDES permit writers through the NPDES Permit Writers' Course. The NPDES Permit Writers' Course has trained thousands of permit writers over more than two decades on the fundamentals of NPDES permit development. OWM conducted five week-long NPDES permit courses at sites across the country and incorporated new materials that highlight technology innovations and NextGen monitoring considerations.

NPDES Whole Effluent Toxicity Training Course

EPA's NPDES Whole Effluent Toxicity (WET) course covers the programmatic and technical elements of implementing WET in permits. The course has been taught by experienced instructors for several years and has been well received by EPA Regions and states. Due to an ongoing need for easily accessible and web-based training, in May 2017, EPA developed a nine-module NPDES WET online course. It is user-friendly, contains enhanced teaching features and is available on EPA's NPDES website. NPDES staff, including permit writers, can complete the course at their own pace and use it as a reference when developing NPDES permits with WET requirements.



Stormwater/Green Infrastructure Webcast Series

In 2017, OWM continued the Green Infrastructure Program's Making Stormwater Work for You: 2017 Green Infrastructure Webcast Series. The Series is geared toward public officials and practitioners beginning to implement green infrastructure, as well as for those looking to enhance established programs. The green infrastructure webcast series was initiated in 2014 and has featured leading academics and professionals from around the country sharing their expertise. This year's series features five webcasts on topics from green infrastructure jobs to outreach and education.

Permits

Did you know? About 90% of NPDES permits are issued by the 46 states and 1 territory that are authorized to implement the NPDES program, and the rest are issued by EPA Regions.

Final MS4 General Permit Remand Rule

EPA finalized modifications to the Phase II stormwater regulations relating to the use of general permits for small municipal separate storm sewer systems (MS4s) in response to a Ninth Circuit remand of these regulations. The "MS4 remand rule" ensures that all small MS4 permit requirements are subject to the necessary permitting authority review and public participation steps as defined in the Clean Water Act. The rule also clarifies that the permitting authority and not the small MS4 must determine what permit terms and conditions are necessary to meet the applicable permit standard and specifies that permit terms and conditions must be expressed in a "clear, specific, and measurable" manner.

The final rule offers two ways to issue general permits that will satisfy the court remand. The first way is to issue a comprehensive general permit that establishes all necessary permit conditions up front (i.e., the "Comprehensive General Permit"). The second way involves issuing a two-step general permit where some requirements are established in a "base" permit and other requirements that are unique to each MS4 are established in a subsequent process that includes public notice and opportunity to comment or request a public hearing, and final determination by the permitting authority (i.e., the "Two-Step General Permit").

NPDES Implementation

In 2017 OWM continued its work to support EPA Regions and states in implementation of the NPDES permitting program. Under the Clean Water Act, an NPDES permit is required for the discharge of pollutants from any point source into waters of the United States. Currently, EPA estimates that approximately 727,200 dischargers are covered by NPDES permits. About 94 percent of dischargers are covered by general permits, which are issued to categories or classes of facility or activity, and 6 percent are covered by individual permits.

Vessels General Permit Administration

In 2017, the Industrial Branch continued to lead the development and administration of the Vessel General Permit. This permit regulates 27 different types of discharges from more than 60,000 domestic and foreign vessels greater than 79 feet in length to protect U.S. waters from negative effects from vessel discharges, including the management of potentially invasive species from ballast water and hull fouling. The current Vessel General Permit, in effect through December 2018, includes both numeric effluent limitations and required best management practices to minimize the potential impacts from these discharges. As part of permit administration, OWM developed and operates an electronic reporting system and email help desk.

Pesticide General Permit

In October 2016, EPA reissued the Pesticide General Permit (PGP). The PGP is available to operators in areas where EPA is the NPDES permitting authority, which includes four states (Idaho, Massachusetts, New Hampshire, and New Mexico), Washington, D.C., all U.S. territories except the Virgin Islands, most tribal lands, and federal facilities in four additional states (Colorado, Delaware, Vermont, and Washington). EPA's PGP is available for pesticides applied directly to water due to one of the following use patterns:

- Mosquito and Other Flying Insect Pest Control
- Weed and Algae Pest Control
- Animal Pest Control
- Forest Canopy Pest Control

Reviewing State and EPA Regional Office NPDES Programs

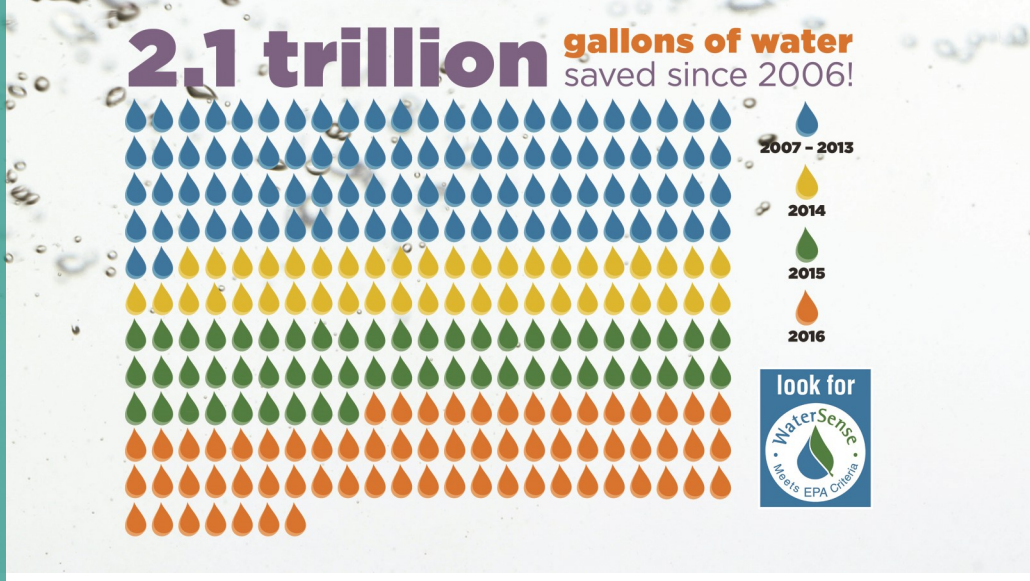
EPA ensures the integrity of the permitting process by conducting permit and program quality reviews (PQRs) of Regions and States. In FY 2017 OWM and EPA Regional Offices conducted PQRs for eight state and regional NPDES programs and continued monitoring the completion of recommended follow-up actions from prior permit quality reviews. OWM is working with the Regions to develop modifications to the materials used to support the PQR process in preparation for the next five-year PQR cycle which begins in FY 2018. These modifications are intended to make the PQR process easier to complete, more consistent and more efficient.

2017 Construction General Permit

OWM works with construction site operators to ensure they have the proper stormwater controls in place so that construction can proceed in a way that protects communities' clean water and the surrounding environment. In January, EPA issued the 2017 Construction General Permit (CGP). The CGP requires eligible construction site operators to minimize the discharge of pollutants in stormwater from construction sites by developing a Stormwater Pollution Prevention Plan, ensuring staff are properly trained, implementing erosion and sediment controls and pollution prevention practices on site, conducting self-inspections, and taking corrective actions when necessary. OWM also collaborated with OECA to develop a new module in the NPDES eReporting Tool for the 2017 CGP to streamline registration and improve user experience, update information required to be submitted to EPA, and integrate with EPA's other electronic data systems.

Nutrient Permitting Requirements for Municipal Facilities

OWM developed a new methodology for synthesizing data on nutrient effluent limitations and monitoring requirements in NPDES permits for municipal discharges. The data is used to display the number and percent of municipal wastewater treatment facilities in each state with effluent limits or monitoring requirements for nitrogen and phosphorus parameters. Monitoring nutrient concentrations in effluent from municipal facilities can help inform natural resource and public health managers about key sources of nutrients in waters. Setting effluent limits for nitrogen and phosphorus can substantially reduce nutrient loadings to water bodies, protecting local and downstream water quality as a result.



Partnerships

Did you know? WaterSense labeled professional certification organizations have certified more than 3,100 irrigation professionals in the U.S. who can help design, install/maintain, and audit irrigation systems.

WATERSENSE

Ten Years of Water Savings

Since EPA launched the WaterSense® program in June 2006, Americans have saved more than 2.1 trillion gallons of water—more than the amount of water used by all United States households for 75 days. In 2016 alone, a total of 534 billion gallons were saved with WaterSense lab
WaterSense labeled products ar
certified to use at least 20 perce
perform as well or better than st
the end of 2016, more than 21,0
models of toilets, bathroom fauc
accessories, showerheads, flush
flushometer-valve toilets,
weather-based irrigation
controllers, and pre-rinse spray
the label. EPA estimates WaterS
products have helped American
billion in energy and water bills.
due to the efforts of more than 1
manufacturer, retail, builder, anc
organizational partners. They ha
Americans save water, energy, and money with products, programs, and promotions.

WaterSense Irrigation Spray Sprinkler Body Specification

EPA released a final specification to allow spray sprinkler bodies with integral pressure regulation to earn the WaterSense label. Spray irrigation is typically found in residential and light commercial settings. The sprinkler body is the exterior shell that connects to the irrigation system piping and houses the spray nozzle which distributes water onto the landscape. Landscape irrigation sprinklers are often installed at sites where the system pressure is higher than what is recommended for the sprinkler nozzle, thus resulting in system inefficiencies. These can include excessive flow rates, misting, fogging, and uneven coverage (e.g., dry spots or water pooling). The optimal operating pressure for most sprinkler nozzles is 30 pounds per square inch (psi). When the sprinkler body maintains the pressure at or near the optimal operating pressure, the connected nozzle can generate the appropriate water droplet size and provide for more uniform distribution of water across the landscape. EPA estimates that the average household using 50,500 gallons per year for outdoor water use could save nearly 5,600 gallons of water per year by installing WaterSense labeled sprinkler bodies and $55 per year in water and sewer costs.

WaterSense Notice of Intent on Tub Spout Diverters

WaterSense issued a Notice of Intent (NOI) to develop specification for bath and shower diverters with no measurable leaks. A bath and shower diverter device directs the flow of water either toward the tub spout or toward a showerhead. WaterSense aims to tap potential water savings by eliminating leaky diverters and create awareness among consumer and utilities. Currently, there is a national standard for this technology but most products today conform to a California Energy Commission standard with an allowable pre and post lifecycle leak rate of 0.01 and 0.05 gallons per minute (gpm). A number of field studies found that these devices leak at a much higher rate causing considerable loss of water and energy. WaterSense continues to collect information on specific outstanding issues, questions, and concerns prior to drafting its specification.

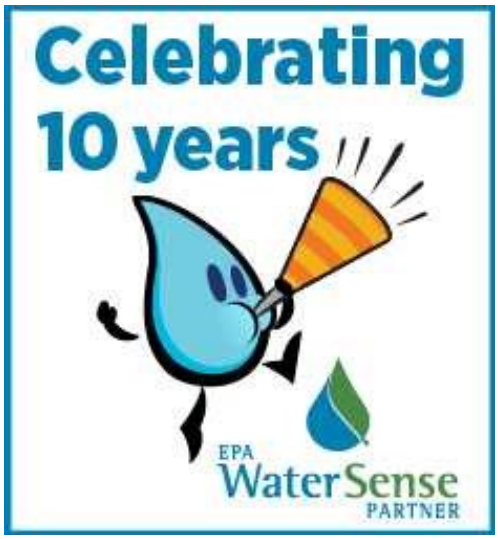
WaterSense Partners of the Year Awards

On October 6, 2016, the 2016 WaterSense award winners were announced at WaterSmart Innovations Conference and Exposition in Las Vegas, NV. WaterSense partners across the country help save water for future generations by advancing and promoting WaterSense and water efficiency.

Four partners were recognized with Sustained Excellence Awards for their continuous high level of support: Delta Faucet Company, Kohler Co., The Home Depot, and KB Home.

Seven partners were recognized as Partners of the Year: Athens-Clarke County (Georgia) Public Utilities Department, Citrus County (Florida) Utilities, City of Charlottesville (Virginia), Cobb County (Georgia) Water System, Metropolitan North Georgia Water Planning District, Energy Inspectors Corporation, and Sonoma-Marin (California) Saving Water Partnership.

WaterSense also presented nine Excellence Awards, which recognize organizations and individuals whose support stood out in one or more evaluation categories: Cascade (Washington) Water Alliance, High Sierra Showerheads, City of Durham (North Carolina) Water Management, Sonoma-Marin (California) Saving Water Partnership, City of Carmel (Indiana) Utilities, City of Fort Worth (Texas), Regional Water Authority (California), The Toro Company, and American Standard.



Fix a Leak Week: Partners Go the Extra Mile to Track Down Water Leaks

During the ninth annual Fix a Leak Week, March 20 to 26, 2017, WaterSense partners let their water-saving tips flow by encouraging community members to find and fix wasteful leaks indoors and out. More than 39 related partner events were held across the United States and Canada. Partner events spread the leak-fixing message on the ground. One highlight was the City of Fort Worth, Texas, which held a chasing leaks 5-kilometer run/walk and three other events where residents could learn how to find and fix leaks. The City also distributed newly created Spanish language materials for outreach to the Latino/Hispanic community during four pop-up events. The fresh materials were based off *lotería*, a traditional Mexican card game, and were accompanied by a water conservation kit with toilet leak detection tablets and a WaterSense labeled aerator and showerhead.

Inspector General Report Evaluation

EPA's Office of the Inspector General (IG) conducted an evaluation of the WaterSense program, the purpose of which was to "assess the accuracy of WaterSense product label claims of water and energy savings, verify industry data used to estimate program accomplishments, and test the veracity of the program's annual accomplishment estimates." After conducting research and interviewing EPA staff from Headquarters, regional WaterSense liaisons, certifying bodies, partners, and stakeholders, the IG released its final report, EPA's Voluntary WaterSense Program Demonstrated Success, on August 1, 2017. The overall conclusion of the report was very positive -- the IG noted that the program was a sound model for voluntary programs and provided an opportunity to inform good practices for program management and accountability in other EPA programs by sharing successful WaterSense practices more broadly. The IG identified a few recommendations they believed would strengthen the program. EPA agreed with the recommendations and provided responses allowing the IG to consider all "as resolved."

SEPTICSMART WEEK

Celebrating the 5th Annual SepticSmart Week

EPA's SepticSmart Week Program, a campaign to inform homeowners on proper septic system care and maintenance, assist local agencies in promoting homeowner education and awareness, and educate local decision makers about infrastructure options to improve and sustain their communities, took place September 18-22, 2017. This year, EPA's Decentralized Wastewater MOU Partnership created a SepticSmart Week social media toolkit composed of suggested language for social media posts, press releases, blogs, images, and more. This

toolkit was shared with the members of all Decentralized MOU Partnership organizations, down to the state and local level.

SepticSmart Week Proclamations

As part of the 2017 SepticSmart Week, ten states and four localities signed SepticSmart Week Proclamations. By signing the proclamation, the States of Alaska, Idaho, Indiana, Michigan, Minnesota, Oregon, Pennsylvania, Vermont, Virginia, Washington officially declared SepticSmart Week. Michigan's House of Representatives also officially declared SepticSmart Week. In Indiana, four localities including Northwestern Indiana Regional Planning Commission, Porter County, the town of Beverly Shores, and the town of Chesterton declared SepticSmart Week. These proclamations add weight to the SepticSmart Week campaign in the states, and empower state regulators to disseminate the message to their local counterparts.

New Homeowners Guide for Septic Systems

In August, EPA's Decentralized Wastewater Team created a new homebuyer's guide that provides information homebuyers need to know before purchasing a home with a septic system. It covers topics such as how a septic system works, the importance of having it inspected prior to purchasing a home, and information on daily, preventative, and corrective maintenance.

Nutrient Recycling Challenge

OWM and 20 partners are hosting a four-phase competition to find nutrient recovery technologies that can help farmers affordably reduce nutrient losses to water and create valuable products from pork and dairy manure. In Phase I, launched November 2015, OWM received 75 concept papers from around the world and selected 34 to continue on to Phase II. In Phase II, which was completed in July 2017, innovators advanced development of technology designs based on their concepts. In conjunction with partners, OWM is currently planning next steps for the Challenge, which include facilitating innovators' access to technology evaluation and peer-to-peer sharing forums as well as business development and funding information.

COLLABORATION & SYNERGY

Decentralized Wastewater Partnership

EPA's Decentralized Wastewater MOU Partnership consists of 18 Partner organizations that work collaboratively to encourage proper decentralized system management and protect the nation's public health and water resources. This MOU is renewed every three years and was re-signed November 14, 2017, marking the fourth renewal event since the original signing in 2005.

During FY 2017, EPA staff met with all MOU Partners individually to discuss the progress of the MOU Partnership the past three years and priorities for the future. Based on input from these meetings, EPA assembled the 2017 MOU renewal agreement and core priorities for the partnership to focus on for the next three years. EPA held seven full-partner conference calls during FY 2017 to discuss partnership activities, coordinate SepticSmart Week efforts, and review MOU renewal documents. The EPA Decentralized MOU Partnership also hosted three webinars in FY 2017. The topics were diverse and included a presentation on direct discharge of wastewater in unsewered areas of rural Alabama, a how-to guide on SepticSmart Week proclamations

(state speakers outlining their steps they took to get a proclamation), and funding options for homeowners to finance septic system repair or replacement by USDA Rural Development.

Campus RainWorks Challenge

The Green Infrastructure Program held the 5th annual Campus RainWorks Challenge, a green infrastructure design competition created to engage college and university students in reinventing and increasing the resiliency of our water infrastructure and developing green infrastructure systems to reduce stormwater pollution. The challenge targets the next generation of engineers, architects, and planners in a hands-on learning experience to design stormwater management features on campus. This year added a focus on community engagement.

More than 60 student teams submitted green infrastructure designs for their respective campuses to compete in one of two categories — master plan or demonstration project. The City College of New York, University of Cincinnati and East Georgia State College were the first, second-place and honorable mention winners in the master plan category, and Kansas State University, the University of Maryland and the University of New Mexico were first, second place and honorable mention winners in the demonstration project category. The sixth annual Campus RainWorks Challenge rules were announced in the summer of 2017.

> *"Our Campus RainWorks Challenge winners are the next generation workforce of green infrastructure designers and planners."* - Acting Assistant Administrator Mike Shapiro

Vessel Discharge Research

In 2017, OWM's Industrial Branch oversaw a $2.2 million interagency agreement with the Naval Research Laboratory to: (1) evaluate the effectiveness of combining open ocean exchange and treatment for ballast water and (2) investigate novel, indirect sensing methods to assess and quantify biofouling loads on vessel hulls. These research efforts support the development and administration of the Vessel General Permit as a mechanism to control propagule pressure of potential invasive species transported by vessels.

WE&RF Research Council

Collaboration with external stakeholders included active participation on the Water Environment and Reuse Foundation (WE&RF) Research Advisory Council and multiple WE&RF and Water Research Foundation (WRF) project steering committees and projects as well as the WEF/WE&RF Leaders Innovation for Technology Forum. The Leaders Innovation for Technology (LIFT) workgroup activities aimed at promoting and expediting the

development of sustainable and innovative wastewater technologies and sharing related information with industry stakeholders.

State and Tribal Water Monitoring Initiative

OWM and EPA's Office of Wetlands, Oceans and Watersheds continue to work with states and tribes to enhance their water quality monitoring programs and implement a multi-year, statistically valid survey of the nation's waters. In FY 2017, states and tribes conducted sampling and reported water quality monitoring data for the National Lakes Conditions Assessment. The monitoring initiative allows EPA, states and tribes to report on the condition of the nation's waters and make progress toward assessing trends in water condition in a scientifically defensible manner.

Coordinated Federal Permitting Process for Offshore Aquaculture in the Gulf of Mexico

EPA chairs a committee to develop coordinated federal permitting for offshore aquaculture in the Gulf of Mexico. Other federal agencies include: NOAA, the Corps of Engineers, U.S. Coast Guard, Bureau of Ocean Energy Management, Bureau of Safety and Environmental Enforcement, Fish and Wildlife Service and U.S. Department of Agriculture. In February 2017 the partner agencies executed a Memorandum of Understanding for Permitting Offshore Aquaculture Activities in Federal Waters of the Gulf of Mexico.

Animal Agriculture Education Project

EPA, U.S. Department of Agriculture Natural Resources Conservation Services, and the Animal Agriculture Discussion Group are developing an educational program to facilitate two-way understanding of livestock and poultry feeding operations and water quality protection measures. The content includes dynamic multimedia features such as videos and virtual tours of farms. Module I, Animal Agriculture, Manure Management and Water Quality, covers:

- Trends in Animal Agriculture,
- Manure Collection and Storage,
- Land Application of Manure Nutrients,
- Water Quality Issues Associated with Manure,
- Clean Water Act Requirements, and
- Planning for Stewardship.

Long Term Monitoring Authorized Under the Water Infrastructure Improvement for the Nation Act

Section 5004(d) of the Long Term Monitoring Authorized Under the Water Infrastructure Improvement for the Nation (WIIN) Act, enacted in December 2016, provides that EPA, "in conjunction with affected States, Indian tribes and local governments, shall, subject to the availability of appropriations, develop and implement a program for long-term water quality monitoring of rivers contaminated by the Gold King Mine release." OWM, EPA's Office of Wetlands, Oceans and Watersheds, and Regions 6, 8 and 9 worked with impacted states and tribes to develop a long-term monitoring program. The Section 106 program is leading the effort to allocate and grant funds to begin implementing the program.

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