

SACRAMENTO STATE

# Annual Report

2015-2016



**WATER PROGRAMS**  
SACRAMENTO STATE

# About Us

As the definition of water management expands to a holistic approach that focuses on resource recovery and reuse, the mission of the Office of Water Programs (OWP) at Sacramento State remains relevant. We are here to deliver cost-effective solutions for protecting and enhancing water resources, public health, and the environment through training, scientific research, and public education.

In this role, we continue to diversify and increase our collaboration with other organizations whose missions parallel or intersect with our own. This is demonstrated in numerous ways, including:

Our **connection** with Sacramento State demonstrated by collaborating with Facilities Management on the LID campus implementation project, bringing notable speakers to campus for the benefit of the entire community through our Water Seminar Series, and providing undergraduate and graduate students with experience in their fields of study through direct employment and project experience.

Our **partnership** with a publishing company developed to expand our reach for the benefit of drinking water and wastewater professionals by completely revising our print training materials and creating new online training materials that focus on current industry topics.

Our **collaboration** with various government agencies and other organizations focused on stormwater management, dam break analysis, areas of special biological significance, online training programs for stormwater professionals, clean water, and other topics.

Our **ability** to attract and retain an experienced staff of more than 35 employees, under the direction of Dr. Ramzi Mahmood, whose expertise and commitment are applied to the mission of OWP and are sought out by other water industry professionals.

This annual report provides details about how our organization met mission goals in the 2015–2016 fiscal year and how we are laying a foundation for expanding on this success in the future.

## The organizational values that shape our commitment to providing sought-after training and research services include:

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**People First**—We believe the potential of our organization has no limit and is driven by our employees, our respect for each other, and our commitment to providing the best service and products in the industry.

**Ethical Approach to Business**—We believe in the values of honesty and integrity and apply these values to all of our business practices.

**Quality**—We take pride in everything we do. From our products and services to our relationships with customers, clients, and employees—quality is our signature.

**Education**—We believe in and support life-long learning for our employees, our clients, our students, and our community.

**Public Health and the Environment**—We believe that our practices should always focus on protecting public health and the environment.

# Training Services

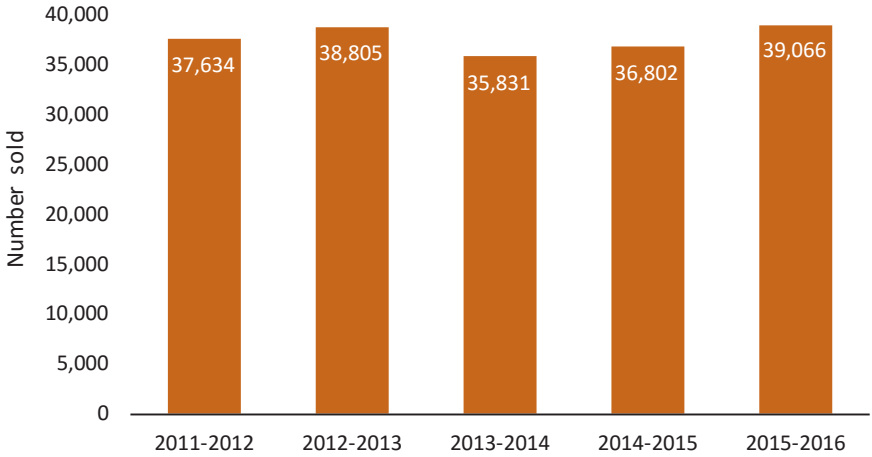
We continue to be the leading industry provider of distance learning courses for drinking water and wastewater industry professionals, offering nearly 50 courses via print, online, and DVD delivery.

Our courses are a best-selling resource for training individuals and groups, meeting continuing education and contact hours requirements, and preparing for state certification exams.

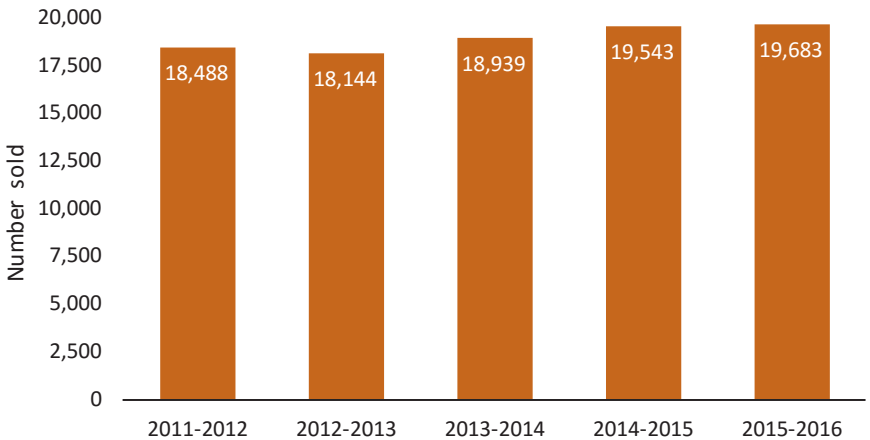
## 2015-2016 Highlights

- Sales of training products reached 30 countries, including Bosnia, the Bahamas, and the United Kingdom
- Over 39,000 training manuals sold
- Nearly 20,000 students enrolled in courses for continuing education units, contact hours, or academic credits
- 66 percent of students reside outside of California, making OWP a national training provider

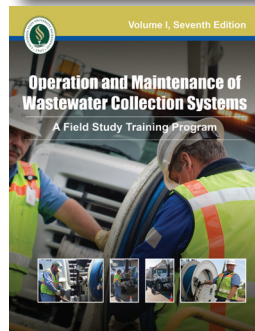
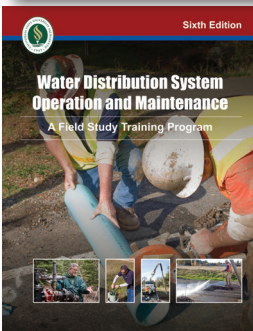
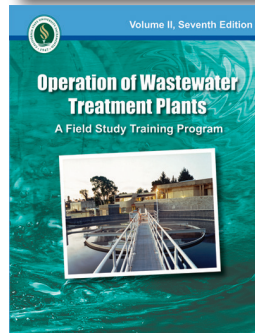
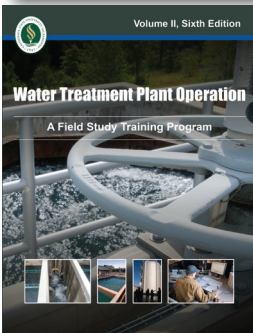
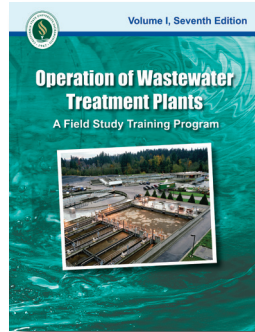
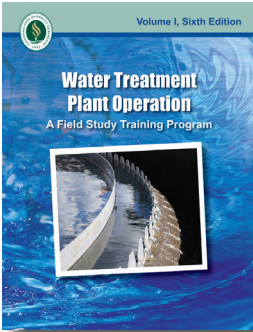
## Training Manual Sales



## Course Enrollment Sales



# Popular Titles



## Selected Training Products

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*Advanced Waste Treatment (print, course enrollment)*

*Basic Small Water System Operations (print)*

*Collection Systems: Methods for Evaluating and Improving Performance (print, course enrollment)*

*Industrial Waste Treatment, 2 volumes (print, course enrollment)*

*Manage for Success (print, course enrollment)*

*Membrane Bioreactors (print, course enrollment)*

*Operation and Maintenance of Wastewater Collection Systems, 2 volumes (print, DVD, course enrollment)*

*Operation of Wastewater Treatment Plants, 2 volumes (print, CD, course enrollment, 5 online courses)*

*Pretreatment Facility Inspection (print, DVD, course enrollment)*

*Small Wastewater System Operation and Maintenance, 2 volumes (print, course enrollment)*

*Small Water System Operation and Maintenance (print, DVD, course enrollment, 5 online courses)*

*Treatment of Metal Wastestreams (print, course enrollment)*

*Utility Management (print, course enrollment)*

*Water Distribution System Operation and Maintenance (print, course enrollment, 5 online courses)*

*Water Systems Operation and Maintenance Video Training Series (print, DVD, course enrollment)*

*Water Treatment Plant Operation, 2 volumes (print, course enrollment)*



# Spotlight

## Industry Awards Recognize Success of \$3.4M Campus Low Impact Development (LID) Implementation Project

**2016 Outstanding Best Management Practice Implementation Project**  
*California Stormwater Quality Association*

**2015 Urban Development Project of the Year—** *American Society of Civil Engineers, Sacramento Section*

These awards are quite an honor for OWP and its project partners. They recognize the project success of installing 25 LID best management practices (BMPs) devices on the Sacramento State campus and the further-reaching goal of demonstrating effective methods for regional stormwater management and sustainability.



The project is exemplary and unique in the quantity and types of LID BMPs implemented, the retrofit nature of the project, the cooperative effort among several stormwater organizations, and the significant environmental and social improvements it provides. In addition to improving the water quality of the American River, this project provides ongoing public education and outreach activities that engage and inform the public as well as stormwater professionals and construction contractors. A self-guided walking tour mobile application—designed in collaboration with Sacramento State students—will be available in fall 2016.



## Water Seminar Series Focuses on the State of Water in California

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Hosting well-known industry experts who are shaping water policy and management in California, OWP continues bringing together water professionals from around the region with the Sacramento State community to educate and collaborate on water use, management, and protection in California. Past seminar topics include:

- Drought, El Nino and California's Climate Variability in the Face of Change
- California Water: A Historical Perspective
- Sacramento's Flood Risk Reduction Efforts (1989 to the Present and Beyond)
- The Sacramento Area Response to California's Historic Drought
- The EchoWater Project: Unprecedented Wastewater Infrastructure Investment for Sacramento
- The Sustainable Groundwater Management Act

# Stormwater Training, Exam Services & Tools

We offer a variety of specialized and cost-effective technical services to clients that support their organizational goals and needs, including numerical modeling utilities and web-based tools for administering online exams and certificate programs.

## California Industrial and Construction General Permits Training and Exam Administration

Working with the California Stormwater Quality Association (CASQA), OWP developed and continues to administer an online tool that provides training and testing services for Qualified Industrial Stormwater Practitioners (QISP) involved with industrial sites throughout the state.

We continue in our role as administrator for the California Construction General Permit QSD/QSP exam on behalf of CASQA. This online testing service is provided for Stormwater Pollution Prevention Plan (SWPPP) developers and practitioners (QSD/QSP) involved in new construction projects throughout the state.

Candidates for both certificate programs can purchase, train, test, and receive certificates from this single-source online system. The tools also provide anyone in need of a QSD/QSP/QISP with free, public access to current lists of qualified practitioners.

## LID Sizing Tool



A web-based tool that assists stormwater practitioners in selecting and sizing low impact development (LID) Best Management Practices (BMPs) that meet the sizing requirements in California's National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges from small municipal separate storm sewer systems (MS4s).

## Basin Sizer

A software program designed to assist users in accurately sizing stormwater basins anywhere in California. Basin Sizer calculates water quality volumes (WQVs) and water quality flows (WQFs) using a variety of methods and data from rainfall stations throughout the state.

## Water Quality Planning Tool

Planners access the tool on an easy-to-use website displaying watershed information needed to create and comply with stormwater permits.

## Struvite Precipitation Potential Calculation Tool

A convenient tool for struvite control planning helps users model various scenarios by changing parameters that control struvite precipitation.

# Applied Research Services

Water quality, management, and reuse are the focus of our research engineers and scientists. As a sought-after provider of technical expertise and project consulting for the public and private sectors, our contributions to data analysis, cost assessment, watershed planning, modeling, and water policy issues enable clients and collaborative partners to make informed decisions for the benefit of the public.

## 2015-2016 Highlights

- Completed installation of 25 low impact development (LID) stormwater treatment devices on the Sacramento State campus as part of \$3.4M award-winning implementation project
- Began \$200,000 stormwater capture and use project for the State Water Board
- Hosted the 2015 Sacramento Regional LID Conference at the Sacramento State Alumni Center
- Completed \$1.3M technical assistance and outfall inventory effort for the California Department of Parks and Recreation. Among its benefits, this project provided new research engineers and student interns with experience using GPS technology to perform drainage assessments.

# Funded Grants & Contracts



- SWRCB Campus LID Implementation Grant \$3.4M
- CA Dept of Parks and Recreation \$1.3M
- CA Dept of Transportation (DRISI) \$273K
- CA Dept of Transportation (DEA) \$6M
- SWRCB LID Design Tool Grant \$278K
- SWRCB Engineered Soils Development Grant \$339K
- SWRCB Stormwater Capture & Use \$200K
- CA Dept of Water Resources, DSOD \$500K
- CW4CB \$44K
- SRCSD \$300K

## Implementation of Low Impact Development Devices on Sacramento State Campus

In collaboration with the City of Sacramento and Sacramento State Facilities Management, OWP was awarded a \$3,453,782 grant (administered by the State Water Board) to design and build up to 25 low impact development stormwater treatment devices that will be used to evaluate LID treatment performance and to educate the public.

## Phase II Stormwater Permit Compliance (Technical Assistance)

The California Department of Parks and Recreation (California State Parks) contracted \$1,268,192 with OWP (10/13/14-10/12/16) to provide technical assistance for the California State Parks Stormwater Program, with a focus on Phase II Permit compliance.

# Applied Research Services

## Funded Grants & Contracts

### Environmental Impact of Cured-In-Place Pipe (CIPP) Repairs

The California Department of Transportation (Caltrans), Division of Research, Innovation, and System Information (DRISI) contracted \$273,383 with OWP (05/29/14-12/31/16) to implement field studies to determine the environmental impact of CIPP repairs.

### Stormwater Technical Assistance

The California Department of Transportation (Caltrans), Division of Environmental Analysis (DEA) contracted \$6,000,000 with OWP (06/01/13-10/31/16) to provide technical assistance with stormwater research focusing on discharge characterization, source identification and control, and treatment control studies.

### Development of Low Impact Development Design Tool

The State Water Resources Control Board (State Water Board) contracted \$278,948 with OWP (04/01/13-04/01/16) to develop and implement a user-friendly web-based tool to assist designers with low impact development design.

### Development of Engineered Soils to Promote Low Impact Development Implementation

The State Water Resources Control Board (State Water Board) contracted \$339,084 with OWP (06/01/13-01/01/16) to test the treatment performance and conductivity of different engineered soils in both bench and pilot scales.

### Division of Safety of Dams Mapping Project

The California Department of Water Resources (DWR) contracted \$500,000 with OWP (01/01/13-06/30/17) to assist with dam break flood analysis and emergency action plan development.

## Clean Watersheds for a Clean Bay (CW4CB) Project BMP Pilot Studies

Continuing a collaborative effort with the Bay Area Stormwater Management Agencies Association (BASMAA) and eight Bay Area cities/counties, Geosyntec contracted \$44,075 with OWP (executed on 02/16/16) to assist with stormwater best management practices pilot study design, coordination, and oversight.

## Wastewater Technical Expertise

The Sacramento Regional County Sanitation District contracted \$300,000 with OWP (06/11/03-06/30/16) to provide technical expertise, with a focus on wastewater characterization and treatment.

## California Stormwater Quality Association (CASQA) Qualified SWPPP Developer (QSD) and Qualified SWPPP Practitioner (QSP) Testing and Certification

CASQA contracted with OWP (executed on 01/21/11) to develop and implement an online system to administer/grade tests and issue/renew certifications.

## US Environmental Protection Agency (EPA) Region 9 Environmental Finance Center

EPA Region 9 awarded OWP a \$4.8M grant (over 6 years) to develop, operate, and maintain an Environmental Finance Center (EFC) for Region 9. The contract will be developed in the 2016–2017 fiscal year.



# Conferences, Workshops, Presentations & Committees

## Conferences

### July 2015

California Water Environment Association (CWEA) Collection System Committee's Midsummer Event, Cambria, CA (participant)

### August 2015

Stormcon 2015 (Hydrologic Analysis Tool), Austin, TX (presenter)

### September 2015

Stormwater Awareness Week, Sacramento State, Sacramento, CA – Campus LID and Stormwater as a Resource (presenter)

Water Environment Federation's Annual Technical Exhibition and Conference (WEFTEC), Chicago, IL (presenter)

Hosted Elisabeta Poci of SHUKALAB – Republic of Albania regarding a USAID project on developing a sustainable water sector capacity in Albania. The focus was operator training and certification

### October 2015

Cal Poly SLO Landscape Architecture Lecture (Campus LID project), Sacramento, CA/SLO, CA (presenter via internet)

California Stormwater Quality Association (CASQA) 2015 Conference, Monterey, CA – Low Impact Development Sizing Tool (presenter)

California Stormwater Quality Association (CASQA) 2015 Conference, Monterey, CA – Engineered Soils Project (presenter)

California Stormwater Quality Association (CASQA) 2015 Conference, Monterey, CA – State Parks ASBS Approach (presenter)

### **November 2015**

Sacramento Regional LID Conference, Sacramento, CA – Campus LID Project (presenter)

UNESCO Workshop, Doha, Qatar (participant)

### **January 2016**

Accreditation Board of Certification (ABC) annual conference, Denver, CO (presenter)

USEPA meeting regarding the new grant for establishing the Environmental Finance Center (presenter)

### **February 2016**

Sacramento State STEM Lecture Series, Sacramento, CA – Campus LID Project (presenter)

Iowa Rural Water Association (IRWA) conference, Des Moines, IA (presenter)

California Water Environment Association (CWEA) 43rd Annual P3S Conference, Riverside, CA (participant)

### **April 2016**

Water Resources and Policy Initiatives (WRPI) Conference, Long Beach, CA – CSU's Water Resources and Policy Initiatives (participant)

California Water Environment Association (CWEA) Annual Conference, Santa Clara, CA (participant)

# Conferences, Presentations & Committees

## May 2016

USEPA and State Water Board Sponsored Training, Diamond Bar, CA – Phase II (presenter)

USEPA and State Water Board Sponsored Training, Rancho Cordova, CA – Phase II (presenter)

Water Environment Federation (WEF) Collection Systems Specialty Conference, Atlanta, GA (participant/committee member)

UNESCO Workshop, Erbil, Iraq (participant)

## Conference Exhibitor & Host

### November 2015

Sacramento Regional LID Conference, Sacramento, CA (hosting organization)

### April 2016

California Rural Water Association (CRWA) 2016 Expo, Lake Tahoe, CA (exhibitor)

### June 2016

Rural Communities Assistance Corporation (RCAC) CalTAP Fair, San Diego, CA (exhibitor)

## Professional Committees

### American Basin Council of Watersheds

### American Water Works Association (AWWA) Wastewater Collection Systems Committee

### California Stormwater Quality Association (CASQA)

- Board Seat, Board of Directors
- Construction Subcommittee
- Co-Chair, CASQA Training Subcommittee

- Policy and Permitting Subcommittee
- Phase II Subcommittee
- Phase II Non-Traditional Subcommittee
- BMP Subcommittee
- Impaired Water Subcommittee
- Monitoring Subcommittee
- Training Subcommittee
- Effectiveness Assessment Subcommittee

### **Delta Tributaries Mercury Council**

### **Lower American River Task Force – Bank Protection Working Group**

### **Small Systems Inter-Agency Outreach Committee (SSIOC)**

### **State Water Resources Control Board (State Water Board)**

- Industrial General Permit Training Team and Evaluation and Examination Subcommittee
- Construction General Permit Training Team and Testing and Evaluation Subcommittee
- Data Visualization Group
- Central CA ASBS Monitoring Group
- Northern CA Water Quality Monitoring Group
- Southern CA Beach Water Quality Work Group
- Wastewater Certification Advisory Committee

### **Transportation Research Board, Hydraulics, Hydrology, and Water Quality Subcommittee**

### **Washington State TAPE External Board of Reviewers**

### **Water Environmental Federation (WEF), Collection Systems Committee**



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