31ST ANNUAL CSWEA EDUCATION SEMINAR

APRIL 16TH 2026

FROM SMALL PLANTS TO BIG CHALLENGES: NUTRIENT REMOVAL, CONTROLS, AND EVOLVING REGULATIONS

FROM SMALL PLANTS TO BIG CHALLENGES:
Nutrient Removal, Controls, and Evolving Regulations:

Mark your calendars for the CSWEA 31st Annual Education Seminar to be held in person on April 16th, 2026 at the Monona Terrace in Madison, WI. We have an exciting program to discuss practical steps to implementing innovative nutrient removal technologies into full-scale treatment. Attendees will gain insights into incorporating advanced nutrient removal technologies within existing infrastructure and the benefits of providing the appropriate level of instrumentation & controls. We will also review the future regulatory landscape and a watershed approach to nutrients. Join us as we discuss practical implementation of innovative nutrient removal technologies to solve the challenges of today while positioning to meet the problems of the future.

MIDWEST STUDENT DESIGN COMPETITION (MSDC)

In parallel with the Seminar, you can support the University Students from CSWEA and surrounding states that will be presenting their environmental and wastewater design projects at the Monona Terrace. Please consider attending to learn about their contributions to the industry and support these budding professionals. Competition starts at 8:00 am on April 16th.

MEET & GREET/DINNER

A meet and greet will be held April 15th, 2026 where Seminar attendees, Seminar presenters, and Midwest Student Design participants can network. This event will be from 5:00 pm until 6:30 pm at the Monona Terrace.

There will be an Innovation and Technology (I&T) Networking dinner after the meet and greet at Great Dane Pub & Brewing (123 E Doty Street). If interested in attending please sign up when registering.

Monona Terrace
1 John Nolen Dr, Madison, WI 53703

The Great Dane Pub & Brewery
123 East Doty Street, Madison, WI 53703

31ST ANNUAL CSWEA EDUCATION SEMINAR SPEAKERS


Charles Bott, Ph.D., P.E.


Pusker Regmi, Ph.D., P.E.


Lee Pinkerton, P.E.


Tyler Briese, P.E.


Joe Watson


Cindy Qin, Ph.D.


Chan Lan Chun, Ph.D.


Silvia Secchi, Ph.D.


Craig Just, Ph.D., P.E.

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8:00-8:10 am: WELCOME AND INTRODUCTIONS

8:10-9:00 am: KEYNOTE 1: PRACTICAL STEPS TO INTEGRATING ADVANCED NUTRIENT REMOVAL

SPEAKER: CHARLES BOTT, PH.D., P.E.
HAMPTON ROADS SANITATION DISTRICT
CHIEF TECHNOLOGY OFFICER AND DIRECTOR OF WATER TECHNOLOGY

Charles Bott's pioneering work at the Hampton Roads Sanitation District (HRSD) has advanced the practical integration of cutting-edge nutrient removal technologies into full-scale wastewater treatment operations. This keynote will highlight actionable strategies derived from HRSD's experience, including process intensification, mainstream partial denitrification–anammox (PdNA), and optimization of biological nutrient removal under varying dissolved oxygen conditions. Emphasis will be placed on bridging research and practice—translating microbial ecology insights, pilot-scale innovations, and regulatory drivers such as Chesapeake Bay TMDL compliance into scalable solutions that achieve stringent nitrogen and phosphorus limits while minimizing capital and operating costs. Attendees will gain a roadmap of practical steps for utilities seeking to implement advanced nutrient removal, informed by HRSD's leadership in technology deployment, collaborative research, and commitment to sustainable water quality improvements.

DETAILED BIO:

Dr. Charles B. Bott is the Chief Technology Officer and Director of Water Technology and Research at the Hampton Roads Sanitation District (HRSD), where he leads innovation across 18 wastewater treatment plants with a combined capacity of over 225 million gallons per day. His research has advanced biological nutrient removal, process intensification, and renewable energy recovery, bridging cutting edge science with full scale utility practice. Under his leadership, HRSD has received national recognition, including the U.S. Water Alliance's U.S. Water Prize (2018) and Virginia's Governor's Environmental Excellence Award (2019) for the Sustainable Water Initiative for Tomorrow (SWIFT) Research Center. Widely respected in the industry, Bott also serves as an adjunct professor at Virginia Tech and Old Dominion University, mentoring the next generation of environmental engineers while shaping the future of sustainable water management.

9:00-9:30am: TIME TO SET BNR FREE: A FRAMEWORK FOR PROCESS INTENSIFICATION

SPEAKER: PUSKER REGMI, PH.D., P.E.
VICE PRESIDENT AND WASTEWATER SECTOR LEADER AT STANTEC

Biological Nutrient Removal (BNR) has long relied on conventional design features such as Internal Mixed Liquor Recycle (IMLR), but these legacy approaches now constrain innovation and efficiency. In Time to Set BNR Free: A Framework for Process Intensification, Pusker Regmi will present a bold rethinking of BNR that emphasizes letting go of outdated assumptions and embracing streamlined, carbon-efficient strategies. Drawing on full-scale demonstrations and research into advanced aeration control, nitrite-shunt, and mainstream deammonification, this keynote will outline how utilities can intensify processes within existing infrastructure to achieve higher capacity, lower energy and chemical demand, and improved effluent quality. Attendees will gain a practical framework for reimagining BNR—one that leverages modern process control, microbial ecology, and resource recovery to meet stringent nutrient limits while positioning facilities for long-term sustainability.

DETAILED BIO:

Dr. Pusker Regmi is a Vice President and Wastewater Sector Leader at Stantec and a recognized leader in wastewater process innovation, known for advancing biological nutrient removal (BNR) and process intensification strategies that are reshaping utility operations worldwide. His work focuses on carbon-efficient nitrogen removal and the practical integration of process control strategies into full-scale treatment systems. In 2025, he received the Water Environment Federation's Camp Applied Research Award, one of the organization's highest honors for his contributions to process intensification in wastewater treatment. Through his work with utilities and academic collaborators, Dr. Regmi bridges research and practice, helping facilities unlock capacity, reduce energy and chemical demand, and meet increasingly stringent nutrient regulations while mentoring the next generation of environmental engineers.

9:30-10:00 am: POSTER SESSION & BREAK

10:00-10:25 am: LESSONS LEARNED FROM IMPLEMENTING LOW DO AT A MID-SIZE FACILITY

SPEAKER: LEE PINKERTON, P.E
ENGINEER IN RESEARCH AND DEVELOPMENT DEPARTMENT OF THE METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES

The Eagle's Point WRRF (Cottage Grove, MN) has been the site of a long-term, low dissolved oxygen (DO) demonstration at full-scale. The facility has two separate secondary treatment trains. One train operated under low DO conditions from May 2023 to present, and both trains operate under low DO as of August 2025. Under low DO, the facility has achieved excellent ammonia removal, while requiring 20% less air use over the past 2 years despite the fact the influent flow has increased 20% over the same period. Low DO is often associated with increases in SVI; we have been mitigating poor settleability and are navigating how to operate a robust and resilient low DO system at full-scale.

DETAILED BIO:

Lee Pinkerton is an engineer in the Research and Development department of the Metropolitan Council Environmental Services, where he has worked for 9 years. He works on a variety of special projects ranging from aeration, blowers, and process modeling to molecular biology. Lee earned a BS in Chemical Engineering from the University of Wisconsin-Madison, is a registered Professional Engineer in Minnesota, and is a member of the ASCE Oxygen Transfer Committee.

10:25-10:50 am: THE NEW WATER EXPERIENCE – SND AND LOW DO

SPEAKERS: TYLER BRIESE, P.E.
NEW WATER STAFF ENGINEER
JOE WATSON
NEW WATER PROCESS AND PROJECT SPECIALIST

For over a year, NEW Water has been evaluating full-scale process configurations at low dissolved oxygen (DO) concentrations in preparation for future aeration system upgrades. As part of this effort, NEW Water is demonstrating a full-scale transition from an anaerobic-oxic (AO) process to an anaerobic-

anoxic-oxic (A2O) process configuration under low dissolved oxygen (DO) conditions. The study includes two full-scale parallel aeration basins, designated as test and control, each with its own secondary clarifier and effluent for independent performance evaluation. This study is among the few to use full-scale, side-by-side testing to evaluate low DO impacts and control strategies. The presentation will summarize operational performance data and key findings from this full-scale demonstration.

DETAILED BIO:

Tyler Biese, PE, is a Staff Engineer at NEW Water (Green Bay Metropolitan Sewerage District), where he manages major capital improvement projects from planning and design through construction and start-up. He also enjoys getting involved with process data analysis to assist operations at NEW Water. Tyler is a Professional Engineer licensed in Wisconsin and holds a Master of Science in Civil Engineering from Iowa State University.

Joe Watson is the Process & Project Specialist at NEW Water, where he has worked for more than ten years. In Joe's current role he focuses on process optimization and the success of NEW Waters capital upgrade projects. Joe's Prior experience includes seven years as a Wastewater Operator, Operating NEW Waters two facilities. Joe Watson has a BS in Water Resources from the University of Wisconsin-Stevens Point as well as an AS in Natural Resources from Fox Valley Technical College.

10:50-11:15 am: BALANCING CARBON, NUTRIENTS, ENERGY, AND DENSIFICATION FOR THE EGAN WRP

SPEAKER: CINDY QIN, PH. D.
SENIOR ENVIRONMENTAL RESEARCH SCIENTIST AT THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) is undertaking a research project at the Egan Water Reclamation Plant (WRP) in partnership with the Water Research Foundation and national laboratories. The project focuses on a "Utility of the Future" model to optimize carbon management, energy production, nutrient removal, and system densification for future challenges. It involves pilot testing of different treatment configurations to potentially increase renewable energy and improve energy efficiency. During this presentation you will learn about the preliminary findings of nutrient removal strategies with sustainable resource management in collaboration with improved energy efficiency.

DETAILED BIO:

Dr. Cindy Qin is the Senior Environmental Research Scientist at the Metropolitan Water Reclamation District of Greater Chicago, has worked on nutrient removal areas: side stream ammonia removal and Sidestream EBPR. Her works have focused on the operational optimization of EBPR at Stickney and Calumet WRP, Sequencing Batch Reactor (SBR) study of high strength organic material (HSOM) addition for EBPR process, full scale carbon addition study and S2EBPR study at Calumet WRP, DE-amMONification (DEMON) pilot study and Anita™Mox startup at Egan WRP, and HSOM screening protocol development.

11:15 – 11:45 AM: MORNING PANEL: WHAT IS THE SMARTEST INVESTMENT FOR NUTRIENT REMOVAL?

11:45-12:50 pm: LUNCH WITH POSTER SESSION

12:50-1:10 PM: RETHINKING SULFATE: CHALLENGES, IMPACTS, AND INTEGRATED SOLUTIONS

SPEAKER: CHAN LAN CHUN, PH.D.
UNIVERSITY OF MINNESOTA DULUTH

In freshwater ecosystems, dissolved sulfur species, most commonly sulfate, have increased globally, largely due to human activities and climate change-accelerated mineral oxidation. This rise in sulfate levels can significantly impact the biogeochemical cycles of other elements and lead to ecotoxicological consequences. There is substantial room for improvement in sulfur treatment and management, particularly in efficiently converting sulfur pollutants into valuable products. We have developed a suite of technologies tailored to different sulfate concentrations and wastewater types through interdisciplinary collaboration and partnerships. Our multi-pronged approach includes biological treatment coupled with sulfide immobilization for high sulfate levels; an in-situ electrode-integrated biofiltration system as a semi-passive treatment option and barite precipitation method for low sulfate levels. Each technology was developed through a stepwise development process, from laboratory proof-of-concept to pilot-scale demonstration, emphasizing the importance of iterative development and integration approach. Collectively, these efforts provide a flexible treatment train framework for addressing sulfate pollution and generating beneficial products. The resulting technologies offer practical solutions for Minnesota and other regions facing similar sulfur management challenges.

DETAILED BIO:

Dr. Chan Lan Chun is a Professor in the Department of Civil and Environment Engineering at the University of Minnesota Duluth and a Principal Research Engineer at Natural Resources Research Institute at the University of Minnesota. She earned her Ph.D. in Environmental Engineering from the University of Minnesota Twin Cities to study the fate of organic contaminants in contaminated soils and drinking water distribution systems. Dr. Chun's research integrates fundamental themes in aquatic chemistry and environmental microbiology with a focus on developing solutions for increasingly complex and costly environmental challenges. Her research group is dedicated to bridging the gap from fundamental research to application in collaboration across disciplines and with diverse groups.

1:10 – 1:30 PM: NITROGEN REMOVAL CONSIDERATIONS IN THE UPPER MISSISSIPPI RIVER BASIN WATERSHED

SPEAKER: SILVIA SECCHI, PH.D.
PROFESSOR IN THE SCHOOL OF EARTH, ENVIRONMENT AND SUSTAINABILITY AT THE UNIVERSITY OF IOWA

The biggest challenge to water quality in the Upper Mississippi River Basin (UMRB) is agriculture. The evidence strongly suggests that the cheapest nitrogen removal strategy in the region is avoiding excessive fertilizer use, appropriately applying manure, and promoting crop rotations. This approach would also require adequate monitoring and enforcement of regulations. It has now been 15 years since the federal Environmental Protection Agency (EPA) decided to use a cooperative federalist approach and rely on voluntary measures to address nutrients in the basin. Since then, the UMRB has seen a 66% increase in Confined Animal Feeding Operations

(CAFOs), which have been largely ignored by the states' Nutrient Reduction Strategies. Though CAFOs are technically point sources under the Clean Water Act (CWA), their oversight is severely limited because of the CWA's agricultural stormwater exemption, several court decisions, and poor monitoring and enforcement of the CWA. At the same time that CAFOs have increased in the UMRB, so has the corn acreage and associated fertilizer applications, driven in part by the ethanol mandate. Climate change is also causing more nutrient losses and therefore higher fertilizer application rates. Despite many efforts to increase the adoption of voluntary practices, they are not keeping up with the increases in nutrients. The current administration is unlikely to consider the disproportionate costs that the current situation imposes on non-agricultural point sources and its burden on taxpayers, but states and local governments can and should take the role of agriculture into consideration in their regulatory and water quality management efforts.

DETAILED BIO:

Dr. Silvia Secchi is a professor in the School of Earth, Environment and Sustainability at the University of Iowa. She holds a Ph.D. in economics from Iowa State University. Her work focuses on the interface between agriculture and the environment, particularly water quality and Green House Gas emissions, and the role of policy in addressing environmental impacts of crop and livestock production in industrialized systems. Her geographical research focus area is the Corn Belt. She has published on the impacts of biofuel policies on land use and water, the evolution of farm bill conservation provisions, farmers' attitudes towards conservation, multifunctional floodplain management and targeted reconnection, invasive species management, and mitigation and adaptation to climate change in the agricultural sector.

1:30-1:50 PM: THE IOWA WASTEWATER AND WASTE TO ENERGY RESEARCH PROGRAM

SPEAKER: CRAIG JUST, PH.D., P.E.
DONALD E BENTLY PROFESSOR IN ENGINEERING AT THE UNIVERSITY OF IOWA

The Iowa Wastewater and Waste-to-Energy Research Program (IWWERP) is a collaborative initiative focused on advancing sustainable wastewater treatment, resource recovery, and renewable energy production across Iowa and the Midwest. Centered at full-scale wastewater resource recovery facilities - in small towns, cities, and agricultural settings - the program integrates academic research, utility operations, industry partners, and workforce development to accelerate deployment of innovative technologies. Core research areas include anaerobic digestion optimization, nutrient recovery, algae-based treatment systems, advanced monitoring and controls, and the conversion of wastewater-derived resources into renewable fuels and bioproducts. IWWERP also serves as a living laboratory for students, operators, and engineers, providing hands-on training and demonstration at operational facilities. By linking fundamental research with real-world implementation, the program reduces technical risk, improves system performance, and supports Iowa's goals for energy independence, environmental protection, and resilient water infrastructure.

DETAILED BIO:

Dr. Craig Just is the Donald E. Bently Professor in Engineering. Dr. Just has over 30 years of experience leading fundamental and applied environmental engineering research with expertise in wastewater treatment, analytical chemistry, microbiology, sensors for control of complex systems, anaerobic digestion, and algal biofilms. Dr. Just has over 50 peer-reviewed publications, was PI or co-PI on over $120M in funded research, is an AAAS Leshner Fellow, and has received the Excellence in Teaching Sustainability Award, International Studies Outstanding Faculty Mentor Award, David J. Skorton Award for Staff Excellence in Public Service, College of Engineering Staff Research and Faculty Service Awards, and the University of Iowa President and Provost Award for Teaching Excellence.

1:50-2:10 pm: PANEL: HOW DO WE PLAN FOR TOMORROW WHILE RESPONDING TO TODAY?

2:10-2:30 pm: AFTERNOON BREAK / POSTERS

2:30-3:15 PM: KEY NOTE 2: SIZING INSTRUMENTATION AND CONTROLS FOR YOUR FACILITY

SPEAKER: CHARLES BOTT, PH.D., P.E.
HAMPTON ROADS SANITATION DISTRICT CHIEF TECHNOLOGY OFFICER AND DIRECTOR OF WATER

Sizing Instrumentation and Controls for Your Facility will explore how utilities can strategically align instrumentation and process control systems with their facility's scale, complexity, and treatment objectives. Drawing on Hampton Roads Sanitation District's (HRSD) extensive experience, Charles Bott will highlight lessons learned in balancing advanced monitoring technologies with practical operational needs, ensuring that investments in sensors, automation, and data analytics deliver measurable improvements in nutrient removal, energy efficiency, and reliability. The keynote will emphasize frameworks for evaluating instrumentation requirements, avoiding over- or under-engineering, and integrating controls in a way that supports both regulatory compliance and long-term sustainability and digital water initiatives. Attendees will gain practical guidance on tailoring instrumentation and controls to their facility's unique context, informed by HRSD's leadership in innovation and full-scale implementation.

3:15-3:45 pm: HOW MUCH INSTRUMENTATION IS ENOUGH?

SPEAKER: PUSKER REGMI, PH.D., P.E.
VICE PRESIDENT AND WASTEWATER SECTOR LEADER AT STANTEC

As wastewater facilities adopt increasingly sophisticated control strategies, instrumentation is often added with the assumption that more data will automatically lead to better outcomes. This presentation will challenge that assumption by examining how sensing density, process understanding, and control intent must be aligned to improve operational performance. Drawing on applied research and lessons learned from advanced nutrient removal and process intensification efforts, the discussion will show how instrumentation can either enable or unintentionally hinder effective process control. These concepts presented will connect to broader operational objectives such as carbon-efficient nitrogen removal, simplified process configurations, and staff capability. Attendees will gain a practical framework for evaluating process control and instrumentation strategies, helping utilities invest deliberately in sensing approaches that improve performance, reduce lifecycle costs, and reinforce sustainable, operator-centric facility operation.

3:45-4:10 pm: CLOSING PANEL: HOW MUCH CAN INSTRUMENTATION AND CONTROLS REALLY DO FOR US?

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REGISTRATION

1 **Registration fee to attend live event (includes continental breakfast, lunch, and refreshments)**

Fee per Person	by April 6	after April 6
Education Seminar (ES)	$190	$220
Additional Utility Attendee*	$100	$115
Student**	$25	$30

*After one person from a utility registers at standard price, up to five additional people can register at a discounted price.

**Students – please indicate if you will present a poster and name of poster:

___ Yes Tentative title of poster: _____

Please indicate dietary restrictions: _____ vegetarian _____ vegan _____ gluten free _____ other

2 **Attending I&T Networking Dinner after the Meet and Greet at Great Dane Pub & Brewing (includes heavy appetizers and two drink tickets) 123 E Doty Street, Madison, WI 53703. 7:00 – 8:30 pm. Five innovations in nutrient management will be highlighted at this event.**
Limited to the first 75 Registrants
Cost $25

Yes ___ No ___ Any dietary restrictions? _____

No refunds given after March 23

3 **Lodging:**
Rooms are available at The Hilton Madison Monona Terrace, 9 East Wilson St, Madison. A room conference rate of $169 per night will be held until March 16. For reservations, please call the hotel at 608-255-5100 and reference group code 903, or use the reservation link. Parking is available for a fee at the Hilton or next door at the Monona Terrace Community and Convention Center.Alternatively, rooms for each hotel can be booked online at the conference rates using the unique QR codes on this page.

Other lodging is available nearby at the Best Western Premier Park Hotel (608-285-8000) at $149 to $219 per night. For reservation call the hotel and reference CSWEA, or use the reservation link. This hotel is about 0.7 miles walking distance from the Monona Terrace Community and Convention Center.

Alternatively, rooms for each hotel can be booked online at the conference rates using the unique QR codes:

HILTON

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