

August 09, 2016

Green Stormwater Infrastructure SUMMIT

Café Julia
1040 Richards Street | Honolulu, HI

This event is supported by an award from the National Sea Grant Office received by the University of Hawai'i Sea Grant College Program.



There are real difficulties in addressing stormwater infrastructure needs for resolving growing water quality and quantity challenges. **Green stormwater infrastructure (GSI)** is a developing field of practice and management of water quality and quantity, and more and more becoming required by regulations and plans. This program brings together leaders and experts from Hawai'i and the continental U.S. to advance practice and policy, and achieve multiple goals around green and livable communities, and water quality and quantity management.

Additional support has been provided by the:

Platinum - Hawai'i Community Foundation



Gold - TOD Honolulu



Silver - AECOM and Hawai'i ASLA



PROGRAM

8:30 am – 8:45 am

Welcome

- Darren Lerner, PhD
Director, University of Hawai'i Sea Grant College Program
Interim Director, University of Hawai'i Water Resources Research Center
- Matthew Gonser, AICP
Extension Agent, University of Hawai'i Sea Grant College Program
- Geoffrey Anderson
President and CEO, Smart Growth America

8:45 am – 9:15 am

Opening Addresses

Water Legislation

- Hawai'i State Senator Mike Gabbard (D)
House District 20, Chair of the Senate Committee on Water, Land, and Agriculture,
and Vice Chair of the Senate Committee on Transportation and Energy

Hawai'i Community Foundation and A Blueprint for Action: Water Security for an Uncertain Future

- Josh Stanbro
Program Director, Environment & Sustainability, Hawai'i Community Foundation

9:15 am – 10:45 am

Green Stormwater Infrastructure: Regulatory Requirements, Non-regulatory Opportunities, and Visions for Green Communities

- Randall Wakumoto, PE
Branch Head, City and County of Honolulu, Department of Facilities Maintenance,
Storm Water Quality Branch
- John Smith, PE
Project Manager, Engineering Division, County of Maui, Department of Public Works
- Pam Emerson
Green Stormwater Infrastructure Advisor, City of Seattle Office of Sustainability & Environment,
and Seattle Public Utilities
- Geoffrey Anderson
President and CEO, Smart Growth America

10:45 am – 11:00 am | BREAK

11:00 am – 12:00 pm

Data for Watershed Management and Community Scale Green Infrastructure: Emerging Tools and Methods

- Hye Yeong Kwon, MBA
Executive Director, Center for Watershed Protection
- Shaun O'Rourke
Green Infrastructure Director, The Trust for Public Land

PROGRAM (continued)

12:00 pm – 1:00 pm | Lunch and Keynote Speaker

Green City, Clean Waters

Howard Neukrug, PE, BCEE, Hon. D.WRE

Former Commissioner and CEO, Philadelphia Water;

Senior Fellow, US Water Alliance; Fellow, Kleinman Center for Energy Policy, University of Pennsylvania

1:00 pm – 2:15 pm

Into the Weeds: Collaboration, Partnerships, and Installations and Asset Management

- Todd Cullison
Former Executive Director, Hui o Ko'olaupoko
- Michelle West, PE
Project Manager-Water Resources Engineer, Horsley Witten Group
- Terri-Ann Koike, ISA Certified Arborist® and ISA Municipal Specialist®
Acting Park Grounds Improvement Supervisor, City and County of Honolulu, Department of Parks and Recreation, Division of Urban Forestry

2:15 pm – 3:30 pm

Local Project Highlights and Stories from the Field

- Dawn Easterday, ASLA
Senior Landscape Architect, Belt Collins Hawaii LLC
- Scott Murakami, ASLA, LEED® AP
Associate, PBR Hawaii
- Lauren Roth Venu
Founding Principal & Project Director, Roth Ecological Design International, LLC
- Joel Kurokawa, ASLA
Principal, Ki Concepts

3:30 pm – 3:45 pm | BREAK

3:45 pm – 4:45 pm

Putting Research to Work: Extending from the University

- Roger Babcock Jr., PhD, PE
Associate Professor, University of Hawai'i at Mānoa, Department of Civil and Environmental Engineering and Water Resources Research Center
- Amanda Cording, PhD
Affiliate Faculty, University of Hawai'i Water Resources Research Center, and Pacific Regional Director, EcoSolutions

4:45 pm – 5:00 pm

Closing Remarks

- Geoffrey Anderson
President and CEO, Smart Growth America
- Matthew Gonser, AICP
Extension Agent, University of Hawai'i Sea Grant College Program

Immediately Following – 7 pm | NETWORKING SOCIAL

SESSION DESCRIPTIONS

Hawai'i Community Foundation and A Blueprint for Action: Water Security for an Uncertain Future

Josh Stanbro - Hawai'i Community Foundation's "Hawai'i Fresh Water Initiative" was launched in 2013 to bring multiple, diverse parties together to develop a forward-thinking and consensus-based strategy to increase water security for the Hawaiian Islands. This 2016-2018 Blueprint is the result of the work of the blue ribbon advisory panel, Hawai'i Fresh Water Council, and provides Hawai'i policy and decision-makers with a set of solutions that have broad, multi-sector support in the fresh water community that chart a path toward water security for Hawai'i, emphasizing three aggressive water strategies: conservation, recharge, and reuse.

Green Stormwater Infrastructure: Regulatory Requirements, Non-regulatory Opportunities, and Visions for Green Communities

Randall Wakumoto, PE - **City and County of Honolulu Stormwater Management Program – Updates** - The City is currently permitted under a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) for all storm water discharges coming from its drainage system and certain City facilities. As part of this permit, the City is mandated to continuously evaluate and monitor its system to find new ways of mitigating pollutant sources from entering our streams and receiving waters. One way is through the implementation and enforcement of existing City Rules to address minimum Best Management Practice (BMP) requirements during construction and post-construction. These rules will apply to all development and land disturbing activities within the City and County of Honolulu and is currently in the process of being adopted to replace the City's existing Rules.

John Smith, PE - **County of Maui Stormwater Management Program – Updates** - The County of Maui received its first Municipal Separate Storm Sewer System (MS4) Permit in 2014, following the designation of the Kahului-Pā'ia Urbanized Area. As a Small MS4 General Permittee, the County is required to conduct activities in six categories to reduce pollutants from the County's MS4 to the maximum extent practicable. One of these six categories is post-construction best management practices (BMP). The County had already established requirements for post-construction BMP design and maintenance, through their ordinance, MC-15, Chapter 11: "Rules for the Design of Storm Water Best Management Practices." The County rules require the use of low impact development techniques to provide storm water management that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. As part of their MS4 program, the County is reviewing their ordinances to further strengthen their post-construction BMP requirements.

Pam Emerson - **Seattle's Stormwater Story – Policy, Projects, Programs, and Partnerships** - Seattle has been building green stormwater infrastructure (GSI) to improve water quality and local neighborhoods since 1999. The "Street Edge Alternative" (SEA) Streets project was the first public project in the country to use green infrastructure to fully manage runoff from a city block of right-of-way. Since that early pilot project, Seattle has pioneered neighborhood-scale "green grids," redevelopment collaborations with local housing authorities and private developers, an innovative incentive program for GSI on private land, progressive Land Use Codes and Stormwater Codes, design, construction and maintenance standards, and strategic partnerships with the ".gov, .com, .edu, and .org" sectors. In 2013, Seattle's City Council and Mayor established a new community-wide goal for green infrastructure implementation in Seattle: to manage 700 million gallons of stormwater runoff annually using green infrastructure by the year 2025. Pam provides some background on Seattle's GSI work over the past 15+ years and offers specifics in four key areas of current effort: (1) policy development including local Codes/regulation; (2) rate-funded capital projects – moving from "pilots" to "programs;" (3) RainWise - Seattle's innovative incentive program for GSI on private property; and, (4) strategic partnerships.

Geoffrey Anderson - **Green Infrastructure In the Context of Green, Resilient Communities** - Green infrastructure is increasingly seen as a promising way to manage storm water. In some places, however, it is emblematic of a broader change in thinking about what actions create competitiveness, value, and long term prosperity. This is important because green infrastructure by itself may be less powerful than it is as a piece of an overall approach to community sustainability. Making this transition requires first a change of mind set and then a change in day to day business.

SESSION DESCRIPTIONS (continued)

Data for Watershed Management and Community Scale Green Infrastructure: Emerging Tools and Methods

Hye Yeong Kwon, MBA - Cross Cutting Issues in Stormwater Regulation and Implementation: Getting the Biggest Bang for Your Buck - Numerous communities have adopted aggressive green infrastructure practices toward better watershed management and justified these projects citing lower costs. However, the different definitions of green infrastructure and various studies show that the costs depend on how green infrastructure is defined and implemented. In addition, some studies show that while green infrastructure is part of the solution, other tools are needed to meet regulatory requirements and ultimately restore our watersheds. Hye Yeong Kwon, Executive Director of the Center for Watershed Protection, presents on the work of the Center for Watershed Protection and others that focuses on investigating the true cost of green infrastructure.

Shaun O'Rourke - Climate-Smart Cities: Harnessing Big Data for Community Scale Resiliency - This presentation presents The Trust for Public Land's Climate-Smart Cities program which helps cities assess climate adaption investments through a data and community-driven participatory process. This integrated approach is helping cities across the U.S. go from analysis and research to identifying and implementing high impact, multi-benefit green infrastructure projects. Finding the places of highest need for climate-smart urban greening should integrate two aspects of vulnerability at the city and district scale: (1) where new green infrastructure will have the greatest impact to reduce climate-driven public safety threats like flooding and heat; and (2) where there are populations with the highest social and demographic vulnerability to future impacts. Climate-Smart Cities efforts will achieve climate justice impact when directed to neighborhoods and project sites where these risk factors converge. The presentation outlines the Climate Smart Cities approach, discusses four national objectives of Connect, Cool, Absorb, and Protect, and provide an in-depth case study from the decision support tool development process in New Orleans, LA. The case study demonstrates the decision support tool and highlights the use of case discovery analysis for operationalizing the tool within city agency processes.

Keynote: Green City, Clean Waters

Howard Neukrug, PE, BCEE, Hon. D.WRE - Philadelphia's **Green City, Clean Waters** continues to be one of the most comprehensively green approaches to long-term water quality and quantity management that also demonstrates the benefits to community, urban livability, and connection to place. Howard describes how municipal leadership, governance and economic tools are transforming transportation projects, park improvements, and neighborhoods for a more sustainable and growing economy, where stormwater infrastructure has become a "triple bottom line" investment.

Into the Weeds: Collaboration, Partnerships, and Installations and Asset Management

Todd Cullison - Locating, Prioritizing and Implementing Low-Impact Retrofits in Urban Environments: Case Study from Ko'olaupoko, O'ahu, Hawai'i - This presentation explains the process that Hui o Ko'olaupoko (HOK) used to help prioritize Low-Impact Retrofits (LIR) in urban environments. The presentation highlights how HOK used GIS, site assessments, and best professional judgment to compile data for the Ko'olaupoko Urban Sub-basin Action Plan. This document is used as the primary tool by HOK today to work with landowners and prioritized work for implementation.

Michelle West, PE - The Modern Stormwater Voyage – Applying Malama Honua to Runoff Management in the Islands - The Polynesian Voyaging Society's explorers are using only the stars, sun, and swell to sail traditional canoes on a 60,000-mile journey around the world to save our oceans and care for Island Earth. While not nearly as exciting (or dangerous), we can do our part by re-thinking how we develop land and manage stormwater. This presentation discusses the constraints and opportunities for implementing effective green stormwater infrastructure in Hawai'i and other island environments using a recent retrofit assessment in West Maui as a case study.

Terri-Ann Koike, ISA Certified Arborist® and ISA Municipal Specialist® - Municipal Urban Forestry - As urbanization intensifies, the need for urban forests grows as well. The physical, environmental, and emotional needs for greenery, green space, and nearby nature are well documented. Urban trees provide: stormwater runoff mitigation; energy savings and high temperate abatement for buildings, as well as, urban heat island mitigation; carbon sequestration; cleaner air; increased property values and revenue in retail areas with canopy cover; and aesthetic enhancement and beauty. Though urban forests include all trees, shrubs, and groundcover, whether on public or private property, this presentation focuses on public trees. The Division of Urban Forestry is charged with a critical piece of urban infrastructure, and looks to increase its inventory while also ensuring adequate maintenance of its existing assets. This presentation highlights the goals, activities, successes, and challenges of urban forestry in Honolulu, and the love/hate relationships city government and residents have with trees.

SESSION DESCRIPTIONS (continued)

Local Project Highlights and Stories from the Field

Dawn Easterday, ASLA - This presentation highlights two projects, one built and one still in concept design stage. The University of Hawai'i Information Technology Center incorporated permeable pavement, swales, and green roofs, and highlights critical integration across professions to execute a successful project (e.g., landscape architects, architects, and engineers). Ms. Easterday also presents the concept design work for a high school on Maui, which is a large site that requires and allows for grading and integration of alternative stormwater practices for an intermittent stream on site that uses drainage as a feature, rather than as a utility to be hidden.

Scott Murakami, ASLA, LEED® AP - PBR Hawaii served as the project landscape architect and planner for the University of Hawai'i Leeward Community College Education and Innovation Instructional Facility (LCC EIIF). This building is one of the few new structures to be built as part of the LCC Long Range Development Plan, a 30 year master plan for future development of the campus. The design of the LCC EIIF is based on several key ideas including: campus circulation, aesthetics, cohesive theming, government and utility regulations, minimization of cost, and ease of maintenance. The new building is approximately 18,328 square feet. The functional aspect of the landscape design included defining outdoor spaces adjacent to the new building (and on the roof), while providing shade/cooling of people and the structure itself and minimizing water use (e.g., directing AC condensate into the landscaping). The landscaped area serves as an educational tool while adapting the theme of "Hawaiian Sense of Place" with the rest of the campus. This is achieved by incorporating native Hawaiian plants that are grown on campus by students in the Education Garden Nursery into a landscape that is both aesthetically appealing and functionally innovative.

Lauren Roth Venu - Best Management Practices (BMP's) are growing increasingly more common, and there are necessary considerations in their planning and design to help insure their successful implementation and operation. The discussion reviews measures to consider when designing LID BMP's as well as provides case studies of both LID and LID retrofit projects in Hawai'i: Windward Mall (O'ahu), UH West O'ahu Administration and Allied Health Building, and Kamehameha Schools Redevelopment of Kahalu'u Makai, Keauhou, Hawai'i Island.

Joel Kurokawa, ASLA - This presentation shares a few of Ki Concepts recently completed, under construction, and currently on the board projects highlighting the integration of green infrastructure into the site design, collaborating with architects and civil engineers, on-going challenges for maintaining green infrastructure, and the need for comprehensive green infrastructure planning for urban, peri-urban, and rural areas throughout Hawai'i. Mr. Kurokawa presents: NOAA Inouye Regional Center, March 2013; University of Hawai'i, Hawai'i Community College Palamanui Campus, December 2015; Department of Veteran Affairs National Cemetery Columbarium Expansion Public Information and Administration Center (under construction); and Hawai'i Department of Education East Kapolei Middle School (in design - pending DOE authorization).

Putting Research to Work: Extending from the University

Roger Babcock Jr., PhD, PE - Green Roof Research and Gray Water Management Strategies - Green roofs recover green spaces in urban areas and benefit the public, farmers, and wildlife by providing many environmental, ecological, and economic advantages. Green roofs reduce stormwater runoff, mitigate urban heat island effects, absorb dust and smog, sequester carbon dioxide, produce oxygen, create space for food production, and provide natural habitat for animals and plants. This presentation provides findings on green roof performance with respect to runoff quality and greenhouse gas CO₂ sequestration. Considerations and details for designing green roofs for desired performance specifications are provided. Additional considerations for gray water reuse and management strategies are also provided.

Amanda Cording, PhD - Abstract: GSI Performance Monitoring and Design Considerations for Maximizing Pollutant Removal, Authors: Cording, A., Hurley, S., Whitney, D., Adair, C. - Green stormwater infrastructure (GSI) such as green roofs, porous pavement, floating treatment wetlands and bioretention rain gardens offer exciting opportunities to remove stormwater pollutants and provide local climate change resiliency by reducing peak runoff rates, and retaining/detaining storm volumes, yet implementation is outpacing our understanding of the underlying physical, biological, and chemical mechanisms involved in attaining performance goals, particularly for labile N and P. Monitoring can provide vital feedback to designers and engineers, ultimately helping to lower costs, inform maintenance plans, and determine their long-term effectiveness, yet relatively few existing GSI systems are monitored. This research examines the design, construction, and development of monitoring methods for bioretention research, which can be applied to other GSI features as well. The monitoring infrastructure designs used in this research allowed for the effective characterization of stormwater pollution entering and exiting bioretention on a mass basis. Results from this research were used to inform the engineering of soil media and monitoring approach for various GSI projects in Hawai'i. Design features, which focused on denitrification and phosphorus sorption, are discussed, and recommendations for GSI designs in Hawai'i are presented.

SPEAKER BIOS

Geoff Anderson, *President and CEO, Smart Growth America* - Geoffrey Anderson is the President and CEO of Smart Growth America. Named by Partners for Livable Communities as “One of the 100 Most Influential Leaders in Sustainable Community Planning and Development” Geoff came to his current position after 8 years heading the Smart Growth Program at the US EPA. Geoff is a leader in the smart growth movement helping to found the movement as one of the authors of the foundational 10 smart growth principles. With an extensive list of publications, Geoff has served as an expert witness in front of the US Congress, and is cited by the New York Times, NewsWeek, the Washington Post, Fox News, NPR, and numerous other outlets and publications. Geoff received his Master’s Degree from Duke University’s Nicholas School of the Environment with a concentration in Resource Economics and Policy.

Roger Babcock Jr., PhD, PE, *Professor and Graduate Chair, University of Hawai’i at Mānoa, Department of Civil and Environmental Engineering and Water Resources Research Center* - Dr. Roger Babcock is a Professor of Civil Engineering in the College of Engineering and the Water Resources Research Center at the University of Hawai’i. He obtained his Ph.D. in Civil Engineering from UCLA. Dr. Babcock worked for Carollo Engineers in the early 1990s and has been at UH since 1995. Dr. Babcock conducts research on biological wastewater treatment, on-site wastewater treatment, water recycling, membrane bioreactors, bioremediation, stormwater runoff management, and green roofs. Dr. Babcock also has PE licenses in California and Hawai’i and is director of Hawai’i’s Statewide Wastewater Operator Training Center.

Amanda Cording, PhD, *Affiliate Faculty, University of Hawai’i Water Resources Research Center, and Pacific Regional Director, EcoSolutions* - Dr. Amanda Cording is an Affiliate Faculty with the University of Hawai’i Water Resources Research Center, and the Director of the Pacific Regional Office of EcoSolutions, based in Honolulu, Hawai’i. She also sits on the Board of Directors for the US Green Building Council, Hawai’i Chapter. Dr. Cording has over ten years of experience working with local and global stakeholders on water and sanitation projects, including the World Bank, Coca-Cola Foundation, EPA, Fish and Wildlife Service, the U.S. Army, Universities and State governments. She has held leadership roles at both the local and national level, notably as the Executive Director of the Organization for the Assabet River, and the Associate Director of the Center for Urban Watershed Renewal. Dr. Cording received her master’s degree in Hydrology and Watershed Management from SUNY Environmental Science and Forestry in 2005, and her PhD from the University of Vermont (UVM) Plant and Soil Science Department in 2016. Her research focused on quantifying the physical, biological and chemical mechanisms that drive pollutant removal in Low Impact Development (LID) features such as GSI. Amanda’s goal is to help push the boundaries of pollutant removal performance through research, while integrating aesthetics, cultural relevance, and educational features into on-the-ground projects.

Todd Cullison, *Former Executive Director, Hui o Ko’olaupoko* - Todd Cullison was the Executive Director of the non-profit organization, Hui o Ko’olaupoko (HOK) from August 2006 to May 2016. The organization’s mission is to: Protect ocean health by restoring the ‘āina: mauka to makai. Current duties and responsibilities include strategic organizational planning, partnership building and project prioritization, development and management. Mr. Cullison was primary author of the Hawai’i Residential Rain Garden Manual and the Ko’olaupoko Urban Sub Basin Action Plan (identifying and prioritizing urban low-impact retrofits for decreased non-point source pollution runoff). Prior to Mr. Cullison’s tenure with (HOK), for six-years he was the Director of Watershed Programs for the Columbia River Estuary Study Taskforce (CREST) in Astoria, OR. Mr. Cullison’s focus was community-based watershed restoration with an emphasis on salmon recovery on the North Oregon coast and Columbia River Estuary. Mr. Cullison worked with five watershed councils implementing projects that included design and implementation of large-scale estuarine and riverine habitat restoration, associated project effectiveness monitoring as well as education and outreach. Mr. Cullison is currently the Development Director with the University of Hawai’i Foundation at the UH Cancer Center.

Dawn Easterday, ASLA, *Senior Landscape Architect, Belt Collins Hawaii LLC* - Ms. Easterday is an award winning landscape architect with over twenty years of experience in Hawai’i, the Pacific Rim and the western United States. She has served as the prime landscape architect in the areas of campus redevelopment, resort landscape renovation, public park design, high-speed public transportation, and water feature design. Ms. Easterday’s interest in natural systems based stormwater management began in 1997 while working in Colorado with daylighting streams, creating bio-retention, rain gardens and designing alternatives to standard flood control. This interest in alternative stormwater management led to becoming an accredited Green Roof Professional and conducting research on extensive green roofs in Hawai’i. Her current experience includes working on several LEED and HI-CHPS projects, a living roof, a DOE site with alternative stormwater and drainage elements, and integrating sustainable landscape design practices into every project. She also has an interest in teaching and has served as a guest critic and guest speaker at several University of Hawai’i classes.

Pam Emerson, *Green Infrastructure Policy Advisor, City of Seattle Office of Sustainability & Environment, and Seattle Public Utilities* - Pam Emerson is a Green Infrastructure Policy Advisor for the City of Seattle, where she holds a dual appointment with the Office of Sustainability and Environment and Seattle Public Utilities. She develops and promotes strategies to accelerate green infrastructure implementation and normalize low impact development. She led the development of Seattle’s green infrastructure City Council Resolution and Executive Order, its five-year GSI Implementation Strategy (2015 – 2020), and its City-wide low impact development code integration process. She also represents the City of Seattle in an emerging regional coalition of governments, non-profits, universities, and private sector partners convening to elevate and

SPEAKER BIOS (continued)

accelerate green infrastructure solutions to stormwater pollution in support of Puget Sound recovery.

Terri-Ann Koike, ISA Certified Arborist® and ISA Municipal Specialist®, *Acting Park Grounds Improvement Supervisor, City and County of Honolulu, Department of Parks and Recreation, Division of Urban Forestry* - Terri was born and raised in Honolulu, and received a Bachelor's of Business Administration degree from the University of Hawai'i at Mānoa with a major in Accounting. After working at several public accounting firms, she became a Certified Public Accountant in the State of Hawai'i in 1989. Terri began working for the City in July 1993, and with the Department of Parks and Recreation's Division of Urban Forestry (DUF) in February 2000. After becoming more involved in operations to learn about urban forestry, she became an International Society of Arboriculture (ISA) Certified Arborist® in 2003, added the ISA Municipal Specialist® certification and became an ISA Exam Proctor in 2009, and added the Tree Risk Assessment Qualification in 2014. While her regular position is DUF's Administrative Specialist II, Terri has been on temporary assignment as DUF's Park Grounds Improvement Supervisor II in charge of the Arboriculture Section for a little over a year. Earlier this year, she was named to the State Department of Land and Natural Resources Kaulunani Council.

Joel Kurokawa, ASLA, *Principal, Ki Concepts* - Joel Kurokawa, ASLA, is a landscape architect and principal of Ki Concepts LLC, a site planning, landscape architecture and urban design firm with offices in Honolulu and Hawai'i island formed in 2007. Projects of note include the NOAA Daniel Inouye Regional Center on Ford Island, the University of Hawai'i, Hawai'i Community College Palamanui Campus in West Hawai'i, the Department of Veteran Affairs National Memorial Cemetery of the Pacific Columbarium Expansion, and the UH Culinary Institute of the Pacific at Diamond Head, the last two currently under construction. Joel's professional path has lead him on a journey around the Pacific spanning over 30 years: studying landscape architecture in Oregon, practicing in the San Francisco-Bay Area, back packing through Southeast Asia, an eight-year stint as senior LA and head of a design studio of a leading environmental planning firm in Tokyo, Japan, and finally returning home to Hawai'i in 1995 as principal of the Honolulu firm, Hawaii Design Associates. Joel is a member of the American Society of Landscape Architects (ASLA) and currently serves as trustee of the Hawai'i Chapter, is chair of the State Professional Licensing Board of Engineers, Architects, Land Surveyors, and Landscape Architects, and serves or has served on the boards of environmental and community non-profit organizations in various capacities such as The Outdoor Circle, Kaulunani Urban and Community Forestry Council, and the Friends of Lyon Arboretum.

Hye Yeong Kwon, MBA, *Executive Director, Center for Watershed Protection* - As the Executive Director, Hye Yeong's responsibilities include organizational management, fund-raising, and program development. Hye Yeong joined the Center in 1996 and combines her education and training to help lead the Center toward a multi-disciplinary strategy to protect and restore watersheds throughout the country. Her project experience has included a wide range of

subjects, including environmentally sensitive site design, watershed planning, and consensus building. Hye Yeong has a B.S. in Biology, an M.S. in Management, and an MBA.

Howard Neukrug, PE, BCEE, Hon. D.WRE, *Former Commissioner and CEO, Philadelphia Water; Senior Fellow, US Water Alliance; and Fellow, Kleinman Center for Energy Policy, University of Pennsylvania* - Howard Neukrug is a national expert and leader in drinking water, water resources, stormwater and wastewater utility management. He is recognized as a builder of regional and inter-agency coalitions and trust-based relationships with regulators, legislators, environmental and consumer advocates, and communities. He is the former Commissioner and CEO of Philadelphia Water and the founder of Philadelphia's Office of Watersheds and the US Water Alliance (USWA). He is currently the Principal of CASE Environmental LLC, a Senior Fellow at the USWA, an Advisor to the US Environmental Protection Agency, and a Senior Fellow at the University of Pennsylvania where he teaches classes on "Water, Science and Local Politics", "Sustainable Cities" and "Future Trends in the Water Industry". A defining initiative in Howard's career is his 'Green Cities, Clean Waters' program that places an unprecedented reliance on innovative green infrastructure to managing urban runoff - in other words, plants instead of pipes. Mr. Neukrug is a Professional Engineer, Board Certified Environmental Engineer and an Honorary Diplomat of the American Academy of Water Resources Engineers. He is a graduate of the University of Pennsylvania, Civil and Urban Engineering, Class of '78.

Scott Murakami, ASLA, LEED® AP, Associate, *PBR Hawaii* - Back at the turn of the century (2000), Sustainability and Low Impact Development was all the latest rage, especially in Seattle. During that time, Mr. Murakami worked for over four years in the Emerald City at a Landscape Architecture firm gaining valuable firsthand experience and knowledge. He worked on public and private projects ranging from high-end residential homes to large commercial developments, even Gas Works Park. Since moving back home to Hawaii, Mr. Murakami has been inspired by the natural forms and elements paradise has to offer, and is always striving to "blur the line" between the indoors and the outdoors. His hope is that people of all ages will be motivated to get out of the house (and office) and enjoy the outdoors more. Mr. Murakami is an Associate at PBR Hawaii, and manages a range of projects here on O'ahu, Kaua'i, Maui and the Big Island.

Shaun O'Rourke, *Green Infrastructure Director, The Trust for Public Land* - Shaun O'Rourke is the Green Infrastructure Director at The Trust for Public Land where he leads the implementation services for the national Climate Smart Cities Program. The Program engages partner cities by linking science and design to identify forward-looking opportunities which exceed environmental health targets and create community benefit through the creation of new multi-benefit public parks and open space. Prior to joining The Trust for Public Land, Shaun served as the Director of Sustainable Design at the Boston Architectural College. He has worked at AECOM in New York City as an Ecological Designer and Project Manager. Shaun has

SPEAKER BIOS (continued)

presented at numerous conferences nationally and internationally, served as a technical reviewer for the EPA and named as a jury member for international design competitions such as The Eleven - Cambodia 2015 Challenge. Shaun was appointed to the City of Boston Climate Adaptation and Preparedness Committee in 2014 and is active on the Resiliency Task Force for ULI Boston. He is a member of the Faculty in the School of Landscape Architecture and advisor to the School of Design Studies at the Boston Architectural College. Shaun holds a MLA from SUNY College of Environmental Science and Forestry and a B.S from University of Vermont.

Lauren Roth Venu, *Founding Principal & Project Director, Roth Ecological Design International, LLC* - Lauren Roth Venu is the Founder and President of Roth Ecological Design Int. LLC, a comprehensive water planning and design firm with a focus on green infrastructure. She is also the Co-Founder for the Water Institute for Sustainability Education (WISE), an education-based 501 c3 nonprofit bringing innovation into the classroom to address sustainable water management. Her academic background is in the water sciences and policy from the University of Colorado at Boulder and she holds a MSc in oceanography from the UH Mānoa. She is also a fellow of the Water Environmental Federation Leadership Program and the United Nations University/East-West Center's ProSPER.net Leadership Program. Lauren has and remains active in public service roles including: Member of the State of Hawai'i Department of Health Water Reuse Guidelines Advisory Committee (2013-present); Member of the State of Hawai'i Building Code Council, Green Codes Investigative Committee, 2013-present. Chair of the Advocacy Committee for the Hawaii Chapter Green Building Council (2013-present). Member of the State of Hawai'i Commission of Water Resource Management's Water Conservation Advisory Group (2011-2013); Water and Wastewater Committee Chair for the Honolulu City and County Sustainable Building Task Force (2010-2011). Accolades include an Environmental Protection Agency Region 9 awarded project and she was named top Forty Under Forty Business Leaders by Pacific Business News in 2014.

John Smith, PE, *Project Manager, County of Maui, Department of Public Works, Engineering Division* - John Smith has worked for the County of Maui as a Project Manager in the Department of Public Works, Engineering Division the past 4 years. John is a licensed Civil Engineer in Ohio and Hawai'i, and worked in private consulting for over 10 years before moving to Hawai'i. He manages a wide variety of public works projects for the County. For the past two years, John has been the lead manager for the County's municipal separate storm sewer system (MS4) NPDES permit program.

Josh Stanbro, *Program Director, Environment & Sustainability, Hawai'i Community Foundation* - Josh was raised in Northern California on an apple farm, attended college in Los Angeles, and moved to the Big Island soon after to join his family who worked in landscaping and farming. He sailed across the Pacific while escorting Te Aurere, the Polynesian voyaging canoe from Aotearoa and worked as a carpenter apprentice after building an off-grid family home in Hālualoa in 1995. Josh was inspired by the PASH

case to go to law school, and earned his law degree from the University of California at Berkeley in 2001. For several years, Josh headed up the Trust for Public Lands Hawai'i office and completed land conservation projects throughout the state valued at over \$30 million. He has received the "Hale Aloha, Conservationist of the Year" and "Green Pioneer" awards. Josh has served as the Director of the Environment and Sustainability Program at the Hawai'i Community Foundation for the past 6 years.

Randall Wakumoto, PE, *Branch Head, City and County of Honolulu, Department of Facilities Maintenance, Storm Water Quality Branch* - Mr. Wakumoto received his B.S. in Civil Engineering from Santa Clara University and is a licensed professional engineer in the State of Hawaii. He has nearly 22 years of engineering work experience, including 20 years with the City & County of Honolulu. He is currently the branch head for the Storm Water Quality (SWQ) Branch within the City's Department of Facility Maintenance. As the branch head, he is responsible for administering the City's storm water management program related to water quality monitoring, investigations and enforcement of illicit discharges, public outreach, training and targeted inspections, as well as managing various water quality improvement projects.

Michelle West, PE, *Project Manager-Water Resources Engineer, Horsley Witten Group* - Michelle has more than 14 years of professional experience in civil and environmental engineering. She is a self-described stormwater geek who cannot go anywhere without investigating drainage paths and peering down into catch basins. Her specific expertise is in stormwater management and policy, watershed planning, hydraulic/hydrologic modeling, and low impact development (LID) assessment, design, and implementation. Based on Cape Cod, much of her day-to-day work has been in the New England area, but she has also been lucky enough to do significant work on many tropical projects in the Pacific (Hawai'i, American Samoa, Guam, CNMI, Palau, Yap) and Caribbean (USVI) helping prevent land-based sources of pollution from impacting coral reefs. Michelle coauthored the CNMI, Guam, and Palau Stormwater Management Manuals, and presented at several associated technical training workshops. She also trained contractors and regulators how to effectively perform erosion and sediment control (ESC) measures on American Samoa, Guam, CNMI, and Palau, and led rain garden installation workshops in Hawai'i, Guam, CNMI, and St. Croix. Michelle is a hardcore Wolverine fan, graduating from the University of Michigan with Bachelor's Degrees in Civil and Environmental Engineering and Natural Resources Management, as well as a Master's Degree in Environmental Engineering. Go blue!

NOTES

NOTES

*From Matthew Gonser
Mahalo nui loa to*

**Hudson Slay, U.S. EPA, Honolulu Field Office
Seth Brown, Storm and Stream Solutions
Hawai'i Sea Grant Admin and Communications Team
The Café Julia Team
UH Conference and Event Services**

*And a big mahalo to all the speakers
and all the summit participants!*

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