Building Resilience to a Changing Climate:

A Technical Training in Water Sector Utility Decision Support

WUCA
Water Utility Climate Alliance
10 YEARS · 2008-2018

Date & Time: Tuesday, December 4, 2018, 8:00am – 5:00pm
Wednesday, December 5, 2018, 8:00am – 3:45pm

Location: Portland Water Bureau
Chinook Conference Room, 4th Floor
400 SW 6th Avenue
Portland, OR 97204

Training Mission

Create a practitioner community active in climate adaptation consisting of smart users and consumers of climate information.

Training Objectives

- Enhance understanding of the capabilities and limitations of climate science and learn best practices for using it in long-term water, wastewater, and stormwater utility planning;
- Learn about planning methods for addressing uncertainty when incorporating climate science into utility decision-making processes; and
- Learn communication strategies to address institutional barriers and generate engagement around utility climate adaptation and resilience building.

Agenda – December 4, 2018

Time	Item
8:00 a.m.	**Registration & Coffee Available**
8:30 a.m.	**Welcome, Agenda Review, and Training Participant Introductions** *Laurna Kaatz, Climate Program Director, Denver Water (DW) and Chair, Water Utility Climate Alliance (WUCA)* *Kavita Heyn, Climate Science Program Manager, Portland Water Bureau (PWB) / WUCA* *Edward Campbell, Resource Protection and Planning Director (PWB)* *Brad Spangler, Senior Mediator and Program Manager, Meridian Institute* Welcoming remarks from the WUCA Chair and PWB training host, review of the training agenda and pre-training survey results, and participants introductions.

Time	Item
9:30 a.m.	**Group Exercise: Decisions for the Decades: Understanding Deep Uncertainty** *Robert Lempert, Principal Researcher, RAND Corporation* Interactive game-based exercise on decision-making under conditions of deep uncertainty followed by facilitated group discussion about how uncertainty affects the types of long-term planning decisions participants are supporting utilities in making.
10:45 a.m.	**Break**
11:00 a.m.	**Decision-Making in the Face of Uncertainty: Portland Water Bureau Case Study** *Kavita Heyn, Climate Science Program Manager, PWB/WUCA* A stage-setting case study presentation depicting how and why Portland Water Bureau has changed its planning process to integrate climate science and other uncertainties into long-range supply system planning and decision-making.
11:30 a.m.	**Practical Considerations for Climate Analysis and Adaptation** *Laurna Kaatz, DW/WUCA* This session sets the stage for the upcoming training sessions and helps participants establish effective mechanisms to meet their informational needs.
11:45 a.m.	**Climate Science and Modeling for Water Sector Professionals** *Joel Smith, Principal Associate, Environment and Natural Resources, Abt Associates* Discussion of the capabilities and limitations of climate models and climate projections for applied decision making. The session includes a discussion of what information climate science is currently capable of providing to support decision making at a local and regional scale. Time will be reserved for questions and answers.
12:30 p.m.	**Lunch** (Sponsored by WUCA)
1:30 p.m.	**Refresher Activity** *Brad Spangler, Meridian Institute*
1:45 p.m.	**A Practical Look at Downscaling, Bias Correction, and Translating Climate Science into Hydrology** *Julie Vano, Project Scientist, National Center for Atmospheric Research (NCAR), Hydrometeorological Applications Program* This session presents the range of techniques used to downscale and bias correct climate projections, reviews capabilities and limitations of downscaled data, and offers potential applications and limitations of turning projections into hydrologic impacts. Time will be reserved for questions and answers.

Time	Item
2:30 p.m.	**Portland Bureau of Environmental Services Case Study** *Nicholas McCullar, Civil Engineer in Asset Systems Management, Portland Bureau of Environmental Services* A local stormwater/wastewater case study discusses the value and lessons learned from a pilot study of conveyance system stress testing. An array of modified design storms were tested in a model of a combined sewer basin and evaluated for impacts. Time will be reserved for questions and answers.
3:00 p.m.	**Break**
3:20 p.m.	**Guiding Principles for Adaptation and Resilience Planning** *Joel Smith, Abt Associates* *Steve Fries, Physical Scientist, U.S. EPA Creating Resilient Water Utilities* An overview of multiple approaches and decision support tools to support adaptation planning are presented. Time will be reserved for questions and answers.
4:15 p.m.	**Seattle Public Utilities Case Study** *James Rufo-Hill, Climate Science Advisor, Seattle Public Utilities (SPU)* Presentation on how SPU updated its extreme rainfall statistics, created "climate perturbed" IDF curves, and is incorporating precipitation changes and sea level rise into drainage system planning and management. Time will be reserved for questions and answers.
4:45 p.m.	**Key Takeaways from Day 1** *Kavita Heyn, PWB/WUCA* *Brad Spangler, Meridian Institute* Review of key takeaways regarding the state of climate science, sources of uncertainty and what it means for utility decision making. Participants will also be asked to complete an evaluation of the Day 1 sessions.
5:00 p.m.	**Adjourn**

Agenda – December 5, 2018

Time	Item
8:00 a.m.	**Coffee Available**
8:30 a.m.	**Reflections on Day 1 and Review of Day 2 Agenda** *Brad Spangler, Meridian Institute* Participant reflections on Day 1 of the training and review of the agenda for Day 2.
8:45 a.m.	**Group Exercise: Scenario Design (Accelerated Introduction to Scenario Planning)** *Laurna Kaatz, DW/WUCA* Group exercise focused on identifying and prioritizing external factors – of which climate change is one among many – that introduce uncertainty and influence long-term utility planning contexts.
10:30 a.m.	**Break**
10:45 a.m.	**Methods for Decision-Making Under Deep Uncertainty** *Robert Lempert, RAND Corporation* Overview of innovative methods and approaches for addressing climate and other types of uncertainty to build water utility adaptive capacity. This session provides a unique and critical opportunity for participants to examine and understand the challenges of deep uncertainty. A facilitated discussion with participants will follow the presentation.
11:45 a.m.	**Adaptation Decision-Making at Metropolitan Water District of Southern California** *Brandon Goshi, Manager of Water Policy and Strategy, Metropolitan Water District of Southern California / WUCA* A real-world example demonstrating the lessons and material presented up to this point in the training. Metropolitan Water District of Southern California will discuss the evolving use of climate science and decision-making methods to address uncertainty in its long-term water resources planning.
12:15 p.m.	**Lunch** (Sponsored by WUCA)
1:15 p.m.	**Using Communications Best Practices to Engage Audiences and Address Institutional Barriers** *Heidi Roop, Research Scientist and Strategic Communications Lead, Climate Impacts Group, University of Washington* *Abby Sullivan, Environmental Scientist, Climate Change Adaptation Program, Philadelphia Water Department (PWD) / WUCA* Participants will learn about tangible mechanisms and practices to effectively address institutional barriers, including developing messaging and communicating about climate science. The session will also provide examples of barriers and solutions from the experiences of Philadelphia Water Department.

Time	Item
2:15 p.m.	**Break**
2:30 p.m.	**Bringing it All Together: Identifying Institutional Barriers and Mapping Out Strategies and Next Steps** *Heidi Roop, University of Washington* Building on the prior session, participants will engage in an interactive exercise to explore their individual institutional barriers and communication challenges and develop potential strategies to address these challenges.
3:30 p.m.	**Key Takeaways, Reflections and Wrap-Up** *Kavita Heyn, PWB/WUCA* *Brad Spangler, Meridian Institute* *Laurna Kaatz, DW/WUCA* Review of key takeaways from the training, and participant reflections on how they intend to apply what they have learned during the training. Participants will also be asked to complete an evaluation of the Day 2 sessions.
3:45 p.m.	**Adjourn**