

ACES 2018 Pre-Conference Workshop
December 3, 2018 | 8:30am – 12:00pm

TITLE

Conceptual and practical tools for navigating the environmental, social, and economic trade-offs for stakeholder-driven sustainability planning

DESCRIPTION

This interactive, half-day training, delivered by Neptune and Company, Incorporated and the Environmental Protection Agency will introduce participants to the conceptual underpinnings of structured decision making (SDM), a decision analysis methodology used to integrate ecosystem services into a community decision process and to engage stakeholders in those decisions. SDM has been successfully employed in various contexts to make informed, defensible, and transparent choices for complex environmental challenges at the nexus of environmental, social, and economic needs. Using a real-world example from an EPA sponsored project on sea-level rise resiliency in Dania Beach, Florida, participants will be shown how stakeholder needs and values were captured in a web-based application developed by EPA's Sustainable and Healthy Communities Research Program. The application is called DASEES ("**D**ecision **A**nalysis for a **S**ustainable **E**nvironment, **E**conomy, and **S**ociety", pronounced "daisies"). The workshop organizers will share the lessons learnt from the GBW project and reflect on how those lessons have been applied to subsequent DASEES applications.

AGENDA

- *15 min - Welcome & Workshop Objectives.*
Review workshop objectives, format and agenda and introduce facilitators.
- *45 min - Structured Decision Making (SDM), stakeholder engagement, and ecosystem services.*
This session will start with a high-level overview of decision analysis. This is followed by an introduction to Structured Decision Making (SDM) focused on how stakeholders and decision-makers are involved in the decision-making process. In particular, we explain how the SDM process embodies values-focused thinking to engender stakeholder to elucidate the underlying values and objectives inherent in a complex decision process. We further illustrate the utility of ecosystem services may be integrated in SDM, and how that ultimately translates to the integration of data and models in the decision analysis.
- *15 min - Discussion and reflections.*
- *45 min - Demonstrate how DASEES was used in Dania Beach: Value-Focused Thinking.*
We shall describe the sea-level rise challenges faced by the Dania Beach community, followed by a demonstration of how DASEES was used in community workshops to capture their needs.
- *15 min - Discussion and reflections.*

- *30 min - Demonstrate how DASEES was used in Dania Beach: Consequence Modeling*
We shall describe how community values captured in Structured Decision Making workshops can be used to formulate influence diagrams relating management alternatives and ecosystem services.
- *30 min - Discussion and reflections.*
- *15 min - Wrap-up and future implications.*
The session starts with a summary of the workshop proceedings. We then close with a big-picture view of how tools like SDM and DASEES are related to concepts like traceability, defensible decisions, evidence-based policymaking, open data, open models, and open information.

BENEFITS OF THE WORKSHOP AND TARGET AUDIENCE

This workshop is relevant for individuals and organizations who are keen on learning how complex environmental challenges can be structured and analyzed within a decision-making framework through the lens of a socio-ecological framework. These approaches have been utilized in many contexts, and are largely scalable for other problems frequently encountered in sustainability planning. The workshop focuses on the frameworks and concepts underlying the approach utilized for the EPA-sponsored Dania Beach Resiliency project. The systems-based approach expounded in this workshop allows for participants to adopt and modify the approach as they see fit for their focal sustainability challenges.

WORKSHOP ORGANIZERS

Name: Kelly Black

Organization: Neptune and Company, Incorporated

Email: kblack@neptuneinc.org

Name: John Carriger

Organization: Environmental Protection Agency

Email: carriger.john@epa.gov

Name: Brian Dyson

Organization: Environmental Protection Agency

Email: dyson.brian@epa.gov

Name: Tom Stockton

Organization: Neptune and Company, Incorporated

Email: tstockton@neptuneinc.org

Name: Brian Wee (primary contact)
Organization: Neptune and Company, Incorporated
Email: bwee@neptuneinc.org

WORKSHOP ORGANIZER QUALIFICATIONS

Kelly Black | Kelly Black earned an M.S. in Statistics from Carnegie Mellon University, and a B.S. in Statistics with minors in Economics and Sociology from Montana State University. Ms. Black has twenty plus years of professional experience applying quantitative tools to environmental problem solving. Her view of the project as an interconnected series of processes led her to an interest in systematic planning, statistical designs, and decision quality assurance as these are areas where many projects fail. She has co-authored several EPA QA guidance documents, provided statistical expertise for a wide range of environmental problems, and has worked on several web-based interactive tools for emerging environmental areas, such as brownfields development efforts, valuation of ecosystem services, and validation of proficiency testing data. Ms. Black is widely recognized within the EPA community from the numerous technical training courses she has presented, and has gained a reputation for explaining complex statistical concepts without extensive use of jargon.

John Carriger | Dr. John F. Carriger earned his Marine Science Ph. D. at the College of William & Mary's Virginia Institute of Marine Science. His research interests include decision analysis, causal assessments, and ecological risk assessment. John currently works at the U.S. Environmental Protection Agency's National Risk Management Research Laboratory in Cincinnati, OH. His work at the EPA has primarily supported the development of environmental management frameworks for the Ecosystem Services Research Program and now the Sustainable and Healthy Communities Research Program. Recent publications have focused on how causal knowledge can be used for improved inference, decision making and measurement processes.

Brian Dyson | Dr. Brian Dyson is an environmental engineer with the US EPA Office of Research and Development leading decision science efforts in the Sustainable and Healthy Communities (SHC) Research Program. His research includes environmental simulation-optimization methods for environmental systems engineering and multi-criteria decision analysis applied to reservoir operation, solid waste management, mine waste remediation, urban planning, constructed wetland design and wetland habitat assessment. His current work within the SHC program is aimed at integrating decision methods and developing decision support tools for community redevelopment, contaminated site remediation, sustainable materials management, and brownfields re-development.

Tom Stockton | Dr. Tom Stockton is an environmental statistician whose career focus is facilitating environmental decision making by integrating environmental spatial and temporal statistical modeling, process modeling, and economics under a common decision analysis framework. Tom has 20 years of

environmental statistics and statistical modeling experience. His clients have included the Department of Energy's Nevada Test Site (NTS), Hanford Site, and Los Alamos National Laboratory (LANL), the Environmental Protection Agency's National Risk Management Research Laboratory (NRMRL), Ecosystem Service Research Program (ESRP), and National Center for Environmental Assessment (NCEA), the Nevada Department of the Environment, and the Montana National Guard. Many of his projects involve developing, implementing, and solving decision frameworks that couple statistical modeling, probabilistic fate and transport modeling of environmental contamination, risk assessment and management, and economics. Dr. Stockton's current interests also include both desktop and web-based Bayesian environmental decision analysis tools.

Brian Wee | Dr. Brian Wee has more than 24 years of experience in science (climate change, socio-ecological sciences, earth sciences, climate adaptation), technology (computer science, informatics, open data, technical interoperability, e-infrastructure, in-situ sensing, remote sensing), policy (US civilian science and education, ecosystem services, biodiversity, open data, earth observation), and constituency engagement (Congress, US federal agencies, NGOs, academia, private industry). Brian holds a Ph.D. (Ecology, Evolution, and Behavior) from the University of Texas at Austin, a M.Sc. (Computer Science – Artificial Intelligence) from Northwestern University, Evanston, IL and a B.Sc. (Information Systems and Computer Science) from the National University of Singapore.