ACES 2016 Pre-Conference Workshop
Monday, December 5, 2016 | 8:30am – 12:00pm, Lunch Break, 1:30pm – 5:00pm

Title: *Methods for Incorporating Ecosystem Services into Decision-Making: From Benefit Relevant Indicators to Monetary Values*

Description: The purpose of this workshop is to delve into the ecosystem services assessment methods reviewed in the Federal Resource Management and Ecosystem Services (FRMES) Guidebook (https://nespguidebook.com). The presentations will provide detailed explanations of these methods and examples of how they are used, to help build a common understanding of what it means to incorporate ecosystem services into decision making. This workshop provides an opportunity for the broader community to explore ecosystem service quantification and valuation methods in more depth with experts, using participant exercises to enhance the discussion and shared learning experience. Integrated question and answer sessions will provide opportunities to engage participating experts on topics related to the application of these methods to various policy contexts.

We ran a similar workshop at the 2014 ACES conference where we had approximately 80 participants from a wide range of institutions, such as federal agencies, consultants, and NGOs. We received great feedback from the community on the value of this type of general introductory training and the alignment with the online guidebook.   Thus we hope to bring it to a new audiences at ACES 2016, including updated methods and topics not included in the original 2014 workshop.

What participants will learn during the workshop:

I.   Welcome
Participants will introduce themselves and the reason they are learning about ecosystem services methods. The primary goal is to inform the others in the group and the lecturers about the various ways the participants expect to use ecosystem services information.

II.   Workshop Overview
The presenters will provide an overview of changes and progress in the use of ecosystem services information in U.S. policy and programs since the last ACES. They will also introduce the audience to the National Ecosystem Services Partnership (NESP) and the NESP online guidebook resource. The focus will be on clearly defining ecosystem services, providing an overview of common methods that are described in the guidebook, and illustrating relationships among these methods. This introduction will also touch on a suite of other resources that may be relevant to users.

III.   Causal Chains and Conceptual Models
We will then provide an overview of the initial scoping and framing steps used for understanding and assessing ecosytem services. This is the critical step of connecting changes in ecosystems, to changes in the provision of services, to the people who are effected by those change (the beneficiaries). Participants will learn how these methods can be used as the primary tools of a decision process or as the starting place for more in depth assessment. Participants will engage in a hands-on small group

exercise to build out causal chains and a conceptual map of ecosystem services effected by an example resource management decision. These will provide examples to which we will return throughout the day.

IV.	Common Lists of services and Classification

We will provide a brief introduction into when and how to build consistency in the assessment of ecosystem services. This will introduce ideas for whether and how to create common lists of services and use classification systems.   We will also discuss the potential uses (and common misuses) of standard classification systems.

V.	Quantification 1 - Ecological Production Functions

The presenters will then cover methods used to quantify ecosytem services, starting with the development and use of ecological production functions (EPFs). This will include exploring what EPFs are and how they can be developed, including specific examples for illustration. There will be plenty of time for discussion with participants. Participants may also take a few minutes to explore the type of ecological production functions that might be used on the conceptual maps and causal chains they developed in the earlier exercise.

VI.	Quantification 2 – Benefit Relevant Indicators

Next we will continue with quantification and discussion of Benefit Relevant Indicators (BRIs), what they are, how they are created, and why they are useful. We will discuss why BRIs are a central component of ecosystem services analysis, and how BRIs differ from other types of indicators commonly (mis)used to quantify ecosytem services. The presentation will discuss how to develop simple BRIs, and also how to add social context data for more informative BRIs. It will provide ideas for where relevant data can be found and show a few examples. The presentation will show how BRIs can be used in alternatives matrices and efficiency frontiers to provide useful information for decision makers. Participants will be asked to consider how BRIs are built using information from the conceptual maps and causal chains developed earlier in the workshop. . Participants will engage in another small group exercise to explore the development of BRIs and non-monetary benefit indicators for a specific example.

VII.	Quantification 3 - Benefits Assessments

The final topic will be benefits assessment. This includes methods used to measure people's preferences and values for different ecosystem service outcomes. Benefis assessment takes us from quantifying what is valued (the BRI) to assessing how much it is valued.   This is an important part of ecosystem services analysis, particularly if there are tradeoffs in the production of services (e.g., one increases while another decreases) or tradeoffs across stakeholder priorities (e.g., one wants more recreational access while another wants greater solitude and wilderness area). The session will provide an overview of both monetary and non-monetary benefit assessment methods, what they are, how they differ, and when they are needed. Then it will go into more detail outlining various monetary valuation methods, when they are applicable, and how they are applied. This final section will also include

coverage of benefit transfer methods that can be used to approximate monetary values when primary studies are infeasible.

Agenda

SPEAKER	TIME	TOPIC
Lydia Olander	10 min	Welcome and Introductions
Lydia Olander	40 min (With Q&A)	Overview and Introduction to NESP Guidebook and Best Practices.
Lydia Olander	30 min	Causal Chains and Conceptual Diagrams (Means-Ends)
Break	10 min	
All Instructors	50 min	EXERCISE: Causal chains/ conceptual diagrams and selection of services for further analysis
Lydia Olander	10 min	Common Lists of Services and Classification Systems
Robert Johnston	30 min (with Q&A)	Ecological production functions
LUNCH		
Lisa Wainger	50 (with Q&A)	Quantifying Benefit Relevant Indicators including social context information and existing data sources
Led by Lisa Wainger	45 min exercise	EXERCISE: Developing benefit relevant indicators
Break	10 min	
Robert Johnston	75 min (with Q&A)	Benefits Assessment (overview of methods that incorporate preferences and values with an emphasis on monetary valuation methods)

Audience

The target audience is quite broad as we hope to engage all actors that could potentially be involved in moving forward one of the many tasks necessary to advance the use of ecosystem services in decision making in the US and abroad. This would involve government actors, environmental NGOs, landowners, lawyers, environmental practitioners, foundations, academics, bridging institutions and many more. This workshop could be of interest to anyone who wants to understand the methods better, but may be particularly relevant to those who will be hiring experts to integrate ecosystem services into their projects or programs, or those who will begin doing such assessments themselves. It will be of less interest to experts who already use these methods.

Workshop Organizer

Lydia Olander, PhD (primary contact)
Director of Ecosystem Services Program and National Ecosystem Services Partnership at the
Nicholas Institute for Environmental Policy Solutions and Adjunct Associate Professor at the
Nicholas School of the Environment
Duke University
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Qualifications:
Lydia Olander, Ph.D. directs the National Ecosystem Services Partnership which has been working for the last 4 years to support federal government efforts to incorporate ecosystem services into decision making. She also directs the Ecosystem Services Program at the Nicholas institute for Environmental Policy Solutions at Duke University where she has worked on ecosystem services and environmental market policy since 2005. She has a doctorate in Biogeochemistry from Stanford University; a diversity of peer reviewed publications in science, policy and law; serves on the Environmental Advisory Board for the US Army Corps of Engineers; and was a AAAS Congressional fellow in 2004-2005 working in the office of Senator Lieberman on a range of environmental issues.

Robert Johnston, Ph.D. is a Professor of Economics and the Director of The George Perkins Marsh Institute at Clark University. His research interests include economic valuation, benefit transfer and ecosystem services, with an emphasis on aquatic, riparian and coastal systems. His recent work has focused on the economics of coastal vulnerability and adaptation (e.g., to sea level rise and coastal flooding), and the coordination of economic and ecological models to value aquatic, riparian and coastal ecosystem services. In addition to his grant-funded research, he works closely with international organizations, government agencies and non-profit organizations to assist in the appropriate use of economic information to guide environmental and natural resource decisions. He is a current member of the US EPA Science Advisory Board, the Ecosystem Science and Management Working Group of NOAA Scientific Advisory Board, the Management Committee and Science Advisory Board of the Narragansett Bay Estuary Program, and the Senior Advisory Board of the Connecticut Sea Grant Program. He has published widely on methods for ecosystem service valuation, and has served on multiple formal and ad hoc panels advising government agencies on the use of these methods.

Lisa Wainger, Ph.D. is a Research Associate Professor of environmental economics at the University of Maryland Center for Environmental Science. Her primary research interest is developing integrated ecological and economic analysis tools to communicate changes in ecological conditions in terms of socio-economic impacts.   She currently serves as a special economics advisor to the US EPA Office of Research and Development and serves on the Executive Board of the Scientific and Technical Advisory Committee to the Chesapeake Bay Program. She has served on numerous other advisory panels for the White House Council on Environmental Quality, US Army Corps of Engineers, and the National Fish and

Wildlife Foundation, among others. She received her BS in Earth Science from the University of California, Santa Cruz and her PhD in ecological and environmental economics at the University of Maryland, College Park, with support from a MacArthur Fellowship.

List of invited and confirmed speakers

SPEAKER	Email	Confirmation
Lydia Olander	Lydia.olander@duke.edu	Confirmed
Lisa Wainger	wainger@umces.edu	Confirmed
Robert Johnston	rjohnston@clarku.edu	Confirmed