



**December 5-9, 2016**

**Jacksonville, Florida, USA**

[www.conference.ifas.ufl.edu/aces](http://www.conference.ifas.ufl.edu/aces)





# MOLLY MACAULEY

JUNE 10, 1957 – JULY 8, 2016



**MOLLY MACAULEY**, one of the few economists specializing in satellites and the space program generally, was murdered on July 8 while walking her dogs near her home in Baltimore, MD. She was 59.

Molly Macauley was a valued member of the ACES community. She was part of the space policy community for decades and renowned for her expertise on the economics of satellites, especially in the earth observation arena. Her professional portfolio was much broader, however, including the use of economic incentives in environmental regulation, climate and earth science, and recycling and solid waste management. She testified before Congress many times and was the author of more than 80 journal articles, books, and book chapters.

She was Vice President for Research and a Senior Fellow at Resources for the Future, a Washington based think tank that focuses on the economics of natural resources. She was a past member of the Space Studies Board (SSB) and of the Aeronautics and Space Engineering Board (ASEB) of the National Academies of Sciences, Engineering and Medicine and served on many of its study committees. She was a member of the steering committee for the ongoing Decadal Survey for Earth Science and Applications from Space at the time of her death.

Macauley received her B.A. in economics from the College of William and Mary in 1979, and a Master's and Ph.D. in economics from Johns Hopkins University in 1981 and 1983 respectively. In addition to her work at RFF, she was an Adjunct Professor of economics at Johns Hopkins.

*Molly will be greatly missed by all who knew her.*





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## Welcome to ACES 2016!

On behalf of A Community on Ecosystem Services (ACES) and our partners in Ecosystem Markets and the Ecosystem Services Partnership (ESP), we welcome you to the ACES 2016 Conference! We have organized an assortment of workshops, plenary sessions, presentations, and field tours - but hope that you find ACES to be more than a series of meetings and presentations. Instead, as information is being shared, please make a concentrated effort to 'step out of your silo' or 'move away from your comfort zone' and attend presentations and participate in sessions you might not normally select. We are confident that if you do so, you will gain important understanding and interact with valuable new contacts to help further the discussion on, and science of, ecosystem services.

The ACES 2016 conference features a focus on implementation advances and challenges, a track on conservation finance, and sessions addressing a broad range of topics, methods, and practices such as human well-being, monetary and non-monetary valuation, urban ecosystem services, the impacts of climate change on terrestrial and coastal ecosystems and services, and the role of Traditional Ecological Knowledge. Also of note will be presentations and posters from around the world including developing countries. There will be nearly 500 participants at ACES 2016 from 24 nations, including leaders from all levels of government, NGO's, non-profits, academia, and the private sector.

We wish to thank the supporting and partnering organizations and the Planning, Program, and Steering Committee members for their exceptional efforts to make ACES 2016 a success. Their insights and support are greatly appreciated, and this conference could not have happened without them. In particular, we are grateful for the continued outstanding efforts of the staff of the University of Florida, IFAS Office of Conferences and Institutes in organizing the logistics and making this conference possible, and the strong leadership of Kristin Zupancic and Jasmine Garcia in this endeavor.

We anticipate that ACES 2016 will provide many opportunities to share science advances and state-of-the-art practices and continue the dialogue and information sharing within the ecosystem services community. As the week proceeds, remember to attend sessions that are outside of your field, and be sure to network, meet old friends, make new friends, and establish new interdisciplinary relationships.

Thank you for attending ACES 2016!

**Dianna M. Hogan, Ph.D.**

*Planning Committee Chair*

Supervisory Physical Scientist

Eastern Geographic Science Center and

Science and Decisions Center Affiliate

U.S. Geological Survey

# CONFERENCE COMMITTEES

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**Frank Casey, Ph.D.**, Council on Environmental Quality

**Dianna Hogan, Ph.D.**, *Planning Committee Chair*, U.S. Geological Survey

**Shonté Jenkins**, U.S. Geological Survey

**Carl Shapiro, Ph.D.**, U.S. Geological Survey

**Kristin Zupancic**, *Conference Coordinator*, UF/IFAS Office of Conferences & Institutes

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**Dianna Hogan, Ph.D.**, *Planning Committee Chair*, U.S. Geological Survey

**Shonté Jenkins**, U.S. Geological Survey

**Carl Shapiro, Ph.D.**, U.S. Geological Survey

**Ariana Sutton-Grier, Ph.D.**, University of Maryland, NOAA National Ocean Service

**Kaola Swanson, M.S.**, The Freshwater Trust

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**Robert Costanza, Ph.D.**, Australian National University, Ecosystem Services Partnership

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**Monique Fordham**, U.S. Geological Survey

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**Todd Gartner, M.F.**, World Resources Institute (WRI)

**Paula Harrison, Ph.D.**, Centre for Ecology & Hydrology (CEH)

**Christopher Hartley, Ph.D.**, U.S. Department of Agriculture

**Dixon Landers, Ph.D.**, U.S. Environmental Protection Agency

**Simone Maynard, Ph.D.**, ACES/ESP Oceania, Australian National University and Simone Maynard Consulting

**Joe Nicolette**, Senior Principal, EPS (Environmental Planning Specialists, Inc.)

**Lydia Olander, Ph.D.**, National Ecosystem Services Partnership, Duke University

**Steve Polasky, Ph.D.**, University of Minnesota

**JB Ruhl, J.D., LL.M., Ph.D.**, Vanderbilt University

**Paul Sandifer, Ph.D.**, College of Charleston

**Darius Semmens, Ph.D.**, U.S. Geological Survey

**Mary Snieckus, M.S.**, U.S. Forest Service

**Ariana Sutton-Grier, Ph.D.**, University of Maryland, NOAA National Ocean Service

**Kaola Swanson, M.S.**, The Freshwater Trust

**Heather Tallis, Ph.D.**, The Nature Conservancy

**Rob Winthrop, Ph.D.**, Bureau of Land Management

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# PARTNERING ORGANIZATIONS

Thank you to the organizations whose employees have given so much of their time as members of the ACES 2016 Steering Committee. Their efforts and leadership help make this important educational event successful.

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Australian National University Crawford School of Public Policy

Centre for Ecology & Hydrology

College of Charleston School of Sciences & Mathematics

Duke University Nicholas Institute for Environmental Policy Solutions

Ecosystem Services Partnership

Electric Power Research Institute (EPRI)

Environmental Planning Specialists, Inc. (EPS)

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Willamette Partnership

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# **SPONSORS & SUPPORTING ORGANIZATIONS**

Thank you to the organizations that take the extra step to partner with us through financial support.  
This important educational event would not be possible without you!

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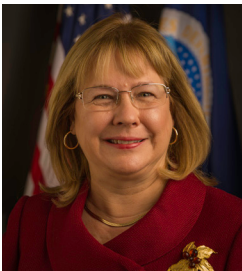
# PLENARY SESSIONS

## TUESDAY, DECEMBER 6, 8:30AM-9:45AM

### Ecosystem Services: Accomplishments and Future Direction

This opening plenary session provides a forum for leaders in the ACES community to discuss the accomplishments and challenges since ACES 2014 in the implementation of ecosystem services. Panelists will discuss how the science and the ability to value ecosystem services has changed, how institutional structures have evolved, and where we have made progress in advancing science and practice. The panelists will also consider how the new administration may approach implementation of ecosystem services and how we may best connect.

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#### **ANN BARTUSKA (MODERATOR)**

Dr. Ann M. Bartuska is Deputy Under Secretary for Research, Education and Economics within the U. S. Department of Agriculture. She came to that position from the Deputy Chief for Research and Development (R&D), U.S. Forest Service (FS), which she held from 2004 to 2010. Ann was born in Philadelphia, Pennsylvania. Daughter of a physician (mother) and engineer (father), she developed an early interest in science. She also developed an early interest in nature through neighborhood walks where her mom identified trees, plants and urban wildlife. She is an ecosystem ecologist with degrees from Wilkes College (B.S.), Ohio University (M.S.) and West Virginia University (Ph.D.). Her past research has focused on ecosystem processes in landscapes disturbed by coal mining.

She held a position at North Carolina State University prior to joining FS R&D in 1987. She came to the Washington Office in 1991, and has held positions as Director of Forest Health Protection (S&PF) and Director of Forest & Range Management (NFS) before leaving the FS. In 2001, Dr. Bartuska left the Forest Service and took a position at The Nature Conservancy as Executive Director of their Invasive Species Initiative, as position she held until 2004 when she returned to the Federal government.

She was elected President of the Ecological Society of America (2003) and has served on the Board of the Council of Science Society Presidents. Dr. Bartuska also is a member of the AAAS (American Association for the Advancement of Science) and SACNAS (Society for the Advancement of Chicanos and Native Americans in Science). She was on the Nicholas School for the Environment, Duke University, Board of Visitors and twice served on the LTER (Long-Term Ecological Research) Advisory Board of the National Science Foundation. She also served as co-chair of the Science and Technology Roundtable for Sustainability of the National Academy of Sciences, and was an inaugural member of the Multi-disciplinary Expert Panel (MEP) of the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), chartered by UNEP.



## LYNN SCARLETT

Former Deputy Secretary of the U.S. Department of the Interior, Lynn Scarlett is global Managing Director of Public Policy at The Nature Conservancy and Global Climate Strategy Lead. From 2005 to January 2009, she served as the Deputy Secretary and Chief Operating Officer of the U.S. Department of the Interior, a post she took on after 4 years as the Department's Assistant Secretary for Policy, Management and Budget. She served as Acting Secretary of the Department in 2006. Ms. Scarlett initiated the Department's Cooperative Conservation Task Force in 2002 and chaired the Department's Climate Change Task Force. She chairs NOAA's Science Advisory Board and Co-chairs the Landscape Conservation Cooperatives Council of the US government. She also co-chairs

the National Academy of Sciences Sustainability Roundtable. She was Co-convening Lead Author of the Decision Support Chapter of the 2014 National Climate Assessment (U.S.). She is the author or co-author of recent publications on climate change adaptation; urban greening; large landscape conservation; offshore oil issues; science and decision making, and ecosystem services. She received her B.A. and M.A. in political science from the University of California, Santa Barbara, where she also completed her Ph.D. coursework and exams in political science.



## TIM MALE

Tim is Associate Director for Conservation at the White House Council on Environmental Quality where he has worked on drought, water policy, wildfire and private conservation finance including a 2015 Presidential Memorandum on mitigation and private investment. He has spent his career focused on water issues, agricultural policy, endangered species, conservation, and nonprofit work. Before CEQ, Tim worked for various organizations, including Environmental Defense Fund, Defenders of Wildlife, and National Fish and Wildlife Foundation. Tim is also a three-term elected city councilman in Takoma Park, MD. He has a doctorate in conservation biology and was a Marshall Fellow in Europe in 2010.



## SUZETTE KIMBALL

Dr. Kimball is responsible for leading the Nation's largest water, earth, and biological science, and civilian mapping agency. Prior to becoming the Director, Dr. Kimball was the USGS Deputy Director. In 2008, she became the Acting Associate Director for Geology, and prior to that was the Director of the USGS Eastern Region, starting in 2004. She joined the USGS as Eastern Regional Executive for Biology. In that position, she built many partnerships, helped shape programs, and led the establishment of the USGS Florida Integrated Science Center. She came to the USGS from the National Park Service in Atlanta, where she was Associate Regional Director.

She entered the National Park Service as a research coordinator in the Global Climate Change Program, became Southeast Regional Chief Scientist, and then Associate Regional Director. She was assistant professor of environmental sciences at the University of Virginia, co-director of the Center for Coastal Management and Policy and marine scientist at the Virginia Institute of Marine Science, and managed coastal morphology and barrier island studies in the U.S. Army Corps of Engineers. She serves on executive boards and many State and national committees, including the Consortium for Coastal Restoration through Science & Technology, the Council of Examiners of the National Association of State Boards of Geology, and the DOI Senior Executive Service Advisory Council. She was on the board of directors of the Coastal Society and has served as secretary of the American Geophysical Union's Ocean Sciences Section.

She has authored numerous publications on barrier island dynamics, coastal ecosystem science, coastal zone management and policy, and natural resource exploration, evaluation, and management. She has received the Presidential Rank Award and the Secretary of the Interior's Meritorious Service Award. Dr. Kimball has a doctorate in environmental sciences with a specialty in coastal processes from the University of Virginia, a master's in geology and geophysics from Ball State University, and a bachelor's in English and geology from the College of William & Mary.



## MARGARET WALLS

Margaret Walls is a Senior Fellow and interim Vice-President for Research at Resources for the Future, an independent nonprofit research organization in Washington, DC. Dr. Walls has conducted research and policy analysis on a range of environmental and natural resource issues, focusing most recently on land use, ecosystem services, and resilience to climate change. Her work has appeared in a number of peer-reviewed journals and she is the author of 18 book chapters. She is currently a co-Principal Investigator on a 4-year National Science Foundation grant to analyze community resilience to repeated hurricanes and heat waves. She has a PhD in economics from the University of California – Santa Barbara.

# TUESDAY, DECEMBER 6, 10:15AM-11:30AM

## Implementation Advances and Challenges

This plenary session will provide a discussion on implementation advances and challenges from a diversity of perspectives. The speakers will provide thoughts on their experience and recommendations, and will include aspects of finance and how to consider and balance potentially competing objectives.



## OLIVIA FERRITER (MODERATOR)

Olivia Barton Ferriter is the Deputy Assistant Secretary for Budget, Finance, Performance and Acquisition for the U.S. Department of the Interior. She provides leadership and oversight for developing the Department's annual budgets, achieving clean audit opinions, implementing the Department's Strategic Plan, and providing Department-wide guidance on contracting, real property, museum and fleet management, sustainability goals and other functions.

Olivia has broad professional experience gained through U.S. Department of the Interior leadership and management roles, as a senior aide on Capitol Hill and as an award-winning journalist for a major daily newspaper. She previously served as the Deputy Director, Interior Office of Policy Analysis, where she provided leadership to develop and implement Interior's climate change adaptation policies. She guided the development of the Adaptive Management: The U.S. Department of the Interior Applications Guide for managers, and has represented Interior in interagency efforts to incorporate Ecosystem Services into natural resources decision making.

Prior positions include Director, Office of Conservation and Educational Partnerships; Chief of Staff, Office of the Assistant Secretary for Water and Science; and Congressional and Constituent Relations Specialist, U.S. Geological Survey. Olivia served as press secretary and House Appropriations Committee associate staff for a senior member of Congress for 12 years. She also worked as a journalist for The Birmingham News, Birmingham, Alabama, and for Newhouse News Service, Washington, DC.



## ROBERT COSTANZA

Professor Robert Costanza is a Vice-Chancellor's Chair in Public Policy at the Crawford School of Public Policy at the Australian National University. He is also currently a Senior Fellow at the National Council on Science and the Environment, Washington, DC, a Senior Fellow at the Stockholm Resilience Center, Stockholm, Sweden, an Affiliate Fellow at the Gund Institute for Ecological Economics at the University of Vermont, a deTao Master of Ecological Economics at the deTao Masters Academy, Shanghai, China, and co-chair of the Ecosystem Services Partnership. Professor Costanza received his Ph.D. in Environmental Engineering Sciences (Systems Ecology with an Economics minor) and a Masters degree in Architecture and Urban Planning both from the University of Florida.

Professor Costanza's transdisciplinary research integrates the study of humans and the rest of nature to address research, policy and management issues at multiple time and space scales, from small watersheds to the global system. His specialties include: transdisciplinary integration, systems ecology, ecological economics, ecosystem services, landscape ecology, ecological modeling, ecological design, energy analysis, environmental policy, social traps, incentive structures and institutions.

He is co-founder and past-president of the International Society for Ecological Economics, and was chief editor of the society's journal, *Ecological Economics* from its inception in 1989 until 2002. He currently serves on the editorial board of ten other international academic journals. He is also co-editor in chief of *Solutions* ([www.thesolutionsjournal.org](http://www.thesolutionsjournal.org)), with Ida Kubiszewski, a unique hybrid academic/popular journal.

His awards include a Kellogg National Fellowship, the Society for Conservation Biology Distinguished Achievement Award, a Pew Scholarship in Conservation and the Environment, the Kenneth Boulding Memorial Award for Outstanding Contributions in Ecological Economics, and honorary doctorates from Stockholm University and the Ecole Normale Supérieure de Lyon.

Professor Costanza is the author or co-author of over 600 scientific papers and 27 books. His work has been cited in more than 20,000 scientific articles in ISI's web of knowledge and he has been named as one of ISI's Highly Cited Researchers since 2004, with an h-index of 63. More than 300 interviews and reports on his work have appeared in various popular media and he has written over 60 articles for the popular press.



## IONE TAYLOR

Ione Taylor's areas of professional focus include the application of physical science, integrated with economics, to inform decision-making for land and natural resource development, as well as developing and applying models of innovative leadership and professional development in the energy and mineral sectors. She currently serves as Executive Director, Earth and Energy Resources Leadership, at Queen's University, Ontario Canada. She leads a graduate level professional program that integrates geosciences, engineering, economics, legal, societal, environmental, and policy

concepts into a curriculum to develop the next generation of enterprise leaders for the natural resource sector.

Ione began her career in the petroleum industry, working as an operations geologist on drilling wells in the Gulf of Mexico. She spent the next 15 years in US domestic and international hydrocarbon exploration, holding multiple scientific and technical positions at Amoco Production Company and British Petroleum. Ione eventually moved into senior leadership positions including R&D Director of Worldwide Technology Applications, Vice President of Overseas Exploration, and Upstream Technology Group Lead for Worldwide Reservoir Description. Ione subsequently joined the US Geological Survey (USGS) with positions focused on energy and mineral resource security for the Nation, interdisciplinary environmental science, and application of satellite remote sensing for earth observation. Most recently, as USGS Associate Director for Energy and Minerals, and Environmental Health, Ione served as the Senior Executive responsible for oversight of geological research and assessment programs for energy and mineral resources and economics to inform natural resource management, as well as toxic and contaminant substances that impact environmental and human health.

At the US National Level, Ione served as Technical Committee Chair for the White House Office of Science and Technology Policy, Federal Interagency Group on Unconventional Oil and Gas (2013-2014), and Co-chair for the White House Office of Science and Technology Policy Working Group on Critical Mineral Supply Chains (2013-2014). Ione holds a BS degree in Chemistry and MS and PhD degrees in Geology; is a graduate of Thunderbird School of Global Management; and holds an Executive Certificate in Strategy and Innovation from Sloan School of Management at Massachusetts Institute of Technology.





## **RICARDO BAYON**

Ricardo Bayon is a Founder and Partner of Encourage Capital, a new breed of asset management firm focused on profitable and strategic investments to solve critical social and environmental problems. Encourage Capital seeks to build a community of investors, foundations, market leading companies, governments and non-profits who are working together to address some of the world's most challenging issues while generating financial returns for its investors. Encourage was formed through the merger of Wolfensohn Fund Management (the firm created by the former head of the

World Bank, Jim Wolfensohn) and EKO Asset Management, a firm that Mr. Bayon created with his business partner, Jason Scott. Encourage currently manages more than \$250 M in assets and has raised capital from Foundations, high net-worth individuals, family offices, and other impact investors. EKO and Wolfensohn have done work and made investments on issues like financial inclusion, carbon markets, fisheries, water, and green infrastructure.

Mr. Bayon also serves as the company's Chief Impact and Innovation Officer. Prior to co-founding EKO, he helped found and served as the Managing Director of the "Ecosystem Marketplace," a web site and information/analysis service covering these emerging environmental markets. In that capacity he co-authored a number of publications on voluntary carbon markets, mitigation banking, and ecosystem services including "The State of Voluntary Carbon Markets 2007: Picking up Steam" and "Voluntary Carbon Markets: An International Business Guide to What They Are and How They Work," and "Conservation and Biodiversity Banking: A Guide to Setting Up and Running Biodiversity Credit Trading System". For nearly two decades he has specialized on issues related to finance, banking, and the environment. He has done work for a number of organizations, including Insight Investments, the International Finance Corporation (IFC) of the World Bank, IUCN, The Nature Conservancy, Domini Social Investment, among others. His articles have appeared in publications such as The Washington Post, The Atlantic Monthly, and the International Herald Tribune. He has also written numerous articles and books on mitigation banking, renewable energy, biodiversity markets, markets for water quality, and other environmental markets. He was born in Bogota, Colombia, and is currently based in San Francisco.



## **STEPHEN POLASKY**

Stephen Polasky is a Regents Professor and the Fesler-Lampert Professor of Ecological/Environmental Economics at the University of Minnesota where he has a joint appointment in the Department of Applied Economics and the Department of Ecology, Evolution & Behavior. He is also a fellow of the University's Institute on the Environment. His research interests focus on issues at the intersection of ecology and economics and include the impacts of land use and land management on the provision and value of ecosystem services and natural capital, biodiversity conservation, sustainability, environmental regulation, renewable energy, and common property resources. He is a co-founder of

the Natural Capital Project, a partnership between Minnesota, Stanford, The Nature Conservancy, and World Wildlife Fund. He served as Senior Staff Economist for environment and resources for the President's Council of Economic Advisers 1998-1999. He currently serves on the Board of Directors and the Science Council for The Nature Conservancy, the Sustainability External Advisory Committee for Dow Chemical, and the Science Advisory Board of NOAA. He was elected into the National Academy of Sciences in 2010. He is a fellow of the Association of Environmental and Resource Economists, the American Academy of Arts and Sciences, and the American Association for the Advancement of Science. He received a Ph.D. in economics from the University of Michigan in 1986.

## WEDNESDAY, DECEMBER 10, 8:30AM-9:30AM

### Human Health and Ecosystem Services: People and the Environment Are Not Separate

This plenary session focuses on themes to directly connect human well-being and the environment. The speakers will reinsert the role of people into ecosystem service assessments from the perspectives of indigenous peoples, human health, and the ecological links.

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#### **BOBBY COCHRAN (MODERATOR)**

Bobby Cochran is the Executive Director for the Willamette Partnership, a nonprofit coalition of business, environmental, and other leaders working to enhance the pace, scope, and effectiveness of conservation in the West. The Partnership specializes in collaborative solutions that help communities meet environmental and social challenges. They have built environmental markets, green infrastructure solutions, and strategies to engage farms, forests, and ranches in conservation. Bobby is also a Robert Wood Johnson Foundation Culture of Health Leader—a recognition of Willamette Partnership's commitment to human health, ecosystems, and equity. He received a Ph.D./

M.A. in Urban Studies/Conflict Resolution from Portland State University, and his Masters in Public Policy from the University of Southern California.



#### **GEOFFREY PLUMLEE**

Dr. Geoffrey S. Plumlee is the Associate Director for Environmental Health with the US Geological Survey in Reston, Virginia. In this role, Dr. Plumlee serves as the senior manager for USGS science activities related to environmental contaminants and their impacts on the health of humans and other organisms. Dr. Plumlee brings to his position more than 30 years of research and science management experience with the USGS. His applied geological and geochemical research helped inform policy decisions on societally pressing issues related to mineral resources, the environment, geology and human health, and disaster response and preparedness. Reflecting the broad range of his research interests, Dr. Plumlee successfully established transdisciplinary research

collaborations with earth scientists and scientists from diverse other disciplines such as public health, medicine, toxicology, industrial hygiene, hazards, emergency response / preparedness, and engineering. He helped lead USGS responses assessing environmental and health implications of disasters such as the World Trade Center collapse, hurricanes, floods, wildfires, mine tailings spills, and volcanic eruptions. He has also worked with USGS hazards experts to help anticipate environmental and health implications of future disasters. Dr. Plumlee is an adjunct clinical assistant professor at University of Colorado School of Public Health, Past Chair of the Geological Society of America's Geology and Health Division, a contributing editor to Earth Magazine, and an appointed Council Member of the American Geophysical Union.



## PAUL SANDIFER

Dr. Paul Sandifer is a Research Associate (Professor) and Director of a new Center for Coastal Environmental and Human Health in the School of Sciences and Mathematics at the College of Charleston in Charleston, SC. He is a coastal ecologist with a broad background in research, natural resource management, science policy, and the intersection of marine ecosystem health and human health. His prior career includes nearly 12 years in NOAA, where he served as a Senior Scientist, Senior Science Advisor to the NOAA Administrator, Chief Science Advisor for NOAA's National Ocean Service, and was responsible for development of NOAA's Oceans and Human Health Program. Before

NOAA, he worked 31 years with the South Carolina Department of Natural Resources where he served in numerous capacities including as agency director. Paul has served on many committees and boards at state to national levels, including the US Commission on Ocean Policy, Marine Board of the National Research Council, NAS Roundtables on Environmental Health Science, Research and Medicine and on Science and Technology for Sustainability, U.S. National Committee for the Census of Marine Life, and the Founding Board of Directors of the South Carolina Aquarium. He is an Honorary Life Member of the World Aquaculture Society, a Fellow of the American Association for the Advancement of Science, Fellow of the Ecological Society of America, Emeritus Member of the National Association of Marine Laboratories, recipient of the Order of the Palmetto (South Carolina's highest civilian award) and author or co-author of more than 150 publications.



## JON WATERHOUSE

Native American, Jon Waterhouse works with Indigenous cultures within some of the most remote watersheds on the planet. Beginning with a request many years ago from Indigenous Elders to “Go out, take the pulse of the River”, he has now logged thousands of miles by canoe in remote regions of the world. Spending time around campfires listening to the rhythm of life and wisdom of the ages imparted by place-based peoples. The journey is growing into a global network connecting traditional Indigenous cultures to one another, as well as to contemporary scientists, through science and Indigenous Knowledge. Working together, utilizing some of the latest scientific data

collection techniques and high tech equipment, blended with knowledge viewed through the Indigenous lens and developed since time immemorial, this combination of the contemporary and Indigenous scientists is resulting in a more colorful and complete view of the natural world achieving a deeper understanding of planet systems and the state of environmental health as well as our own. This combination of two world-views is working to identify our shared challenges and common goals, and is becoming a catalyst for global community action for the future of humankind.

Waterhouse retired from his 20-year US NAVY career as a chief petty officer, he is a National Geographic Explorer, Grantee, and Education Fellow Emeritus, a presidential appointee of Pres. Barack Obama, Ecotrust Indigenous Leader Awardee, and Indigenous Peoples Scholar at Oregon Health and Science University.



# THURSDAY, DECEMBER 8, 8:30AM-9:30AM

## Implementation Status and Challenges: International Perspectives

Panelists in this plenary session will discuss and compare international ecosystem service implementation status and challenges with perspectives from Australia, UK and the EU, Thailand, India, and Africa. The discussion will include the theory, practice and use of ecosystem services, and what lessons could be learned.



### **SIMONE MAYNARD (MODERATOR)**

Simone is an independent multidisciplinary researcher and practitioner known for her ability to think across scales and complex systems. She has delivered on numerous government and private sector consultancies globally where she: helps develop ecosystem service assessment methodologies; facilitates stakeholders to develop agreed frameworks for identifying, measuring and valuing ecosystem services; and works with stakeholders to integrate frameworks and methodologies in their policy, planning and management.

In 2011 Simone was invited to Parliament House to address Federal Ministers on 'an ecosystem services approach to sustaining Australia'. She is an Australian Government nominated expert to the Asia Pacific assessment of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES); she represents the Fenner School (Australian National University) at IPBES Plenaries; and in February she was Facilitator-in-Chief of the IPBES Stakeholder Days. Previously, Simone was Community of Practice Moderator for UNEP's Global Environment Outlook Asia Pacific Regional Assessment.

Simone has taught ecosystem services concepts at universities, mostly in engineering and planning. She is on the Steering Committee of ACES (including Co-coordinating the first Oceania ACES in Australia in 2017); on the Executive Committee of the Ecosystem Services Partnership; the Editorial Board of the journal Ecosystem Services; an Australia21 Scholar; and contributed to the review of UN SEEA through the Australian expert group. Simone has published in books and journals and is regularly invited to speak globally. She has received many scholarships and awards, including a Planning Institute of Australia Award for Excellence for the project she previously managed. Simone has a Degree in Environmental Science (Ecology and Conservation Biology); a Diploma of Community Natural Resource Management; and a PhD that focused on methodologies (process, information and tools) for integrated ecosystem services assessments across multiple scales.



### **YONGYUT TRISURAT**

Dr. Yongyut Trisurat is a Professor of Forestry at Kasetsart University in Bangkok, Thailand. He received a PhD in natural resources conservation from the Asian Institute of Technology in Thailand. He worked with the Royal Forest Department for ten years before joining Kasetsart University in 2000. His current research involves biodiversity conservation, species distribution and land-use change modeling, climate change impact and ecosystem services. Professor Yongyut Trisurat has published a number of peer-reviewed articles and book chapters related to these subjects. Besides, he is a

frequent contributor to several international organizations, government agencies, and NGOs such as a national coordinator of the International Long-term Ecological Research Network, a regional expert for the Mekong River Commission Secretariat (MRC), a national expert to the Tropical Timber Organization (ITTO), an expert reviewer to the Aichi Biodiversity targets, an appraisal panelist member of the Asia Asia-Pacific Network for Sustainable Forest Management and Rehabilitation project (APFNet), a Lead Author of the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) Assessment Report and a Coordinating Author and Lead Author of the UNEP Global Environmental Assessment (GEO-6) in the Asia and Pacific Region.

Professor Yongyut Trisurat has been invited as a Visiting Scholar/Professor to teach and to conduct research at many universities in Europe and USA (e.g., Freie University in Berlin and University of Göttingen, Germany; University of Leeds, UK; University of Turku, Finland; University of Natural Resources and Life Sciences, Austria; Mendel University in Brno, Czech Republic; and University of Hawaii, USA).



## RUCHI BADOLA

Dr. Ruchi Badola is a Scientist G/ Senior Professor with the Department of Ecodevelopment Planning and Participatory Management at the Wildlife Institute of India, Dehra Dun. At the Institute she teaches subjects related to human dimension in wildlife management with special reference to people – protected area interface. A masters and Ph.D in economics, she has also been involved in a range of subject areas and programmes on science-policy interface relating to ecosystem services of both terrestrial and aquatic ecosystems. She is actively involved with research and training related to Ecological economics and valuation of ecosystem services. Dr. Badola works closely with park-dependent communities and Indian policymakers to frame conservation solutions that make sense

in context of the local and global challenges. She conducts research and provides training to Protected Area managers and to others from India and other countries in Ecological economics and participatory approaches to biodiversity conservation including stakeholder's participation, sustainable livelihoods, conflict management and gender issues in biodiversity conservation. In addition to her official work at WII, she has provided her services in various capacities to the World Bank, the UN Food and Agricultural Organization (FAO), Ecosystem Services for Poverty Alleviation, UK, WWF Bhutan and the International Centre for Integrated Mountain Development (ICIMOD). An internationally recognized scholar, she is Lead Author of the for the Chapter on Integrated analysis of interactions of the natural world and human society for the 'Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)' Regional Assessment for Asia and the Pacific and the Co-ordinating Lead Author for the 'Hindukush Himalayan Monitoring and Assessment Program', coordinated by ICIMOD. She is the author of over 50 peer-reviewed papers.



## LAURENCE JONES

Laurence Jones is an ecologist at the UK Centre for Ecology & Hydrology, with 20 years research experience. His interests cover ecosystem services modelling, the connections between natural capital and human wellbeing, and the practical application of ecosystem services concepts. He has worked with UK government departments on projects to develop natural capital accounts for air pollution removal, and to value the impacts of air pollution on ecosystem services. He recently worked with the Welsh Government identifying broader opportunities to use the data collected by government departments in different ways. He was co-ordinating lead author for the Coastal Margins chapter of the UK National Ecosystem Assessment. Internationally, he has been involved in European research

projects exploring connections between land use change, biodiversity and ecosystem services, and he participated in a US-EPA initiative developing impact chains for nitrogen pollution.

His career started with atmospheric nitrogen impacts on naturally nutrient-poor habitats, helping develop and refine critical loads for acidic and calcareous grasslands and sand dune grasslands in Europe. As an ecologist he specializes in sand dune ecosystems, but now spends most of his time working on ecosystem services, where he has a particular interest in interdisciplinary research, working with social scientists, economists, natural scientists and policy makers. He holds a PhD in environmental science, a master in ecology and a bachelor in combined studies.



## BEDILU RETA

Mr. Bedilu Amare Reta was born and raised in Addis Ababa, the capital city of Ethiopia. He has studied BSc in Agriculture from Haromaya University-Ethiopia, MSc in Environmental Science and MSc Ecohydrology from Addis Ababa University-Ethiopia and Kiel University-Germany, respectively. He was doing his two MSc thesis on Assessment of water quality changes in Awash River, with emphasis on blending of Lake Beseka, Ethiopia and Integrated Assessment of Ecosystem Services for sustainable management of Natural Resources, A case of Lake Hawassa Basin-Ethiopia. Mr. Reta was served as an Agronomist, Researcher, Environmentalist, and Environmental Compliance Advisor for the last 28

years at different organization, including World Bank, Research organization, Ministry of Agriculture, Ministry of water resources, International Consulting Company. After his recent graduate from Kiel University, Germany, he returns to Ethiopia and currently working at CNFA, Ethiopia Field office as an environmental compliance advisor. During his second MSc thesis, he accumulated ample knowledge on the importance of the Ecosystem service assessment and mapping for decision makers and other development partners to be used as a decision tool for sustainable management of natural resources. He noticed also the gap and challenges to conduct ecosystem services assessment in Ethiopia. His main research interest is find the way of ecosystem services assessment integrating in the normal environmental impact assessment discipline and how the communities raise their awareness on the existing and potential ecosystem services to improve their livelihood and benefit out of it.

# FRIDAY, DECEMBER 9, 10:45AM-12:00PM

## ACES 2016 Synthesis: Key Findings and Next Steps

The closing session at ACES 2016 will provide a synthesis of conference findings, lessons learned, and next steps. Panelists were chosen to provide a diversity of perspectives by including a mix of seasoned ecosystem service experts with those newer to the field to provide a unique angle. Panelists will discuss opportunities, needs, and challenges for advances in ecosystem service implementation.

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### ERICA GOLDMAN (MODERATOR)

Erica Goldman is the Director of Policy Engagement at COMPASS, a non-profit, non-advocacy organization that helps scientists engage effectively in the public discourse on the environment. In this role, she helps bring relevant science to the policy dialogue by organizing briefings for Capitol Hill, the White House, and federal agencies. She also recently served a short-term assignment in the White House Council on Environmental Quality where she helped develop policy guidance on ecosystem services. Erica has a varied background that includes science writing, policy, and academic research; She received her Ph.D. in biology from the University of Washington. Erica has also worked as a science writer for Maryland Sea Grant, served as a Knauss Fellow in the House Resources Committee,

Subcommittee on Fisheries, Wildlife, and Conservation, and worked as a news intern at Science Magazine. She draws inspiration from connections to the natural world and has been lucky enough to experience a number of unusual ecosystems first hand such as Antarctica, the deep-sea hydrothermal vents of the eastern Pacific, and Lake Baikal in Siberia.



### FRANK CASEY

Dr. Frank Casey is an agricultural and natural resources economist and serves as the Ecosystem Services Theme Lead for the Science and Decisions Center at the US Geological Survey. His responsibilities include incorporation of ecosystem services and their valuation (including market mechanisms) in adaptive management research and planning for resource conservation on both public and private lands. Dr. Casey directs a seminar series on economic valuation of ecosystem services, participates in several governmental and external advisory committees related to ecosystem service measurement and valuation, and is active in applying ecosystem services concepts and valuation in

the context climate change and the conservation of at-risk species. He has applied ecosystem services valuation in the context of public forest and rangelands lands, refuges, and private rangelands in the US. Frank served as the Chairperson of the bi-annual Conference of A Community of Ecosystem Services (ACES) in 2012 and 2014. He has a PhD in Food and Resource Economics from the University of Florida and an MS in Agricultural Economics from Cornell University. Frank is currently assigned for duty at the Council on Environmental Quality (CEQ), a division of the Executive Office of the President that coordinates federal environmental efforts in the United States and works closely with agencies and other White House offices on the development of environmental policies and initiatives.



### CHRISTOPHER HARTLEY

Christopher Hartley is the Deputy Director and Senior Environmental Markets Analyst with the USDA Office of Environmental Markets. He is responsible for the development of policy, tools, and metrics to support landowner participation in ecosystem services markets. He previously worked for the Natural Resources Conservation Service in Washington, DC and in California, and served with the U.S. Peace Corps as an agricultural extension agent in Senegal, West Africa. He holds a Doctorate in Agricultural Ecology and masters' degrees in Agronomy and International Agricultural Development from the University of California – Davis. Dr. Hartley is a Certified Crop Advisor, and a licensed Pest Control Advisor with active farming interests in California and Oregon.



## **KAOLA SWANSON**

Kaola Swanson brings a background in ecology and ecosystem services to her role as Associate Conservation Director at The Freshwater Trust. She works with an interdisciplinary team to develop quantified conservation programs, managing key analysis and identifying the potential for new markets. Her focus is on conservation action prioritization, program feasibility, and program design. She has experience in payment for watershed services program development, land conservation, and as an environmental educator. Kaola holds a bachelor's degree in Environmental Science from University of Oregon and a master's degree in Environmental Management with a concentration

in Ecosystem Science and Conservation from the Nicholas School at Duke University. Outside of the office, she can be found exploring Oregon's mountain lakes and rivers.



## **MURRAY HITZMAN**

Dr. Murray W. Hitzman is the Associate Director for Energy and Minerals at the U.S. Geological Survey where he started in late 2016. He was previously the Charles Fogarty Professor of Economic Geology at the Colorado School of Mines and served as head of department from 2002 to 2007. He has A.B. degrees in Anthropology and Geology from Dartmouth College (1976), an M.S. in Geology from the University of Washington (1978), a Ph.D. in geology from Stanford University (1983), and a certificate in Environmental Management from George Washington University (1995). Hitzman worked in the minerals industry worldwide from 1976 to 1996 and was largely responsible for the Lisheen Zn-Pb-Ag

deposit discovery in Ireland. He worked in Washington D.C. (1993-1996) as a policy analyst on natural resources, environmental, and energy issues in both the U.S. Senate and the White House Office of Science and Technology Policy.



## **LYDIA OLANDER**

Lydia Olander directs the Ecosystem Services Program at the Nicholas Institute for Environmental Policy Solutions at Duke University and is an adjunct associate professor at the Nicholas School of the Environment. She leads the National Ecosystem Services Partnership which hosts the online NESP guidebook. She also works on environmental markets and mitigation, including forestry and agricultural based climate mitigation; wetland, stream and endangered species mitigation; and water quality trading. She serves on the US Army Corps of Engineers' Environmental Advisory Board and sits on the Secretariat for the new Bridge Collaborative.

Lydia joined the Nicholas Institute after spending a year as an AAAS Congressional Science and Technology Fellow working with Senator Joseph Lieberman on environmental and energy issues. Before moving to Washington, D.C., she was a post-doctoral researcher with the Carnegie Institution of Washington's Department of Global Ecology. She received her PhD from Stanford University, where she studied nutrient cycling in tropical forests, and earned a master's degree in forest science from Yale University. She has published in a wide range of professional journals including Ecosystems, Biogeochemistry, Soil Biology and Biochemistry, Forest Ecology and Management, Earth Interactions, and Environmental Research Letters, Global Environmental Politics, Environmental Management, The Environmental Law Reporter, Current Opinion in Environmental Sustainability, Advances in Agronomy and Global Change Biology, Frontiers in Ecology and the Environment, Cities, and Integrated Environmental Assessment and Management.



# GRADUATE STUDENT FELLOWSHIP

## *Congratulations to the ACES 2016 Student Fellows!*

Join us on Thursday, December 8th from 12:00pm-1:05pm for *ACES Fellows: The Next Generation*, where our six ACES fellows will provide thoughts and discussion about their ACES experience and perspectives on the future direction of ecosystem services.

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### MARCELLO HERNÁNDEZ-BLANCO

Marcello is Costa Rican, he has a Bachelors Degree in Industrial Engineering, a Masters in Science in Biodiversity, Wildlife and Ecosystem Health from the University of Edinburgh, and a Masters in Environmental Management from the Interamerican University of Costa Rica. He also has advanced studies in Biology with an emphasis on Sustainable Development from the Latin University of Costa Rica.

He is currently a PhD Scholar at the Australian National University under the supervision of Robert Costanza. His research focuses on the development of an alternative financial mechanism to the current payment for ecosystems services program of Costa Rica. He is also working on the national economic valuation of ecosystem services in Costa Rica (present and future) and the calculation of the Genuine Progress Indicator of the same country.

Marcello is a lead author for IPBES in the regional assessment for America, in which he coordinates the section on climate change and ecosystem services. He is the Co-chair for Central America of the Ecosystem Services Partnership. He is also currently works as international consultant on sustainable development in topics such as natural capital, corporate biodiversity management and climate change.

Marcello is currently a research fellow at the International Center of Economic Policy of the National University of Costa Rica, and he also teaches at Long Island University (campus in Costa Rica) in the Global Studies Program. He has been a lecturer at the University for the International Cooperation in the Masters Degree on Sustainable Business Management, and at the Latin University of Costa Rica in the Masters Degree on Environmental Management.

He currently also works as conservation photographer, trained by photographers from National Geographic and specialized in projects on sustainable development. His recent clients include Holcim, United Nations and IUCN.



### SOLENE LECLECH

Solen Le Clec'h is currently finishing her PhD in geography at LETG (CNRS 6554 - Université Rennes 2, France) and GEOPO (Universidade de São Paulo, Brazil). Her research work is part of a transdisciplinary project and focuses on deforestation dynamics in the Brazilian Amazon, where the landscape has been changing rapidly and recently. Her work is applied at two spatial scales: three localities of the pioneer fronts and the State of Pará. She bases her work on the implementation of statistical methodologies to link satellite images at high and moderate spatial resolution and sampling data, in order to map one or several indicators of ecosystem services, in biophysical

units. In this way, she helps understanding the spatial repartition and the structure of the ecosystem services indicators, in connection with the way farmers use their land and the structural components of the territory. She also highlights the limitations and issues underlying the notion of ecosystem services and its implementation through its quantification and cartographic representation. As part of her PhD, she gives various classes to license and master degree students. She also used to be one of the coordinators of the Institut des Amériques and she was then in charge of some scientific and academic cooperation between France and Brazil.



## COLIN PHIFER

Colin Phifer is a PhD student at Michigan Technological University where he is part of an international, interdisciplinary team studying the socio-ecological effects of bioenergy development in four countries (Argentina, Brazil, Mexico and United States). Funded by the NSF's Partnerships in International Research and Education program (PIRE), Colin's research focuses on how land-use change associated with bioenergy development influences native bees, birds and ecosystem services while other PIRE team members examine hydrology, soil and carbon, and social and policy impacts. Colin worked in three of the PIRE countries to survey for both native bees and birds, and now is working to apply ecosystem service modeling to understand trade-offs with multiple ecosystem services and land-use change. The work presented at ACES 2016 focuses on understanding how large-scale afforested eucalyptus plantations in the Pampas grasslands of Argentina impacts ecosystem services. A new-comer to ecosystem service modeling, Colin wants to learn from the many practitioners and experts at ACES, and share this knowledge with his team to better integrate social and natural sciences.

Prior to joining the PIRE team, Colin completed his MSc at the University of Hawaii in conservation biology and his BS at Humboldt State University in California. From bats to birds, plants to pollinators, gibbons to whales, Colin has worked in the US and abroad to conserve biodiversity and provide for human well-being. In addition to research, he has extensive experience as an environmental educator and outdoor guide. He wants his work to lead to actionable, impactful science and informed decision-making. He's worked for US Forest Service, National Park Service, WA Department of Natural Resources, several NGOs (and quite a few restaurants...including as a singing waiter!). When not working, he enjoys cooking, reading a good (science fiction!) book, and playing hockey with his son.



## REBECCA RUNTING

Rebecca Runting's research interests span environmental management, ecosystem services and ecological economics, with a particular focus on planning for multiple conservation and development objectives in Australia and Indonesian Borneo.

In 2011, Rebecca received a Bachelor of Environmental Management (Sustainable Development) with First Class Honors and a University Medal from the University of Queensland. During this time Rebecca developed a background in geographical information systems, ecological economics, urban and regional planning, and environmental science.

Rebecca's PhD research is focused on developing and evaluating strategies to manage multiple ecosystem services under uncertain global change scenarios. Her research has developed approaches for applying economic methods (ecosystem service markets and modern portfolio theory) to protect coastal ecosystem services under sea level rise. She has also undertaken a review of how climate change and other drivers have been incorporated into ecosystem service assessments and decisions. Rebecca's current work explores strategies to manage trade-offs between livestock production and greenhouse gas regulation under global change in Australia's tropical rangelands. This research is cross-disciplinary, linking methods from ecological modelling, economics, and operations research.



## KATHERINE SEVER

Katherine Sever holds a decade of experience in the conservation world and three years of experience dedicated to supporting market-based initiatives for ecosystem services protection. She recently developed a national geodatabase of environmental markets and their enabling conditions for Forest Trends' Ecosystem Marketplace in collaboration with the EPA and USDA Office of Environmental Markets. These geospatial data have been incorporated into EPA's EnviroAtlas to expand decision support for conservation planning and public policy. Concurrently, Katherine is investigating how emerging water quality markets strategize for performance monitoring, reporting, and regulatory integration as part of her master's research at Colorado State University.

Prior to pursuing her graduate degree, Katherine supervised the logistics and implementation of capacity building programs for international conservation professionals with the Center for Protected Area Management. She also worked as a policy advisor for the US Peace Corps at the Peruvian National Protected Areas Service headquarters, where she formed part of an agency task force guiding the development of REDD+ forest carbon initiatives. Additionally, Katherine co-developed natural resource management and subsistence use policies for Peru's then 75 national protected areas. Katherine began her international conservation work with the US Peace Corps in Paraguay, where she coordinated national training programs on climate change adaptation and forest conservation, as well as led stakeholder engagement and regulatory planning processes to designate a natural area for community sourcewater protection. Preceding her work abroad, Katherine performed biological field monitoring, wetland habitat assessments, and spatial data management for conservation organizations, public land management agencies, universities, and environmental firms.

Long before Katherine ever thought about her career, she fell in love with the natural world as a child roaming the pastures of her Oklahoma home. Her prolific track record as a Junior Ranger for numerous national parks sealed her fate as a lifelong conservation professional.



## LAURA WOOD

Laura Wood is a Master of Environmental Management candidate at Duke's Nicholas School of the Environment, concentrating in water resource management. This summer, she interned for Willamette Partnership's Clean Water Program in Portland, Oregon. Prior to Duke, Laura taught environmental education in Jackson, WY, wrote grants for a small nonprofit that raised money for special projects within Grand Teton National Park, and conducted white bark pine research for the Bureau of Land Management in Missoula, MT. She holds a Bachelor of Arts in Biology from Colgate University.

# FINANCE TRACK SESSIONS

The ACES Conference has organized a number of opportunities to explore the role of finance in supporting ecosystem services as this is a critical component of implementation. In addition to the Sessions and Town Halls, there will be a Finance Reception Tuesday evening, and an all-day “Finance Doc” Clinic on Wednesday. By attending 4 or more events, you will be awarded a Finance Track Certificate and entered into a drawing at the closing plenary session for the chance to win a free registration to ACES 2018! **All sessions located in Grand Ballroom 1.**

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## TUESDAY, DECEMBER 6, 2016

### 11:45am-12:50pm | Town Hall: Where Natural Capital Meets Conservation Finance

*For all ACES Attendees-No finance background necessary*

**Moderators:** **Leigh Whelpton**, The Conservation Finance Network and Eric Hallstein, The Nature Conservancy

Designed for ACES attendees not having specialized finance expertise, this interactive town hall discussion, come explore key concepts and emerging trends in conservation finance. Our goal is to build a shared understanding of where science and finance collide, and to highlight the sorts of conservation opportunities that may be appropriate for private sector funding. The session will offer practical advice on how conservationists and scientists may effectively engage with investors.

### 1:00pm-2:45pm | Successful Financing of Large-Scale Watershed Protection and Restoration

**Organizer:** **Peter Stangel**, U.S. Endowment for Forestry & Communities, Inc.

This session presents a variety of examples of successful, multi-million dollar funding for watershed protection focusing on state revolving funds and water utilities. A key goal of this session is to provide practical guidance on how to employ these strategies in your own environment.

The need for financing for large-scale watershed protection is acute, as climate change, development, and other threats adversely affect watershed health. New approaches for financing are developing that can be used in many places and situations. A key challenge to scaling these approaches is sharing success stories and helping interested groups better understand how these options may be applied to their situation.

### 3:15pm-5:00pm | Financing Watershed Protection: New Horizons

**Organizer:** **Jeff Lerner**, American Forests

This session focuses on exciting, new approaches for financing watershed protection and restoration. While these approaches may still be developing, they offer innovative approaches that can help diversify and grow financing opportunities for watershed protection.

### 5:15pm-6:45pm | Town Hall: Where are the Markets? Where is the Money? How to Spend It

**Moderators:** **Patrick Coady**, Seale & Associates, Inc., **Jessica Fox**, Electric Power Research Institute and **Kaola Swanson**, The Freshwater Trust

What does it take to mobilize significant dollars for ecosystem projects? Extensive effort has been invested in developing ecosystem markets over a long period of time. This Town Hall will examine what comprises ecosystem markets, their estimated size and project implementation from a financial point of view. It will assess the current situation with wetlands, stream restoration, species and water quality market as well as emerging markets. It will pose the question, “If you were given a check for, say \$100 million, how would you invest it?”

## FINANCE RECEPTION

### 7:00pm-8:30pm | 4th Floor, VIP Hospitality Mathews Suite, Room 4104

Chat with the Finance Track organizers, moderators and panelists.



## WEDNESDAY, DECEMBER 7, 2016

### 9:00am-12:00pm | Make an Appointment with a “Finance Doc”

Got a financing problem? Make an appointment with a finance “doc” to explore remedies. Email Patrick Coady at [coadyco@earthlink.net](mailto:coadyco@earthlink.net) with a one page summary of the project by 12:00 noon on Tuesday, December 6th. **Appointments will be located in City Terrace 5.**

### 10:00am-11:45am | Financing Green/Grey Coastal Infrastructure (Coastal Resiliency)

*Organizer:* **Erik Meyers**, The Conservation Fund

This panel will examine the recent SAGE (Systems Approach to Geomorphic Engineering) Initiative to integrate green (natural and nature-based) approaches with traditional grey (engineered structures) infrastructure for coastal protection and the tandem effort to utilize more private funding, from philanthropic and impact investors to market-based needs, in green/grey coastal defense projects, providing greater resiliency to climate change and sea level rise impacts. Speaker experiences span private markets, large corporation, government and NGO/ philanthropic institutions.

### 1:15pm-3:00pm | Forest Resilience Bond – Financing Fire Management for Water Benefits through Conservation Finance Approaches

*Organizer:* **Todd Gartner**, World Resources Institute

What if the Forest Service and other land managers could access capital from the private sector to accelerate the pace of forest restoration? This panel will focus on a new financial instrument under development, called the Forest Resilience Bond (“FRB”), which enables private capital to invest in natural resources by placing a value on ecosystem services (such as reduced wildfire risk and augmented water quality and quantity).

### 3:30pm-5:15 pm | Pay for Success Strategies - Overcome Demand Uncertainties in New Markets

*Organizer:* **Eoin Doherty**, Environmental Incentives

The session will cover a range of pay-for-success and performance contracting strategies that can be used by government and philanthropic funders to invest in ecosystem service outcomes. Pay-for-success strategies discussed will range from direct payment for outcomes after they are generated by project proponents, to public-private partnerships that supply upfront capital to overcome uncertainties of innovative approaches, and overcome demand uncertainties of new programs. In addition, the pre-requisite infrastructure necessary to implementing pay-for-success strategies will be discussed, along with private and impact investor needs and lessons learned from implementing different pay-for-success strategies in greater sage-grouse states.

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## THURSDAY, DECEMBER 8, 2016

### 10:00am-11:45am | State of Private Investment in Natural Capital

*Moderator:* **Ricardo Bayon**, Encourage Capital

This interactive panel discussion will review the findings of a new report – State of Private Investment in Conservation – and will reflect both on the evolution of conservation finance and investment in natural capital in the last decade and on trends and opportunities for the immediate future.

# OPTIONAL FIELD TRIPS

## PRE-CONFERENCE FIELD TRIP

### Guana Tolomato Matanzas National Estuarine Research Reserve Hike

Monday, December 5, 2016 | 12:30pm – 5:30pm

Visitors can learn about the cultural history of the Guana Peninsula as well as the natural biodiversity during a guided hike. Find out about the peninsula's 5,000 years of human history, including how native peoples used estuarine resources, what European plantation life was like, and current efforts to learn about and save these resources. Duration of hike is approximately 2 hours. Lunch is not provided, but snacks and bottled water will be.

Be sure to wear closed toe shoes and dress in layers in case you get hot. A hat, sunglasses, water, sunscreen and bug spray are recommended. This tour is rain or shine, so be prepared to bring rain gear if necessary.

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## POST-CONFERENCE FIELD TRIP

### Jacksonville Arboretum and Gardens Guided Walking Tour

Friday, December 9, 2016 | 1:00pm – 5:00pm

Guided walking tour to learn about the unique site history, conservation and restoration activities, and the thirteen distinct North Florida ecosystems within its boundaries. Habitat types include: fresh water and tidal marshes, upland hardwood forest, pine flatwoods and dry prairie, bottomland forest and live oak hammock. Tour consists of a 2-3 mile walking loop and could last up to 3 hours. Lunch is not provided, but snacks and bottled water will be.

Attire and shoes appropriate for the woods are required. A hat, sunglasses, water, sunscreen and bug spray are recommended.

# PRE-CONFERENCE WORKSHOPS

## ALL-DAY WORKSHOP

### MONDAY, DECEMBER 5, 2016

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

8:30am – 12:00pm | Grand Ballroom 1

*Lunch Break: 1:30pm – 5:00pm*

#### **ORGANIZER & SPEAKERS**

**Lydia Olander, PhD (Organizer)**, 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

**Lisa Wainger**, Research Professor, University of Maryland Center for Environmental Science

**Robert Johnston**, Director, George Perkins Marsh Institute and Professor of Economics, Clark University

#### **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.

#### **TARGET 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.

# MORNING WORKSHOPS

## MONDAY, DECEMBER 5, 2016

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### **Hands-On Ecosystem Services: Interactive Training of the ESII (Ecosystem Services Identification & Inventory) Tool**

8:30am – 12:00pm | Grand Ballroom 2

#### **ORGANIZERS & SPEAKERS**

**Morgan Erhardt (Primary Contact)**, Consultant, EcoMetrix Solutions Group  
**Kevin Halsey**, Senior Consultant, EcoMetrix Solutions Group  
**Jennifer Molnar**, Managing Director and Lead Scientist, The Nature Conservancy

#### **DESCRIPTION**

This interactive, half-day training, delivered by The Nature Conservancy (TNC), The Dow Chemical Company, and EcoMetrix Solutions Group, will introduce participants to the ESII Tool. The ESII Tool (pronounced “easy”), was developed in collaboration by Dow, TNC, and EcoMetrix Solutions Group, and is owned by TNC. ESII is a free assessment tool that provides information that can lead to better decisions and better conservation outcomes. It fills an important gap between simple tools built upon limited scientific information and complex tools that require expert users. Designed for natural resources managers, engineers, business managers, and ecologists alike, the tool can be used in the early stages of decision making to identify benefits provided by natural assets so that their value can be incorporated into operational and planning decisions. The ESII Tool can be used in site planning, impact assessments, cost/benefit analyses, or to compare alternatives. Outputs from the tool can be used directly in financial analyses or engineering models. The tool consists of the iOS-based Field App, used to collect ecological information on site, and the web-based Project Workspace, where projects are set up, data is reviewed, and outputs are generated.

Using a real-world example on-site at the Hyatt, participants will learn how to use the primary components of the tool— the ESII Project Workspace and the ESII Field App. The workshop will first introduce the ESII Project Workspace and outline the data collection effort. Next, in small groups participants will collect physical attribute data using the ESII Field App. The final step will involve reviewing collected data and then generating results.

#### **TARGET AUDIENCE**

This workshop is relevant for individuals and organizations interested in identifying and assessing ecosystem services on a given site quickly and inexpensively. These may be planners, engineers, facilities managers, and natural resource managers interested in using decision-support tools for a wide range of activities including: assessing site designs and alternatives; assisting with restoration projects; creating an inventory of natural assets; scoping impact assessments, comparing green vs. gray infrastructure; and supporting dialogue and engagement with local communities. The ability to conduct ecosystem service evaluations quickly and inexpensively is critical for any enterprise or municipality that wishes to incorporate the value of nature into their operations and decision making.

## National Biodiversity Metrics & Mapping Workshop

8:30am – 12:00pm | Grand Ballroom 3

### ORGANIZER & SPEAKERS

**Bill Kepner (Organizer)**, Research Ecologist, U.S. Environmental Protection Agency, Office of Research and Development Las Vegas, NV

**Ken Boykin**, Research Associate Professor, New Mexico State University, Center for Applied Spatial Ecology Las Cruces, NM

**Anne Neale**, EnviroAtlas Project Lead, U.S. Environmental Protection Agency, Office of Research and Development RTP, NC

**Alexa McKerrow**, Biologist, U.S. Geological Survey, Core Science Analytics, Synthesis & Libraries Raleigh, NC

### DESCRIPTION

The ability to assess, report, map, and forecast the life support functions of ecosystems is absolutely critical to our capacity to make informed decisions to maintain the sustainable nature of our environment now and into the future. Evaluating trade-offs in terms of ecosystem services and human well-being provides an intuitive and comprehensive way to assess the broad implications of our decisions and to help shape policies that enhance environmental and social sustainability. In answer to this challenge, the U.S. Environmental Protection Agency (EPA) has created a partnership with other Federal agencies, academic institutions, and Non-Governmental Organizations to develop the EnviroAtlas (<https://www.epa.gov/enviroatlas>) an online national Decision Support Tool that allows users to view and analyze the geographical description of the supply and demand for ecosystem services, as well as the drivers of change. As part of the EnviroAtlas, an approach has been developed to quantify and map various metrics within an ecosystem services framework that are representative of vital functions and support services such as A) Biodiversity Conservation; B) Food, Fiber, and Materials; and C) Recreation, Culture, and Aesthetics. The project has progressed incrementally and first focused on the Southwest U.S. (Arizona, Colorado, Nevada, New Mexico, and Utah) then later the Southeast U.S. (Kentucky, Virginia, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, and Florida) covering 817 and 606 spp., respectively. Once complete, the project is anticipated to include 1787 terrestrial vertebrate species for the conterminous U.S. (686 bird spp., 475 mammal spp., 322 reptile spp., and 304 amphibian spp.).

The purpose of the workshop is to get direct feedback from wildlife professionals and natural resource planners regarding the selection and deployment of a core set of National Biodiversity Metrics. We are targeting a focused group of individuals to gather stakeholder input regarding proposed terrestrial vertebrate biodiversity metrics that can measure and map biodiversity conservation at the national, regional, and local scales.

### TARGET AUDIENCE

For the purpose of this workshop, we are interested in meeting with wildlife biology and ecology decision-makers regarding potential habitat and biodiversity metrics to help us ensure we are developing a useful approach for the nation within the EnviroAtlas framework. The review workshop and its findings could be especially helpful for State Wildlife Action Plans, refuge and special use plans, Landscape Conservation Cooperative conservation plans, National Park Service Vital Signs planning, and for anybody that is interested in large area strategic planning and assessment for biodiversity conservation.

## **Linking Social-Ecological Systems & Community Empowerment to Ecosystem Services Concepts**

8:30am – 12:00pm | Grand Ballroom 6

### **ORGANIZER**

**Jeffrey Thomas**, Director, Timber, Fish & Wildlife Program, Puyallup Tribe of Indians

### **DESCRIPTION**

This workshop will focus upon ways in which social-ecological systems and community empowerment are linked to ecosystem services concepts. The workshop highlights the need to analyze environmental change by using critical natural capital as a starting point to account for and govern natural capital and ecosystem services. Session approaches will focus upon identifying the ecological attributes and functions that are of particular importance in a given system where the attributes of natural capital of particular concern are environmental functions that: 1) cannot be substituted for by other functions (whether environmental or technological); or 2) functions whose loss would be irreversible; and/or 3) are functions whose loss would risk (or actually involve) losses that are too significant to be acceptable.

The workshop will provide examples which focus upon identifying the ecological features that are of ultimate concern or importance, the variables and features that are most relevant, and detailing how these socially important features are understood to change - e.g. in terms of trophic structures, species compositions, and/or the physiology of individual plant, fish, shellfish, or animal species, etc. Examples will highlight approaches involving prominent or culturally significant species, losses or changes in the availability of cultural keystone species, alterations in the abundance or productivity of cultural keystone species, and/or identifying and analyzing species that have experienced decline (as well as those that have not). Examples may underscore “small-scale” keystone species that are only recognized as having particular meaning to specific individuals, or families or clan groups; and/or highlight practices that cultures use to encourage the abundance of particular species (including taboos), as well as recommend habitat improvements, or utilize species as qualitative indicators of local ecosystem dynamics; and/or to highlight their knowledge regarding local species, or identify medicinal plant or animal species as well.

Techniques will underscore the need to view people and nature as constituting interdependent social-ecological systems that are inextricably linked, and to account for both natural capital and resilience principles within mutual decisions, and to use collaboration and goal-sharing involving environmental stewardship and social justice overall. Basic principles will promote using consensus to identify problems and their causes along with sustainable solutions, and to acknowledge thought collectives that share a particular thought style, and to utilize science to ‘assist in the process of governance’. Key points will include using multicultural perspectives to understand the different views and perceptions of others, and to form specific goals and solve specific problems, and to identify specific co-management interventions. Utilizing participatory approaches and exploring questions of common interest, searching for complementarities, identifying the scale or level of the problem, relating analyses to specific purposes and societal practices, using transdisciplinary research, and building the capacity to adapt to change, will each be promoted as well. The main points of the workshop will be to foster participation, collective action, social learning, and social sources of resilience, for the benefit of all.

# AFTERNOON WORKSHOP

## MONDAY, DECEMBER 5, 2016

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### The ESII Tool in Practice: Using the Results of the ESII Tool for Multiple Applications

1:30pm – 5:00pm | Grand Ballroom 2

#### ORGANIZERS & SPEAKERS

**Morgan Erhardt (Primary Contact)**, Consultant, EcoMetrix Solutions Group

**Kevin Halsey**, Senior Consultant, EcoMetrix Solutions Group

**Jennifer Molnar**, Managing Director and Lead Scientist, The Nature Conservancy

**France Guertin**, Engineered Natural Technologies Program Manager for the Environmental Footprint Solutions Group, Dow Chemical

#### DESCRIPTION

This interactive, half-day training, delivered by The Nature Conservancy, The Dow Chemical Company and EcoMetrix Solutions Group, will introduce participants to the ESII Tool. The ESII Tool (pronounced “easy”), was developed in collaboration by Dow, TNC, and EcoMetrix Solutions Group, and is owned by TNC. ESII is a free assessment tool that provides information that can lead to better decisions and better conservation outcomes. It fills an important gap between simple tools built upon limited scientific information and complex tools that require expert users. Designed for natural resources managers, engineers, business managers, and ecologists alike, the tool can be used in the early stages of decision making to identify benefits provided by natural assets so that their value can be incorporated into operational and planning decisions. The ESII Tool can be used in site planning, impact assessments, cost/benefit analyses, or to compare alternatives. Outputs from the tool can be used directly in financial analyses or engineering models. The tool consists of the iOS-based Field App, used to collect ecological information on site, and the web-based Project Workspace, where projects are set up, data is reviewed, and outputs are generated.

Using real-world examples, participants will explore how information about ecosystem services can inform decision-making in a variety of planning and decision contexts. Results from the ESII Tool, in both engineering units and ecological performance measures, will be provided for a set of scenarios, and participants will learn how to apply an ecosystem services analysis framework to business propositions and questions, and how different units of measure can be effective for understanding the relative changes in ecosystem services for respective scenarios. The workshop will close with an in-depth look at Dow’s experience applying the ESII Tool for a greenbelt restoration project at one of its facilities.

#### TARGET AUDIENCE

This workshop is relevant for individuals and organizations interested in identifying and assessing ecosystem services on a given site quickly and inexpensively. These may be planners, engineers, facilities managers, and natural resource managers interested in using decision-support tools for a wide range of activities including: assessing site designs and alternatives; assisting with restoration projects; creating an inventory of natural assets; scoping impact assessments; comparing green vs. gray infrastructure; and supporting dialogue and engagement with local communities.

Outputs from the ESII Tool can improve management decisions, while enhancing an organization’s stewardship of nature and commitments to community success. Using the ESII Tool also increases awareness of the value of natural lands and waters, provides ideas on how to enhance land use designs, and triggers more detailed analyses of nature and the benefits provided by nature on a site.

# TOWN HALL DESCRIPTIONS

## TUESDAY LUNCH TOWN HALLS

**DECEMBER 6, 2016**

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### **Where Natural Capital Meets Conservation Finance**

11:45am -12:50pm | Grand Ballroom 1

#### **ORGANIZERS & SPEAKERS**

**Leigh Whelpton**, Program Director, The Conservation Finance Network

**Eric Hallstein, Ph.D.**, Chief Economist and Director of Conservation Investments, The Nature Conservancy of California

#### **DESCRIPTION**

In this interactive town hall discussion, come explore key concepts and emerging trends in conservation finance. Our goal is to build a shared understanding of where science and finance collide, and to highlight the sorts of conservation opportunities that may be appropriate for private sector funding. The session will offer practical advice on how conservationists and scientists may effectively engage with investors.

#### **TARGET AUDIENCE**

The target audience is every discipline represented at ACES. Finance is an integral part of the ecosystem services community and key to implementation.



## Science and Decisions: A Town Hall Discussion on Ecosystem Services, Science, and Decision Making

11:45am -12:50pm | Grand Ballroom 2

### ORGANIZER & SPEAKERS

**Carl Shapiro (Organizer)**, Director, Science and Decisions Center, U.S. Geological Survey

**Jim Boyd**, Senior Fellow and Director, Center for the Management of Ecological Wealth, Resources for the Future

**Erica Goldman**, Director of Policy Engagement, COMPASS

**Anne Kinsinger**, Associate Director for Ecosystems, U.S. Geological Survey

**Jerry Miller**, Director, Science and Technology for Sustainability, National Academies of Sciences, Engineering, and Medicine

**Valerie Were**, Social Scientist, I.M. Systems Group for the National Oceanic and Atmospheric Administration

### DESCRIPTION

Scientific information can be a critical input to decision making on natural resources management and other societal issues. However, the existence of scientific information alone does not ensure that it will be effectively used to inform decisions. Analytical efforts, collaboration and communication with stakeholders, adaptive management, and other proactive approaches may facilitate application of scientific information in decision making.

The impact on decision making of these proactive processes, including use of an ecosystem services approach, will be discussed at this town hall meeting. An ecosystem services approach provides a structured process for applying (biological, physical, social, and economic) scientific information to identify, measure, and value ecosystem services resulting in information that may be useful and useable to inform decisions. The town hall meeting will provide a forum for discussing how an ecosystem services approach can be applied to decision making and some of the resulting opportunities and challenges.

## Collaborative Processes to Advance Markets-based Solutions to Clean Water Goals

11:45am -12:50pm | Grand Ballroom 3

### ORGANIZER & SPEAKERS

**Neil Crescenti (Organizer)**, Clean Water Project Manager, Willamette Partnership

**Jessica Fox**, Program Manager, Electric Power Resources Institute

**Seth Brown**, Storm and Stream Solutions, LLC – Stormwater

**Kari Cohen**, Special Assistant to the Deputy Chief of Science and Technology, USDA-Natural Resources Conservation Service

**Christopher Hartley**, Environmental Markets Analyst, USDA - Office of Chief Economist

**Bobby Cochran**, Executive Director, Willamette Partnership

### DESCRIPTION

The National Network on Water Quality Trading (Network) was established in 2013 to improve consistency and integrity across WQT programs by providing a community of WQT practitioners to articulate shared principles, core trading program design elements, recommendations for implementing and operating trading programs, and lessons learned. The Network continues to use the facilitated dialogue structure to connect a variety of clean water stakeholders and practitioners to share lessons learned and work collaboratively on a variety of topics that can benefit the water quality community.

The goal of this session will be to 1) share deliverables that have been produced from the National Network dialogue series; 2) discuss the structure and successful elements of the collaborative process; and 3) identify future potential directions and topics for the Network.

### TARGET AUDIENCE

The intended audience for this session includes individuals interested in market-based approaches for cost-effectively achieving environmental goals, and collaborative efforts to advance those approaches. Specific entities may include regulators; trading project managers and developers; supporting non-profit organizations; point sources, such as power plants and wastewater treatment plants; stormwater sources, such as municipal separate storm sewer systems (MS4s); and other interested stakeholders.

# TUESDAY EVENING TOWN HALLS

## DECEMBER 6, 2016

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### Where are the Markets? Where is the Money? How to Spend It

5:15pm-6:45pm | Grand Ballroom 1

#### ORGANIZERS & SPEAKERS

**Patrick Coady**, Senior Director, Seale & Associates, Inc., Financing Land Conservation

**Jessica Fox**, Senior Program Manager, Electric Power Research Institute

**Kaola Swanson**, Associate Conservation Director, The Freshwater Trust

#### DESCRIPTION

What does it take to mobilize significant dollars for ecosystem projects? Extensive effort has been invested in developing ecosystem markets over a long period of time. This Town Hall will examine what comprises ecosystem markets, their estimated size and project implementation from a financial point of view. It will assess the current situation with wetlands, stream restoration, species and water quality market as well as emerging markets. It will pose the question, "If you were given a check for \$300 million, how would you spend it?" And pay it back?

#### TARGET AUDIENCE

The target audience is every discipline represented at ACES. Finance is an integral part of the ecosystem services community and key to implementation.

## Nexus of Indigenous Knowledge and Ecosystem Services

5:15pm - 6:45pm | Grand Ballroom 2

### ORGANIZERS & SPEAKERS

**Jon Waterhouse**, Indigenous Peoples Scholar, Oregon Health and Science University

**Paige West**, Claire Tow Professor of Anthropology, Barnard College, Columbia University and Editor, Environment and Society

**Jim Powell**, Assistant Professor of Public Administration, University of Alaska Southeast

### DESCRIPTION

Since the 1990s conservation and development experts have known that they need to understand “indigenous knowledge” if their projects and policies on and near indigenous communities and lands are to succeed. Initially located in fields that focused on agricultural production systems and sustainable development, and then moving to fields that focused on biodiversity conservation, what we call an ‘expert knowledge of needing to know’ has emerged much more broadly across the sciences. What do we mean by an ‘expert knowledge of needing to know’?

Between the three of us we have decades of experience working with, living and learning in indigenous communities. Part of that experience, for each of us, has been working with scientists who wish to conduct research on indigenous lands or carry out well-intentioned projects on indigenous lands. We are collectively struck by how often we see that scientists understand that what indigenous people think, know, and do is important; indeed many of the scientists we know understand that it is crucial. Yet the level of fundamental misunderstanding of what “indigenous knowledge” is, as well as the fundamental misunderstanding of how, methodologically, researchers can access local knowledge systems, also strikes us.

In this town hall first, we will work with participants to help create a more robust understanding of what “indigenous knowledge” is and what it is not. Along with this we will facilitate a broader discussion of how indigenous communities come to know and then use what they know to relate to ecosystems and social systems. Next, we will work together to illustrate what methodologies for understanding indigenous life ways and systems of belief both help outsiders understand how people produce knowledge, and how they then deploy that knowledge through their practices, as well as how they might approach these questions in ways that are respectful towards indigenous worlds. Finally we will bring all of this together in a specific discussion of how indigenous ways of knowing, ways of expressing knowledge, and ways of living practices of knowledge articulate with ecosystem services approaches.

# WEDNESDAY EVENING TOWN HALLS

## DECEMBER 7, 2016

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### The Value of Natural Capital to Business – The Application of the Natural Capital Protocol

5:30pm - 6:45pm | Grand Ballroom 1

#### ORGANIZER & SPEAKERS

**Doug MacNair, Ph.D. (Organizer)**, Technical Manager ( on part time secondment from ERM), Natural Capital Coalition

**Michele Thieme**, Senior Freshwater Scientist, World Wildlife Fund

**Joe Rozza**, Global Manager, Water Sustainability and Natural Capital, The Coca-Cola Company

**Brian Israel**, Partner, Arnold and Porter, LLP

**Thomas Polzin**, Environment, Health, Safety & Sustainability, The Dow Chemical Company

#### DESCRIPTION

The overall vision of the Natural Capital Coalition (the Coalition) is of a world where business conserves and enhances natural capital. To achieve this it has produced through a unique collaborative effort the Natural Capital Protocol (the Protocol). The Protocol, released in July 2016 is a standardized framework for business to measure and value its impacts and dependencies on natural capital. The Protocol is designed for internal decision-making and can be used for a range of applications, including risk management, exploring new revenue streams, improving products and value chain innovation, as well as preparing for future reporting and disclosure.

The Protocol provides guidance on the mechanics and role on qualitative, quantitative, and monetary valuation approaches to assessing natural capital impacts and dependencies. All three approaches can provide important information for corporate decision makers; however, monetary valuation continues to be the most controversial. The greatest potential value of monetary valuation is that it creates a common metric for diverse types of natural capital and can make it easier for companies to evaluate the business case for action. Conversely, monetary valuation can be problematic for companies because of challenges inaccurately calculating and interpreting monetary values and the potential liability associated with monetizing impacts. This town hall will provide a forum to discuss value of conducting natural capital assessments and the role of these three approaches in meeting different needs of corporate decision making needs.

Speakers will provide short 3-minute introduction about their perspectives on their experience with the Protocol and their perspectives on the value of conducting monetary valuations to help businesses make better decisions. Joe Rozza from the Coca-Cola Company and Michele Thieme from the World Wildlife Fund will speak about their experiences with using the Protocol as part of the pilot testing. Brian Israel, Partner at Arnold and Porter, will provide a legal perspective on valuing natural capital.

#### TARGET AUDIENCE

The target audience for this town hall are companies, academics, policy makers, and NGOs who are active in using or developing approaches and tools for monetary valuation. The goal is to help create a shared vision of the practical needs of companies in performing natural capital assessments. This, in turn, can foster collaboration amongst interested parties to develop valuation approaches that improve internal decision making and protect natural capital.

## What's Next for Ecosystem Services in Decision Making: Priorities and Pathways

5:30pm - 6:45pm | Grand Ballroom 2

### ORGANIZER & SPEAKERS

**Lydia Olander, PhD (Organizer)**, 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

**Erica Goldman, PhD**, Director of Policy Engagement, COMPASS

**Bobby Cochran**, Executive Director, Willamette Partnership

**Carl Shapiro**, Director, Science and Decisions Center, U.S. Geological Survey

**Frank Casey**, Deputy Associate Director for Ecosystem Services, Council on Environmental Quality

**Christopher Hartley**, USDA Office of Environmental Markets

**Elizabeth Murray**, Research Biologist, U.S. Army Corps of Engineers

**Peter Wiley**, Economist, NOAA Office for Coastal Management

**Edie Sonne Hall**, Manager, Sustainable Forests and Products, Weyerhaeuser

**Sarah Murdock**, Director, U.S. Climate Resilience and Water Policy, The Nature Conservancy

### DESCRIPTION

Ecosystem services approaches to decisions, which aim to more fully incorporate the benefits provided by nature to people, have progressed over the past decade around the world from largely academic frameworks, to best practices that enable these approaches to be operationalized (Olander and Maltby 2014; Schaefer, et. al 2015). The release of a White House policy memorandum in October 2015 calling on federal agencies to begin incorporating ecosystem services approaches within current planning, investment, and regulatory frameworks has accelerated action in the US, while the work of the Wealth Accounting and the Valuation of Ecosystem Services (WAVES) group at the World Bank and the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) are rapidly increasing uptake in other countries.

To effectively incorporate ecosystem services into decision making, a rapid and efficient process is needed to move knowledge held by the research community into forms, processes, and tools that can be used by practitioners and decision makers. We will likely achieve better outcomes if this is an efficient and coordinated effort both within and outside governments.

This town hall will present the range of perspectives from the ecosystem services community, along with outputs of a round table convening held in March 2016. The presentation will provide a sense of the current landscape and near term priorities of the ecosystem services decision maker and practitioner communities, focused on the critical needs for moving forward (and improving) the integration of ecosystem services into public and private decision-making. It is also designed to inform new federal leadership as it steps up in January 2017.

The town hall seeks to engage the ACES Community in a discussion of ways to advance inter-sector and interdisciplinary collaboration to further the integration of ecosystem services into decision-making processes. ACES is a perfect community to engage with partners to try to keep the ball rolling forward and fill critical gaps.

### TARGET 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.

## How Climate Change is Impacting Native American Sacred Sites and Cultural Practices

5:30pm - 6:45pm | Grand Ballroom 3

### ORGANIZER & SPEAKERS

**Monique Fordham, Esq. (Organizer)**, National Tribal Liaison, U.S. Geological Survey

**Michael Durglo Jr.**, Division of Environmental Protection Manager

**Elizabeth James-Perry**, Member of Aquinnah Wampanoag Tribe, *Noepe Island* (Martha's Vineyard)

**T. M. Bull Bennett**, President and CEO, Kiksapa Consulting LLC

### DESCRIPTION

As former Secretary Ken Salazar stated in his Secretarial Order 3289, Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources, "[c]limate change may disproportionately affect tribes and their lands because they are heavily dependent on their natural resources for economic and cultural identity." As these severe climate events occur with greater force and frequency, Native American Nations are facing unprecedented challenges to their sacred sites and cultural practices that have sustained them for millennia. This Town Hall will provide case studies and the tribal perspective on the effect these impacts are having on tribal cultural survival in the 21st century. This Town Hall will provide a forum to discuss these challenges.

Three Native American speakers will give 20 minute presentations on these impacts specific to their Tribes and regions, as well as perspectives on the significance they have on tribal spiritual practices and how this affects the first Peoples of our country. The Panel will be moderated by USGS National Tribal Liaison Monique Fordham, Esq. (Nulheagan Abenaki).

### TARGET AUDIENCE

The target audience is all who are interested in understanding the impacts that climate change is having on the cultural survival of Native American Tribes. The session is intended to provide the audience with the opportunity to hear directly to hear from tribal communities and to broaden their understanding of how ecosystem services include the spiritual and cultural practice elements that sustain Native cultural survival.

# THURSDAY LUNCH TOWN HALLS

## DECEMBER 8, 2016

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### **EnviroAtlas' New Environmental Markets Decision Support Tools: Linking Ecosystem Services with Environmental Markets Data and Policies**

12:00pm-1:05pm | Grand Ballroom 1

#### **ORGANIZER & SPEAKERS**

**Christopher Hartley (Organizer)**, Deputy Director and Senior Environmental Markets Analyst, USDA Office of Environmental Markets  
**Genevieve Bennett**, Senior Associate - Water and Biodiversity Programs, Forest Trends' Ecosystem Marketplace  
**Anne Neale**, EnviroAtlas Project Lead, U.S. Environmental Protection Agency

#### **DESCRIPTION**

Up-to-date, comprehensive, and spatially oriented data are critical to advance effective application of environmental markets in economic development, conservation planning, and public policy.

USDA, EPA, and Forest Trends' Ecosystem Marketplace have partnered to incorporate environmental markets data into the Federal ecosystem services decision support tool, EnviroAtlas.

EnviroAtlas provides users the ability to freely view, analyze, and download geospatial data and other resources. The newly developed environmental markets data layers show where markets for watershed services, carbon, wetlands, and habitats occur on the U.S. landscape. Users can view information about markets, individual projects and enabling policies, and explore this data in the context of the 300+ environmental and demographic map layers available on EnviroAtlas. The integration allows users to understand trends, gaps, and opportunities, as well as make inferences about demand and enabling or limiting conditions for environmental markets. Planners and managers can identify areas of opportunity or conflict and make informed decisions based on reliable information.

#### **TARGET AUDIENCE**

The target audience includes policy makers, market administrators, ecosystem services practitioners, landowners, and academics. Town Hall participants will learn about the EnviroAtlas tool and the newly available ecosystem markets data, and how they can use them to learn about markets across the country.



## Ecosystem Services 2.0 - Enabling Civic Ecology through Participatory Science and Open Innovation

12:00pm-1:05pm | Grand Ballroom 2

### ORGANIZER & SPEAKERS

**Sophia Liu, Ph.D. (Organizer)**, Innovation Specialist, Science and Decisions Center, U.S. Geological Survey (USGS)

**Clayton Cox, Ph.D.**, AAAS Science and Technology Policy Fellow, Office of Research and Development, U.S. Environmental Protection Agency (EPA)

**Elizabeth Tyson**, Co-Director of Commons Lab, Program Associate of Science and Technology Innovation Program, Wilson Center

**Joe Morrison**, Product Specialist, OpenTreeMap, Azavea

### DESCRIPTION

Imagine having a million or even thousands of volunteers help you with your work. Crowdsourcing, citizen science, and civic hacking are open and participatory approaches for obtaining new ideas, content, or services by soliciting contributions from a large group of people. They are often broad in scope, interdisciplinary in nature, and disruptive to traditional means for conducting science. The increase in internet access, mobile social technologies, and low-cost sensors have enabled new opportunities to collect, analyze, and communicate scientific data from citizens at much broader spatial and temporal scales. There are also now federal policies and curated federal resources like CitizenScience.gov and Challenge.gov to accelerate open innovation efforts through public participation across the U.S. government.

This Lunch Town Hall session is an opportunity to explore and discuss how participatory science and open innovation techniques can enable civic ecology and enhance the field of ecosystem services. The moderator will provide an overview of some of the participatory science and open innovation opportunities that can be applied to ecosystem services by introducing the following participatory science and open innovation concepts along with examples of related work from three speakers.

### TARGET AUDIENCE

This Town Hall provides participants the opportunity to learn more about participatory science and open innovation techniques and how they can enhance the ecosystem services approach. Scientists, practitioners, managers, and policy-makers from government, academia, NGOs, and the private sector are all encouraged to participate and share their ideas and experiences.

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## ACES Fellows: The Next Generation

12:00pm-1:05pm | Grand Ballroom 3

### ORGANIZER

**Dianna Hogan**, Eastern Geographic Science Center, U.S. Geological Survey, ACES 2016 Planning Committee Chair

### DESCRIPTION

Join us for *ACES Fellows: The Next Generation*, where our six ACES fellows will provide thoughts and discussion about their ACES experience and perspectives on the future direction of ecosystem services.

# AGENDA-AT-A-GLANCE

Sunday, December 4	
5:00pm - 7:00pm	Pre - Conference Registration Open
5:00pm - 7:00pm	Early Exhibitor Move - In and Poster Set - Up

Monday, December 5	
7:30am - 6:00pm	Conference Registration Open
7:30am - 8:30am	Morning Refreshments and Exhibit/Poster Set - Up
8:30am - 10:00am	AM Pre - Conference Workshops
10:00am - 10:30am	AM Break
10:30am - 12:00pm	AM Pre - Conference Workshops continued
12:00pm - 1:30pm	Lunch Break
1:30pm - 3:00pm	PM Pre - Conference Workshops
3:00pm - 3:30pm	PM Break
3:30pm - 5:00pm	PM Pre - Conference Workshops continued
5:30pm - 6:30pm	Welcome Networking Social

Tuesday, December 6	
7:30am - 5:30pm	Conference Registration Open
7:30am - 8:30am	Morning Refreshments and Poster Set - Up
8:30am - 9:45am	Opening Plenary Session
9:45am - 10:15am	AM Break
10:15am - 11:30am	Plenary Session
11:30am - 1:00pm	Lunch Break and Town Hall Meetings
1:00pm - 2:45pm	Concurrent Sessions
2:45pm - 3:15pm	PM Break
3:15pm - 5:00pm	Concurrent Sessions
5:15pm - 6:45pm	Town Hall Meetings

Wednesday, December 7	
7:30am - 5:30pm	Conference Registration Open
7:30am - 8:30am	Morning Refreshments
8:30am - 9:30am	Plenary Session
9:30am - 10:00am	AM Break
10:00am - 11:45am	Concurrent Sessions
11:45am - 1:15pm	Lunch Break
1:15pm - 3:00pm	Concurrent Sessions
3:00pm - 3:30pm	PM Break
3:30pm - 5:15pm	Concurrent Sessions
5:30pm - 6:45pm	Town Hall Meetings

Thursday, December 8	
7:30am - 5:30pm	Conference Registration Open
7:30am - 8:30am	Morning Refreshments
8:30am - 9:30am	Plenary Session
9:30am - 10:00am	AM Break
10:00am - 11:45am	Concurrent Sessions
11:45am - 1:15pm	Lunch Break and Town Hall Meetings
1:15pm - 3:00pm	Concurrent Sessions
3:00pm - 3:30pm	PM Break
3:30pm - 5:15pm	Concurrent Sessions
5:30pm - 7:30pm	Poster Session Reception

Friday, December 9	
7:30am - 12:00pm	Conference Registration Open
7:30am - 8:30am	Morning Refreshments and Poster Removal
8:30am - 10:15am	Concurrent Sessions
10:15am - 10:45am	AM Break/Exhibit Removal
10:45am - 12:00pm	Closing Plenary Session
12:00pm	Conference Concludes
12:00pm - 1:00pm	Exhibitor Move - Out and Final Poster Strike

# DETAILED AGENDA

Sunday, December 4, 2016				
5:00pm-7:00pm	Pre-Conference Registration Opens Early Exhibitor Move-In and Poster Set-Up			
Monday, December 5, 2016				
7:30am-6:00pm	Conference Registration Open Pre-Conference Field Trip "Ad Hoc" Space Available for Impromptu Meetings - City Terrace Rooms 5, 6, and 8			
7:30am-8:30am	Morning Refreshments and Exhibit/Poster Set-Up - Grand Ballroom 5			
	Morning Pre-Conference Workshops			
8:30am-12:00pm	Workshop 1 (All Day) Grand Ballroom 1	Workshop 2 Grand Ballroom 2	Workshop 3 Grand Ballroom 3	Workshop 4 Grand Ballroom 6
Organizer	Lydia Olander, Duke University	Morgan Erhardt, EcoMetrix Solutions Group	William Kepner, U.S. Environmental Protection Agency Ken Boykin, New Mexico State University	Jeffrey Thomas, Puyallup Tribe of Indians
8:30am-10:00am	Methods for Incorporating Ecosystem Services into Decision-Making: From Benefit Relevant Indicators to Monetary Values	Hands-On Ecosystem Services: Interactive Training of the ESII (Ecosystem Services Identification & Inventory) Tool	National Biodiversity Metrics & Mapping Workshop	Linking Social-Ecological Systems & Community Empowerment to Ecosystem Services Concepts
10:00am-10:30am	AM Break - Grand Ballroom 5			
10:30am-12:00pm	Morning Workshop Continued	Morning Workshop Continued	Morning Workshop Continued	Morning Workshop Continued
12:00pm-1:30pm	Lunch Break - On Own			
	Afternoon Pre-Conference Workshops			
1:30pm-5:00pm	Workshop 1 (Continued) Grand Ballroom 1	Workshop 5 Grand Ballroom 2		
Location	Lydia Olander, Duke University	Morgan Erhardt, EcoMetrix Solutions Group		
Organizer	Lydia Olander, Duke University	Morgan Erhardt, EcoMetrix Solutions Group		
1:30pm-3:00pm	Continued: Methods for Incorporating Ecosystem Services into Decision-Making: From Benefit Relevant Indicators to Monetary Values		The ESII Tool in Practice: Using the Results of the ESII Tool for Multiple Applications	
3:00pm-3:30pm	PM Break - Grand Ballroom 5			
3:30pm-5:00pm	Afternoon Workshop Continued	Afternoon Workshop Continued		
	Workshops Conclude			
5:30pm-6:30pm	Welcome Networking Social - River Terrace 1			

<b>Tuesday, December 6, 2016</b>			
7:30am-5:30pm	Conference Registration Open "Ad Hoc" Space Available for Impromptu Meetings - City Terrace Rooms 5, 6, and 8		
7:30am-8:30am	<b>Morning Refreshments and Poster Set-Up</b> - Grand Ballroom 5		
8:30am-9:45am	<b>Opening Plenary Session</b> - Grand Ballroom 4 <b>ACES 2016 Welcome and Announcements</b> Dianna Hogan, Eastern Geographic Science Center, U.S. Geological Survey, ACES 2016 Planning Committee Chair		
	<p><b>Opening Plenary Session</b>  <b>Ecosystem Services: Accomplishments and Future Direction</b>  <b>Moderator: Ann Bartuska</b>, Deputy Under Secretary for Research, Education and Economics, U.S. Department of Agriculture  <b>Panel Members</b>  <b>Lynn Scarlett</b>, Global Managing Director, Public Policy, The Nature Conservancy  <b>Tim Male</b>, Associate Director for Conservation and Water, Executive Office of the President, Council on Environmental Quality  <b>Ann Bartuska</b>, Deputy Under Secretary for Research, Education and Economics, U.S. Department of Agriculture  <b>Margaret Walls</b>, Senior Fellow and Interim Vice President for Research, Resources for the Future</p> <p><b>Plenary Description</b>  This opening plenary session provides a forum for leaders in the ACES community to discuss the accomplishments and challenges since ACES 2014 in the implementation of ecosystem services. Panelists will discuss how the science and the ability to value ecosystem services has changed, how institutional structures have evolved, and where we have made progress in advancing science and practice. The panelists will also consider how the new administration may approach implementation of ecosystem services and how we may best connect.</p>		
9:45am-10:15am	<b>AM Break</b> - Grand Ballroom 5		
10:15am-11:30am	<b>Plenary Session 2</b> - Grand Ballroom 4 <b>Plenary Session</b> <b>Implementation Advances and Challenges</b> <b>Moderator: Olivia Ferriter</b> , Deputy Assistant Secretary for Budget, Finance, Performance and Acquisition, Department of the Interior <b>Panel Members</b> <b>Robert Costanza</b> , Vice-Chancellor's Chair in Public Policy, Crawford School of Public Policy, the Australian National University <b>Ione Taylor</b> , Executive Director of Earth and Energy Resources Leadership, Department of Geological Sciences and Geological Engineering, Queen's University <b>Ricardo Bayon</b> , Founder and Partner, Encourage Capital <b>Stephen Polasky</b> , Regents Professor and Fesler-Lampert Professor of Ecological/Environmental Economics, University of Minnesota <b>Plenary Description</b> This plenary session will provide a discussion on implementation advances and challenges from a diversity of perspectives. The speakers will provide thoughts on their experience and recommendations, and will include aspects of finance and how to consider and balance potentially competing objectives.		
11:30am-1:00pm	<b>Lunch Provided</b>		
11:45am-12:50pm	<b>Tuesday Lunch Town Hall Meetings</b>		
<b>Ecosystem Finance 101: Natural Capital Meets Financial Capital</b>		Science and Decisions	Collaborative Processes to Advance Markets-based Solutions to Clean Water Goals
<b>Grand Ballroom 1</b>		<b>Grand Ballroom 2</b>	<b>Grand Ballroom 3</b>
<b>Organized By: Leigh Whelpton</b> , The Conservation Finance Network and <b>Eric Hallstein</b> , The Nature Conservancy		<b>Organized By: Neil Crescenti</b> , Willamette Partnership	
<b>Introduction (5 min)</b>		<b>Introduction (5 min)</b>	<b>Introduction (5 min)</b>
<b>Town Hall Discussion (1 hour)</b>		<b>Town Hall Discussion (1 hour)</b>	<b>Town Hall Discussion (1 hour)</b>

Tuesday, December 6, 2016							
Concurrent Sessions - 1							
	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
Location	Grand Ballroom 1	Grand Ballroom 2	Grand Ballroom 3	Grand Ballroom 6	Grand Ballroom 7	Grand Ballroom 8	River Terrace 2
1:00pm-2:45pm	<p><b>Successful Financing of Large-Scale Watershed Protection and Restoration</b></p>	<p><b>Human Well-Being</b></p>	<p><b>Building Consistency into Ecosystem Services Assessments and Decision Making</b></p>	<p><b>Ecosystem Services in Planning, Management, and Decision Making I</b></p>	<p><b>Ecosystem Services and Resilient Communities: The Smart Money's on Floodplains</b></p>	<p><b>Measuring, Modeling and Mapping Ecosystem Services</b></p>	<p><b>Multi-Resource Analysis: Valuing Natural Resources and Ecosystem Services Under Scenarios of Change</b></p>
Moderator	<p><b>Peter Stangel</b></p>	<p><b>Laura Jackson</b></p>	<p><b>George Van Houtven</b></p>	<p><b>Rob Winthrop</b></p>	<p><b>Sara O'Brien</b></p>	<p><b>Rachel Sleeter</b></p>	<p><b>Karen Jenni</b></p>
1:00pm-1:05pm	<p><b>Introduction</b></p>	<p><b>Introduction</b></p>	<p><b>Introduction</b></p>	<p><b>Introduction</b></p>	<p><b>Introduction</b></p>	<p><b>Introduction</b></p>	<p><b>Introduction</b></p>
1:05pm-1:25pm	<p><b>PANELISTS:</b> <b>Michael Curley</b> <b>Patti Cale-Finnegan</b> <b>Laura Walker</b></p> <p>This session presents a variety of examples of successful, multi-million dollar funding for watershed protection focusing on state revolving funds and water utilities. A key goal of this session is to provide practical guidance on how to employ these strategies in your own environment.</p>	<p><b>Susan Yee</b> Predicting Effects of Climate and Landuse Change on Human Well-Being Via Changes in Ecosystem Services</p>	<p><b>Lydia Olander</b> Consistency in Ecosystem Services Measures for Decision Making</p>	<p><b>Clay Henderson</b> Integrating Protection of Ecosystem Services into the Comprehensive Planning Process: The Florida Experience</p>	<p><b>Zachary Christin</b> Life After the Memo: A Look at How Federal Agencies Incorporate Ecosystem Services into Floodplain Management Policy</p>	<p><b>Charles Rhodes</b> Classifying Ecosystem Services for Ecosystem Accounting and Research Purposes - State of the Art and Key Challenges</p>	<p><b>Katherine Walton-Day</b> A Prototype Environmental Health Assessment of Developing Undiscovered Sandstone-hosted Uranium Resources in the Texas Coastal Plain</p>
1:25pm-1:45pm		<p><b>Marc Russell</b> An Operational Structured Decision-Making Framework for Assessing Changes in Final Ecosystem Goods and Services with Consequences for Human Well-Being</p>	<p><b>Heather Tallis</b> Getting Specific: Consistent Identification of Ecosystem Service and Human Well-Being Outcomes from Environmental Decisions</p>	<p><b>Darius Semmens</b> Implementation Challenges for Ecosystem Services in the Public Sector: Lessons Learned from a BLM Case Study</p>	<p><b>Jonathon Loos</b> Linking Natural Floodplain Functions, Floodplain Management, and Ecosystem Services to Advance Floodplain Restoration and Policy Objectives</p>	<p><b>Deborah January-Beyers</b> Looking Beyond Ecological Functions to the Value of Ecosystem Services</p>	<p><b>Mark Mihalasky</b> Multiresource Integrated Assessment (MRIA): Challenges and Possible Refinements to a Proof-of-Concept Application: Anosy Region, Madagascar</p>
1:45pm-2:05pm	<p><b>Discussion/Q&amp;A</b></p> <p>The need for financing for large-scale watershed protection is acute, as climate change, development, and other threats adversely affect watershed health. New approaches for financing are developing that can be used in many places and situations. A key challenge to scaling these approaches is sharing success stories and helping interested groups better understand how these options may be applied to their situation.</p>	<p><b>Discussion/Q&amp;A</b></p>	<p><b>George Van Houtven</b> Building Consistency through Hierarchical Classification Systems for Ecosystem Services</p>	<p><b>Karl Cohen</b> Incorporating Ecosystem Services into Private Lands Conservation</p>	<p><b>Nicole Maness</b> Oregon Dips Its Toe in the Water: Market-based Approaches to Floodplain Management</p>	<p><b>Marcello Hernández-Blanco</b> The Future of Ecosystem Services in Latin America and the Caribbean</p>	<p><b>Karen Jenni</b> USGS Multi-Resource Analysis: Powder River Basin Proof-of-Concept</p>
2:05pm-2:25pm	<p><b>Katherine von Stackelberg</b> Quantitative Tools for Linking Adverse Outcome Pathways with Process Models: Bayesian Relative Risk Networks</p>	<p><b>Discussion/Q&amp;A</b></p>	<p><b>Tamara Blett</b> Using Classification and Causal Chains to Consider Air Quality Impacts to Federal Lands</p>	<p><b>Susan Preston</b> Mainstreaming Ecosystem Services in Policy and Decision Making: Practical Guidance</p>	<p><b>Marjorie Wolfe</b> Accounting for Floodplain Functions</p>	<p><b>Gustavo Perez-Verdin</b> What Lessons Have Left the Economic Valuation Studies of Ecosystem Services in Mexico?</p>	<p><b>Monica Dorning</b> Probabilistic Integrated Resource Assessment Tool with Ecosystem Services (PIRATES)</p>
2:25pm-2:45pm	<p><b>Discussion/Q&amp;A</b></p>	<p><b>Discussion/Q&amp;A</b></p>	<p><b>Lisa Wainger</b> Limitations of Classification Systems and Rationale for Flexible Design</p>	<p><b>Bedilu Amare Reta</b> Integrated Assessment of Ecosystem Services for Sustainable Management of Natural Resource, A Case of Lake Hawassa Basin, Ethiopia</p>	<p><b>Discussion/Q&amp;A</b></p>	<p><b>Solen Le Clec'h</b> Spatial and Temporal Modelling of Ecosystem Services</p>	<p><b>Craig Broadbent</b> The Net Resources Assessment: Assessing the Tradeoff Between Economic Development and Conservation of Ecosystem Services</p>
2:45pm-3:15pm							<p><b>Johannes Belle</b> Managing Wetlands for Climate Change Adaptation and Disaster Risk Reduction: A Case Study of the Eastern Free State: South Africa</p>
PM Break - Grand Ballroom 5							
2:45pm-3:15pm							

**Tuesday, December 6, 2016**

**Concurrent Sessions - 2**

	Session 9	Session 10	Session 11	Session 12	Session 13	Session 14	Session 15	Session 16
Location	Grand Ballroom 1	Grand Ballroom 2	Grand Ballroom 3	Grand Ballroom 6	Grand Ballroom 7	Grand Ballroom 8	River Terrace 2	River Terrace 3
	<b>Financing Watershed Protection: New Horizons</b>	<b>Avoiding Random Acts of Restoration: Ecosystem Services as a Framework for the Gulf of Mexico</b>	<b>Evidence-based Approaches for Linking Ecosystem Services and Human Health</b>	<b>Ecosystem Services in Planning, Management, and Decision Making II</b>	<b>Managing for Multiple Ecosystem Services in Agricultural Landscapes</b>	<b>Quantifying and Valuing Ecosystem Services</b>	<b>Building Resilience and Measuring Success in the Wake of Hurricane Sandy</b>	<b>Counting the Carbon: The Importance of Quantifying Greenhouse Gas Flows on Farms and Ranches</b>
<b>Moderator</b>	<b>Jeff Lerner</b>	<b>Erica Goldman</b>	<b>Rebeca de Jesus Crespo</b>	<b>Rob Winthrop</b>	<b>Rodd Kelsey</b>	<b>Dixon Landers</b>	<b>Olivia Barton Ferriter</b>	<b>Kari Cohen</b>
3:15pm-3:20pm	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction
3:20pm-3:40pm	<b>PANELISTS:</b> <b>Naomi Young</b> <b>Spencer Meyer</b> <b>Nina Chen</b> <b>Mark McPherson</b>  This session focuses on exciting, new approaches for financing watershed protection and restoration. While these approaches may still be developing, they offer innovative approaches that can help diversify and grow financing opportunities for watershed protection.	<b>David Yoskowitz</b> An Opportunity to Measure the Impact of Investment of Gulf of Mexico Restoration Activities	<b>Bobby Cochran</b> The Oregon Health and Outdoors Action Framework	<b>Mary Jo Kealy</b> An Ecosystem Services Approach Toward Assessing Benefits of Flood Planning in the Central Valley of California	<b>Mark Reynolds</b> Managing for Water Supplies and Waterbirds in Irrigated Farmlands of California	<b>Krispy Hopkins</b> Quantifying and Valuing Floodplain Nutrient and Sediment Retention	<b>Olivia Barton Ferriter</b> Department of the Interior's Approach to Achieving Coastal Resilience in the Wake of Hurricane Sandy	<b>Marci Baranski</b> USDA's Climate Change Plan and Benchmarking Progress
3:40pm-4:00pm		<b>Decision-Maker Panel:</b> <b>Buck Sutter</b>	<b>Mark Myer</b> Human and Environmental Influences on Ecosystem Services and West Nile Virus Vector Infection in Suffolk County, New York (USA)	<b>Heidi Huber-Stearns</b> The Evolving Role of Government in the Adaptive Governance of Freshwater Social-Ecological Systems in the Western US	<b>Stephen Wood</b> Building Soil Carbon for Environmental and Human Wellbeing	<b>Spencer Phillips</b> Prioritizing Bottomland Hardwood Forest Conservation	<b>Michael Tupper</b> Department of the Interior's Approach to Science and Ecosystem Services Following Hurricane Sandy	<b>Kari Cohen</b> Working Lands Carbon Sequestration and GHG Reductions: The Importance of Quantifying Greenhouse Gas Flows on Farms and Ranches
4:00pm-4:20pm		<b>Heather Tallis</b> Incorporating Ecosystem Services into Causal Chains to Inform Restoration Decisions	<b>Val Garcia</b> Impact of Increased Corn Production on Ground Water Quality and Human Health	<b>Discussion/Q&amp;A</b>	<b>Aaron Iverson</b> Managing Coffee Agroforests for Biodiversity and Ecosystem Services	<b>Lena Dempewolf</b> An Assessment of Crop Yield Dependence on Insect Pollination Services in the Neotropics	<b>Wendi Weber</b> Developing and Using Ecological Resilience Metrics to Measure Project Performance After Hurricane Sandy	<b>Discussion/Q&amp;A</b>
4:20pm-4:40pm		<b>James Boyd</b> Mississippi River Diversions: Community Impacts and Ecological Restoration	<b>Laura Jackson</b> Fine-Scale Environmental Indicators of Well-Being for Urban Communities	<b>Laurence Jones</b> Evidence for How Natural Capital Underpins the Delivery of Ecosystem Services	<b>Cheryl Palm</b> Recovering Ecosystem Services through Agricultural Intensification in Degraded Landscapes	<b>Craig Broadbent</b> Valuing Changes to Ecosystem Services from Gas and Mineral Development	<b>Susan Taylor</b> Developing and Using Socio-Economic Metrics to Measure Project Benefits and Ecosystem Services after Hurricane Sandy	<b>Teresa Lang</b> GHG Emission Reduction Quantification on Farms and Ranches - The Offset Registry Perspective
4:40pm-5:00pm		<b>Discussion/Q&amp;A</b>	<b>Richard Fulford</b> Applying Eco-Health Science in Environmental Governance	<b>Maria Jeaneth Delgado-Aguilar</b> Community Mapping of Ecosystem Services in Tropical Rain Forest of Ecuador	<b>Rodd Kelsey</b> The Promise and Challenges of Diversified Farm Management Practices for Delivering Multiple Ecosystem Services: A Review of the Evidence	<b>Vera Agostini</b> Pelagic Ecosystem Service Assessments Can Reveal an Underappreciated Source of Ocean Wealth	<b>Amanda Bassow</b> Evaluating Ecological and Community Resilience Benefits Resulting from Department of the Interior Hurricane Sandy Projects	<b>Michael Lohuis</b> Establishing a Carbon-neutral Goal for Monsanto Company by 2021
<b>Tuesday Evening Town Hall Meetings</b>								
5:15pm-6:45pm	<b>Ecosystem Markets and Finance: Where's the Money?</b>			<b>Nexus of Indigenous Knowledge and Ecosystem Services</b>				
<b>Location</b>	<b>Grand Ballroom 1</b>			<b>Grand Ballroom 2</b>				
<b>Organizer</b>	<b>Patrick Coady</b> , Seale & Associates, Inc., <b>Jessica Fox</b> , EPRI and <b>Kaola Swanson</b> , The Freshwater Trust			<b>Jon Waterhouse</b> , Oregon Health and Science University				
5:15pm-5:20pm	Introduction			Introduction				
5:20pm-6:45pm	Town Hall Discussion			Town Hall Discussion				



<b>Wednesday, December 7, 2016</b>	
7:30am-5:30pm	Conference Registration Open "Ad Hoc" Space Available for Impromptu Meetings - City Terrace Rooms 5, 6, and 8
7:30am-8:30am	<b>Morning Refreshments</b> - Grand Ballroom 5
8:30am-9:30am	<b>Plenary Session 3</b> - Grand Ballroom 4 <b>Plenary Session</b> <b>Human Health and Ecosystem Services: People and the Environment Are Not Separate</b> <b>Moderator: Bobby Cochran</b> , Executive Director, Willamette Partnership  <b>Panel Members</b> <b>Geoff Plumlee</b> , Associate Director, Environmental Health, U.S. Geological Survey <b>Paul Sandifer</b> , Research Associate (Professor), College of Charleston, South Carolina <b>Jon Waterhouse</b> , Indigenous Peoples Scholar, Oregon Health and Science University  <b>Plenary Description</b> This plenary session focuses on themes to directly connect human well-being and the environment. The speakers will reinsert the role of people into ecosystem service assessments from the perspectives of indigenous peoples, human health, and the ecological links.
9:30am-10:00am	<b>AM Break</b> - Grand Ballroom 5

**Wednesday, December 7, 2016**

**Concurrent Sessions - 3**

	Session 17	Session 18	Session 19	Session 20	Session 21	Session 22	Session 23	Session 24
Location	Grand Ballroom 1	Grand Ballroom 3	Grand Ballroom 2	Grand Ballroom 6	Grand Ballroom 7	Grand Ballroom 8	River Terrace 2	River Terrace 3
	Financing Green/ Grey Coastal Infrastructure	Incorporating Ecosystem Services Values and Benefits into Land-Use Management and Investment Decisions: Applications from Across the Landscape	Integrated Market- like Strategies to Meet the Iowa Nutrient Reduction Strategy: A Solution to Gulf Hypoxia?	Water Ecosystem Services	Designing Ecosystem Services Metrics and Supporting Technology Solutions for Scalable Implementation	Agricultural Ecosystem Services	Adaptive Management of Ecosystem Services	Ecosystem Services, Environmental Management, and Decision Making
Moderator	Erik Meyers	Tracy Stanton	Mark Kieser	Mike Tupper	Sara O'Brien	Craig Landry	Ahijond Garmestani	Wayne Munns Anne Rea
10:00am-10:05am	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction
10:05am-10:25am	<b>PANELISTS:</b> Shannon Cuniff Deborah Larson- Salvatore Gregory Biddinger Murray Starkel	<b>PANELISTS:</b> Tracy Stanton Zachary Christin Kathleen Wolf  Given the massive influx to urban areas and the regions that support their sustainability, where are the concrete examples of ecosystem service values and benefits informing and influencing planning processes, resource management and investment decisions across a spectrum of scales?	Dustin Miller State Revolving Loan Funds: Innovative Financing Under the Iowa Nutrient Reduction Strategy	Ashley Camhi How Does Spatial Patterning of the USDA's Conservation Reserve Program Impact Water Quality in Iowa's Lakes?	Erik Anderson Designing Environmental Metrics to Scale: Lessons from the Monarch Butterfly	Sasathorn Tapaneeyakul Spatial Valuation of Ecosystem Services in Agricultural Lands	Craig Allen Adaptive Management for Ecosystem Services	Anne Rea Use of Ecosystem Services in EPA Decision Making for Criteria Air Pollutants
10:25am-10:45am	This panel will examine the recent SAGE (Systems Approach to Geomorphic Engineering) Initiative to integrate green (natural and nature- based) approaches with traditional grey (engineered structures) infrastructure for coastal protection and the tandem effort to utilize more private funding, from philanthropic and impact investors to market-based needs, in green/grey coastal defense projects, providing greater resiliency to climate change and sea level rise impacts. Speaker experiences span private markets, large corporation, government and NGO/ philanthropic institutions.	This discussion will highlight innovative work across multiple scales including: Landscape restoration and conservation along the urban to rural gradient; the connection between trees and human health at a local scale; and how a new multi- criteria Open Space Assessment Tool, based on ecosystem service benefits, can inform better land- use planning decisions at a regional scale.	Brooks Smith Pressing Legal Questions for Multiple Credits and Funding Streams Under the Iowa Nutrient Reduction Strategy	David Hanson Monitoring Indicators for Evaluating Restoration Program Success for the Gulf of Mexico	Amy Merrill The Central Valley Habitat Exchange: Quantifying Benefits for Multiple Species at Parcel and Landscape Scales	Deborah McGrath A New Approach for Using Payments for Ecosystem Services (PES) To Encourage Adoption of More Resilient Agroecosystems: A Case From Central Haiti	Robin Craig Fixing the Law to Allow for Agency Adaptive Management for Ecosystem Services	Wayne Munns Ecosystem Services in Risk Assessment and Management
10:45am-11:05am			Mark Kieser A Nutrient Reduction Exchange to Unify Interests and Efforts Under the INRS	Todd Gartner Protecting Drinking Water: Lessons from Watershed Investment Programs in the United States	Nicole Maness Using Ecosystem Services Quantification to Drive Better Management Decisions: Can Simple Succession Models Help?	Angela Fletcher and Ryan Smith Catalyzing Impact Investment in Sustainable Agricultural Lands and Practices	Lance Gunderson Adaptive Governance of Wetland and Riverine Ecosystem Services	David Moore Application of Ecosystem Services in Natural Resource Management Decision-making
11:05am-11:25am			George Kelly The Farmer Part of the Investment Equation	David Hanson Restoration Scaling of Lost Ecosystem Services in Complex Aquatic Systems	Gregg Simonds Spatially-Explicit Technology Solutions for Greater Sage- Grouse Habitat Assessment	Jan Lewandrowski A Retrospective and Current Examination of the Life-cycle Greenhouse Gas Emissions of Corn- based Ethanol	J.B. Ruhl Adaptive Management of Ecosystem Services Across Land Use Regimes	George Van Houtven Using Ecosystem Service Indicators to Prioritize Land Conservation Investments: An Application for the Taunton River Watershed
11:25am-11:45am	<b>Discussion/Q&amp;A</b>		Mark Kieser Integration and Extrapolation: Where Can This Go?	Jonas Epstein Evaluating Forest Service Performance Metrics for Fisheries & Aquatic Resources: Shifting from Outputs to Integrated Outcomes	Matt Deniston Technology Tools to Scale Conservation & Mitigation Programs	Discussion/Q&A	Byron Williams Ecosystem Services and Adaptive Management: a Framework for Synthesis	Stephen Posner The Impact of Ecosystem Services on Decisions
11:45am-1:15pm	Lunch Provided							

<b>Wednesday, December 7, 2016</b> Concurrent Sessions - 4									
1:15pm-3:00pm	Session 25	Session 26	Session 27	Session 28	Session 29	Session 30	Session 31	Session 32	
Location	Grand Ballroom 1	Grand Ballroom 2	Grand Ballroom 3	Grand Ballroom 6	Grand Ballroom 7	Grand Ballroom 8	River Terrace 2	River Terrace 3	
	<b>Forest Resilience Bond – Financing Fire Management for Water Benefits through Conservation Finance Approaches</b>  <b>Todd Gartner</b>	<b>Framing Climate Change Science and Adaptation in the Context of Ecosystem Services – Moving the Ball Forward</b>  <b>Janet Cushing/Gerard McMahon</b>	<b>Environmental-Economic Accounting: Lessons Learned and Experiences from Pilot Studies</b>  <b>Miroslav Honzak</b>	<b>Evidence Chains to Take Ecosystem Services from Popular Concept to Widespread Impact</b>  <b>Heather Tallis</b>	<b>Cultural Ecosystem Services</b>  <b>Monique Fordham</b>	<b>Ecosystem Services and Business</b>  <b>Nikola Smith</b>	<b>Irrational Insights into Ecosystem Services: Using Behavioral Economics to Understand Ecosystem Services</b>  <b>David Chapman</b>	<b>Ecological Production Functions: Telling Compelling Stories About Why Ecosystem Change Matters</b>  <b>Tamara Blett Mike Bell</b>	
Moderator									
1:15pm-1:20pm	<b>PANELISTS:</b> <b>Todd Gartner</b> <b>Nick Wobbrock</b> <b>Ricardo Bayon</b> <b>Tommie Herbert</b> <b>Adam Carpenter</b>  What if the Forest Service and other land managers could access capital from the private sector to accelerate the pace of forest restoration? This panel will focus on a new financial instrument under development, called the Forest Resilience Bond ("FRB"), which enables private capital to invest in natural resources by placing a value on ecosystem services (such as reduced wildfire risk and augmented water quality and quantity).	<b>PANELISTS:</b> <b>James Boyd</b> <b>Mitch Eaton</b> <b>Robert Johnston</b> <b>Elizabeth Murray</b> <b>Richard Palmer</b>  This panel will focus on what we know and don't know both in terms of climate change science and ecosystem services assessments, and lay out a way forward to focus research efforts on how climate change scientists and social scientists can work together to help planners and decision-makers consider ecosystem services in the context of climate change.	<b>John Matuszak</b> Natural Capital Accounting and the GEO EOA Initiative	<b>Heather Tallis</b> The Need for a Universal Evidence Base for Environment, Health and Development	<b>Benson Sherrouse</b> National Forest Visitation Scenario Impacts on Cultural Ecosystem Services	<b>Valerie Were</b> The Department of Commerce Initiative to Support the Private Sector in Incorporating Natural Capital Values into Business Decisions	<b>Kent Messer</b> Behavioral Nudges in Competitive Environments: A Field Experiment Examining Defaults and Social Comparisons in a Conservation Contract Auction	<b>Randy Bruins</b> Key Attributes of Ecological Production Functions	Introduction
1:20pm-1:40pm									
1:40pm-2:00pm			<b>Mahbubul Alam</b> Experimental Ecosystem Accounting: Recent Developments and Research Gaps	<b>Lydia Olander</b> A Case in Point: Ecosystem Service Causal Models in Southeast US Fire Management	<b>Zach Ancona</b> Incorporating Ecosystem Services into Monarch Habitat Restoration Planning at a Regional Scale	<b>Ione Taylor</b> Upstream, Midstream, and Gently-Down-the-Stream: Integrating Ecosystem Services into the Energy Business	<b>Paul Ferraro</b> Developing Evidence-Based Ecosystem Service Policy Using Behavioral Science and Experimental Design	<b>Michael Bell</b> Developing EPFs: A Process for Linking Environmental Stressors to Ecosystem Services via the STEPS Framework	
2:00pm-2:20pm			<b>Kenneth Bagstad</b> Ecosystem Accounting: Applying International Lessons Learned to the United States	<b>Edward Game</b> What Constitutes "Evidence" and How Should We Assess It?	<b>Laurence Jones</b> Modelling Cultural Ecosystem Services: Examples from Four Projects	<b>Robert Griffin</b> Incorporating the Visibility of Coastal Energy Infrastructure into Multi-Criteria Siting Decisions	<b>Michael Hand</b> Behavioral Science in Action: Insights from the White House Social and Behavioral Sciences Team	<b>Claire O'Dea</b> Using the STEPS Framework to Define the Impacts of Air Pollution on Aquatic Final Ecosystem Goods and Services	
2:20pm-2:40pm			<b>Julian Chow</b> Advancing the SEEA-EEA Framework: Experience from the UN Pilot Project	<b>Jimmy Kagan</b> Using Causal Models for Prioritizing Wetlands	<b>Melissa Kreye</b> Forest Landowner Cultural Values and Willingness to Accept Compensation for Protecting Imperiled Species on Private Forest Lands in Florida	<b>Arturo Sánchez-Porras</b> Implications of Industrialization to the Provision of Ecosystem Services	<b>Jason Shogren</b> Behavioral Environmental Economics and Nudges	<b>Jiangxiao Qiu</b> Causal Networks Linking Ecosystem Change and Society: From Theory to Application	
2:40pm-3:00pm			<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>	<b>Christina Wong</b> Strategic Use of Ecological Production Functions to Advance Policy
3:00pm-3:30pm	<b>PM Break - Grand Ballroom 5</b>								

<b>Wednesday, December 7, 2016</b>									
Concurrent Sessions - 5									
3:30pm-5:15pm	Session 33	Session 34	Session 35	Session 36	Session 37	Session 38	Session 39	Session 40	
Location	Grand Ballroom 1	Grand Ballroom 2	Grand Ballroom 3	Grand Ballroom 6	Grand Ballroom 7	Grand Ballroom 8	River Terrace 2	River Terrace 3	
	Pay-for-Success Strategies for Government and Philanthropic Funders to Buy Ecosystem Outcomes and Overcome Demand Uncertainties in New Markets	Climate Change and Ecosystem Services	Spatial Dimensions of Ecosystem Service Values	Carbon Management: Approaches to Assess Sequestration Potential, Value Carbon as a Service, and Inform Land Use Decisions	Guidance for Implementation	Conservation Program and Practice Effects on Wetland Ecosystem Services in Agricultural Landscapes across the U.S.	Critical Gaps and Challenges in the Definition and Implementation of Ecosystem Services	Tools and Assessment	
<b>Moderator</b>	Eoin Doherty	Tania Eilersick	Robert Johnston	Emily Pindilli	Erica Goldman	William Effland	Carl Shapiro	Kawa Ng	
3:30pm-3:35pm	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	
3:35pm-3:55pm	Dave Groves Pay for Success — Its Benefits and Limitations in Financing Ecosystem Service Restoration	Chanda Littles A Hypothesis-Driven Framework for Assessing Climate Induced Changes in Coastal Final Ecosystem Goods and Services	Austin Troy A Framework for Categorizing the Spatial Delivery of Ecosystem Services	Bradley Reed National Assessment of Ecosystem Carbon Sequestration and Greenhouse Gas Fluxes	Susan Preston Integrating Biophysical Sciences, Social Sciences, and Economics in Ecosystem Service Assessment: New Guidance	David Mushet Conservation Effects on Ecosystem Services in the U.S. Prairie Pothole Region	Robert Costanza Spatially Explicit Modelling and Gamification of Ecosystem Services	James Meldrum Estimating Ecosystem Service Benefits From a Western US Wilderness Area	
3:55pm-4:15pm	Kari Cohen Pay-for-Success — Opportunities for Federal Agencies and Working Lands Conservation	Baishali Bakshi Climate Change, Vegetation Change, and Recreation in Minnesota	Lisa Wainger More than the Sum of Its Parts: Spatial Agglomeration and Network Effects on Ecosystem Service Benefits	Leslie Richardson Valuing Carbon Sequestration Across the National Park System	Jack Cosby Strengths and Weaknesses of Three Ecosystem Services Model Applied in a Diverse UK Catchment	Loren Smith Conservation Program and Practice Effects on Ecosystem Services in the U.S. High Plains	Robert Winthrop Cultural Services as a Limiting Case for the Ecosystem Services Paradigm	Brian Quay Updates to the Benefit Transfer Toolkit for Nonmarket Valuation	
4:15pm-4:35pm	Jim Lawrence Implementing a Public-Private Investment Strategy to Overcome Demand Uncertainties of Nevada's Conservation Credit System	Yongyut Trisurat Basin-Wide Assessment on Impacts of Climate Change on Ecosystem Services in the Lower Mekong Basin	Dana Bauer Managing Spatially Distributed Small Natural Features that Provide Large-Scale Ecosystem Services	Rachel Sleeter Carbon Balance Modeling for the Great Dismal Swamp Ecosystem	Jack Cosby Guidance for Users on Ecosystem Service Assessment	Sharon Kahara Drought, Hydrology and Management Implications for Ecosystem Services in Wetlands of California's Central Valley	Ahmond Garmestani Adaptive Governance of Urban Social-Ecological Systems	Jewel Lipps Understanding and Evaluating Ecosystem Services at Superfund Cleanups	
4:35pm-4:55pm	Eoin Doherty Pay for Success Contracting Strategies, and Considerations for Selecting the Right Strategy for Your Scenario	Shruti Mishra Estimating the Impacts of Climate Induced Change on River Flow and Ecosystem Services	Ben Gramig Optimization of Agro-Ecosystem Services with Spatial Spillovers	Kristin Byrd Increasing Rangeland Soil Organic Carbon to Mitigate Greenhouse Gases and Increase Climate Resiliency for California	Simone Maynard A Regional Scale 'Stock-Take' of National Policy Implementation of the Ecosystem Services Concept	Gregory McCarty Conservation Program and Practice Effects on Ecosystem Services in the Mid-Atlantic Region of the U.S.	Pierre Glynn Beliefs, Biases, Simplifications, and Other Challenges for the Ecosystem Services Paradigm	Kiichiro Hayashi Spatial Assessment of Equivalency of Urban Forest Ecosystem Services in Nagoya, Japan	
4:55pm-5:15pm	Eric Letsinger Pay for Success: DC Water's Green Infrastructure Environmental Impact Bond Overview	Rebecca Runtig Incorporating Climate Change into Ecosystem Services Assessments and Decisions: A Review	Robert Johnston Multidimensional Spatial Heterogeneity in Ecosystem Service Values: Advancing the Frontier	Marci Baranski Tools and Methods to Manage Carbon Sequestration in Agriculture and Forestry	Discussion/Q&A	William Effland Integrating Wetland Conservation Practices into CEAP Cropland Assessment	Kenneth Bagstad Synthesis and Discussion	Ruchi Badola Application of Economic Tools for Wildlife Conservation: Case Studies From Protected Areas of India	
5:30pm-6:45pm	<b>Wednesday Evening Town Hall Meetings</b>								
<b>The Value of Natural Capital to Business - The Application of the Natural Capital Protocol</b>		<b>What's Next for Ecosystem Services in Decision Making: Priorities and Pathways</b>			<b>Native American Sacred Sites and Climate Change: Spiritual and Cultural Aspects</b>				
<b>Grand Ballroom 1</b>		<b>Grand Ballroom 2</b>			<b>Grand Ballroom 3</b>				
<b>Organized By: Doug MacNair, Natural Capital Coalition</b>		<b>Organized By: Lydia Olander, Duke University</b>			<b>Organized By: Monique Fordham, U.S. Geological Survey</b>				
<b>Introduction (5 min)</b>		<b>Introduction (5 min)</b>			<b>Introduction (5 min)</b>				
<b>Town Hall Discussion (1 hour, 10 min)</b>		<b>Town Hall Discussion (1 hour, 10 min)</b>			<b>Town Hall Discussion (1 hour, 10 min)</b>				

Thursday, December 8, 2016	
7:30am-5:30pm	Conference Registration Open "Ad Hoc" Space Available for Impromptu Meetings - City Terrace Rooms 5, 6, and 8
7:30am-8:30am	<b>Morning Refreshments</b> - Grand Ballroom 5
8:30am-9:30am	<b>Plenary Session 4</b> - Grand Ballroom 4  <b>Plenary Session</b> <b>Implementation Status and Challenges: International Perspectives</b> <b>Moderator: Simone Maynard</b> , Principal, Simone Maynard Consulting and Scholar, Australian National University  <b>Panel Members</b> <b>Yongyut Trisurat</b> , Professor of Forestry, Kasetsart University <b>Ruchi Badola</b> , Scientist/Senior Professor, Ecodevelopment Planning and Participatory Management, Wildlife Institute of India <b>Laurence Jones</b> , Ecologist, UK Centre for Ecology & Hydrology <b>Bedilu Amare Reta</b> , Environmental Compliance Advisor, Feed the Future Ethiopia Farm Service Project; Cultivating New Frontiers in Agriculture (CNFA), Ethiopia Field Office  <b>Plenary Description</b> Panelists in this plenary session will discuss and compare international ecosystem service implementation status and challenges with perspectives from Australia, UK and the EU, Thailand, India, and Africa. The discussion will include the theory, practice and use of ecosystem services, and what lessons could be learned.
9:30am-10:00am	<b>AM Break</b> - Grand Ballroom 5

Thursday, December 8, 2016									
Concurrent Sessions - 6									
Location	Session 41	Session 42	Session 43	Session 44	Session 45	Session 46	Session 47	Session 48	
	Grand Ballroom 1	Grand Ballroom 2	Grand Ballroom 3	Grand Ballroom 6	Grand Ballroom 7	Grand Ballroom 8	River Terrace 2	River Terrace 3	
	State of Private Investment in Natural Capital	Using Ecosystem Services as a Shared Language for Effective Stakeholder Engagement	Coastal Ecosystem Services I	Optimization of Ecosystem Services in Urban and Landscape Planning	Sustaining Environmental Capital Initiative: Integrating Ecosystem Services in Public Land & Water Management & Policy	Markets	Valuation of Ecosystem Services Available from Farms and Forests	Efforts and Experiences Incorporating Ecosystem Services into the USDA Forest Service Mission	
Moderator	Ricardo Bayon	Kevin Halsey	Ariana Sutton-Grier	Richard Wenning	Rudy Schuster	Tracy Stanton	Christopher Hartley	Jeffrey Kline	
10:00am-10:05am	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	
10:05am-10:25am	<b>PANELISTS:</b> Roger Williams Kari Cohen Eric Halstein George Kelly This interactive panel discussion will review the findings of a new report – State of Private Investment in Conservation – and will reflect both on the evolution of the conservation finance and investment in natural capital in the last decade and on trends and opportunities for the immediate future.	<b>Kevin Halsey</b> Identifying Service Flows During the Ecosystem Services Quantification Process	<b>Jarrold Loerzel</b> Economic Valuation of Shoreline Protection Provided by Natural Infrastructure	<b>Ingrid Boklund</b> MatrixGreen as an Application to Identify the Connections of Livability in Udaipur	<b>Rudy Schuster</b> Incorporating Ecosystem Services Into Natural Resource Decision Making: Department of the Interior Work Plan & the Sustaining Environmental Capital Initiative	<b>Marzieh Motallebi</b> Impact of Relative Demand for Ecosystem Services on Their Stacking Markets	<b>Lisa Wainger</b> Crucial Elements of a Systematic Reporting System for Ecosystem Service Valuation	<b>Kawa Ng</b> Ecosystem Services Assessed in Forest Planning: Indicators, Trends, and Beneficiaries	
10:25am-10:45am		<b>Jennifer Molnar</b> Enabling Businesses to Incorporate the Economic Value of Ecosystem Services into Project Evaluation	<b>Sarah Gonyo</b> The Non-Market Value of the Outer Coast of Washington State	<b>Gretchen Greene</b> Ecosystem Services in Climate Change Adaptation Planning	<b>Emily Pindilli</b> Chesapeake Bay Watershed: Stream Ecosystem Services	<b>John Diaz</b> Market-Based Conservation for Working Lands, Natural Resources and Military Training: Lessons Learned From the Market Based Conservation Pilot	<b>Kate Zook</b> Carbon Sequestration Valuation of United States Forests and the Potential for Policy Impacts	<b>Matt Elmer</b> Indicators and Methods for Water-Related Ecosystem Services in Forest Planning	
10:45am-11:05am	<b>Discussion/Q&amp;A</b>	<b>France Guertin</b> Using the ESIL Tool to Improve Corporate-External Stakeholder Engagement Outcomes	<b>Jonathan Halfon</b> Lessons Learned from Applying an Ecosystem Services Framework for Post-Hurricane Sandy Recovery and Resiliency Planning in Long Island, NY	<b>Lars Johansson</b> Practical Applications of Social-Ecological Urbanism (Ecosystem Services) Within a Livable City Framework	<b>Dan Spooner</b> Linking Water Management and Natural Capital Using an Ecosystem Services Framework	<b>John Raffensperger</b> A "Smart" Nutrient Market for Point and Nonpoint Source Users and Wetland Builders	<b>Noel Gollehon</b> Determination and Valuation of Water-Quality Ecosystem Services Available From Farms	<b>Nikola Smith</b> Incorporating Ecosystem Services in Tradeoff Analysis to Facilitate Forest Planning	
11:05am-11:25am		<b>Doug MacNair</b> Building Stakeholder Consensus Using Multi-Criteria Decision Analysis Tools	<b>Danielle Schwarzmann</b> Applying the DPSIR Framework to Channel Islands National Marine Sanctuary	<b>Kaisa Mustajärvi</b> Ecosystem Services Approach as a Tool for Regional Planning	<b>Chris Huber</b> Leveraging the USGS National Water-Quality Assessment Program Data in Hedonic Property Models	<b>Katherine Sever</b> Pinot or Potatoes? A Case Study of Governance & Accountability in Emerging Water Quality Markets	<b>Rich Iovanna</b> Pollinator Habitat: A Case-study in Policy-Relevant Ecosystem Service Valuation	<b>Robert Deal</b> Integrating Ecosystem Services into USFS Policy and Operations	
11:25am-11:45am		<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>	<b>Sean O'Malley</b> Landscape Infrastructure as Framework for City-Building	<b>Tim Kern</b> Designing and Implementing an Ecosystems Services Data Integration Framework	<b>Laura Wood</b> Streamlining Practices for Generating Water Quality Trading Credits: BMP Guideline National Templates	<b>David Ervin</b> Lessons and Implications for Ecosystem Service Valuation Beyond USDA	<b>Discussion/Q&amp;A</b>	
11:45am-1:15pm	Lunch Provided								



Thursday, December 8, 2016									
Thursday Lunch Town Hall Meetings									
12:00pm-1:05pm	EnviroAtlas' New Environmental Markets Decision Support Tools: Linking Ecosystem Services with Environmental Markets Data and Policies			Ecosystem Services 2.0: Enabling Civic Ecology through Participatory Science and Open Innovation			ACES Fellows: The Next Generation		
	Grand Ballroom 1		Grand Ballroom 2		Grand Ballroom 3				
	Organized By: Christopher Hartley, USDA		Organized By: Sophia Liu, U.S. Geological Survey		Organized By: Dianna Hogan, U.S. Geological Survey		ACES Fellows providing thoughts and discussion about their ACES experience and perspectives on the future direction of ecosystem services.		
	Introduction (5 min)		Introduction (5 min)		Introduction (5 min)				
	Town Hall Discussion (1 hour)		Town Hall Discussion (1 hour)		Town Hall Discussion (1 hour)				
	Concurrent Sessions - 7								
1:15pm-3:00pm	Session 49 Grand Ballroom 1	Session 50 Grand Ballroom 2	Session 51 Grand Ballroom 3	Session 52 Grand Ballroom 6	Session 53 Grand Ballroom 7	Session 54 Grand Ballroom 8	Session 55 River Terrace 2	Session 56 River Terrace 3	
	Do Offshore Oil and Gas Platforms and Infrastructure Provide Valuable Ecosystem Services?	Research to Enhance Ecosystem Services in Southeastern US Agriculture through Landscape Planning and Design	Common Ground for Ecosystem Services and Marine Ecosystem-Based Management at the Intersection of Science and Policy	Urban Ecosystem Services I	Recreation, Wilderness and Ecosystem Services	If You Don't Like the Outcome Change the Rules: Incentivizing Market Development	Governing Ecosystem Service Flows: Minding the Gap Between Landscape-level Processes, Local Management Decisions and Policy		
Moderator	Joe Nicolette	Alisa Coffin	Stephen Posner	Gretchen Greene	Kaisa Mustajarvi	Christopher Hartley	Kim Hall		
1:15pm-1:20pm	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction		
1:20pm-1:40pm	PANELISTS: Joe Nicolette Tom Campbell Larry Johnson Victoria Todd Mark Rockel	PANELISTS: Dixon Landers Dawn Olson Hilary Swain Steve Traxler Charlie Walthall	Heather Leslie Ecosystem Services and Sustaining Coupled Social-Ecological Marine Systems	José Soto Scale Effects & Consumer Demand for Urban Forest Services and Disservices	Marie Donahue Using Social Media to Assess Urban Park Visitation and Recreation Services	Christopher Galik Early Action Incentives in U.S. Environmental Markets	Mindy Crandall Connecting Economic, Social, and Ecological Information for Forest-Located Rural Communities		
1:40pm-2:00pm	The question as to the value of offshore oil and gas platforms and subsea infrastructure to provide ecosystem services is of increasing importance. Recent fisheries and marine mammal data indicate that offshore structures can create significant ecological productivity above natural reef systems and support a variety of marine mammal populations. This session will focus on applying net environmental benefit analysis (NEBA) approach to evaluate options for offshore decommissioning by applying scientific data to case studies.	This panel presents perspectives from some leading research agencies envisioning the future of agricultural landscapes of the southeastern USA. Panelists will discuss current research activities and knowledge gaps related to agricultural ecosystem services. They will address questions about designing and creating agricultural landscapes of the future that will enhance, on the one hand, crop and livestock yields that have long supported human populations, and on the other hand, ecosystem services that are critical to the long-term resilience of the region.	Ariana Sutton-Grier The Potential for Managing Coastal Systems to Provide Ecosystem Services and Enhance Resilience	Ram Pandit Economic Valuation of Tree Cover in Perth, Australia	Jeffrey Kline Recreation Use Values for Estimating Outdoor Recreation Benefits	Kurt Stephenson The Role of In-Lieu Fee Programs in Accelerating Third Party Compensatory Mitigation	Jane Harrison When Ecosystem Service Flows Break Down: Barriers to Applying Ecosystem Service Science to Fisheries Management		
2:00pm-2:20pm			Frank Schwing Federal Ecosystem-Based Management to Sustain Marine Ecosystem Services: From Concept to Practice	M.J. Van Maasakkers New Approaches to Engaging Stakeholders Regarding Urban Ecosystem Services on Vacant Land	Leslie Richardson Valuing On-Site and Virtual Bear Viewing in Katmai National Park & Preserve	Stephanie Larson Changing Conservation Easement Structures: Payments for Ecosystem Services (PES)	Marco Vizzari Mapping Livability by Integrating Ecosystem and Urban Services with Stakeholder Perceived Importance		
2:20pm-2:40pm			Anne Guerry Getting to Transformation: The Science and Practice of Using Ecosystem Service and Ecosystem-Based Management Approaches in Decisions	Theodore Weber Spatial Valuation of Ecosystem Services in the Chicago Metropolitan Region, USA	James Meldrum Evaluating the Economic Benefits of Invasive Species Management in Non-Timber Forests: Stakeholder Groups and Means-Versus-Ends	Jordan Wellwood If You Don't Like the Outcome, Change the Rules: Pop-Up Habitat	Kathleen Williams Using Volunteered Geographic Information to Visualize Community Values of Ecosystem Services for Habitat Restoration and Neighborhood Revitalization		
2:40pm-3:00pm	Discussion/Q&A	Discussion/Q&A	Discussion/Q&A	Discussion/Q&A	Paul Ringold What Information Do We Have to Identify and Evaluate Ecological Metrics and Indicators that Directly Matter to People?	Christopher Hartley Who Makes the Rules, Anyway?	Mahbubul Alam Sustainable Landscapes: The Future We Want		
3:00pm-3:30pm	PM Break - Grand Ballroom 5								



Thursday, December 8, 2016									
Concurrent Sessions - 8									
3:30pm-5:15pm	Location	Session 57 Grand Ballroom 1	Session 58 Grand Ballroom 2	Session 59 Grand Ballroom 3	Session 60 Grand Ballroom 6	Session 61 Grand Ballroom 7	Session 62 Grand Ballroom 8	Session 63 River Terrace 2	Session 64 River Terrace 3
		Using the Ecosystem Service Approach to Help Understand Trade-offs for Resources Management Decisions at the Department of the Interior	Innovative Approaches to Scaling Stormwater Green Infrastructure	Valuing Ecosystem Services of Coastal Natural Infrastructure	Urban Ecosystem Services II	Ecosystem Services and Biodiversity	Examining the Link Between Transaction Costs and Private Landowner Participation in Environmental Markets	Using Ecosystem Services to Inform Conservation Decisions at a Landscape Scale	
<b>Moderator</b>		Emily Pindilli	Neil Crescenti	Margaret Walls	Lars Johansson	Lisa Wainger	Mindy Selman	Steve Traxler	
3:30pm-3:35pm		Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	
3:35pm-4:35pm		<b>PANELISTS:</b> Edward Maillott Emily Pindilli Rebecca Moore  This panel will focus on the use of Ecosystem Service Analysis at the Department of the Interior, provide some information on policy directions and examples from DOI Bureaus.  <b>Discussion/Q&amp;A</b>	<b>PANELISTS:</b> Seth Brown Brian Van Wye Laura Kimes Claudio Ternieden  This panel will explore a variety of approaches to scaling green infrastructure for stormwater management. Green infrastructure can be highly cost effective, and it provides a suite of ecosystem services that can address multiple priorities for city planners. To date, few cities are implementing green infrastructure at a broad scale. This session will address: driving down costs through strategic implementation; creative business models that leverage multiple funding streams; unique partnerships and finance mechanisms that connect project developers with impact investors; and integrative approaches to build broad support within and outside of local agencies.  <b>Discussion/Q&amp;A</b>	<b>Elizabeth Schuster</b> Integrating Nature Based Tourism into Coastal Resilience  <b>Luke Boutwell</b> Estimating the Cost of Wetland Loss in Louisiana in Terms of Vulnerability to Hurricane Damages  <b>Craig Landry</b> Economic Values of Coastal Erosion Management: Joint Estimation of Use and Passive Use Values with Recreation and Contingent Valuation Data  <b>Margaret Walls</b> Valuing Ecosystem Services of Coastal Wetlands: Protection from Storm Surge	<b>Charmaine Dahlenburg</b> Defining the Best Natural Enhancements and Innovative Technologies to Deliver Ecosystem Services to Highly Urbanized Waterfronts  <b>Douglas Shoemaker</b> The Impact of Urban Pattern on Ecosystem Services: Exploring the Potential for Sprawl Alternatives to Reduce Environmental Degradation and Accommodate Economic Growth  <b>Monica Hammer</b> Ecosystem Services in Peri-Urban Planning for Sustainable Urban Development - Experiences from the Stockholm Region, Sweden  <b>Tingting Liu</b> Do Combined Sewer Overflows Have an Impact on Housing Prices?	<b>Claudia Sattler</b> 66 Ways to Save the World: Forms of Online Engagement for Ecosystem Services and Biodiversity Protection  <b>S. Lan Smith</b> Towards Bridging Theory and Practice to Consider Biodiversity and Resilience for Ecosystem Services  <b>William Kepner</b> A National System to Map and Quantify Terrestrial Vertebrate Biodiversity  <b>Kenneth Boykin</b> Representation of Reptile Biodiversity and Ecosystem Services within the Protected Areas of the Conterminous United States	<b>Kate Zook</b> Transaction Costs in U.S. Environmental Markets  <b>Billy Gascoigne</b> Case Study--Generating Grassland Carbon Offsets  <b>Robert Parkhurst</b> Reducing the Verification Costs for Carbon Offsets on Working Lands  <b>Mindy Selman</b> Influence of Risk on Water Quality Trading Markets  <b>Kurt Stephenson</b> Transaction Costs for Nonpoint Source WQOT Credits: Implications for the Chesapeake Bay	<b>Cynthia Edwards</b> Ecosystem Services as Part of the Southeast Conservation Adaptation Strategy (SECAS)  <b>Emily Powell</b> A Synthesis of Habitat Threshold Data for Use in Coastal Resilience Planning  <b>Lars Pomara</b> Cumulative Impacts - New Sustainability Framework for the Appalachian LLC  <b>Chris Kelble</b> Investigating the Resiliency of Ecosystem Services to Climate Change in South Florida Coastal Ecosystems	
4:15pm-4:35pm									
4:35pm-4:55pm									
4:55pm-5:15pm									
5:30pm-7:30pm									
Poster Session Reception - Grand Ballroom 5									

<b>Friday, December 9, 2016</b> Conference Registration Open "Ad Hoc" Space Available for Impromptu Meetings - City Terrace Rooms 5, 6, and 8									
7:30am-12:00pm									
7:30am-8:30am	<b>Morning Refreshments &amp; Poster Removal - Grand Ballroom 5</b>								
8:30am-10:15am	<b>Concurrent Sessions - 9</b>								
<b>Location</b>	<b>Session 65</b>	<b>Session 66</b>	<b>Session 67</b>	<b>Session 68</b>	<b>Session 69</b>	<b>Session 70</b>	<b>Session 71</b>	<b>Session 72</b>	
	Grand Ballroom 1	Grand Ballroom 2	Grand Ballroom 3	Grand Ballroom 6	Grand Ballroom 7	Grand Ballroom 8	River Terrace 2	River Terrace 3	
	Willingness to Pay	Connecting Tribal Cultural Knowledge, Well-Being & Governance to Ecosystem Services Concepts	Coastal Ecosystem Services II	Soil Health for Ecosystem Goods and Services: Interactions, Climate Effects, and Valuation	Payment for Ecosystem Services	Putting a Value on Conservation: Using Environmental Markets in the Midwest	Mainstreaming the Value of Nature in Business: Groundbreaking Results as the 6-year TNC-Dow Collaboration Culminates		
<b>Moderator</b>	<b>Leslie Richardson</b>	<b>Jeffrey Thomas</b>	<b>Valerie Were</b>	<b>Kristie Maczko</b>	<b>Robert Deal</b>	<b>James Klang</b>	<b>Jennifer Molnar</b>		
8:30am-8:35am	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction		
8:35am-8:55am	<b>Margaret Walls</b> Payments for Ecosystem Services from Forests: Do They Represent Willingness to Pay?	<b>Session in Formation</b>	<b>Matt Luxon</b> Mud or Money - Simple Tools to Offset City of Seattle Marine Shoreline Ecosystem Service Losses With Equal Gains or Payment	<b>Kristie Maczko</b> Soil Health: The Foundation for Sustainable Provision of Ecosystem Goods and Services	<b>Robert Griffin</b> Quality Information and Procurement Auction Outcomes: Evidence From a Payment for Ecosystem Services Laboratory Experiment	<b>Brian Brandt</b> A Pollinator Habitat Credit Program on Permanently Protected Farms in Michigan	<b>Jennifer Molnar</b> Making a Case for Integrating Nature in Business: Lessons from a Unique NGO-Corporate Collaboration		
8:55am-9:15am	<b>Melissa Kreye</b> Analysis of Voter Preferences and Willingness to Pay for Clean Water Services in the Eastern US		<b>Susan Lovelace</b> Social Values of Charleston Area Beaches	<b>Urs Kreuter</b> Framework for Soil Health as Natural Capital that Generates Ecosystem Services	<b>Elizabeth Porter</b> The Case For Conserving and Regenerating Ecosystems through the Creation of an "Ecosystem Equity Line of Credit"	<b>Gregory Bohrer</b> Field Stewards: Growing a Market for Clean Water	<b>Kevin Halsey</b> Making Nature Valuation "ESJ": Enabling Decision-making		
9:15am-9:35am	<b>Yui Takase</b> Trend of the Public's Evaluation of Ecosystem Services by WTP from a National Survey in Japan		<b>Laura Bankley</b> Beyond Planning and Restoration: Using Strategic Partnerships to Support, Enhance, and Expand Coastal Restoration Projects in Urban Areas	<b>Caitlin Rottler</b> Potential Effects of Climate Change on Soil Health and Ecosystem Goods and Services	<b>Jennifer Egan</b> Simulating Substitutable Water Quality Policies: Payments for Outcomes Versus Payments for Practices	<b>Paul Helgeson</b> Reducing GNP Company's Environmental Footprint Across Our Value Chain	<b>Todd Guidry</b> Dow's 2025 Nature Goal: Scaling Corporate Decisions and Culture Change in Valuing Nature		
9:35am-9:55am	<b>Ram Pandit</b> Mainstreaming Payment for Ecosystem Services in Drinking Water Schemes: Evidences from Koshi Hills, Nepal		<b>Lawrence Martin</b> Using a Sustainability Context to Drive Ecosystem Services Analysis for Decision Making	<b>John Ritten</b> Methods and Challenges for Valuation of Soil Health Benefits	<b>Sarun Kamolthip</b> Landowners' Preferences for a Payments for Environmental Services Program: A Case Study in East Thailand	<b>James Klang</b> Payment for Ecosystem Services to Reduce Bacteria from Agricultural Livestock	<b>Thomas Polzin</b> Next Steps in Mainstreaming the Value of Nature: Changes in Culture, Policy, and Industry		
9:55am-10:15am	<b>Discussion/Q&amp;A</b>		<b>Discussion/Q&amp;A</b>	<b>Holly Dyer</b> Valuing Soil Health Benefits for Wyoming Ranchers	<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>	<b>Discussion/Q&amp;A</b>		
10:15am-10:45am	<b>AM Break/Exhibit Removal - Grand Ballroom 5</b>								

Friday, December 9, 2016	
10:45am-12:00pm	<p><b>Closing Plenary Session - Grand Ballroom 4</b></p> <p><b>Closing Plenary Session</b></p> <p><b>Synthesis: Key Findings and Next Steps</b></p> <p><b>Moderator: Erica Goldman</b>, Director of Policy Engagement, COMPASS</p> <p><b>Panel Members</b></p> <p><b>Christopher Hartley</b>, Deputy Director and Senior Environmental Markets Analyst, U.S. Department of Agriculture</p> <p><b>Kaola Swanson</b>, Associate Conservation Director, The Freshwater Trust</p> <p><b>Susan Preston</b>, Senior Policy Analyst, Government of Canada</p> <p><b>Murray Hitzman</b>, Associate Director for Energy and Minerals, U.S. Geological Survey</p> <p><b>Lydia Olander</b>, Director, Ecosystem Services Program, Nicholas Institute for Environmental Policy Solutions, Duke University</p> <p><b>Plenary Description</b></p> <p>The closing session at ACES 2016 will provide a synthesis of conference findings, lessons learned, and next steps. Panelists were chosen to provide a diversity of perspectives by including a mix of seasoned ecosystem service experts with those newer to the field to provide a unique angle. Panelists will discuss opportunities, needs, and challenges for advances in ecosystem service implementation.</p>
	<p><b>Conference Concludes</b></p> <p><b>Post-Conference Field Trip</b></p>
12:00pm-1:00pm	<p><b>Last Call - Poster, Display, and Exhibit Removal</b></p>

# POSTER & EXHIBIT LOCATORS

## TOPICAL POSTER LOCATOR

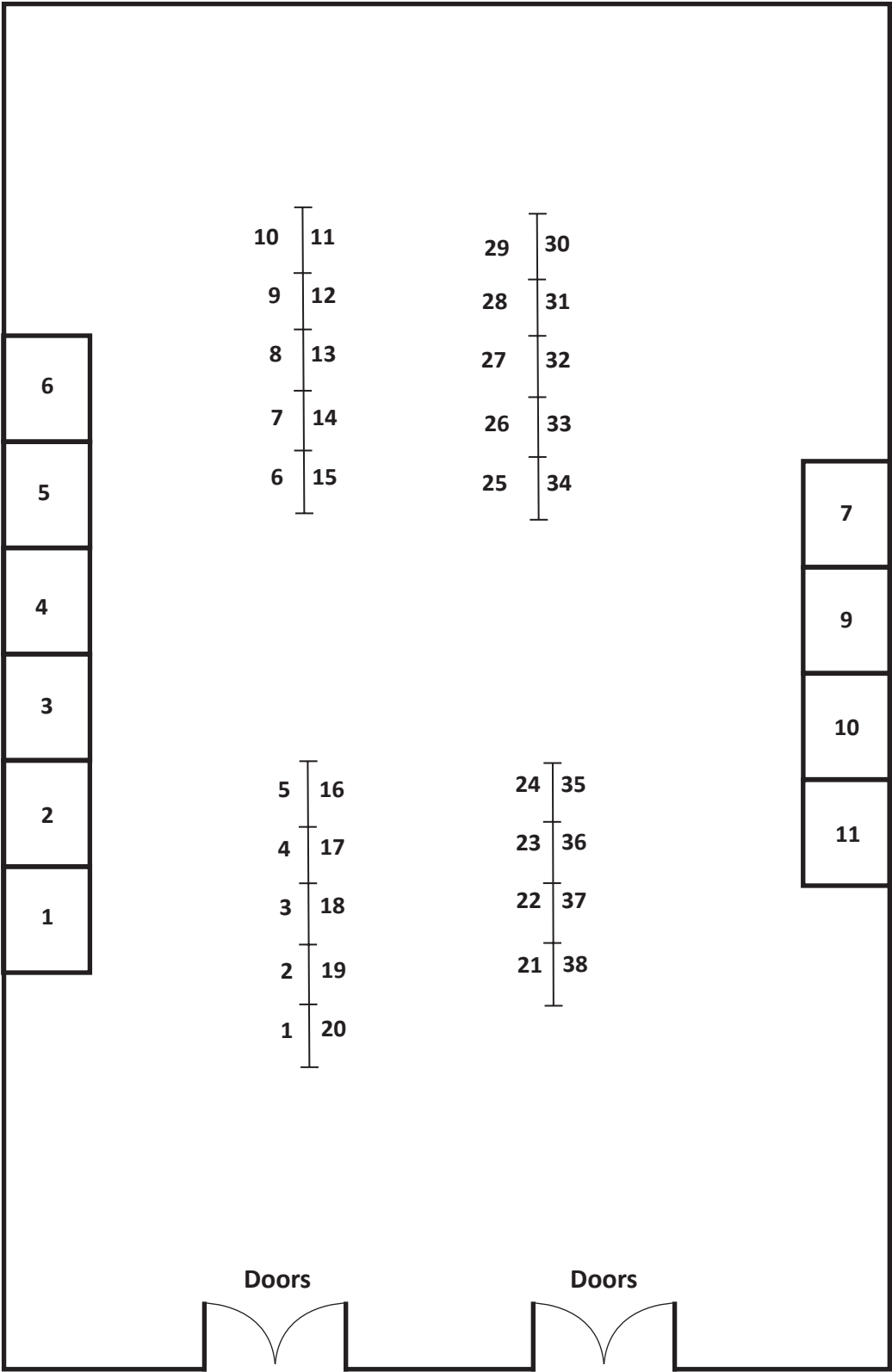
Presentation Theme	Poster Number
Ad Hoc Meeting Room Sign Up and Announcements	1
Sustainability and Ecosystem Services	2-7
Stakeholder Engagement	8-10
Ecosystem Services and Human Health	11-12
Agriculture and Ecosystem Services	13-20
Valuation	21-24
Implementation Practice and Policy	25-32
Urban Ecosystems and Services	33-34
Quantification, Modeling and Mapping	35-38

## EXHIBIT BOOTH LOCATOR

*Thank You to Our Conference Exhibitors!*

Organization	Booth
U.S. Geological Survey	1
Ecosystem Services and Biodiversity Network	2
U.S. Environmental Protection Agency	3
EcoMetrix Solutions Group / ESII Tool	4
U.S. Fish and Wildlife Service	5
Electric Power Research Institute (EPRI)	6
ACES Oceania Ecosystem Services Forum	7
U.S. Forest Service	9
Ramboll Environ	10
U.S. Department of Agriculture	11

# POSTER & EXHIBIT ROOM DIAGRAM



# POSTER DISPLAY INFORMATION

Poster presentations play a key role in the success of ACES. Much time will be dedicated to viewing posters, allowing scientists, policy makers, planners, practitioners and managers to interact and use these opportunities to share details of their work, successes and lessons learned.

Early morning, mid-day and afternoon refreshments will be served in the poster and exhibit room each day, as well as the formal poster reception on Thursday. (See details below)

SET-UP:	Sunday, December 4th, 5:00pm-7:00pm, or any time after 7:30am on Monday, December 5th. Boards may be set-up upon arrival any time after this, but no later than Wednesday, December 7th.
LOCATION:	Hyatt Regency Jacksonville Riverfront, Grand Ballroom 5
POSTER RECEPTION:	Thursday, December 8th, 5:30pm-7:30pm (Presenters to be stationed at posters from 6:30pm-7:30pm)
REMOVAL:	Friday, December 9th, 7:30am-1:00pm

*This is the primary opportunity for attendees to meet with you personally and ask questions about your work, so please be available at your poster during the appointed time.*

- Poster display boards will be dismantled and removed by the vendor on Friday afternoon, so please remove your poster during the assigned time.
- Conference organizers are not responsible for lost or damaged posters removed by the display board vendor. **Posters not removed and left behind will be discarded.**

# POSTER DIRECTORY

(Presenters listed in alphabetical order by last name)

Poster #	First Name	Last Name	Organization	City	State/ Province	Country	Abstract Title
12	Atilola	Abidemi-Iromini	The Federal University of Technology, Akure (FUTA)	Akure		Nigeria	HEALTH ASSESSMENT OF CHRYSICHTHYS NIGRODIGITATUS IN LAGOS LAGOON, NIGERIA
14	Christopher	Andrews	Dalhousie University	Truro	NS	Canada	THE EFFECT OF LANDSCAPE CHARACTERISTICS AND ATTRIBUTES ON THE DEVELOPMENT OF BUMBLE BEE COLONIES (BOMBUS IMPATIENS) IN LOWBUSH BLUEBERRY (VACCINIUM ANGUSTIFOLIUM) FIELDS ON PRINCE EDWARD ISLAND
32	Brittany	Blomberg	Dauphin Island Sea Lab	Dauphin Island	AL	United States	LIVING SHORELINES: SYNTHESIZING RESULTS OF A DECADE OF IMPLEMENTATION IN COASTAL ALABAMA
19	Katherine	Brownson	University of Georgia	Athens	GA	United States	SYNERGIZING SOCIAL JUSTICE AND AGRICULTURAL SUSTAINABILITY OBJECTIVES IN THE IMPLEMENTATION OF THE ENVIRONMENTAL QUALITY INCENTIVES PROGRAM IN THE FLINT RIVER BASIN, GEORGIA
8	Khun	Bunnath	Community Support Organization (ICSO)	Phnom Penh		Cambodia	COMMUNITY FORESTRY IN CAMBODIA
2	Timothy	Canfield	US Environmental Protection Agency	Ada	OK	United States	COMPARATIVE COMMUNITY CASE STUDIES AS RESEARCH TOOLS: A NATIONAL EFFORT TO SUPPORT LOCAL SUSTAINABILITY PLANNING
24	Nekane	Castillo Eguskitza	UPV/EHU - UNESCO Chair on Sustainable Development and Environmental Education	Leioa		Spain	INTEGRATING BIOPHYSICAL AND ECONOMIC VALUATION OF ECOSYSTEM SERVICES FOR THE CONSERVATION OF A BIOSPHERE RESERVE (THE BASQUE COUNTRY, SPAIN)
11	Rebeca	de Jesus Crespo	US Environmental Protection Agency	Gulf Breeze	FL	United States	ECO-HEALTH LINKAGES: EVIDENCE BASE AND SOCIO-ECONOMIC CONSIDERATIONS FOR LINKING ECOSYSTEM GOODS AND SERVICES TO HUMAN HEALTH
38	Theodore	DeWitt	US Environmental Protection Agency	Newport	OR	United States	ESTIMATING THE DISTRIBUTION OF HARVESTED ESTUARINE BIVALVES WITH NATURAL HISTORY-BASED HABITAT SUITABILITY MODELS
35	Matthew	Espie	Government of the District of Columbia	Washington	DC	United States	LEVERAGING THE STORMWATER DATABASE TO IMPLEMENT AND REPORT ON THE DISTRICT OF COLUMBIA'S STORMWATER PROGRAMS
21	Kim	Gazenski	University of Maryland Center for Environmental Science	Solomons	MD	United States	USING SCARCITY DATA TO VALUE ECOSYSTEM SERVICES: ASSESSMENT OF CURRENTLY AVAILABLE RESOURCES



Poster #	First Name	Last Name	Organization	City	State/ Province	Country	Abstract Title
20	Yingxin	Gu	ASRC InuTeq, USGS EROS	Sioux Falls	SD	United States	MAPPING MARGINAL CROPLANDS SUITABLE FOR BIOFUEL CROP DEVELOPMENT
22	Kristin	Hoelting	Colorado State University	Fort Collins	CO	United States	A METHODOLOGICAL FRAMEWORK FOR INTEGRATING CULTURAL ECOSYSTEM SERVICES IN FEDERAL ECOLOGICAL RESTORATION PLANNING
5	Marc	Hudson	North Florida Land Trust	Jacksonville	FL	United States	USING ECOSYSTEM SERVICES TO JUSTIFY LAND CONSERVATION
27	Chloe	Jackson	US Environmental Protection Agency	Gulf Breeze	FL	United States	STRATEGIC COMMUNICATION AND ITS UTILITY IN ECOSYSTEM SERVICES SCIENCE
34	Christie	Klimas	DePaul University	Chicago	IL	United States	VALUING ECOSYSTEM SERVICES AND DISSERVICES ACROSS HETEROGENEOUS URBAN GREEN SPACES
9	Linda	Kruger	USDA	Juneau	AK	United States	CHANGING COASTAL GEOMORPHOLOGY AND VULNERABILITY OF SUBSISTENCE FOODS
10	Lisa	LaCivita	George Mason University	Stephens City	VA	United States	COUNTY-WIDE AMPHIBIAN MONITORING FOR WATERSHED CONDITION & PUBLIC ENGAGEMENT
3	Chanda	Littles	ORISE at US Environmental Protection Agency	Newport	OR	United States	PROVISIONING ECOSYSTEM SERVICES AND CLIMATE CHANGE: A CASE STUDY USING GULF OF MEXICO BROWN SHRIMP, FARFANTEPENAEUS AZTECUS
30	Rebecca	Love	The Baldwin Group at NOAA's Office for Coastal Management	Charleston	SC	United States	TOWARD AN ECOSYSTEM SERVICES APPROACH TO COASTAL MANAGEMENT
17	Kristie	Maczko	Sustainable Rangelands Roundtable - University of Wyoming	Fort Collins	CO	United States	ECOSYSTEM GOODS AND SERVICES PROVIDED BY RANCHERS
18	Jerome	Maleski	USDA - ARS Southeast Watershed Research Lab	Tifton	GA	United States	CARBON EXCHANGE AND WATER USE EFFICIENCY FOR MISCANTHUS IN THE SOUTHEAST UNITED STATES
28	Lawrence	Martin	US Environmental Protection Agency	Washington	DC	United States	ECOSYSTEM SERVICES AS ASSESSMENT ENDPOINTS IN ECOLOGICAL RISK ASSESSMENT

Poster #	First Name	Last Name	Organization	City	State/ Province	Country	Abstract Title
31	Jeremy	Menkhaus	Yale School of Forestry & Environmental Studies and Yale School of Management	New Haven	CT	United States	CARBON-NEUTRAL PORTFOLIO SOLUTIONS VIA CARBON OFFSETS: TURNING THE PUBLIC EQUITY ASSET CLASS INTO AN IMPACT ASSET
6	Louis	Mills	Texas Tech University	Lubbock	TX	United States	A REGIONAL LANDSCAPE SUSTAINABILITY MODEL – A WEST TEXAS APPROACH”
7	Sujith	P S	Ambedkar University	New Delhi		India	RUBBER AGROFORESTRY: ECOSYSTEM SERVICE, LIVELIHOOD DEPENDENCE & SUSTAINABILITY A CASE STUDY OF PANAMKARA REGION IN KERALA
33	Stephanie	Panlasigui	US Environmental Protection Agency	Research Triangle Park	NC	United States	USING US EPA'S ENVIROATLAS TO IDENTIFY LOCATIONS FOR URBAN HEAT ISLAND ABATEMENT
4	Colin	Phifer	Michigan Technological University	Eugene	OR	United States	IMPACT OF AFFORESTED EUCALYPTUS PLANTATIONS ON ECOSYSTEM SERVICES IN ENTRE RÍOS, ARGENTINA
37	Yiyuan Jasmine	Qin	World Resources Institute	Washington	DC	United States	GLOBAL FOREST WATCH WATER: EXPLORE THE CONNECTIONS BETWEEN FOREST AND WATER
26	Charles	Rhodes	US Environmental Protection Agency	Washington	DC	United States	IMPROVING CORPORATE PERFORMANCE WITH FINAL ECOSYSTEM SERVICES
36	Rebecca	Runting	The University of Queensland	Brisbane	QLD	Australia	REDUCING RISK IN RESERVE DESIGN FOR COASTAL ECOSYSTEM SERVICES UNDER SEA LEVEL RISE
15	Sabina	Shaikh	University of Chicago	Chicago	IL	United States	RURAL LIVELIHOODS IN CAMBODIA: THE EFFECTS OF FINANCIAL CREDIT AVAILABILITY, MARKET REMOTENESS AND NATURAL RESOURCE ACCESSIBILITY
13	Carl	Taylor	College of Charleston	Charleston	SC	United States	HOLISTIC GROWTH: STRATEGICALLY EXPANDING THE STUDENT GARDEN BY PAIRING STAKEHOLDER NEEDS WITH LANDSCAPE SUITABILITY
25	Kate	Thompson	Dalhousie University	Halifax		Canada	ECOSYSTEM SERVICES: A NEW FRAMEWORK FOR OLD IDEAS?
29	Kristen	Vitro	University of North Carolina	Chapel Hill	NC	United States	PLANNING FOR CLIMATE CHANGE ADAPTATION: THE ROLE OF ECOSYSTEM SERVICES IN COASTAL LAND MANAGEMENT AND POLICY DECISIONS
16	Eunice	Yarney	University of Florida	Gainesville	FL	United States	SOIL SALINITY UNDER SEEPAGE IRRIGATION AND IRRIGATION DRAINAGE TILE SYSTEMS IN NORTHEAST FLORIDA
23	James	Yoo	California Baptist University	Riverside	CA	United States	OPEN SPACE PREMIUM NEAR COMMERCIAL ZONES – A CASE STUDY IN THE CITY OF CORONA, CALIFORNIA

# ADDITIONAL INFORMATION

## Internet Access

Complimentary wireless internet access will be available in ACES attendee guest rooms, the meeting space, hotel lobby, and public & lounge areas. Please see instructions below for Wi-Fi access in the meeting space and consult the front desk for guest room access.

1. Connect to the network “Hyatt Meeting”
2. Wait a few seconds and then open your internet browser
3. You will be directed to the Encore splash page where you will enter: **Username: ACES2016 Password: ACES2016**

## Ad-Hoc Meeting Space for Impromptu Meetings

Meeting spaces available for sign-up on a first-come, first-served basis via sign-up sheets on the conference message board in Grand Ballroom 5. Please note that each room is set for a maximum of 22-23 people, and no AV equipment will be provided. Ad-hoc meeting rooms are City Terrace 5, 6 & 8, located on the 3rd floor.

## Name Badge

Your name badge will serve as your pass while attending ACES 2016, so please be sure to wear it while attending all conference functions. If arriving Sunday, you should pick up your name badge and materials that evening to avoid the Monday and Tuesday morning rush. The Conference Registration Desk will open at 5:00pm Sunday, December 4th on the second floor escalator landing of the Hyatt Regency Jacksonville Riverfront. Please be sure to register all guests and pay the applicable registration fees. Guests must also wear their name badges for entry into the Monday Networking Social and the Thursday Poster Session & Networking Reception.

## Lost & Found

When an article is lost, please first check the conference registration area. If the lost article(s) cannot be found, check with the Hyatt Regency Jacksonville Riverfront front desk.

# AREA INFORMATION

Jacksonville Area: Should you have questions about the area, please speak with the hotel concierge desk, or visit [www.visitjacksonville.com](http://www.visitjacksonville.com).

## Transportation

Host Hotel Shuttle: During your stay, take the Hyatt Regency Jacksonville Riverfront’s complimentary shuttle service within a 2-mile radius of the hotel. The shuttle is available on a first-come, first-served basis from 6am-10am and 5pm-9pm daily. Shuttle drivers will give passengers a card with a phone number to call for return transportation. Please speak with a bellman at the front drive of the hotel to use this service.

## Water Taxi

St. Johns River Taxi provides transportation to points on both sides of the St. Johns River in the heart of downtown. ACES attendees can board the taxi at The Jacksonville Landing, just steps from the host hotel. We recommend taking a nighttime water taxi ride for a breathtaking view of the Jacksonville skyline by boat! Visit <http://www.jaxrivertaxi.com> for hours, fares, routes, and a map of stop locations.

## Rental Car

Enterprise is pleased to offer ACES Conference participants discounted rental car rates prior to, during, and after the conference. To take advantage of these reduced rates, simply make your reservation through the link on the conference website, or make your reservation by phone (1-800-RENT-A-CAR) and reference account #L430984 to receive the discounted rate.

## Gator Taxi

Pickup locations are available at the airport; to make a reservation, call 904-741-0008.

## Taxi Stand

There is a taxi stand outside of the Hyatt Regency Jacksonville Riverfront where you can arrange taxi service.

## GoAirport Shuttle

Estimated GoAirport Shuttle fare for a shared van is \$26 USD one-way. Visit <http://goairportshuttle.com> for more information and to book a shuttle.

## SuperShuttle

To make a reservation, call 1-800-BlueVan (1-800-258-3826) or visit [www.supershuttle.com](http://www.supershuttle.com).

## ShuttleWizard

To make a reservation and receive \$4 off, visit <http://shuttlewizard.com> and use the code UF4, or call 310-626-0067 and mention the discount code.

# AREA ATTRACTIONS

## Museum of Contemporary Art (MOCA)

MOCA Jacksonville is located in the heart of downtown across from Hemming Park and is open six days a week, including Thursday evenings. Parking is easy with many metered spots within a few blocks or a garage across the street.

333 North Laura Street Jacksonville, FL, 32202  
904-366-6911  
[mocajacksonville.unf.edu](http://mocajacksonville.unf.edu)

**Hours:** Monday: Closed  
Tuesday, Wednesday, Friday, Saturday: 11:00am-5:00pm  
Thursday: 11:00am-9:00pm  
Sunday: 12:00pm-5:00pm

## Museum of Science & History (MOSH)

A visit to the Museum of Science & History offers something for everybody! MOSH features interactive, award-winning exhibitions such as The Currents of Time and Atlantic Tails. One of the Museum's most popular exhibits is the Florida Naturalist's Center, which houses animals native to Northeast Florida. Daily science shows, live animal shows and planetarium programs combine to ensure there is always something to stimulate the mind and awaken the imagination.

1025 Museum Circle Jacksonville, FL, 32207  
904-396-MOSH  
[www.themosh.org](http://www.themosh.org)

**Hours:** Monday-Thursday: 10:00am-5:00pm  
Friday: 10:00am-8:00pm  
Saturday: 10:00am-6:00pm  
Sunday: 12:00pm-5:00pm

## Sweet Pete's

One of the largest candy shops in the United States, Sweet Pete's in Jacksonville is located in the historic Seminole Club, a building that dates back to 1903, having hosted a number of well-known visitors such as Presidents Teddy Roosevelt, Dwight Eisenhower and John F. Kennedy. This new confectionery emporium is a vast 23,000 sq. ft. and boasts a fully functioning factory with an interactive gallery, two large retail areas, a full restaurant and bar, rooftop patio and dessert bar. Sweet Pete's is run by a group of naturally fun people who are committed to creating the Sweetest Destination on Earth.

400 N Hogan St Jacksonville, FL, 32202  
904-376-7161  
[www.sweetpetescandy.com](http://www.sweetpetescandy.com)

**Hours:** Monday: 9:00am-4:00pm  
Tuesday-Thursday: 9:00am-9:00pm  
Friday-Saturday: 9:00am-10:00pm  
Sunday: 10:00am-5:00pm

## Self-Directed Siteseeing:

If you prefer to wander about town, enjoying all that the River City by the Sea has to offer, we recommend renting a bicycle or trying out a river taxi—you won't be sorry!

## Hotel Bike Rentals

\$25 per 24 hours | See Concierge for details and scheduling

## St. Johns River Taxi

<http://www.jaxrivertaxi.com/>  
Adults: \$7.00 Round-Trip

**Hours:** Tuesday, Wednesday, Thursday: 11:00am-9:00pm  
Friday, Saturday: 11:00am-11:00pm  
Sunday: 11:00am-9:00pm

# NEARBY RESTAURANTS

## An Apple a Day

0.4 miles, 8 min walk | Quick-Stop Market/Deli | \$  
The Landing | (904) 353-2024 | Open for lunch and dinner Monday-Saturday. Open for lunch only Sunday.

## Burrito Gallery

0.4 miles, 8 min walk | Mexican | \$  
21 E Adams Street | 904-598-2922 | Open for lunch and dinner. (Closes at 8pm Sunday.)

## Candy Apple Café & Cocktails

0.7 miles, 15 min walk | French & Southern Fusion | \$\$  
400 N Hogan Street | 904-353-9717 | Open for lunch and dinner Tuesday-Saturday. Open for lunch only Sunday-Monday.

## Casa Dora Italian Restaurant

0.3 miles, 6 min walk | Italian | \$  
108 E Forsyth St | (904) 356-8282 | Open for lunch and dinner Monday-Friday. Open for lunch only Saturday. CLOSED Sunday.

## **Chamblin's Uptown Café and Chamblin Bookmine**

0.5 miles, 11 min walk | Café & Coffee/Bookstore | \$  
(904) 374-0870

## **Chomp Chomp**

0.3 miles, 7 min walk | Asian Fusion | \$  
106 E Adams Street | 904-762-4667 | Open for lunch and dinner Thursday-Saturday. Open for lunch only Tuesday-Wednesday. CLOSED Sunday-Monday.

## **Fionn Maccool's Irish Restaurant and Pub**

0.4 miles, 8 min walk | Authentic Irish Pub | \$\$  
The Landing | 904-374-1547 | Open for lunch and dinner. Happy Hour 4-7pm.

## **Indochine**

0.4 miles, 8 min walk | Thai | \$\$  
21 E Adams St | 904-598-5303 | Open for lunch and dinner. CLOSED Sunday.

## **Juliette's Bistro**

0.6 miles, 11 min walk | Bistro | \$\$  
Omni Jacksonville Hotel, 245 Water St | (904) 355-6664 | Open for lunch and dinner.

## **Olio**

0.1 miles, 2 min walk | Bistro-Travel Channel's "Best Sandwich in America:" the Duck Confit Grilled Cheese | \$  
301 E Bay St | 904-356-7100 | Open for lunch and dinner. CLOSED Saturday-Sunday.

## **Pho. A Noodle Bar**

0.5 miles, 11 min walk | Asian Noodle | \$  
117 W Adams St | (904) 353-0320 | Open for lunch and dinner. CLOSED Sunday.

## **The Pink Cupcake**

Dessert | \$  
The Landing | (904) 361-2489

## **River City Brewing Co.**

0.9 miles across the bridge, 18 min walk | Riverfront American Dining | \$\$  
835 Museum Circle | 904-398-2299 | Open for lunch and dinner.

## **Superfood & Brew**

0.3 miles, 7 min walk | Bistro | \$\$  
11 E Forsyth St | 904-723-1180 | Open for lunch and dinner.

## **The Village Bread Café**

0.4 miles, 8 min walk | Deli- \$  
The Landing | (904) 683-7244 | Open 8am to 2pm Monday-Friday. CLOSED Saturday-Sunday.

## NOTES

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