

## CURRICULUM VITAE

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### **Lisa A. Wainger**

*Research Professor*

Chesapeake Biological Lab

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### **EDUCATION**

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**Ph.D.** 1997 Environmental and Ecological Economics (within Marine Estuarine Environmental Sciences), University of Maryland, College Park.

**B.S.** 1986 (with honors, Phi Beta Kappa), Earth Science, University of California, Santa Cruz.

### **PROFESSIONAL BACKGROUND**

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2013-present	<i>Research Professor and Mgr. Spatial Data Analysis Lab</i> , University of Maryland, Center for Environmental Science
2008-2013	<i>Economics Advisor</i> , US EPA, ORD, Ecosystem Services Research Program
2006-2013	<i>Research Associate Professor</i> , Univ. of Maryland, Ctr for Environmental Science
2004-2006	<i>Associate Research Scientist</i> , Univ. of Maryland, Ctr for Environmental Science
1998-2007	<i>Project Manager</i> , King and Associates, Inc. Solomons, MD
1998-2004	<i>Assistant Research Scientist</i> , University of Maryland, Ctr for Environmental Science
1995-1998	<i>Assistant Research Scientist/Project Manager</i> , University of Maryland, Institute for Ecological Economics, Center for Environmental Science

### **RESEARCH**

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#### **AREAS OF PROFESSIONAL EXPERTISE**

- Integrated ecological and economic evaluation of policy/management options
- Ecosystem service trading, mitigation & offsets
- Valuation and mapping of ecosystem services
- Performance-based metrics for environmental restoration targeting
- Invasive species risk assessment
- GIS and spatial data statistical modeling

### **PEER-REVIEW PUBLICATIONS**

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#### **SELECTED PAPERS**

Wainger LA, McMurray A, Johnson K, Paolisso M, Needelman B. (in press). Coastal community values for marsh-dependent socio-ecological services revealed through a systematic qualitative approach. *Agricultural and Resource Economics Review*.

Wainger LA, Secor D, Gurbisz C, Kemp M, Glibert PM, Richkus J, Barber M. 2017. Resilience indicators support valuation of estuarine ecosystem restoration under climate change. *Ecosystem Health and Sustainability*. <http://onlinelibrary.wiley.com/doi/10.1002/ehs2.1268/full>

- Wainger L, Yu H, Gazenski K, Boynton W. 2016. The relative influence of local and regional environmental drivers of algal biomass (chlorophyll-a) varies by estuarine location. *Estuarine, Coastal and Shelf Science* 178:65–76.
- Nesslage GM, Wainger LA, Harms NE, Cofrancesco AF. 2016. Quantifying the population response of invasive water hyacinth, *Eichhornia crassipes*. *Biological Invasions* 18:2107–2115.
- O’Leary CA, Perry E, Bayard A, Wainger L, Boynton WR. 2016. Linking innovative measurement technologies (ConMon and Dataflow© systems) for high-resolution temporal and spatial dissolved oxygen criteria assessment. *Environmental Monitoring and Assessment* 188:543.
- Richkus J, Wainger LA, Barber MC. 2016. Pathogen reduction co-benefits of nutrient best management practices. *PeerJ* 4:e2713.
- Johnston, R. and L. Wainger. 2015. Benefit Transfer for Ecosystem Service Valuation: An Introduction to Theory and Methods. Chapter 12 In: *Handbook of Environmental Benefit Transfer* (R. Johnston, J. Rolfe, R. Rosenberger, and R. Brouwer, eds.). Springer.
- Mazzotta, M., L. Wainger, S. Sifleet, J. T. Petty, and B. Rashleigh. 2015. Benefit transfer with limited data: An application to recreational fishing losses from surface mining. *Ecological Economics* 119:384–398.
- Munns, W. R., A. W. Rea, M. J. Mazzotta, L. A. Wainger, and K. Saterson. 2015. Toward a standard lexicon for ecosystem services. *Integrated Environmental Assessment and Management* 11:666–673.
- Costanza, R. K. Chichakly, V. Dale, S. Farber, D. Finnigan, K. Grigg, and 12 co-authors. 2014. Simulation games that integrate research, entertainment, and learning around ecosystem services. *Ecosystem Services* 10:195–201.
- Koch, B. J., C. M. Febria, M. Gevrey, L. A. Wainger, and M. A. Palmer. 2014. Nitrogen Removal by Stormwater Management Structures: A Data Synthesis. *JAWRA Journal of the American Water Resources Association* 50:1594–1607.
- Lookingbill, T. R., E. S. Minor, J. R. Ferrari, N. Bukach & L. A. Wainger. 2014. Using Risk of Reinvasion to Prioritize Invasive Plant Species Management. *Natural Areas Journal*. 34(3):268–281.
- Wainger, L. A., and Shortle, J.S. 2013. Local Innovations in Water Protection: Experiments with Economic Incentives. *Choices: The Magazine of Food, Farm & Resource Issues* 28.
- Wainger, L. A., G. Van Houtven, R. Loomis, J. Messer, R. Beach, and M. Deerhake. 2013. Tradeoffs among Ecosystem Services, Performance Certainty, and Cost-efficiency in Implementation of the Chesapeake Bay Total Maximum Daily Load. *Agricultural and Resource Economics Review* 42:196–224.
- Setterfield, S. A., N. A. Rossiter-Rachor, M. M. Douglas, L. Wainger, A. M. Petty, P. Barrow, I. J. Shepherd, and K. B. Ferdinands. 2013. Adding Fuel to the Fire: The Impacts of Non-Native Grass Invasion on Fire Management at a Regional Scale. *PLoS ONE* 8:e59144.
- Wainger, L. A. 2012. Opportunities for Reducing Total Maximum Daily Load (TMDL) Compliance Costs: Lessons from the Chesapeake Bay. *Environmental Science & Technology* 46:9256–9265.
- Suarez-Rubio, M., T. Lookingbill, and L. Wainger. 2012. Modeling exurban development near Washington, DC, USA: comparison of a pattern-based model and a spatially-explicit econometric model. *Landscape Ecology* 27:1045–1061.
- Tallis, H., S. Lester, M. Ruckelshaus, M. Plummer, K. McLeod, A. Guerry, S. Andelman, M.R Caldwell, M. Conte, S. Copps, D. Fox, R. Fujita, S. D Gaines, G. Gelfenbaum, B. Gold, P. Kareiva, C. Kim, K. Lee, M. Papenfus, S. Redman, B. Silliman, L. Wainger, C. White. 2012. New Metrics for Managing and Sustaining the Ocean's Bounty. *Marine Policy* 36:303-306.
- Wainger, L., and M. Mazzotta. 2011. Realizing the Potential of Ecosystem Services: A Framework for Relating Ecological Changes to Economic Benefits. *Environmental Management* 48:710-733.

## PEER-REVIEWED TECHNICAL REPORTS

- Wainger, L. A., A. McMurray, H. R. Griscom, E. O. Murray, J. A. Cushing, C. Theiling and S. Komlos. (in press). *A Proposed Ecosystem Services Analysis Framework for the US Army Corps of Engineers*. USACE ERDC Technical Report.
- Murray, E. O., G. F. Mendoza, L. Wainger, H. Griscom, and J. Cushing. (in press). *Ecosystem Goods and Services (EGS) Models and Tools: A Synthesis Report of information in the EGS Model and Tools Catalog*. US Army Corps of Engineers, Engineer Research and Development Center.
- Wainger, L., and D. Ervin. 2017. *Synthesis Chapter-The Valuation of Ecosystem Services from Farms and Forests: Informing a Systematic Approach to Quantifying Benefits of Conservation Programs*. The Council on Food, Agriculture & Resource Economics and USDA Office of Ecosystem Markets. <http://www.cfare.org/UserFiles/file/SynthesisChapter-TheValuationofEcosystemServicesfromFarmsandForests.pdf>.
- Wainger, L., J. Loomis, R.J. Johnston, L. Hansen, D. Carlisle, D. Lawrence, N. Gollehon, et al. 2017. *Chapter 2: Ecosystem Service Benefits Generated by Improved Water Quality from Conservation Practices*. Washington, DC: The Council on Food, Agriculture & Resource Economics and USDA Office of Ecosystem Markets. <http://www.cfare.org/UserFiles/file/Chapter2-EcosystemServiceBenefitsGeneratedbyImprovedWaterQualityfromConservationPractices.pdf>.
- Olander, Lydia, Robert J. Johnston, Heather Tallis, Jimmy Kagan, Lynn Maguire, Steve Polasky, Dean Urban, James Boyd, Lisa Wainger, and Margaret Palmer. 2015. *Best Practices for Integrating Ecosystem Services into Federal Decision Making*. Durham: National Ecosystem Services Partnership, Duke University. doi:10.13016/M2CH07.
- Wainger, L. A., and C. Magen. 2015. *EnviroAtlas Use Case: Opportunities for improving water quality and related ecosystem services from cost-effective targeting of manure transportation subsidies*. For US EPA Office of Research and Development. <http://www.epa.gov/enviroatlas/enviroatlas-use-cases>.
- Wainger, L. A., R. J. Johnston, K. J. Bagstad, C. F. Casey, and T. Vegh. 2014. *Social Impact Analysis: Monetary Valuation*. In: *The Federal Resource Management and Ecosystem Services Guidebook* (Olander, L. et al. eds.). National Ecosystem Services Partnership, Nicholas School of the Environment, Duke University. <https://nespguidebook.com/assessment-framework/monetary-valuation/>.
- Olander, L. et al. 2015. *The Federal Resource Management and Ecosystem Services Guidebook*. (revised in 2015). <https://nespguidebook.com>
- Ribaudo, M., C. Abdalla, K. Stephenson, and L. Wainger. 2014. *Critical Issues in Implementing Nutrient Trading Programs in the Chesapeake Bay Watershed*. STAC Workshop Report. Chesapeake Research Consortium, Annapolis, MD.
- Murray, E., J. Cushing, L. Wainger, and D. Tazik. 2013. *Incorporating Ecosystem Goods and Services in Environmental Planning – Definitions, Classification and Operational Approaches*. Technical Note, USACE ERDC.
- Tazik, D., E. Murray, J. Cushing, and L. Wainger. 2013. *Incorporating Ecosystem Goods and Services in Environmental Planning: A Literature Review of Definitions, Classification and Operational Approaches*. Technical Report, USACE ERDC.
- Wainger, L.A., T. Lookingbill, and E. Minor. 2012. *To Weed or Not to Weed? An Economic Decision Support Tool for National Capital Region Parks*. Prepared for: National Park Service, Center for Urban Ecology. Cooperative agreement #: NPS: H399060006, UMCES 075-25595.
- Wainger, Lisa A., Jay J. Messer, Mary C. Barber, Robert M. Wolcott and Andrew L. Almeter. 2012. *Lowering Barriers to Achieving Multiple Environmental Goals in the Chesapeake Bay*. U.S. Environmental Protection Agency (US EPA) Ecosystem Services Research Program (ESRP). <https://www.epa.gov/eco-research/ecosystem-services>
- Paolisso, M., E. Van Dolah, T.W. Hartley, L.A. Wainger, J. Pease, D. Lipton, S. Julius. 2011. *Integrating Social Science Research into Chesapeake Bay Restoration* (CRC# STAC 11-05).

## OTHER PRODUCTS

EcoScarcity Database. Data and tools relevant to assessing the scarcity of ecosystem goods and services that are derived from biodiversity and high quality habitat  
<http://waingerlab.cbl.umces.edu/ecoscarcity/>

## OUTREACH AND SERVICE

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### FEDERAL/STATE/LOCAL GOVERNMENT AND NON-GOVERNMENTAL ORGANIZATIONS

**Chesapeake Bay Program Scientific and Technical Advisory Committee (STAC), 2007 – present**

Chair as of September 2015

Water Quality Trading subcommittee

Social Sciences Subcommittee

**Council on Food, Agricultural and Resource Economics (C-FARE), 2015-present**

Invited Co-Lead Editor of multi-investigator program that produced a report on: Valuation of ecosystem services that are enhanced by USDA programs.

**BayStat Program Scientific Advisory Panel, 2015-present.**

**Delmarva Land & Litter Steering Committee, 2015 - present.**

**Hughes Center for Agro-Ecology Research Advisory Committee, 2015 - present.**

**Maryland Water Quality Trading Advisory Committee, 2016 - present.**

**National Ecosystem Services Partnership – FRMES, 2012-2016.** Co-organizer of economics section, in collaboration with faculty from Duke Nicholas School of the Environment. Developing technical guidance for federal agencies to use in decision-making related to ecosystem services.

**White House Council on Environmental Quality.**

Ecosystem Services in NEPA. Invited Presenter. May 12, 2016

Interagency Guidelines on Ecosystem Services. Invited Presenter. November 12, 2013.

Principles and Guidelines Roundtable on Systems, Watershed, and Ecosystem Approaches in Project Planning. Invited Reviewer. October 27, 2010.

**USACE Civil Works R&D Steering Committee.** Discussant on research and development methods. August 27, 2013.

**US EPA Sustainable and Healthy Communities Research Program.** Economics Advisor (2012-13).

**Incorporating Ecosystem Services to Improve Urban Planning and Policy: Legal, Policy, and Governance Questions.** Invited participant. Duke Nicholas School and National Academies Keck Futures Initiative. December 12-13, 2013.

### PUBLIC SERVICE

**St. Mary's County Recreation and Parks Citizen's Advisory Board, 2006-2015.** (President 2010-12)