

# JESSICA A. GEPHART

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National Socio-Environmental Synthesis Center  
1 Park Place, Suite 300  
Annapolis, MD 21401

jgephart@sesync.org  
(410) 919-9136  
jessicagephart.com

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## EDUCATION

- 2011–2016 **University of Virginia, Charlottesville, Virginia**  
Ph.D. Environmental Sciences
- 2007–2011 **Miami University, Oxford, Ohio**  
B.A. Zoology, Environmental Science Co-major  
Mathematics Minor, Statistics Minor
- 2009 **University of Ghana, Legon, Ghana**  
Council on International Educational Exchange

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## RESEARCH APPOINTMENTS

- 2017– pres. Visiting Scientist, Harvard T.H. Chan School of Public Health
- 2016– pres. Postdoctoral Fellow, National Socio-Environmental Synthesis Center (SESYNC)
- 2015–2016 NSF Graduate Research Opportunities Worldwide Fellow, Stockholm Resilience Centre
- 2014 Young Scientists Summer Program Fellow, International Institute of Applied Systems Analysis
- 2013–2016 NSF Graduate Research Fellow, University of Virginia

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## REFEREED JOURNAL ARTICLES

20. D’Odorico, P., Davis, K.F., Rosa, L., Carr, J.A., Chiarelli, D., Dell’Angelo, J., **Gephart, J.A.**, MacDonald, G., Seekell, D.A., Suweis, S. and Rulli, M.C. (2018) The Food-Energy- Water nexus. *Reviews of Geophysics*, doi: 10.1029/2017RG000591.
19. Golden, C.D., Seto, K.L., Dey, M.M., Chen, O.L., **Gephart, J.A.**, Myers, S.S., Smith, M., Vaitla, B. and Allison, E.H., 2017. Does aquaculture support the needs of nutritionally vulnerable nations?. *Frontiers in Marine Science*, 4, p.159.
18. D’Odorico, P., Natyzak, J.L., Castner, E.A., Davis, K.F., Emery, K.A., **Gephart, J.A.**, Leach, A.M., Pace, M.L. and Galloway, J.N., 2017. Ancient water supports today's energy needs. *Earth's Future*, 5(5), pp.515-519.
17. **Gephart, J.A.**, Troell, M., Henriksson, P.J., Beveridge, M.C., Verdegem, M., Metian, M., Mateos, L.D. and Deutsch, L., 2017. The “seafood gap” in the food-water nexus literature – issues surrounding freshwater use in seafood production chains. *Advances in Water Resources*, 110, pp.505-514.
16. Seekell, D., Carr, J., Dell’Angelo, J., D’Odorico, P., Fader, M., **Gephart, J.A.**, Kummu, M., Magliocca, N., Porkka, M., Puma, M. and Ratajczak, Z., 2017. Resilience in the global food system. *Environmental Research Letters*, 12(2), p.025010.

15. **Gephart, J.A.**, Deutsch, L., Pace, M.L., Troell, M. and Seekell, D.A., 2017. Shocks to fish production: Identification, trends, and consequences. *Global environmental change*, 42, pp.24-32.
  14. Marchand, P., Carr, J.A., Dell'Angelo, J., Fader, M., **Gephart, J.A.**, Kummu, M., Magliocca, N.R., Porkka, M., Puma, M.J., Ratajczak, Z. and Rulli, M.C., 2016. Reserves and trade jointly determine exposure to food supply shocks. *Environmental Research Letters*, 11(9), p.095009.
  13. Pace, M.L. and **Gephart, J.A.**, 2017. Trade: a driver of present and future ecosystems. *Ecosystems*, 20(1), pp.44-53.
  12. **Gephart, J.A.**, Davis, K.F., Emery, K.A., Leach, A.M., Galloway, J.N. and Pace, M.L., 2016. The environmental cost of subsistence: optimizing diets to minimize footprints. *Science of the Total Environment*, 553, pp.120-127.
  11. Davis, K.F., **Gephart, J.A.**, Emery, K.A., Leach, A.M., Galloway, J.N. and D'Odorico, P., 2016. Meeting future food demand with current agricultural resources. *Global Environmental Change*, 39, pp.125-132.
  10. **Gephart, J.A.**, Rovenskaya, E., Dieckmann, U., Pace, M.L. and Brännström, Å., 2016. Vulnerability to shocks in the global seafood trade network. *Environmental Research Letters*, 11(3), p.035008.
- Featured in Environmental Research Letters 'Highlights of 2016' collection**
9. Fader, M., Rulli, M.C., Carr, J., Dell'Angelo, J., D'Odorico, P., **Gephart, J.A.**, Kummu, M., Magliocca, N., Porkka, M., Prell, C. and Puma, M.J., 2016. Past and present biophysical redundancy of countries as a buffer to changes in food supply. *Environmental Research Letters*, 11(5), p.055008.
  8. Leach, A.M., Emery, K.A., **Gephart, J.A.**, Davis, K.F., Erisman, J.W., Leip, A., Pace, M.L., D'Odorico, P., Carr, J., Noll, L.C. and Castner, E., 2016. Environmental impact food labels combining carbon, nitrogen, and water footprints. *Food Policy*, 61, pp.213-223.
  7. Davis, K.F., **Gephart, J.A.** and Gunda, T., 2016. Sustaining food self-sufficiency of a nation: The case of Sri Lankan rice production and related water and fertilizer demands. *Ambio*, 45(3), pp.302-312.
  6. **Gephart, J.A.** and Pace, M.L., 2015. Structure and evolution of the global seafood trade network. *Environmental Research Letters*, 10(12), p.125014.
  5. Strayer, D.L., Cole, J.J., Findlay, S.E., Fischer, D.T., **Gephart, J.A.**, Malcom, H.M., Pace, M.L. and Rosi-Marshall, E.J., 2014. Decadal-scale change in a large-river ecosystem. *BioScience*, 64(6), pp.496-510.
  4. **Gephart, J.A.**, Pace, M.L. and D'Odorico, P., 2014. Freshwater savings from marine protein consumption. *Environmental Research Letters*, 9(1), p.014005.
  3. Debaere, P., Richter, B.D., Davis, K.F., Duvall, M.S., **Gephart, J.A.**, O'Bannon, C.E., Pelnik, C., Powell, E.M. and Smith, T.W., 2014. Water markets as a response to scarcity. *Water Policy*, 16(4), pp.625-649.
  2. Knoll, L.B., Vanni, M.J., Renwick, W.H., Dittman, E.K. and **Gephart, J.A.**, 2013. Temperate reservoirs are large carbon sinks and small CO<sub>2</sub> sources: Results from high-resolution carbon budgets. *Global Biogeochemical Cycles*, 27(1), pp.52-64.
  1. Vanni, M.J. and **Gephart, J.A.** (2011) Metabolic Ecology: How do body size and temperature affect nutrient cycling rates?. *Teaching Issues and Experiments in Ecology*, 7.

## OTHER PRODUCTS

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- Gephart, JA.** (2018) Global Seafood Trade. In *Encyclopedia of Food Security and Sustainability*. Emery, KA, **JA Gephart**, GM Wilkinson, AF Besterman and ML Pace (2015) Modeling drivers of trophic cascades and food-web alterations in a lake ecosystem. In *Learner-Centered Teaching Activities for Environmental and Sustainability Studies*.

## ACADEMIC AWARDS AND HONORS

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- 2017 Miami University 18 of the last 9 Young Alumni Award  
2016 Jay Zieman Research Publication Award  
2013 University of Virginia Raven Society  
2013 University of Virginia Presidential Poster Competition Finalist  
2011 Miami University Undergraduate Presentation Award  
2010 Miami University Scholar Leader Program  
2009 Koehler Award in Linear Algebra, Miami University

## GRANTS AND FELLOWSHIPS

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- 2018 AAAS Science and Technology Policy Fellowship (Declined)  
2016 SESYNC Postdoctoral Fellowship \$323,000  
2015 NSF Graduate Research Opportunities Worldwide Fellowship \$14,000  
2014 National Academy of Sciences IIASA YSSP Fellowship \$7500  
2014 Center for Global Inquiry and Innovation Grant \$1000  
2013 NSF Graduate Research Fellowship \$132,000  
2013–2015 University of Virginia Science Outreach Grant \$7000  
2013 American Geophysical Union Policy Conference Travel Grant \$500  
2012 Hudson River Foundation Tibor T. Polgar Fellowship \$4800  
2012 NSF Research Coordination Network FORECAST Training Grant \$2000  
2012 UVa Environmental Sciences Exploratory Research Grant \$1500  
2010, 2011 Miami University Parents Fund Research Award \$900  
2009 Benjamin A. Gilman International Scholarship \$5000  
2009 Miami University Undergraduate Summer Scholar Grant \$3000

## INVITED PRESENTATIONS

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- 2018 **Gephart, J.A.**, Golden, C.D. and Vaitla, B. Fisheries and food security under climate change: Scenario analysis for charting plausible futures. Planetary Health Alliance, May 2018.  
2018 **Gephart, JA.** Global seafood trade: distant connectivity between humans and the environment. Seminar, Michigan State University, Apr 2018.  
2018 **Gephart, JA.** Global seafood trade: distant connectivity between humans and the environment. Seminar, North Carolina State University, Mar 2018.

- 2018 **Gephart, JA.** Seafood globalization and the distant impacts of environmental shocks. Seminar, Santa Fe Institute, Feb 2018.
- 2017 **Gephart, JA,** Golden, C.D. and Vaitla, B.. Scenario analysis for understanding the future of fish agri-food systems: integration of nutrition in modelling approaches. WolrdFish Global workshop on nutrition-sensitive fish agri-food systems, Siem Reap, Cambodia, Dec 2017.
- 2017 **Gephart, JA.** Global seafood trade: distant connectivity between humans and the environment. Seminar, Miami University, Oct 2017.
- 2017 **Gephart, JA.** Global seafood trade: distant connectivity between humans and the environment. Seminar, Boise State University, Oct 2017.
- 2017 **Gephart, JA.** Studying ecology and the environment in the age of globalization. Theme Plenary, Resilience Conference, Aug 2017.
- 2017 **Gephart, JA.** Seafood globalization: implications for vulnerability and resilience. Seminar, Stony Brook University School of Marine and Atmospheric Sciences, Feb 2017.
- 2016 **Gephart, JA.** Seafood globalization: implications for vulnerability and resilience. SESYNC, Apr 2016.

#### CONFERENCE PARTICIPATION

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- 2018 **Gephart, J.A.,** Davis, K.F. and Figueroa, A.J. Sustainability Science and Globalized Human-Environment Systems. Organized Session, American Geophysical Union, Dec 2018.
- 2018 **Gephart, JA,** Golden, C.D. and Vaitla, B. Fisheries and food security under climate change: Scenario analysis for charting plausible futures. Lightning Presentation, SESYNC Symposium, Jun 2018
- 2017 Davis, K.F. and **Gephart, J.A.** Linkages, Tradeoffs, and Synergies Between the Global Food System, Society, and the Environment, Organized Session, American Geophysical Union, Dec 2017.
- 2017 **Gephart, JA.** Distant impacts of shocks within the global seafood trade network. Presentation, Resilience Conference, Aug 2017.
- 2015 **Gephart, JA.** Å Brännström, E Rovenskaya, U Diekmann and ML Pace. Evolution of the global seafood trade network and regional vulnerabilities to shocks. Oral Presentation, Ecological Society of America, Aug 2015.
- Featured on PLOS Ecology Community Blog*
- 2014 Seekell, D.A., Dakos, V. and **Gephart, J.A.** Regime shifts in lakes, rivers, and oceans. Association for the Sciences of Limnology and Oceanography, Granada, Spain, Feb 2014.
- 2013 **Gephart, J.A.,** Pace, M.L. and D'Odorico, P. Water savings from marine protein consumption. Oral presentation, Ecological Society of America, Aug 2013.

- 2013 **Gephart, J.A.**, Pace, M.L. and D'Odorico, P. How do fishery losses differentially impact national water footprints?. Poster, American Geophysical Union Policy Conference, Jun 2013.

#### DEPARTMENTAL PRESENTATIONS

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- 2018 **Gephart, J.A.** Local to global consequences of environmental shocks. Seminar, SESYNC, Apr 2018.
- 2017 **Gephart, J.A.** Local to global impacts of shocks to seafood production. Seminar, SESYNC, Apr 2017.
- 2016 **Gephart, J.A.** Shocks to fishery production and trade. Oral presentation, University of Virginia EnviroDay, Jan 2016.  
*Awarded Best Oral Presentation*
- 2015 **Gephart, J.A.** Shocks to fishery production and trade. Seminar, Stockholm Resilience Centre, Dec 2015.
- 2015 **Gephart, J.A.** Evolution and vulnerability of the global seafood trade network. Seminar, University of Virginia Dept. of Environmental Sciences, Oct 2015.
- 2014 **Gephart, J.A.** Impacts of shocks in the global seafood trade network. Stockholm Resilience Centre, Sep 2014.
- 2014 **Gephart, J.A.** Impacts of shocks in the global seafood trade network. IIASA, Aug 2014.

#### TEACHING AND MENTORING

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- 2017-pres. **Guest Lectures**  
Planetary Health, Stanford University, Jun 2018  
Global Food Systems, University of Maryland, Apr 2018  
Marine Ecology Lab, George Washington University, Nov 2017  
Global Food Systems, University of Maryland, Apr 2017
- 2017-2018 **SEYSNC Undergraduate Research Mentor**, SEYSNC
- 2017 **Resources for the Future (RFF) Summer Internship Co-Mentor**, RFF
- 2014-2016 **Tomorrow's Professor Today**, Teaching Resource Center, UVa
- 2014-2016 **UVa Undergraduate Research Mentor**, Dept of Enviro. Sciences, UVa
- 2013-2016 **Training young environmental scientists through research mentoring**  
Established a research program at Charlottesville High School to conduct environmental experiments in the community garden, develop an environmental monitoring system, and produce garden-based science lab activities. More information at [www.communitygardenexperiments.weebly.com](http://www.communitygardenexperiments.weebly.com)
- 2011-2013 **Teaching Assistant**, Department of Environmental Sciences, UVa  
Applied Statistics for Enviro. Science, Spring 2012, 2013  
Forest Ecology and Management, Fall 2012  
Introduction to Environmental Policy, Fall 2011

## PROFESSIONAL MEMBERSHIPS AND SERVICE

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<b>Memberships</b>	American Geophysical Union; American Institute of Biological Sciences; Association for the Sciences of Limnology and Oceanography; CHANS-net: International Network of Research on Coupled Human and Natural Systems; Ecological Society of America
<b>Editorial Boards</b>	Review Editor, <i>Frontiers in Sustainable Food Systems</i>
<b>Journal Reviews</b>	<i>Advances in Water Resources</i> ; <i>Applied Geography</i> ; <i>Aquatic Conservation</i> ; <i>Earth's Future</i> ; <i>Ecological Economics</i> ; <i>Ecological Applications</i> ; <i>Ecology and Society</i> ; <i>Environmental Research Letters</i> ; <i>Fish and Fisheries</i> ; <i>Frontiers in Sustainable Food Systems</i> ; <i>Global Environmental Change</i> ; <i>Nutrition Reviews</i> ; <i>PLOS ONE</i> ; <i>Science of the Total Environment</i> ; <i>Scientific Reports</i>
<b>Review Panels</b>	SESYNC (2017); NSF (2017); NSF (2018)
<b>Working Groups</b>	<p>Co-lead. The use of life cycle analysis (LCA) to improve nutrition sensitive aquaculture. Harvard T.H. Chan School of Public Health and The Nature Conservancy, ongoing.</p> <p>Participant. Environmental impacts of global land and ocean-based food production systems. National Center for Ecological Analysis and Synthesis, ongoing.</p> <p>External Expert. Graduate Pursuit on Cross-scale exploitation patterns and marine population collapse in international seafood markets. SESYNC, ongoing.</p> <p>Participant and facilitator. Cross-Disciplinary Socio-Environmental Statistics in the Anthropocene. SESYNC, ongoing.</p> <p>Participant. Food Waste and The Environment. SESYNC, ongoing.</p> <p>Participant. Fisheries and Food Security. SESYNC, ongoing.</p> <p>Participant. Workshop on improving our knowledge on small-scale fisheries: data needs and methodologies. Food and Agriculture Organization, 2017.</p> <p>Participant. Trade and Food Security. SESYNC, 2014–2016.</p>
<b>Workshops Organized</b>	Environmental economics in socio-environmental research, co-organized with J Maher, SESYNC Immersion Program, Annapolis, MD, February 2017.

## LEADERSHIP AND OUTREACH

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2018– pres. **Oceana Science Advisor (OSA)**

Appointed to the science advisory board to engage in conversations with Oceana staff, consider occasional media requests on fisheries and food security and engage with the OSA. More information at [Oceana.org/Science](http://Oceana.org/Science).

- 2013–2016 **American Institute of Biological Sciences Science Policy Office**  
Coordinated department tour for VA Delegate Toscano (August 2013).  
Attended science policy training workshops and met with Congressional offices to promote funding for ecosystem research (October 2013 and 2014)
- 2012–2016 **Sierra Club, Piedmont Chapter, Virginia**  
As political chair, I communicated with candidates and organized and moderated public candidates' forums on environmental issues for local elections 2013 and 2015 elections
- 2012–2015 **Department of Environmental Sciences Policy Lunch Discussion**  
Initiated and led a bimonthly discussion on science policy issues. The group also met with members of the Virginia General Assembly to discuss environmental policy bills.
- 2012–2014 **Department of Environmental Sciences Graduate Student Association**  
As Treasurer and Outreach Chair I managed a budget of over \$10,000, helped organize two department socials per week, three major annual events, and organized the annual research symposium for January 2014 and 2015