

Adrian R. H. Wiegman

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Curriculum Vitae (December 15, 2018)

Education

- M.S. Louisiana State University (LSU), College of the Coast and Environment, 2017.
Oceanography & Coastal Sciences, co-advisors John W. Day Jr. & Christopher F. D'Elia
- B.S. State University of New York College of Environmental Science & Forestry (SUNY ESF), 2013. Environmental Studies with a focus in Biological Systems, advisor Charles A.S. Hall, & minor in Renewable Energy, advisor Timothy A. Volk. *Magna Cum Laude*

Employment

- 2017 – pres.: Graduate Research Fellow, Gund Institute for Environment, Rubenstein School of Environment and Natural Resources, University of Vermont, Burlington VT USA
- 2015 – 2017: Graduate Research Assistant, Oceanography & Coastal Science, LSU, Baton Rouge LA USA
- 2014 – 2015: Wastewater Treatment Wetland Monitoring (Part Time), Comite Resources, Zachary LA USA
- 2014 – 2015: Research Associate for John Day & Christopher D'Elia, LSU, Baton Rouge LA USA
- 2014: Associate Researcher, Solar Photovoltaic Salesman and Installer, Croton Energy Group, Croton NY USA
- 2013: Field Technician for Willow Biomass Yield Trials, SUNY ESF and University of Illinois Urbana-Champaign, with Timothy Volk and Timothy Wertin, Syracuse NY USA

Areas of Expertise

Wetlands and aquatic ecosystems; phosphorus; wetland restoration; biogeochemistry; nutrient cycling; phosphorus; biophysical economics; systems ecology; ecological engineering

Skills

Computer programming with R, Python, FORTAN, C, Visual Basic; Statistics, data management and visualization with open source modules of Python and R; spatial (GIS) and ecosystem modeling; scientific writing; science communication; transdisciplinary research; quantitative field and laboratory methods; project management

Individual Honors, Awards & Achievements

- 1st Place (\$500) at the 8th Annual Graduate Student Symposium, Louisiana State University College of the Coast and Environment, Baton Rouge LA USA, April 22, 2016

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- Graduate Dean's Travel Award (\$1200) & Graduate Student Travel Award (\$200), LSU, June 2016.
- Department Scholar Award for "most outstanding academic achievement" in Environmental Studies Biological Science Applications focus option, SUNY ESF, 2014.
- USCAA National Semifinalists in 2012 as a member of SUNY ESF Men's Soccer Team

Publications

Refereed Articles:

- R.G. Hunter, J.W. Day, **A.R.H. Wiegman**, and R.R. Lane, (2018). Municipal wastewater treatment costs with an emphasis on assimilation wetlands in the Louisiana coastal zone. *Ecological Engineering*. <https://doi.org/10.1016/j.ecoleng.2018.09.020>
- J.S. Rutherford, J.W. Day, C.F. D'Elia, **A.R.H. Wiegman**, C.S. Willson, R.H. Caffey, G.P. Shaffer, R.L. Lane, D Batker, (2018). Evaluating trade-offs of a large, infrequent sediment diversion for restoration of a forested wetland in the Mississippi delta. *Estuarine, Coastal and Shelf Science*. <https://doi.org/10.1016/j.ecss.2018.01.016>
- C.A.S. Hall, F. Knickmeyer, **A.R.H. Wiegman**, A. Brainard, A.R. Diaz, C. Huynh, J.V. Mead, (2018). A class exercise for systems ecology: synthesis of stream energetics and testing allen's paradox. *Ecological Modeling*. <https://doi.org/10.1016/j.ecolmodel.2017.12.014>
- J.W. Day, C.F. D'Elia, **A.R.H. Wiegman**, J.S. Rutherford, R.R. Lane, D. Dismukes, (2018). The Energy Pillars of Society: Perverse Interactions Among Human Resource Use, the Economy, and Environmental Degradation. *Biophysical Economics and Resource Quality*. <https://doi.org/10.1007/s41247-018-0035-6>
- A.R.H. Wiegman**, J. W. Day, C. F. D'Elia, E.D. Roy, J.S. Rutherford, G.P Kemp, J.T. Morris, R.R. Lane. (2017). The impact of sea-level rise, oil prices, and management strategy on the costs and benefits of sustaining Mississippi Delta marshes with hydraulic dredging. *Science of the Total Environment*. Volume 618, 15 March 2018, Pages 1547-1559. <https://doi.org/10.1016/j.scitotenv.2017.09.314>
- J.W. Day, R.R. Lane, C.F. D'Elia, **A.R.H. Wiegman**, J.S. Rutherford, G.P. Shaffer, C.G. Brantley, G.P. Kemp, (2016). Large infrequently operated river diversions for Mississippi Delta restoration. *Estuarine, Coastal and Shelf Science* Volume 183, p. 292-303. <https://doi.org/10.1016/j.ecss.2016.05.001>

Edited Book Chapters:

- A.R.H. Wiegman**, J.S. Rutherford, J.W. Day, (2018). The Costs and Sustainability of Ongoing Efforts to Restore and Protect Louisiana's Coast. In Mississippi Delta Restoration (pp. 93-111). Springer, Cham. https://doi.org/10.1007/978-3-319-65663-2_7

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J.S. Rutherford, **A.R.H Wiegman**, J.W. Day, R.R. Lane. (2018). Energy and Climate– Global Trends and Their Implications for Delta Restoration. In Mississippi Delta Restoration (pp. 77-92). Springer, Cham. https://doi.org/10.1007/978-3-319-65663-2_6

J.W. Day, R.R. Lane, C.F. D'Elia, **A.R.H. Wiegman**, J.S. Rutherford, G.P. Shaffer, C.G. Brantley, G.P. Kemp. 2018. Large infrequently operated river diversions for Mississippi delta restoration. In Mississippi Delta Restoration (pp. 113-133). Springer, Cham. https://doi.org/10.1007/978-3-319-65663-2_8

Unpublished Work & White Papers

Adrian R. H. Wiegman, John W. Day, Paul Kemp, Sam Bentley, Bei Bei Guo, Chris D'Elia. Megatrends – Dynamic Coast: A white paper summarizing one year of research on the influence of energy and climate megatrends on the future cost of restoring the Mississippi Delta. Small Projects Fund 2014/2015, Coastal Sustainability Studio (CSS) Louisiana State University, December 2015.

John W. Day, and **Adrian R. H. Wiegman**. Knowledge Gap and Research Question 3: Societal-Scale Adaptations to Net Energy Constraints and the Role of Systems Modeling in the Face of Future Challenges. Implications of Net Energy for the Food-Energy-Water Nexus An NSF-funded workshop at Linfield College, McMinnville, OR 14-16 January 2016, Co-PIs: Thomas Love and David Murphy, National Science Foundation, Award Number: 1541988.

Research Projects

Conception, modeling, field and laboratory analysis, writing, coordination:

Eric D. Roy, Jory Hecht, Breck Bowden. Quantifying phosphorus retention in restored riparian wetlands of the Lake Champlain Basin. Granting Agency – Lake Champlain Basin Foundation; Dollars awarded - \$115,780; Project Dates January 1, 2019 – December 31, 2020

John W. Day, Rob Lane, David Batker, Christopher D'Elia, David Dismukes. Expanding Ecosystem Service Provisioning from Coastal Restoration to minimize Environmental and Energy Constraints. Granting Agency - Gulf Research Program; Dollars awarded - \$147,937; Project dates - August 1, 2015 – July 31, 2016 [grant number 2000005991]

Writing & coordination:

John W. Day, Clint Willson, James Wilkins, Craig Colten, Paul Kemp. A New Changing Course – From the Last Naturally Active to a New Naturally Active and Sustainable Mississippi Delta. Granting Agency – LSU Coastal Sustainability Studio; Dollars awarded - \$26,510; Project dates - August 1, 2015 – July 31, 2016 [award number 1512]

Presentations and Posters at Scientific Meetings

Presentations:

Adrian R.H. Wiegman, John W. Day, Christopher F. D'Elia, Eric D. Roy, James T. Morris, Jeffrey S. Rutherford, Robert L. Lane, David E. Dismukes, Brian Snyder.

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Minimizing impacts of 21st century megatrends on marsh creation costs in the Mississippi delta. Coastal and Estuarine Research Federation, Providence RI USA, November 6, 2017.

A.R.H. Wiegman, J.W. Day, C.F. D'Elia, C.A.S. Hall, D.J. Murphy, J.S. Rutherford, R.R. Lane. Long term forecasts for oil prices: a review of oil supply, energy market models, and the range of future trajectories for oil price. International Society for Biophysical Economics and International Society for Ecological Economics, Washington D.C. USA, June 26-28, 2016.

J.W. Day, C. F. D'Elia, C.A.S. Hall, **A.R.H. Wiegman**, J.S. Rutherford, D. E. Dismukes, R. R. Lane. The energy pillars of society and the transition to renewables. International Society for Biophysical Economics and International Society for Ecological Economics, Washington D.C. USA, June 26-28, 2016.

Adrian R.H. Wiegman, J.W. Day, C. F. D'Elia. Uncertainties in Water Level and Mineral Sediment Variability as Drivers of Accretion in Louisiana Coastal Marsh. 8th Annual Graduate Student Symposium, Louisiana State University College of the Coast and Environment, Baton Rouge LA USA, April 22, 2016.

Posters:

Adrian R.H. Wiegman, John W. Day, Christopher F. D'Elia, Eric D. Roy, James T. Morris, Jeffrey S. Rutherford, Robert L. Lane, David E. Dismukes. Modeling impacts of sea-level rise, oil price and management strategy on sustaining Mississippi delta marshes with hydraulic dredging. American Ecological Engineering Society, 17th annual meeting, Ecological Engineering for the Adaptation in the Anthropocene, Athens GA, May 23-25, 2017.

Adrian R. H. Wiegman, John W. Day, G. Paul Kemp, Sam Bentley, Bei Bei Guo, Chris D'Elia. The influence of 21st century megatrends of energy and climate on Mississippi Delta restoration. Coastal and Estuarine Research Federation, Portland OR, November 8-12, 2015.

Adrian R. H. Wiegman and Aayushi Patel. Maximum Power and Profit in a Willow Harvest: Modeling trade offs between rate of fuel use and harvest efficiency in a combine and tractor Salix coppice harvest system. SUNY ESF Spotlight on Student Research, Syracuse NY, April 2013.

Acknowledged Contributions to Publications

For preparing figures & manuscript coordination:

Day, John W., Julius Agboola, Zhongyuan Chen, Christopher D'Elia, Donald L. Forbes, Liviu Giosan, Paul Kemp et al. (2016). "Approaches to defining deltaic sustainability in the 21st century." *Estuarine, Coastal and Shelf Science*

For research, editing, preparing figures & manuscript coordination:

Day, J. W., & Hall, C.A.S. (2016). *America's Most Sustainable Cities and Regions: Surviving the 21st Century Megatrends*. Springer.

For research:

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Heinberg, R. & Frindlay, D. (2016). *Our Renewable Future: Laying the Path for One Hundred Percent Renewable Energy*. Island Press.

Teaching Experience in Higher Education

- Guest Lecture on Life Cycle Assessment, NR 288 – Living Technology and Ecological Design, with Dr. Eric Roy, University of Vermont, Burlington VT, Fall 2017.
- Teaching Assistant, EFB 518 (graduate level) – Systems Ecology, with Dr. Whitney Marshall, SUNY ESF, Syracuse NY USA, Fall 2013.
- Teaching Assistant, EFB 516 (graduate level) – Ecosystems, with Dr. Charles A.S. Hall, SUNY ESF, Syracuse NY USA, Spring 2013.

Affiliations with Scholarly and Professional Societies

- International Society for Biophysical Economics – Student Member (2015-Present)
- International Society for Ecological Economics – Student Member (2015-Present)
- American Ecological Engineering Society – Student Member (2017-Present)
- Coasts, Oceans, Ports, Rivers Institute – Student Member (2015-2017)
- Association of Environmental Studies and Sciences – Student Member (2011-2014)

Professional Meetings and Trainings Attended

- Coastal Science at the Inflection Point: Celebrating Successes & Learning from Challenges, Coastal and Estuarine Research Federation, Providence RI USA, November 6, 2017.
- Managing Residuals in a Complex World, The Northeast Biosolids and Residuals Conference, Burlington VT USA, October 25-27, 2017.
- Introduction to LCA and SimaPro, Long Trail Sustainability, Burlington VT USA, September 27 & 28, 2017
- Transforming the Economy: Sustaining Food, Energy, Water and Justice. International Society for Biophysical Economics and International Society for Ecological Economics, University of the District of Columbia, Washington D.C., June 26-28, 2016.
- Implications of Net Energy for the Food-Energy-Water Nexus. A National Science Foundation funded workshop at Linfield College, McMinnville OR, January 14-16, 2016.
- Grand Challenges in Coastal & Estuarine Science: Securing Our Future. Coastal and Estuarine Research Federation, Portland OR, November 8-12, 2015.
- Welcome to the Anthropocene: From Global Challenge to Planetary Stewardship. Annual Meeting 2014, Association of Environmental Studies and Sciences, Pace University, New York NY, June 11-14, 2014
- Confronting Complexity. Association of Environmental Studies and Sciences, University of Vermont, Burlington VT, June 23-26, 2011
- The Biophysical Economics Conference, Syracuse New York, April 2011