Joseph Stachelek

CONTACT INFORMATION

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EDUCATION

Michigan State University, East Lansing, MI

Ph.D., Fisheries and Wildlife, 2016-Present

- Dissertation Theme: *Landscape Limnology*
- Adviser: Professor Pat Soranno

University of Texas at Austin, Austin, TX

M.S., Marine Science, May 2012

- Thesis: *Freshwater inflows in the Nueces Delta, TX: impacts on porewater salinity and estimation of needs*
- Adviser: Professor Ken Dunton

University of Maine, Orono, ME

B.S., Marine Science, May 2008

- Thesis: *Constructing a guide to the Intertidal Algae of Acadia National Park*
- Adviser: Professor Susan Brawley

PROFESSIONAL EXPERIENCE

South Florida Water Management District, West Palm Beach, FL

Research Scientist **May 2012 to August 2016**

- Supervisor: Fred Sklar
- Member of research team focused on ecological restoration of the Florida Everglades with particular emphasis on the extent to which the Everglades watershed influences downstream estuaries.
- Responsible for translating ecological information and the results of water quality surveys for use in environmental management.
- Developed geospatial water quality models. Prepared reports and other materials for presentations to decision makers.
- Responsible for curating massive environmental databases and developing custom GIS visualization and analysis tools.

REFEREED JOURNAL PUBLICATIONS

[1] **Stachelek, J.**, 2016. [Re] Least-cost modelling on irregular landscape graphs. *ReScience*. 2(1), 1-4.

[2] **Stachelek J.**, Madden, C.J. 2015. Application of Inverse Path Distance Weighting for high density spatial mapping of coastal water quality patterns. *International Journal of Geographical Information Science*.

[3] **Stachelek, J.**, Dunton K.H. 2013. Freshwater inflow requirements for the Nueces Delta, Texas: Spartina alterniflora as an indicator of ecosystem condition. *Texas Water Journal*. 4(2), 62-73.

In-Prep Journal Publications (available upon request)

[1] Nicolas P. Rougier, Konrad Hinsen, <34 alphabetical authors>, **Stachelek J.**, <8 alphabetical authors> (*submitted*) Sustainable computational science: the ReScience initiative. https://arxiv.org/abs/1707.04393

[2] **Stachelek J.**, Ford, C., Kincaid, D., King, K., Miller, H, and Nagelkirk, R.: The National Eutrophication Survey: lake characteristics and historical nutrient concentrations, *Earth Syst. Sci. Data Discuss.*, https://doi.org/10.5194/essd-2017-52, *in review*, 2017.

[3] Soranno P.A., <62 alphabetical authors>, **Stachelek J.**, <15 alphabetical authors>. (*submitted*) LAGOS-NE: A multi-scaled geospatial and temporal database of lake ecological context and water quality for thousands of U.S. lakes. *Gigascience*.

[4] Park, S.R., **Stachelek, J.**, Dunton K.H., (*submitted*) Photosynthesis and drought resilience in three emergent vascular plant species common to marshes of the western Gulf of Mexico. *Estuaries and Coasts*.

[5] **Stachelek J.**, Madden, C.J., Kelly, S.P, Blaha, M. (*submitted*). Fine-scale relationships between phytoplankton abundance and environmental drivers in Florida Bay, USA. *Estuaries and Coasts*.

[6] **Stachelek J.**, Kelly, S.P, Sklar, F., Coronado, C.M., Troxler, T., Bauman, L. (*submitted*). A mesocosm design for simulating sea-level rise associated saltwater intrusion in coastal wetlands.

[7] Hollister J., **Stachelek J.** (*in-prep*) lakemorpho: Calculating lake morphometry metrics in R.

Datasets

[1] **Stachelek J.**, Ford C., Kincaid D., King K., Miller H., Nagelkirk R. 2017. The National Eutrophication Survey: lake characteristics and historical nutrient concentrations. *KNB Data Repository* http://dx.doi.org/10.5063/F10G3H3Z

[2] Madden C, **Stachelek J**, Kelly S, Blaha M. 2017. Florida Bay water quality estimated by underway flow-through measurement. *KNB Data Repository* http://dx.doi.org/10.5063/F11R6NGR

Conference Talks

[1] Kominoski, J, Evelyn Gaiser, Tiffany Troxler, 12 others, **Joe Stachelek**, 20 others (2016). Saltwater intrustion and carbon loss: identifying the biogeochemical attributes that drive differential responses among coastal wetlands. Poster Presentation at the International Long Term Ecological Research Meeting, Kruger National Park, South Africa.

[2] **Stachelek, J.**, Madden, C.J., Kelly, S., Blaha, M. (2016). Fine-scale spatial patterning of phytoplankton abundance in a coastal estuary. Oral Presetentation at the Ecological Society of America Meeting, Fort Lauderdale, Florida, USA.

[3] Troxler, T.G., Gaiser, E.E., Charles, S.P., Coronado, C., Davis, S., Fuentes, J., Kelly, S., Kominoski, J.S., Madden, C.J., Mazzei, V., Sklar, F.H. Sklar, Servais, S., **Stachelek, J.**, Wilson, B.J. (2016). Carbon cycle science in the Florida Coastal Everglades: Research to inform carbon and water management. Oral Presentation at the Ecological Society of America Meeting, Fort Lauderdale, Florida, USA.

[4] Sklar, F.H., Coronado, C., Troxler, T.G., **Stachelek, J.**, Kelly, S., Kominoski, J.S. (2016). Coastal subsidence as a function of salinity intrusion and peat decomposition in a karst environment. Oral Presentation at the Ecological Society of America Meeting, Fort Lauderdale, Florida, USA.

[5] **Stachelek, J.**, (2015) Resolving Fine-Scale Patterning and Restoration Outcomes in the Coastal Everglades. Oral Presentation at the Greater Everglades Ecosystem Restoration Meeting, Coral Springs, Florida, USA.

[6] Kominoski, J., Servais, S., B.J. Wilson, V. Mazzei, E.E. Gaiser, T. Troxler, C. Coronado-Molina, S.E. Davis, S.P. Kelly, **J. Stachelek**, F.H. Sklar, C.J. Madden, and L. Bauman, (2015). Effects of increased water salinity and inundation on microbial processing of carbon and nutrients in oligohaline wetland soils. Oral Presentation at the Ecological Society of America 100th Annual Meeting, Baltimore, Maryland, USA.

[7] Troxler, T., F.H. Sklar, S.E. Davis, E.E. Gaiser, S.P. Kelly, J. Kominoski, C.J. Madden, V. Mazzei, C. Coronado-Molina, D.T. Rudnick, S. Servais, **J. Stachelek**, and B.J. Wilson, (2015) The effects of projected sea-level rise on Everglades coastal ecosystems: Evaluating the potential for and mechanisms of peat collapse. Oral Presentation at the Ecological Society of America 100th Annual Meeting, Baltimore, Maryland, USA.

[8] Wilson, B., Troxler, T., Gaiser, E., Kominoski, J., Richards, J., Servais, S., **Stachelek, J.**, Kelly, S. Kelly, Sklar, F., Coronado-Molina, C., Madden, C., Davis, S.E., Mazzei, V., Schulte, N., Bauman, L., (2014) Ecosystem Productivity Responses to Saltwater Intrusion and P Loading As a Result of Future Sea Level Rise in the Coastal Everglades. Poster Presentation at the American Geophysical Union Meeting, San Fransisco, California, USA.

[9] **Stachelek, J.**, Madden, C.J. (2013) High Density Spatial Mapping of Water Quality Patterns Reveals Impacts of Freshwater Inputs in Florida Bay, USA. Poster Presentation at the Coastal and Esutarine Reserach Federation, San Diego, California, USA.

[10] Madden, C.J., McDonald, A.A., Koch-Rose, M., Glibert, P., Kelly, S.P., **Stachelek, J.**, (2013) Exploring Linkages Among Watershed-Estuary Processes in the Southern Everglades, Florida Bay Using Model Synthesis. Oral Presentation at the Coastal and Esutarine Reserach Federation, San Diego, California, USA.

[11] **Stachelek J.**, Dunton, K.H. (2011). Estimation of freshwater inflow requirements for a semi-arid salt marsh using emergent plants as indicators of ecosystem condition. Oral Presentation at the Coastal and Esutarine Reserach Federation, Daytona Beach, Florida, USA.

[12] Park, S.R., **Stachelek J.**, Dunton, K.H. (2011). Seasonal variations in photosynthetic characteristics of three major emergent salt marsh plants in the Southwestern Gulf of Mexico. Oral Presentation at the Coastal and Esutarine Reserach Federation, Daytona Beach, Florida, USA.

[13] **Stachelek J.**, Dunton, K.H. (2011). Porewater salinity dynamics within emergent salt marsh vegetation. Oral Presentation at the Benthic Ecology Meeting, Mobile, Alabama, USA.

TEACHING EXPERIENCE

Michigan State University

Instructor **Fall 2016 to Present**

- Delivered workshops to teach version control software (Git) for application in academic research (EEBB Programming Group, Spring 2017)
- Delivered workshops (1) to teach basics of Python and the Linux command line for research computing (Institute for Cyber-enabled Research, Spring 2017)

Software Carpentry

Instructor **Fall 2015 to Present**

- Delivered workshops (2) to teach basics of geospatial analysis for research computing
- Lesson Mainainter, (2015 - present), Geospatial Data Analysis with R. Data Carpentry.

University of Texas Marine Science Institute, Port Aransas, TX

National Science Foundation GK-12 Graduate Fellow **Fall 2010 to Spring 2011**

- Developed GIS lesson material
- Delivered lessons
- Evaluated student work.

University of Texas

Teaching Assistant for Introduction to Oceanography **Fall 2009 to Spring 2010**

- Taught lectures
- Delivered laboratory practicals
- Marked assignments and exams

PROFESSIONAL SERVICE

Referee Service

- *rOpenSci*, *Texas Water Journal*, *Journal of Open Source Software*, *Journal of Atmospheric and Oceanic Technology*, *Ecologial Modelling*, *Frontiers in Ecology and Evolution*, *Peerage of Science*

- Soranno, P., King, K., Poisson, A., **Stachelek, J.**, Boudreau, C., Skaff, N., Smith, N. (2017) Cyberinfrastructure support for collaboration and open science in ecology. NSF Request for Information on Future Needs for Advanced Cyberinfrastructure to Support Science and Engineering Research https://www.nsf.gov/cise/oac/ci2030/pdf/RFI-Soranno-261.pdf
- NEON spatio-temporal hackathon (2015) - developed tutorials and assessment instruments to teach fundamental big data skills needed to work efficiently with large spatio-temporal data using open tools, such as R and Python. link

Outreach

- WikiProject Lakes (2017 - Present) Contributor
- Everglades Day (2016) Guided tours of science activities at the Loxahatchee Impoundment Landscape Assessment. 17th Annual Everglades Day, Loxahatchee National Wildlife Refuge.
- National Public Radio (2016) Rising Seas Push Too Much Salt Into the Florida Everglades.
- PBS Newshour (2015) Florida's Everglades face new invasive threat: rising sea levels.

Hardware and Software Skills

Software package development

Author

- ipdw: Interpolation by Inverse Path Distance Weighting.
- dbhydroR: Everglades Hydrologic and Water Quality Data from R.
- wikilake: Scrape Lake Metadata Tables from Wikipedia

Contributor

- rnoaa: 'NOAA' Weather Data from R.
- lakemorpho: Lake Morphometry Metrics in R.

Other Software Skills

- Operating Systems: Debian/Ubuntu/Fedora Linux, Windows
- Office productivity software: Microsoft Office (Word, Excel and PowerPoint), LibreOffice, LaTeX
- Statistical Software: R
- Coding languages: R, Python, Fortran
- Data management: SQLite, netcdf
- Version control systems: Git, GitHub
- Web development: 'shiny'

Additional Courses and Training

- Bayesian Statistics Workshop, Summer 2017, Michigan State University, Song Qian.
- Introduction to Bayesian Statistics, Spring 2017, Michigan State University, Andrew Finley.
- The Mgcv Package As a One-Stop-Shop for Fitting Non-Linear Ecological Models, Summer 2016, Ecological Society of America. Gavin Simpson, David Miller, Eric Pedersen.

- Using R for High Performance Computing, Winter 2015, National Institute for Mathematical and Biological Synthesis. Drew Schmidt.
- Bayesian Inference and Hierachical Modeling, Fall 2013, Florida Atlantic University. Robert Dorazio.

HONORS AND AWARDS

- GLEON Student Travel Award 2017
- Invited participant to the 2017 rOpenSci Conference
- Finalist for the 2012 NOAA Coastal Management Fellowship
- Best poster award at the 2012 Texas Bays and Estuaries Meeting

PROFESSIONAL MEMBERSHIPS

Coastal and Estuarine Research Federation
Ecological Society of America
Foundation for Open Access Statistics