Joseph Stachelek

CONTACT
INFORMATION

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EDUCATION

PhD, Fisheries and Wildlife, **Michigan State University**　　**2016 to Present**

MS, Marine Science, **University of Texas at Austin**　　**2009 to 2012**

BS, Marine Science, **University of Maine**　　**2004 to 2008**

WORK
EXPERIENCE

Research Scientist, **South Florida Water Management District**　　**2012 to 2016**

Water quality modelling, curating environmental databases, and developing GIS visualization tools.

Research Technician, **University of Texas Marine Botany Lab**　　**2008 to 2009**

Laboratory nutrient assays, seagrass and salt marsh surveys, database management.

REFEREED
PUBLICATIONS

[10] Mazzei, V., Gaiser, E., Kominoski, J., <7 authors> , **Stachelek J.**, Troxler, T. *In press*. Functional and compositional responses of periphyton mats to simulated saltwater intrusion in the southern Everglades. *Estuaries and Coasts*.

[9] **Stachelek J.**, Kelly, S.P, Sklar, F., Coronado, C.M., Troxler, T., Bauman, L. *In press*. In-situ simulation of sea-level rise impacts on coastal wetlands using a flow-through mesocosm approach. *Methods in Ecology and Evolution*, 10.1111/2041-210X.13028.

[8] Cobourn, K.M., <15 alphabetical authors>, **Stachelek J.**, <4 alphabetical authors>. 2018. From concept to practice to policy: modeling coupled natural and human systems in lake catchments. *Ecosphere*, 9(5):e02209 10.1002/ecs2.2209.

[7] **Stachelek J.**, Ford, C., Kincaid, D., King, K., Miller, H, and Nagelkirk, R. 2018. The National Eutrophication Survey: lake characteristics and historical nutrient concentrations. *Earth Syst. Sci. Data*, 10.5194/essd-10-81-2018.

[6] Rougier NP, Hinsen K, <34 alphabetical authors>, **Stachelek J**, <8 alphabetical authors>. 2017. Sustainable computational science: the ReScience initiative. *PeerJ Computer Science*. 3:e142 10.7717/peerj-cs.142.

[5] Soranno P.A., <62 alphabetical authors>, **Stachelek J.**, <15 alphabetical authors>. 2017. LAGOS-NE: A multi-scaled geospatial and temporal database of lake ecological context and water quality for thousands of U.S. lakes. *Gigascience*. 10.1093/gigascience/gix101

[4] Hollister J and **Stachelek J.** 2017. lakemorpho: Calculating lake morphometry metrics in R [version 1; referees: 2 approved]. *F1000Research*. 6:1718 10.12688/f1000research.12512.1

[3] **Stachelek, J.** 2016. [Re] Least-cost modelling on irregular landscape graphs. *ReScience*. 2(1), 1-4. 10.5281/zenodo.47146

[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*. 10.1080/13658816.2015.1018833

[1] **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.

PUBLICATIONS IN-REVIEW (AVAILABLE UPON REQUEST)

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

[1] **Stachelek J.**, Madden, C.J., Kelly, S.P, Blaha, M. Fine-scale relationships between phytoplankton abundance and environmental drivers in Florida Bay, USA. *Estuarine, Coastal, and Shelf Science*.

PUBLIC DATASETS

[2] **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

[1] 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 PRESENTATIONS

[19] Smith, N., Soranno, P.A., Cheruveill, K., Gries, C., **Stachelek, J.** 2018. Mapping a Journey Towards Open Science: Lessons Learned Building a Lake Water Quality Geodatabase. Oral Presentation at the American Water Resources Association GIS Water Resources X Conference, Orlando, Florida, USA. Apr 23 2018.

[18] **Stachelek, J.**, Soranno, P.A. 2017. Does Connectivity Control Lake Phosphorus Retention? Poster Presentation at the Global Lake Ecological Observatory Network Meeting, New Paltz, New York, USA. Nov 29 2017.

[17] Collins, S.M, Cheruvelil, K.S., Fergus, C.E., Lapierre, J.F., Oliver, S.K., Scott, C.E., Skaff, N.K., Soranno, P.A., **Stachelek, J.**, Tan, P., Yuan, S. and Wagner, T. 2017. Which measures of climate are the best predictors of lake water quality at sub-continental scales? Oral Presetation at the Ecological Society of America Meeting, Portland, Oregon, USA. Aug 06 2017.

[16] Nowosad, J., Teucher A., **Stachelek, J.**, Cotton, R., Vitolo, C. 2017. The State of Data on CRAN: Discovering Good Data Packages. Oral Presentation at the rOpenSci Unconference, Los Angeles, CA, USA. May 26 2017.

[15] **Stachelek, J.** 2017. Lake Connectivity Effects on Phosphorus in 1,000s of Lakes. Oral Presentation at the Michigan State University Fisheries and Wildlife Graduate Research Symposium. Feb 24 2017.

[14] Kominoski, J, Evelyn Gaiser, Tiffany Troxler, <12 others>, **Stachelek, J.**, <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. Oct 09 2016.

[13] **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. Aug 07 2016.

[12] Troxler, T.G., <12 others>, **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. Aug 07 2016.

[11] 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. Aug 07 2016.

[10] **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. Apr 21 2015.

[9] 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. Aug 09 2015.

[8] 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. Aug 09 2015.

[7] 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. Dec 15 2014.

[6] **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. Nov 03 2013.

[5] 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. Nov 03 2013.

[4] **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. Nov 06 2011.

[3] 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. Nov 06 2011.

[2] **Stachelek J.**, Dunton, K.H. 2011. Porewater salinity dynamics within emergent salt marsh vegetation. Oral Presentation at the Benthic Ecology Meeting, Mobile, Alabama, USA. Mar 16 2011.

[1] **Stachelek, J.**, Brawley, S.H. 2008. Constructing a guide to intertidal algae of Acadia and testing DNA barcoding. Poster Presentation at the Northeast Algal Society Meeting, Durham, New Hampshire, USA. Apr 18 2008.

WORKSHOPS
GIVEN

Michigan State University

- Version control software (Git) for application in academic research. Apr 28 2017. EEBB Programming Group.
- Basics of Python and the Linux command line for research computing. Jan 12 2017. Institute for Cyber-enabled Research.

Software Carpentry (certified instructor)

- Basics of geospatial analysis for research computing. Sep 26 2017, Lawrence Berkeley National Laboratory.
- Basics of geospatial analysis for research computing. Jul 21 2016, South Florida Water Management District.
- Basics of geospatial analysis for research computing. May 26 2016, South Florida Water Management District.
- Lesson Maintainer, (2015 - present), Geospatial Data Analysis with R. Data Carpentry.

TEACHING
EXPERIENCE

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, administered laboratory practicals, marked assignments and exams.

PROFESSIONAL SERVICE

- Provided comments for: 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
- Participated in the 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

Referee

- *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*

OUTREACH

- WikiProject Lakes, Apr 07 2017 - Present, Contributions.
- Everglades Day, Feb 20 2016, Guided tours of science activities at the Loxahatchee Impoundment Landscape Assessment, 17th Annual Everglades Day, Loxahatchee National Wildlife Refuge.
- Interviewed for: National Public Radio, May 25 2016, Rising Seas Push Too Much Salt Into the Florida Everglades.
- Interviewed for: PBS Newshour, June 10 2015, Florida's Everglades face new invasive threat: rising sea levels.

SOFTWARE AND PACKAGE DEVELOPMENT

Author

- LAGOSNE: Interface to the Lake Multi-Scaled Geospatial and Temporal Database R package.
- wikilake: Scrape Lake Metadata Tables from Wikipedia R package.
- dbhydroR: Everglades Hydrologic and Water Quality Data from R. R package.
- ipdw: Interpolation by Inverse Path Distance Weighting. R package.

Contributor

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

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
COURSEWORK
AND TRAINING

- Machine Learning Workshop, November 27 2017, Global Lakes Ecological Observatory Network, Instructors Ken Chiu, Luke Winslow, Taylor Leach, Tim Hung.
- Bayesian Statistics Workshop, June 28 2017, Michigan State University, Instructor Song Qian.
- Introduction to Bayesian Statistics, Apr 14 2017, Michigan State University, Instructor Andrew Finley.
- The mgcv Package As a One-Stop-Shop for Fitting Non-Linear Ecological Models, Aug 08 2016, Ecological Society of America. Instructors Gavin Simpson, David Miller, Eric Pedersen.
- Using R for High Performance Computing, Feb 27 2015, National Institute for Mathematical and Biological Synthesis. Instructor Drew Schmidt.
- Bayesian Inference and Hierachical Modeling, Sep 27 2013, Florida Atlantic University. Instructor Robert Dorazio.

HONORS AND
AWARDS

- GLEON G19 Student Travel Award. Nov 27 2017.
- Invited participant at the 2017 rOpenSci Conference. May 25 2017.
- Finalist for the 2012 NOAA Coastal Management Fellowship.
- Best poster award at the 2012 Texas Bays and Estuaries Meeting. Apr 11 2012. *Porewater Water Salinity Dynamics within the Creekbank Areas of an Irregularly Flooded Salt Marsh*.

PROFESSIONAL
MEMBERSHIPS

Coastal and Estuarine Research Federation
Association for the Sciences of Limnology and Oceanography
Ecological Society of America
Foundation for Open Access Statistics