

Marcus W. Beck, Ph.D.

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Education

Ph.D., M.Sc., Conservation Biology, Fisheries and Aquatic Biology track Jun. 2013
Statistics minor

Conservation Biology Graduate Program, University of Minnesota, Twin Cities, MN
Thesis title: Minnesota macrophytes: Linking aquatic plants, lake health, and human activities
Advisors: Drs. Bruce Vondracek, Lorin Hatch

B.Sc., Zoology *summa cum laude* Dec. 2006

Department of Zoology, University of Florida, Gainesville, FL
Thesis title: Reproductive characteristics of the green treefrog *Hyla cinerea*: effects of agricultural contaminants.
Advisor: Dr. Krista McCoy

Professional Appointments

Post-Doctorate Researcher July. 2013 - Present
United States Environmental Protection Agency, Ecosystem Dynamics and Effects Branch, Gulf Ecology Division

Research Fellow Sep. 2012 - Jun. 2013
Water Resources Center, Conservation Biology Graduate Program, Department of Fisheries, Wildlife, and Conservation Biology, University of Minnesota

Research Assistant, University of Minnesota Sep. 2007 - Sep. 2012
Conservation Biology Graduate Program, Department of Fisheries, Wildlife, and Conservation Biology, University of Minnesota

Intern Jun. 2009 - Aug. 2009
Minnesota Department of Natural Resources

Creel Clerk Jan. 2007 - May 2007
Florida Fish and Wildlife Conservation Commission

Selected Publications

1. Beck, M.W., Murphy, R. 2017. Numerical and qualitative contrasts of two statistical models for water quality change in tidal waters. *Journal of the American Water Resources Association*. 53(1):197-219.
2. Beck, M.W. 2016. SWMPPr: An R package for retrieving, organizing, and analyzing environmental data for estuaries. *The R Journal*. 8(1):219-232.
3. Beck, M.W., Hagy, J.D., Murrell, M.C. 2015. Improving estimates of ecosystem metabolism by reducing effects of tidal advection on dissolved oxygen time series. *Limnology & Oceanography: Methods*. 13(12):731-745.
4. Beck, M.W., Hagy, J.D. 2015. Adaptation of a weighted regression approach to evaluate water quality trends in an estuary. *Environmental Modeling and Assessment*. 20(6):637-655.

5. **Beck, M.W.**, Wilson, B.N., Vondracek, B., Hatch, L.K. 2014. Application of neural networks to quantify utility of indices of biotic integrity for biological monitoring. *Ecological Indicators*. 45:195-208.
6. **Beck, M.W.**, Vondracek, B., Hatch, L.K., and Vinje, J. 2013. Semi-automated analysis of high-resolution aerial images to quantify docks in glacial lakes. *ISPRS Journal of Photogrammetry and Remote Sensing*. 81:60-69.
7. **Beck, M.W.**, Vondracek, B., and Hatch, L.K. 2013. Environmental clustering of lakes to evaluate performance of a macrophyte index of biotic integrity. *Aquatic Botany*. 108:16-25.
8. **Beck, M.W.**, and Hatch, L.K. 2009. A review of research on the development of lake indices of biotic integrity. *Environmental Reviews*. 17:21-44.

Selected Software and Websites

1. **Beck, M.W.** 2016. WRTDStidal: Weighted regression for water quality evaluation in tidal waters, v1.0.1. CRAN R package. ([link](#))
2. **Beck, M.W.** 2016. SWMPPr: An R package for the National Estuarine Research Reserve System, v2.2.0. CRAN R package. ([link](#))
3. **Beck, M.W.** 2016. Aggregation of SWMP parameters within/between reserves. Shiny Web Application. ([link](#))
4. O'Brien, T.D., **Beck, M.W.** 2015. Time series and data analysis information and tool resource for NERRS/SWMP. Website. ([link](#))
5. **Beck, M.W.** 2015. NeuralNetTools: Visualization and Analysis Tools for Neural Networks, v1.5.0. CRAN R package. ([link](#))

Selected Honors and Awards

ORISE post-doctorate research highlights (link)	Feb. 2015
LaBounty Best Paper Award nomination, N. Am. Lake Management Society	Oct. 2014
Interdisciplinary Doctoral Fellowship, University of Minnesota \$22500	Sep. 2012
Best student paper award, MN chapter for Society of Conservation Biology	Mar. 2012
Carolyn Crosby Fellowship, University of Minnesota \$1000	Jan. 2012
Best student paper award, MN chapter of Am. Fisheries Society \$200	Feb. 2011
Fenske Memorial Award finalist, Midwest Fish and Wildlife Conference	Dec. 2010
Travel award, Strategic Env. Research and Development Program \$700	Jul. 2010
Finalist in best student paper symposium, Am. Fisheries Society	Sep. 2009
Conservation Biology Graduate Program summer fellowship \$3500	summer 2008
Dean's list for academic excellence duration of undergraduate education	2004 - 2006
Florida Bright Futures undergraduate scholarship \$5250	2003 - 2006

Technical Training and Additional Experience

Expert knowledge in R, RStudio, RMarkdown, R Shiny, Git, GitHub, L^AT_EX, Sweave, knitr
 Workshop participant, Master R Developer, San Francisco, CA
 Webinar participant, The Grammar and Graphics of Data Science
 Workshop participant, An Overview of the USGS R Packages: dataRetrieval and EGRET
 Webinar participant, Revolution Analytics Introduction to R for Data Mining
 Workshop participant, An Introduction to the Fundamentals of Linear Quantile Regression in R
 CPR and first aid certification