

SHERRY L. MARTIN
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Michigan State University
East Lansing, MI 48824
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EDUCATION

Ph.D. *Fisheries and Wildlife and Ecology, Evolutionary Biology, and Behavior*, Michigan State University, East Lansing, MI. 2010.
Dissertation Title: Understanding variation in lake water chemistry over space and time.
Advisor: Daniel Hayes

M.S. *Fisheries and Wildlife*, Michigan State University, East Lansing, MI. 2004.
Thesis Title: Defining lake landscape position: relationships to hydrologic connectivity and landscape features.
Advisor: Patricia Soranno

B.A. *Biology*, with *Political Science* minor, Wittenberg University, Springfield, OH. 1995.

PUBLICATIONS (¹STUDENT)

¹Hamlin, Q.F., A.D. Kendall, **S.L. Martin**, H.W. Whitenack, J.A., Roush, B.A. Hannah, and D.W. Hyndman. In prep. Spatially Explicit Nutrient Source Map (SENSMap): Quantifying Landscape Nutrient Applications.

¹Hannah, B.A., A.D. Kendall, S.L. Martin, and D.W. Hyndman. In prep. Connecting Watershed Factors to Plant Invasion within the Coastal Wetlands of the Great Lakes Basin.

Nshimiyimana JP, **S.L. Martin**, M. Flood, M.P. Verhougstraete, D.W. Hyndman, and J.B. Rose. 2018. Regional Variations of Bovine and Porcine Fecal Pollution as a Function of Landscape, Nutrient, and Hydrological Factors. *Journal of Environmental Quality* 47(5): 1024-1032.

Martin, S.L., D.B. Hayes, A.D. Kendall, and D.W. Hyndman. 2017. The land-use legacy effect: Towards a mechanistic understanding of time-lagged ecosystem responses to land use/cover. *Science of the Total Environment* 579: 1794–1803.

Verhougstraete, M., **S. Martin**, A. Kendall, D. Hyndman, and J.B. Rose. 2015. Linking Fecal Bacteria in Rivers to Landscape, Geochemical, Hydrologic Factors, and Sources at the Basin Scale. *Proceedings of the National Academy of Sciences* 112(33): 10419-10424.

- Martin, S.L.**, B.L. Jasinski, A.D. Kendall, and D.W. Hyndman. 2015. Predicting beaver population dynamics and dam sediment retention using aerial imagery, habitat characteristics, and economic. *Landscape Ecology* 30(6): 1129-1144.
- Roy, E.D., A.T. Morzillo, F. Seijo, S.M. Walsh, J.M. Rhemtulla, J.C. Milder, T. Kuemmerle, and **S.L. Martin**. 2013. The Elusive Pursuit of Interdisciplinarity at the Human-Environment Interface. *BioScience* 63(9):745-753.
- Bain, D.J., M.B. Green, J.L. Campbell, J.F. Chamblee, S. Chaoka, J.M. Fraterrigo, S. Kaushal, **S.L. Martin**, T.E. Jordan, A.J. Parolari, W.V. Sobczak, D.E. Weller, W.M. Wollheim, E. Boose, J.M. Duncan, G. Gettel, B. Hall, P. Kumar, J.R. Thompson, J.M. Vose, E.M. Elliott, and D.S. Leigh. 2012. Legacy effects in material flux: Structural catchment changes predate long-term studies. *BioScience* 62(6): 575-584.
- Martin, S.L.**, D.B. Hayes, D.T. Rutledge, and D.W. Hyndman. 2011. The land-use legacy effect: Adding temporal context to lake chemistry. *Limnology and Oceanography* 56(6): 2362-2370.
- Martin, S.L.**, P.A. Soranno, K.S. Cheruvilil, and M.T. Bremigan. 2011. Comparing hydrogeomorphic approaches to lake classification: issues of spatial scale and practicality. *Environmental Management* 48(5): 957-974.
- Soranno, P.A., T. Wagner, **S.L. Martin**, C. Mclean, L.N. Novitski, C. Provence, and A.R. Rober. 2011. Quantifying regional reference conditions for freshwater ecosystem management: A comparison of approaches and future research needs. *Lake and Reservoir Management* 24:138-148.
- Martin, S.L.** and G.P. Horst. 2009. Catching the new wave of teaching. *Frontiers in Ecology and the Environment*. 7(8): 445-446.
- Cheruvilil, K.S., P.A. Soranno, M.T. Bremigan, T. Wagner and **S.L. Martin**. 2008. Grouping lakes for water quality assessment and monitoring: the roles of regionalization and spatial scale. *Environmental Management*. 41: 425-440.
- Martin, S.L.** and P.A. Soranno. 2006. Defining lake landscape position: relationships to hydrologic connectivity and landscape features. *Limnology and Oceanography*. 51: 801-814.

RESEARCH GRANTS (¹FUNDED)

2019 CoPI, NSF FRES \$2,348,832
Carbon Fluxes Down the Hydrologic Connectivity Cascade: Cross-scale Interactions of Water, Nutrients, and Plants in Freshwater Wetlands

2018	¹ CoPI, Higgins Lake Foundation <i>Understanding Higgins Lake Water Quality Issues and Identifying Contamination Sources</i>	\$29,465
	¹ CoPI, NOAA Tipping Points <i>Empowering Communities with Online Action Planning Tools: Tipping Points and Indicators for Improving Water Quality across the Great Lake</i>	\$10,000
2016	¹ CoPI, NASA IDS <i>Quantifying how global change and land use legacies affect ecosystem processes at the land water interface across the Great Lakes Basin</i>	\$937,962
	CoPI, NSF Macrosystems <i>Carbon Fluxes Down the Hydrologic Connectivity Cascade: Cross-scale Interactions of Water, Nutrients, and Plants in Freshwater Wetlands</i>	\$2,348,832
	¹ CoPI, Michigan Corn Growers Association <i>Comparing Best Management for Chemical Agricultural Fertilizer and Manure and the impacts on water quality to enhance environmental stewardship</i>	\$105,851
	CoPI, NSF INFEWS <i>FEW Systems Modeling to Optimize Food Production and Energy Sustainability through Water Resource Recovery</i>	\$2,999,904
	¹ CoPI, NOAA Tipping Points <i>Empowering Communities with Online Action Planning Tools: Tipping Points and Indicators for Improving Water Quality Across the Great Lakes</i>	\$407,568
2015	¹ CoPI, Michigan Corn Growers Association <i>Understanding Nutrient Impacts and Sources at the Watershed Scale to Enhance Environmental Stewardship</i>	\$29,985
	¹ CoPI, Three Lakes Association <i>Investigation of Golden Brown Algae in Torch Lake</i>	\$10,433
2014	CoPI, NSF Macrosystems Biology <i>Collaborative Research: Carbon Fluxes Down the Hydrologic Connectivity Cascade: Cross-scale Interactions of Water, Nutrients, and Plants in Freshwater Wetlands</i>	\$1,709,258
2013	¹ CoPI, Higgins Lake Foundation <i>Investigating the Influences of Septic Systems on Near-Shore Water Quality and Swimmer's Itch in Higgins Lake, MI</i>	\$32,500

- 2011 ¹CoPI, NOAA Michigan Sea Grant \$149,974
Quantifying the impacts of projected climate changes on the Grand Traverse Bay region: An adaptive management framework
- ¹Co-Author, EPA STAR \$749,801
Forecasting and Evaluating Vulnerability of Watersheds to Climate Change, Extreme Events, and Algal Blooms
- 2009 ¹PI, MSU Biogeochemistry Environmental Research Initiative \$3,000
The Land Use Legacy Effect: including temporal context in understanding lake eutrophication
- 2007 ¹PI, MSU Biogeochemistry Environmental Research Initiative \$3,000
The Land Use Legacy Effect: Including temporal context in understanding lake ecosystem dynamics

AWARDS AND FELLOWSHIPS

- Dissertation Completion Fellowship, Michigan State University. January 2010.
- Graduate School Research Fellowship, Michigan State University. September 2009.
- College of Agriculture and Natural Resources Summer Fellowship, Michigan State University. May 2009.
- Graduate School Research Fellowship, Michigan State University. February 2009.
- Ecology, Evolutionary Biology and Behavior Summer Fellowship, Michigan State University. April 2008.
- Graduate School Summer Fellowship, Michigan State University. April 2008.
- College of Agriculture and Natural Resources Summer Fellowship, Michigan State University. May 2007.
- Best Poster: 2nd Annual Department of Fisheries and Wildlife Graduate Student Research Symposium, Michigan State University. February 2007.

TEACHING EXPERIENCE

- Instructor*, Department of Fisheries and Wildlife, Michigan State University. East Lansing, MI. 2015. FW 419 Applications of Geographic Information Systems to Natural Resources Management.

Instructor, Department of Fisheries and Wildlife, Michigan State University. East Lansing, MI. 2015. FW 491 Special Topics – Advanced GIS for Ecologists.

Invited Guest Lecturer, Department of Geological Sciences, Michigan State University. East Lansing, MI. 2013-18. GLG 803 Research Training Program.

Workshop Organizer and Presenter. Department of Geological Sciences, Michigan State University. East Lansing, MI. Spring 2014. R Learning Work Group.

Invited Guest Lecturer, Department of Zoology, Michigan State University. East Lansing, MI. August 2009. ZOL 355 Ecology. Lecture title: Landscape Limnology.

Instructor, Department of Biological Sciences, Michigan State University. East Lansing, MI. 2008 (1 semester).

Instructor, Department of Integrative Studies, Michigan State University. East Lansing, MI. 2007-2008 (3 semesters).

Educator, Pok-O-MacCready Outdoor Education Camp. Willsboro, NY. 1995.

PROFESSIONAL EXPERIENCE

Research Associate, Department of Geological Sciences, Michigan State University, East Lansing, MI. 2010-current.

Environmental Scientist 3, Office of Water Quality, Indiana Department of Environmental Management. Indianapolis, IN. 1999-2002.

Scientist I, Environmental Health Laboratories. South Bend, IN. 1998-1999.

Biologist, Bay Study Group, City of Tampa. Tampa, FL. 1995-1997.

Researcher, Department of Public Works, City of Grand Island. Grand Island, NE. 1994.

PRESENTATIONS (* INVITED, ¹STUDENT)

¹Hamlin, Q.F., A.D. Kendall, **S.L. Martin**, and D.W. Hyndman. Quantifying Nutrient Loading Landscapes using Spatially Explicit Maps in the Great Lakes Basin. AGU Fall Meeting Washington D.C. December 10-14, 2018.

¹Hannah, B.A., A.D. Kendall, **S.L. Martin**, and D.W. Hyndman. Connecting Watershed Factors to Plant Invasion within the Coastal Wetlands of the Great Lakes Basin. AGU Fall Meeting Washington D.C. December 10-14, 2018.

¹Wan, L., A.D. Kendall, **Martin, S.L.**, and D.W. Hyndman. Spatially Explicit Modeling of Nutrient Transport in the Great Lakes Basin. AGU Fall Meeting Washington D.C. December 10-14, 2018.

- Martin, S.L.**, A.D. Kendall, and D.W. Hyndman. Land-use legacies, nutrient transport and attenuation along groundwater flowpaths. AGU Fall Meeting Washington D.C. December 10-14, 2018.
- [†] Hamlin, Q.F., A.D. Kendall, **S.L. Martin**, and D.W. Hyndman. Quantifying Nutrient Inputs in the Great Lakes Basin with SENSMap (Spatially Explicit Nutrient Source Map). US-IALE Annual Meeting, Chicago, IL. April 8-12, 2018.
- [†] Roush, J., A.D. Kendall, and **S.L. Martin**. April soil moisture brings May flowers? An analysis of seasonal soil moisture variation in Northern Michigan. University Undergraduate Research and Arts Forum, East Lansing, MI. April 7, 2017.
- [†] Curtis, S. A.D. Kendall, and S.L. Martin. Monitoring the impact of land use on soil temperatures with a soil temperature network in Northern Lower Michigan. University Undergraduate Research and Arts Forum, East Lansing, MI. April 7, 2017.
- [†] Hamlin, Q.F., A.D. Kendall, **S.L. Martin**, H.D. Whitenack, and D.W. Hyndman. Spatially-explicit modelling of nutrient loading to the landscape in the Great Lakes Basin. AGU Fall Meeting, San Francisco, CA. December 12-16, 2016.
- [†] Flood, M., T. Aw, **S. Martin**, and J.B. Rose. Understanding Fecal Pollution Sources at the Watershed Scale using Microbial Source Tracking (MST) to Enhance Environmental Stewardship. The International Water Association World Water Congress, Brisbane, Australia. October 9-13, 2016.
- Martin, S.**, J. Rose, M. Flood, T. Aw, D. Hyndman. Using Microbial Source Tracking to Enhance Environmental Stewardship of Agriculture. EGU General Assembly, Vienna, Austria. April 18-22, 2016.
- [†] Moule, H., A. Kendall, **S. Martin**. Defining the Groundwatershed and Quantifying its Relevance for Managing Surface Water Quality and Quantity. University Undergraduate Research and Arts Forum, East Lansing, MI. April 8, 2016.
- [†] Hull, J., A. Kendall, **S. Martin**, A. Kuhl. Soil Temperature Responses to Land Use and Climate Variability in the Grand Traverse Bay Region. University Undergraduate Research and Arts Forum, East Lansing, MI. April 8, 2016.
- * Rose, J., **S. Martin**, M. Flood, T. Aw, D. Hyndman. Understanding Nutrient Impacts and Sources at the Watershed Scale to Enhance Environmental Stewardship. Michigan Corn Marketing Association Annual Meeting, Lansing, MI. January 7, 2016.
- * Currie, W., L. Bourgeau-Chavez, K. Elgersma, N. French, D. Goldberg, S. Hart, D. Hyndman, A. Kendall, **S. Martin**, and J. Martina. Linking a large-watershed hydrogeochemical model to a wetland community-ecosystem model to estimate plant invasion risk in the coastal Great Lakes region, USA. AGU Fall Meeting, San Francisco, CA. December 15-19, 2014.
- Stevenson, R.J., D. Hyndman, J. Qi, P. Esselman, L. Novitski, A. Kendall, **S. Martin**, and S. Lin. Relating nearshore algal blooms determined using satellite imagery to nutrient loading, watershed land use and storm events. AGU Fall Meeting, San Francisco, CA. December 15-19, 2014.
- * Verhougstraete, M., **S. Martin**, A. Kendall, D. Hyndman, and J. Rose. Microbial tipping points of escherichia coli and human specific bacteria in great lakes river systems. Joint Aquatic Sciences Meeting, Portland, OR. May 18-23, 2014.
- * Kendall, A. D., **S.L. Martin**, E.C. Luszcz, and D.W. Hyndman. Identifying stream nutrient tipping points from spatially explicit source mapping in the US Great Lakes basin. Joint Aquatic Sciences Meeting, Portland, OR. May 18-23, 2014.

- ¹ Bailey, L., A.D. Kendall, and **S.L. Martin**. Understanding current and historical hydrology of the Boardman-Charlevoix and Jordan watersheds. Michigan State University Undergraduate Research and Arts Forum. April 4, 2014.
- ¹ Celovsky, H., A.D. Kendall, and **S.L. Martin**. Nutrient and contaminant detention time through a dam: model development. Michigan State University Undergraduate Research and Arts Forum. April 4, 2014.
- ¹ Lee, C.I., **S.L. Martin**, A.D. Kendall, D.W. Hyndman. Historical climate and streamflow trends in the Grand Traverse Bay Region. 47th Annual Meeting of the North-Central Section of the Geological Society of America, Kalamazoo, MI. May 2-3, 2013.
- ¹ Jasinski, B.L., A.D. Kendall, **S.L. Martin**, D.W. Hyndman. A history of beaver activity in the Jordan River watershed: Spatial distribution, succession, and sediment. 47th Annual Meeting of the North-Central Section of the Geological Society of America, Kalamazoo, MI. May 2-3, 2013.
- * Hyndman, D.W., A.D. Kendall, **S.L. Martin**, E. Dreelin, P. Norris, J. Rose, S. U'Ren, M. Verhougstraete, and R.J. Stevenson. Observed and Projected Impacts of Climate Change on the Grand Traverse Bay Region. 6th Annual Freshwater Summit, Traverse City, MI. November 1, 2013.
- Martin, S.L.**, D.B. Hayes, A.D. Kendall, D.T. Rutledge, B.C. Pijanowski, and D.W. Hyndman. Land-use legacies and ecosystem tipping points. 56th Annual Conference on Great Lakes Research, West Lafayette, IN. June 2-6, 2013.
- Kendall, A.D., E.C. Luszcz, **S.L. Martin**, and D.W. Hyndman. From Landscape Application to the River Mouth: A Fully Explicit Simulation of Nutrient Loads Across Lower Michigan, USA. 56th Annual Conference on Great Lakes Research, West Lafayette, IN. June 2-6, 2013.
- Stevenson, R.J, L. Novitski, D. Hyndman, J. Qi, P. Esselman, A.D. Kendall, S. Lawawirojwong, E.C. Luszcz, **S.L. Martin**, and T. Suepa. Relating Coastal Algal Blooms to Rivers, Nutrients, Watershed Land Use, and Storm Events. 56th Annual Conference on Great Lakes Research, West Lafayette, IN. June 2-6, 2013.
- Verhougstraete M., **S.L. Martin**, A.D. Kendall, D.W. Hyndman, and J.B. Rose. Microbial Responses to Land, Physical, Chemical, Environmental, and Hydrological Factors. 56th Annual Conference on Great Lakes Research, West Lafayette, IN. June 2-6, 2013.
- * **Martin, S.L.**, E. Luszcz, M. Verhougstraete, A.D. Kendall, D.W. Hyndman. Estimating statewide septic system locations and linkages to pathogens. Michigan Environmental Health Association Annual Education Conference, Rochester, MI. March 20-22, 2013.
- * Hyndman, D.W., A.D. Kendall, **S.L. Martin**, B. Basso, and R. Nagelkirk. Understanding, Preparing for and Adapting to 21st Century Changes in the Great Lakes Regional Water Resources. 5th Annual Freshwater Summit, Traverse City, MI. October 26, 2012.
- Dahl, T.A., A.D. Kendall, **S.L. Martin**, and D.W. Hyndman. Anthropogenic impacts on hydrology and sediment transportation in a baseflow-dominated river. AGU Fall Meeting, San Francisco, CA. December 2012.
- Luszcz, E., A.D. Kendall, **S.L. Martin**, and D.W. Hyndman. Modeling Nutrient Loading to Watersheds in the Great Lakes Basin: A Detailed Source Model at the Regional Scale. AGU Fall Meeting, San Francisco, CA. December 5-9, 2011.
- Hyndman, D.W., A.D. Kendall, **S.L. Martin**, B. Jasinski, R. van Dam, and W. Wood. Perspectives on changes in the Jordan River watershed: Where did the sand come from? Final presentation to the Friends of the Jordan River Watershed, November 7, 2011.

- Verhougstraete, M., **S.L. Martin**, A.D. Kendall, D.W. Hyndman, and J. Rose. A biogeological survey: Understanding water quality using a process based approach. 16th Annual International Symposium on Health-Related Water Microbiology, Rotura, New Zealand. September 18-23, 2011.
- [†]Chrisman, R., A.D. Kendall, **S.L. Martin**, and D.W. Hyndman. Towards an understanding of biogeochemical pathways and processes across lower Michigan streams: A baseflow baseline. Michigan State University Undergraduate Research and Arts Forum. April 8, 2011.
- Martin, S.L.**, A.D. Kendall, R.L. Van Dam, and D.W. Hyndman. Land use and climate change impacts on streamflow and sediment transport in a groundwater-dominated watershed. AGU Fall Meeting, San Francisco, CA. December 13-17, 2010.
- Hyndman, D.W., R.L. Van Dam, A.D. Kendall, and **S.L. Martin**. Hydrology of the Jordan River. Friends of the Jordan River Watershed Meeting, East Jordan, MI. October 28, 2010
- Martin, S.L.** The Land Use Legacy Effect: including temporal context in understanding lake eutrophication. Great Lakes Regional Biogeochemistry Symposium. W. K. Kellogg Biological Station, MI. May 28-29, 2009.
- Martin, S.L.** The Land Use Legacy Effect: including temporal context in understanding lake eutrophication. 57th Annual North American Benthological Society Meeting. Grand Rapids, MI. May 16-23, 2009.
- Martin, S.L.** The Land Use Legacy Effect: including temporal context in understanding lake eutrophication. US-International Association of Landscape Ecologists Annual Conference. Snowbird, UT. April 12-16, 2009.
- Martin, S.L.**, P.A., Soranno, K.S. Cheruvilil and M.T. Bremigan. Lake classification: comparison of approaches and implications for lake management. Michigan Department of Natural Resources Joint Research/Biologist Meeting. Roscommon, MI. October 6-8, 2008.
- Martin, S.L.**, P.A. Soranno, K.S. Cheruvilil and M.T. Bremigan. A comparison of landscape-based lake classifications for understanding variation in lake water chemistry and clarity. 2nd Annual Department of Fisheries and Wildlife Graduate Student Research Symposium. East Lansing, MI. February 16, 2007.
- Martin, S.L.**, P.A. Soranno, K.S. Cheruvilil and M.T. Bremigan. A comparison of landscape-based lake classifications for understanding variation in lake water chemistry and clarity. American Society of Limnology and Oceanography Summer Aquatic Sciences Meeting 2006. Victoria, British Columbia. June 4-9, 2006.
- *Cheruvilil, K.S., P.A. Soranno, M.T. Bremigan, K.E. Webster, T. Wagner and **S.L. Martin**. The roles of regionalization and spatial scale for national lake classification and assessment. EPA Region 5 -- 5th Annual Surface Water Monitoring and Standards (SWiMS) Meeting. Chicago, IL. February 1-3, 2006.
- Cheruvilil, K.S. P.A. Soranno, M.T. Bremigan, T. Wagner and **S.L. Martin**. Grouping lakes for water quality assessment and monitoring: The role of regionalization. North American Lake Management Society 25th Annual Meeting. Madison, WI. November 9-11, 2005
- Martin, S. L.**, and Soranno, P. A. Lake landscape position: relationships to hydrologic connectivity and landscape features. Presented at the American Society of Limnology and Oceanography Aquatic Sciences Meeting, Salt Lake City, UT. February 20-25, 2005.

Martin, S.L. and P.A. Soranno. The role of hydrologic connectivity in measuring lake landscape position. Ecological Society of America 89th Annual Meeting, Portland, OR. August 1-6, 2004.

Martin, S.L. and P.A. Soranno. The role of hydrologic connectivity in measuring lake landscape position. Midwest Ecology and Evolution Conference, the University of Notre Dame, Notre Dame, IN. March 5-7, 2004.

Soranno, P.A., K.S. Cheruvilil and **S.L. Martin**. A multi-scaled landscape-context model to predict abiotic and biotic lake characteristics. Michigan Agricultural Experiment Station Disciplinary Research Grant Annual Symposium. East Lansing, MI. December 18, 2003.

PROFESSIONAL MEMBERSHIPS

American Geophysical Union
American Society of Limnology and Oceanography
Ecological Society of America
International Association for Landscape Ecology
Michigan Lake and Stream Association
North American Benthological Society
North American Lake Management Society

PROFESSIONAL DEVELOPMENT

Data Intensive School offered at MSU by Virtual School of Computational Science and Engineering. June 30-July 2, 2014.

Cooperative Inquiry-Based Learning: Teamwork Essentials - A Workshop for Graduate Teaching Assistants in the Biological Sciences Program. January 2009.

Pathways to Scientific Teaching - A Workshop for Graduate Teaching Assistants in the Biological Sciences Program. August 2008.

SERVICE ACTIVITIES

Environmental Steward: Office of the Vice President for Finance and Operations and Treasurer. Michigan State University. 2008-2012.

Committee Member: Department of Fisheries and Wildlife Graduate Student Organization Curriculum Committee, Michigan State University. 2007-2010.

Student Representative: Recycling/Surplus Processing Center Leadership Group. Michigan State University. 2006-2008.

Committee Member: Department of Fisheries and Wildlife Graduate Student Organization Recycling Coordinator, Michigan State University. 2004-2010.