

## Song S. Qian

Department of Environmental Sciences  
The University of Toledo

### EDUCATION

Ph.D. Environmental Sciences. 1995. Duke University  
M.S. Statistics. 1995. Duke University  
M.S. Environmental Systems Engineering. 1988. Nanjing University, Nanjing, China  
B.S. Engineering. 1985. Tsinghua University, Beijing, China

### PROFESSIONAL EXPERIENCE

**Associate professor**, 2017-present  
**Assistant professor**, July, 2012 to 2016  
Department of Environmental Sciences, The University of Toledo, 2801 W. Bancroft Street, Toledo, OH 43606

**Senior Scientist**, January to July, 2012  
Center for Ecological Sciences Tetra Tech, Inc. 1 Park Ave. RTP, NC

**Senior Consultant**, August to December 2011  
Cardno-ENTRIX, Inc. 5400 Glenwood Ave., G-03 Raleigh, NC

**Associate Research Professor**, June 2004 to August 2011  
Nicholas School of the Environment, Duke University, Durham, NC 27708-0328

**Associate**, March 2000 - June 2004  
The Cadmus Group, Inc., 6330 Quadrangle Drive, Suite 180, Chapel Hill, NC 27517

**Adjunct Assistant Professor**, March 2001 - June 2004  
Duke University, Nicholas School of the Environment, Durham, NC 27708

**Visiting Scientist**, September 2000 - December 2000  
Water Resources Research Institute of the University of North Carolina, Raleigh, NC 27695-7912

**Assistant Professor**, January 1997 - December 2000  
Environmental Sciences and Resources Program, Portland State University, Portland, OR 97207

**Postdoctoral Research Associate**, January - December 1996  
Duke University Wetland Center, Box 90333, Durham, NC 27208

**Instructor**: 1993 and 1996  
School of the Environment, Duke University, Durham, NC 27708

**Research Engineer**, 1989 - 1990  
South China Research Institute for Environmental Sciences, National Environmental Protection Agency, Guangzhou, China.

**Lecturer**, 1988 to 1989  
Department of Environmental Sciences, Nanjing University, Nanjing, China .

**Guest Associate Research Fellow**, 1987 to 1989.  
Research Laboratory of Systems Ecology of Chinese Academy of Science.

**International Visitor**, 1986 to 1987.  
Department of Civil Engineering, Tufts University, Medford, MA

## TEACHING

### Courses taught at The University of Toledo (\*\*: new course)

- EEES1130 Down to Earth: introduction to environmental sciences (Fall 2017)
- EEES2150-002 Biodiversity (Fall 2013, 2014, 2015)
- EEES6400/8400 Advanced Biostatistics (Fall 2013, Spring 2015, 2016)
- EEES6650/8650 Statistical Models in Environmental Sciences (annual Spring 2013, 2014)
- \*\* EEES6980/8980-010 Applications of Bayesian statistics in environmental and ecological studies (Spring 2014, 2016)
- \*\* EEES4160/5160 Advanced Environmental Data Management (Fall 2014, 2015, 2016)
- \*\* EEES6980/8980-002 Statistical Issues in Measuring and Reporting Microcystin Concentrations in Drinking Water (Fall 2014)

### Graduate Student Mentoring:

- Mentor:
  - Farnaz Nojavan A., PhD, 2009-2014, Duke University. Dissertation title: Bayesian Statistical Analysis in Coastal Eutrophication Models: Challenges and Solutions
  - Stephanie A. Nummer, MS, 2014-2016, The University of Toledo. Thesis title: Assessing the effect of conservation practices in reducing N and P loss from agricultural fields;
  - Stephanie A. Nummer, PhD, 2016-present, The University of Toledo, in-progress
  - Polly Peterson, PhD, 2018-present, The University of Toledo, in-progress
  - Alexandra Godre, MS, 2018-present, The University of Toledo, in-progress
  - Michaela Margida, PhD, The University of Toledo, 2014-2016 (transferred), research project: Modeling spatiotemporal nutrient source distribution in the Maumee River basin
  - Stephen Timmons, MS, The University of Toledo, Fall 2016 (delayed). Thesis title: Trend and patterns of frogs population in Toledo Metroparks–An analysis of 20 years of volunteer monitoring data
- Co-mentor (with C. Mayer):
  - Mark DuFour, PhD, UT, Fall 2012-Fall 2016. Dissertation title: Hydroacoustic determination of distribution and abundance of Lake Erie walleye
  - Casey Yanos, MS, UT, Spring 2015-Fall 2016. Thesis project: Foodweb Structure and Trophic Transfer Across Lake Erie's Productivity Gradients
  - Holly Embky, MS, UT, Fall 2015-Spring 2017. Thesis project: Grass-carp spawning potential in the Sandusky River basin
  - Marty Simonson, MS, UT, Fall 2015-Summer 2017. Thesis project: Effects of shoreline vegetation on the Lake Erie coastal fish community
- Dissertation/thesis committee:
  - Jason Fischer (PhD, DES, 2016-present), Zach Amidon (MS, DES, 2017-present), Yun Jian (PhD, Duke, 2011-15), Zetao Ouyang (PhD, Michigan State, 2013-15), Phoenix Golnick (MS, DES, 2014-16), Eliza S. Deutsch and Grace Rachid (PhD, American University of Beirut, 2015-2017), Mathew Snyder (MS/PhD, UT, 2014-2016), Kurt Prospere, PhD, Univ. West Indie, Jamaica.

## RESEARCH

My main research interests are:

- Nutrient loading to Lake Erie using Bayesian SPARROW (funded by EPA)
- Nutrient retention in Lake Erie coastal wetlands (NOAA)
- Comparisons of fish population survey methods (funded by ODNR)
- Comparisons of Lake Erie water quality monitoring methods (funded by UM)
- Phenological responses to climate change (proposal under preparation)

- The effect of conservation practices in controlling nutrient loss from agriculture fields (funded by IPNI)
- Assessing water quality compliance using regional and local water quality monitoring data (proposal under preparation)
- Assessing the spatiotemporal distribution of microcystin concentrations in Lake Erie (funded by NOAA/CILER)

**Grants and Awards** (\*: originated at UT)

*External Funded Projects*

1. \* Ohio Division of Wildlife (\$62,225, July 2013-June 2014; \$95,578, July 2014-June 2015; \$59,345, July 2015-June 2016) Hydroacoustic Determination of distribution and abundance of Lake Erie walleye. C. Mayer (PI), S. Qian (Co-PI).
2. \* University of Michigan Water Center (\$50,000, June 2013-July 2015) A Bayesian Hierarchical Modeling Approach for Comparing Water Quality Measurements from Different Sources. S. Qian (PI) and T. Bridgeman (Co-I)
3. \* US EPA (\$164,043, August 2014-November 2015) Internal and External Nutrient Fluxes to Western Lake Erie. T. Bridgeman (PI), S. Qian (Co-PI), R. Becker (Co-PI), Y.Seo (Co-I), C. Mayer (Co-I)
4. \* International Plant Nutrition Institute (\$55,840, June 2014-May 2015) Assessing the Effects of Conservation Practices and Fertilizer Application Methods on Nitrogen and Phosphorus Loss from Farm Fields A Meta Analysis. S. S. Qian (PI)
5. \* USGS (\$94,037, January 2015 - September, 2016) Food web structure and trophic transfer across Lake Erie's productivity gradient. C. Mayer (PI), S. Qian (Co-PI).
6. USGS (\$100,059, June 2015-October 2016) Grass carp spawning potential in the Sandusky River basin – eggs and larvae survey. S. Qian (PI), C. Mayer (Co-PI).
7. \* Ohio Department of Natural Resources (\$53,808, Phase 1, July 2015-June 2016) Survey and experimental approaches quantifying the effect of shoreline vegetation on the coastal fish community. C. Mayer (PI), S. Qian (Co-PI)
8. \* NOAA (CILER) (\$61,544, May 2015-December 2015) Model development for supporting mitigating Western Lake Erie harmful and nuisance algal blooms. S. Qian (PI).
9. \* USGS (\$71,903, September 2015-September 2016) Vegetation surveying in supporting of grass carp spawning potential in the Sandusky River basin. S. Qian (PI), C. Mayer (Co-PI).
10. \* Ohio Department of Natural Resources (\$131,919, Phase 2, July 2015-June 2017) Survey and experimental approaches quantifying the effect of shoreline vegetation on the coastal fish community. C. Mayer (PI), S. Qian (Co-PI)
11. \* Ohio Department of Natural Resources (\$101,238, Phase 3, January 2017-June 2018) Survey and experimental approaches quantifying the effect of shoreline vegetation on the coastal fish community. S. Qian (PI), C. Mayer (Co-PI)
12. \* USGS (\$25,000, July 2017-June 2018) Modeling the response of fish and benthic invertebrates to changes in stream flow and land use in the Cape Fear and Yadkin/Pee Dee River basins. S. Qian (PI)
13. \* Ohio DNR (\$50,000, August 2017-June 2018) Establishing ecological criteria and thresholds for monitoring hydrologic impact on Old Woman Creek wetland. S. Qian (PI), R. Becker (Co-PI), and J. Gottgens (Co-PI).
14. \* NOAA/Ohio DNR (\$113,184, November 2017-September 2019) Quantifying nutrient retention by coastal wetlands for guiding restoration and management. S. Qian (PI).
15. Title: The Development of Modeling Approaches for the National Water Quality Assessment Program Effects of Urbanization on Stream Ecosystems (EUSE) Topical Study  
Investigators: S.S. Qian and K.H. Reckhow  
Funding Agency: USGS Project Amount: \$ 233,000 (2010-2012)

16. Title: The Development of Modeling Approaches for the National Water Quality Assessment Program Effects of Urbanization on Stream Ecosystems (EUSE) Topical Study,  
Investigators: Song S. Qian and K.H. Reckhow  
Funding agency: USGS (cooperative agreement)  
Project amount: \$ 232,892 (2008-2010)
17. Title: Using Bayesian networks and satellite imagery to implement transparent decision-making and adaptive management  
Investigators: Kenneth H. Reckhow, Jon Goodall, Song S. Qian  
Funding Agency: EPA ORD's Advanced Monitoring Initiative (AMI)  
Project Amount: \$ 250,000 (2007-2009)
18. Title: Understanding Ecological Thresholds in Aquatic Systems Through Retrospective Analysis,  
Investigators: C.J. Richardson and S.S. Qian  
Funding Agency: EPA STAR Project Amount:\$278,876 (2006-2007)
19. Title: A nonparametric Bayesian approach for quantifying herbicide exposure in streams  
Investigators: S.S. Qian and Y. Pan  
Funding Agency: EPA STAR  
Project Amount: \$167,000 (1999 - 2002)
20. Title: Modeling mercury fish tissue concentrations in the southeastern US  
Investigators: S. Qian (PI)  
Funding Agency: EPA/The Cadmus Group, Inc. Project Amount: \$16,000 (1999)

*Internally Funded Projects*

21. \* Title: Modeling spatiotemporal nutrient source distribution in the Maumee River basin  
Investigators: S. Qian (PI)  
Funding Agency: University of Toledo  
Project Amount: \$28,000 (2015)
22. \* Title: Teaching environmental statistics in the US and in China  
Investigators: S. Qian (PI)  
Funding Agency: Kohler International Awards, The University of Toledo  
Project Amount: \$1,500 (2015)
23. \* Title: Scales and Levels in Ecological and Environmental Data Analysis and Modeling A Bayesian Hierarchical Modeling Approach  
Investigators: S. Qian (PI)  
Funding Agency: University of Toledo Summer Fellowship Program  
Project Amount: \$12,000 (2013)

*Awards*

1. Award for Excellence in Research, College of Natural Sciences and Mathematics, The University of Toledo, August 2016.
2. Outstanding Teaching Award in Science and Engineering, Portland State University, 2000.
3. Faculty development award, Portland State University, 2000

**Publications** (\*\*: since joining UT \*: work started before joining UT, †: my graduate student, ‡: other student and work as a result of my teaching)

1. \*\* M.R. DuFour†, C.M. Mayer, S.S. Qian, C.S. Vandergroot, R.T. Kraus, P.M. Kocovsky, D.M. Warner. (2018) Inferred fish behavior its implications for hydroacoustic surveys in nearshore habitats. *Fisheries Research*, 199:63-75.

2. \*\* A.J. Eagle, L.E. Christianson, R.L. Cook, R.D. Harmel, F.E. Miguez, S.S. Qian, D.A.R. Diaz (2017) Meta-analysis constrained by data: recommendations to improve relevance of nutrient management research. *Agronomy Journal*, 109(6): 2441-2449.
3. \*\* M.R. DuFour, C.M. Mayer, P.M. Kocovsky, S.S. Qian, D.M. Warner, R.T. Kraus, C.S. Vandergoot (2017) Sparse targets in hydroacoustic surveys: Balancing quantity and quality of in situ target strength data. *Fisheries Research*, 188: 173-182.
4. \*\* F. Nojavan A., S.S. Qian, and C.A. Stow (2017) Comparative analysis of discretization methods in Bayesian networks. *Environmental Software and Modelling*, 87: 64-71.
5. \*\* Y.K. Cha, I. Alameddine, S.S. Qian, C.A. Stow. (2016) A cross-scale view of N and P limitation using a Bayesian hierarchical model. *Limnology and Oceanography*, 61(6):2276-2285.
6. \*\* H.S. Embke†, P.M. Kocovsky, C.A. Richter, J.J. Pritt, C.M. Mayer, and S.S. Qian. (2016) First direct confirmation of grass carp spawning in a Great Lakes tributary. *Journal of the Great Lakes Research*, 42(4):899-903.
7. \*\* S.S. Qian, J.D. Chaffin, M.R. DuFour†, J.J. Sherman‡, P.C. Golnick‡, C.D. Collier‡, S.A. Nummer†, and M.G. Margida†(2015) Quantifying and Reducing Uncertainty in Estimated Microcystin Concentrations from the ELISA Method. *Environmental Science and Technology*, 49(24): 14221-14229.
8. \*\* D. Kim‡, R. Oren, S.S. Qian (2016) Response to CO2 enrichment of understory vegetation in the shade of forests. *Global Change Biology*, 22(2): 944-956.
9. \*\* A.D. Gronewold, J. Bruxer, D. Durnford, J.P. Smith, A.H. Clites, F. Seglenieks, S.S. Qian, T.S. Hunter, and V. Fortin (2016) Hydrological drivers of recordsetting water level rise on Earth's largest lake system. *Water Resources Research* (Accepted)
10. \*\* H. Chu ‡, J. Chen, J.F. Gottgens, A.R. Desai, Z. Ouyang ‡, S.S. Qian (2016) Response and biophysical regulation of carbon dioxide fluxes to climate variability and anomaly in contrasting ecosystems in northwestern Ohio, USA. *Agricultural and Forest Meteorology*, 220: 50-68.
11. \*\* S.S. Qian and R.D. Harmel (2016), Applying statistical causal analyses to agricultural conservation: A case study examining P loss impacts. *Journal of American Water Resources Association*, 52(1):198-208.
12. \*\* S.S. Qian, C.A. Stow, and Y.K. Cha (2015) Implications of Stein's paradox for environmental standard compliance assessment. *Environmental Science and Technology*. 49, 5913-5920.
13. \*\* S.S. Qian (2015) The frequency component of water quality criterion compliance assessment should be data driven. *Environmental Management*, 56 (1): 24-33.
14. \*\* S.S. Qian, R.J. Miltner (2015) A continuous variable Bayesian networks model for water quality modeling: A case study of setting nitrogen criterion for small rivers and streams in Ohio, USA. *Environmental Modelling and Software*, 69: 14-22.
15. \*\* J. Yun †, S.S. Qian (2015) A hierarchical model for estimating longterm trend of atrazine concentration in the surface water of the contiguous US. *Journal of American Water Resources Association*. DOI:10.1111/jawr.12284
16. \*\* S.S. Qian, T.F. Cuffney (2014) A hierarchical zero-inflated model for species compositional data from individual taxon responses to community response. *Limnology and Oceanography: Methods* 12, 498-506.
17. \*\* J.J. Sherman ‡, A.M. Maran ‡, C.D. Collier ‡, M.R. Snyder ‡, P.C. Golnick ‡, S.S. Qian (2014) Re: M. Song, Y. Guan, "The environmental efficiency of Wanjiang demonstration area: A Bayesian estimation approach" [Ecol. Indic. 36 (2014) 5967]. *Ecological Indicators* 45, 648-649.
18. \*\* H.M.H. Siersma, C.J. Foley, C.J. Nowicki, S.S. Qian, D.R. Kashian (2014) Trends in the distribution and abundance of *Hexagenia* spp. in Saginaw Bay, Lake Huron, 1954-2012: Moving towards recovery? *Journal of Great Lakes Research* 40, 156-167.
19. \*\* F. Nojavan A †, S.S. Qian, H.W. Paerl, K.H. Reckhow, E.A. Albright (2014) A study of anthropogenic and climatic disturbance of the New River Estuary using a Bayesian belief network. *Marine Pollution Bulletin* 83, 107-115.

20. \*\* Qian, S.S. (2014) Statistics in ecology is for making a “principled” argument. *Landscape Ecology* 29, 937-939.
21. \*\* C.A. Stow, Y.K. Cha and S.S. Qian (2014) A Bayesian hierarchical model to guide development and evaluation of substance objectives under the 2012 Great Lakes Water Quality Agreement. *Journal of Great Lakes Research*, 40: 49-55.
22. \*\* M.R. DuFour†, J..J. Pritt, C.M. Mayer, C.A. Stow, S.S. Qian (2014) Bayesian hierarchical modeling of larval walleye (*Sander vitreus*) abundance and mortality: accounting for temporal and spatial variability on a large river. *Journal of Great Lakes Research*. 40: 29-40.
23. \*\* S.S. Qian (2014) Ecological threshold and environmental management: A note on statistical methods for detecting thresholds. *Ecological Indicators* 38, 192-197.
24. \*\* C.A. Stow, J. Dyble, D.R. Kashian, T.H. Johengen, K.P. Winslow, S.D. Peacor, S.N. Francoeur, A.M. Burtner, D. Palladino, N. Morehead, D. Gossiaux, Y. Cha, S.S. Qian, D. Miller (2014) Phosphorus targets and eutrophication objectives in Saginaw Bay: A 35 year assessment. *Journal of Great Lakes Research* 40, 4-10.
25. \*\* X. Hou, L. Ying, Y. Chang, S.S. Qian, Y. Zhang (2014) Modeling of nonpoint source nitrogen pollution from 1979 to 2008 in Jiaodong Peninsula, China *Hydrological Processes* 28, 3264-3275.
26. \*\* I. Alameddine †, S. Karmakar, S.S. Qian, H.W. Paerl, K.H. Reckhow (2013) Optimizing an estuarine water quality monitoring program through an entropybased hierarchical spatiotemporal Bayesian framework. *Water Resources Research* 49 (10), 6933-6945
27. \* T.F. Cuffney and S.S. Qian (2013) A critique of the use of indicator-species scores for identifying thresholds in species responses. *Freshwater Science* 32 (2), 471-488
28. \* W.J. Arendt, S.S. Qian, K.A. Mineard (2013) Population decline of the Elfin-woods Warbler *Setophaga angelae* in eastern Puerto Rico. *Bird Conservation International*, 2013, 1-11.
29. \* X Hou, T Wu, L Yu, S Qian (2013) Characteristics of multi-temporal scale variation of vegetation coverage in the Circum Bohai Bay Region, 1999-2009. *Acta Ecologica Sinica* 32 (6), 297-304
30. \*\* S.S. Qian (2012) On model coefficient estimation using Markov chain Monte Carlo simulations: A potential problem and the solution *Ecological Modelling*, 247, 302-306.
31. W.L. Bauerle, R. Oren, D.A. Way, S.S. Qian, P.C. Stoy, P.E. Thornton, J.D. Bowden, F.M. Hoffman, R.F Reynolds (2012), Photoperiodic regulation of the seasonal pattern of photosynthetic capacity and the implications for carbon cycling, *Proceedings of the National Academy of Sciences*, 109(22): 8612-8617.
32. S.S. Qian, T.F. Cuffney, and G. McMahon (2012), Multinomial regression for analyzing macroinvertebrate assemblage composition data, *Freshwater Science*, 31 (3), 681-694.
33. B.D. Best, P.N. Halpin, A.J. Read, E. Fujioka, C.P. Good, E.A. LaBrecque, R.S. Schick, J.J. Roberts, L.J. Hazen, S.S. Qian, D.L. Palka, L.P. Garrison, W.A. McLellan (2012) Online cetacean habitat modeling system for the US east coast and Gulf of Mexico, *Endangered Species Research*, 18:1-15.
34. S.S. Qian and T.F. Cuffney (2012) To threshold or not to threshold? That is the question. *Ecological Indicators* 15 (1), 1-9.
35. TF Cuffney, SS Qian, RA Brightbill, JT May, IR Waite (2011) Response to King and Baker: limitations on threshold detection and characterization of community thresholds, *Ecological Applications*, 21 (7), 2840-2845.
36. TF Cuffney, R Kashuba, SS Qian, I Alameddine, YK Cha, B Lee, JF Coles, G McMahon (2011) Multilevel regression models describing regional patterns of invertebrate and algal responses to urbanization across the USA, *Journal of the North American Benthological Society*, 30 (3), 797-819.
37. R. Wu †, S.S. Qian, F. Hao, H. Cheng, D. Zhu, and J. Zhang (2011) Modeling Contaminant Concentration Distributions in China’s Centralized Source Waters. *Environmental Science and Technology*, 45(14): 60416048.

38. T.F. Cuffney, R. Kashuba, S.S. Qian, I. Alameddine, Y.K. Cha, B. Lee, J.F. Coles, and G. McMahon (2011) Multilevel regression models describing regional patterns of invertebrate and algal responses to urbanization across the USA. *Journal of the North American Benthological Society* 30(3): 797-819.
39. I. Alameddine, S.S. Qian, and K.H. Reckhow (2010). A Bayesian changepoint–threshold model to examine the effect of TMDL implementation on the flow-nitrogen concentration relationship in the Neuse River basin. *Water Research* 45(1): 51-62.
40. Z. Zhang and X. Yu and S.S. Qian and J. Li (2010) Spatial variability of soil nitrogen and phosphorus of a mixed forest ecosystem in Beijing, China, *Environmental Earth Sciences*, 60(8): 1783-1792.
41. N. Li and Z. Fu and X. Zhang and S.S. Qian (2010) Assessing the Risk of Hydroxybenzene Contamination in Fish Raised on a Chinese Aquaculture Farm, *Human and Ecological Risk Assessment*, 16: 212-224.
42. S.S. Qian, T.F. Cuffney and I. Alameddine and G. McMahon and K.H. Reckhow (2010) On the Application of Multilevel Modeling in Environmental and Ecological Studies, *Ecology*, 91(2): 355-361.
43. S.S. Qian and J.K. Craig and M.M. Baustian and N.N. Rabalais (2009) A Bayesian hierarchical modeling approach for analyzing observational data from marine ecological studies, *Marine Pollution Bulletin*, 58(12): 1916-1921.
44. A.D. Gronewolda, S.S. Qian, R.L. Wolpert, and K.H. Reckhow (2009) Calibrating and validating bacterial water quality models: A Bayesian approach, *Water Research*, 43(10): 2688-2698.
45. K.H. Reckhow, S.S. Qian, D. Hammel (2009) A multilevel model of the impact of farm-level BMPs on phosphorus runoff. *Journal of the American Water Resources Association*, 45(2): 369-377.
46. C.J. Richardson, S.S. Qian, P. Vaithyanathan, Panchabi, R.S. King, R.G. Qualls, and C.A. Stow (2008) Response to Comment on “Estimating Ecological Thresholds for Phosphorus in the Everglades”, *Environmental Science and Technology*, 42(17): 6772-6773.
47. B. Poulter, S.S. Qian and N.L. Christensen (2008) Determinants of coastal treeline and the role of abiotic and biotic interactions, *Plant Ecology* (2008), pp. DOI 10.1007/s11258-008-9465-3
48. D. Harmel, S.S. Qian, K.H. Reckhow, P. Casebolt (2008) The MANAGE Database: Nutrient Load and Site Characteristic Updates and Runoff Concentration Data, *Journal of Environmental Quality*, 37: 2403-2406.
49. K.K. Karanth, R.A. Kramer, R.A., S.S. Qian, N.L. Christensen (2008) Examining conservation attitudes, perspectives, and challenges in India. *Biological Conservation* 141:2357-2367.
50. B. Poulter, N.L. Christensen, N.L., S.S. Qian (2008) Tolerance of *Pinus taeda* and *Pinus serotina* to low salinity and flooding: Implications for equilibrium vegetation dynamics. *Journal of Vegetation Science* 19: 15-22.
51. A.S. Friedlaender, W.R. Fraser, D. Patterson, S.S. Qian (2008) and P.N. Halpin, The effects of prey demography on humpback whale (*Megaptera novaeangliae*) abundance around Anvers Island, Antarctica, *Polar Biology*, 31(10): 1217-1224.
52. C.J. Richardson, R.S. King, S.S. Qian, P. Vaithyanathan, R.G. Qualls, and C.A. Stow (2007) Estimating ecological thresholds for phosphorus in the Everglades. *Environmental Science and Technology*, 41(23): 8084-8091.
53. C.E. Sellinger, C.A. Stow, E.C. Lamon, and S.S. Qian (2007) Recent water level declines in the Lake Michigan-Huron system, *Environmental Science and Technology*, 42(2): 367-373.
54. Arhonditsis, G.B., Qian, S.S., Stow, C.A., Lamon, E.C., and Reckhow, K.H. (2007) Eutrophication risk assessment using Bayesian calibration of process-based models: Application to a mesotrophic lake. *Ecological Modelling*, 208: 215-229.
55. Best, B.D., Halpin, P.N., Fujioka, E., Read, A.J., Qian, S.S., Hazen, L.J., and Schick, R.S. (2007) Geospatial web services within a scientific workflow: Predicting marine mammal habitats in a dynamic environment. *Ecological Informatics*, 2: 210-223.

56. Qian, S.S. and K.H. Reckhow (2007) Combining model results and monitoring data for water quality assessment, *Environmental Science and Technology*, 41, 5008-5013.
57. Qian, S.S. and Shen, Z. (2007) Ecological applications of multilevel analysis of variance, *Ecology*, 88(10): 2489-2495.
58. Lamon, E.C. and Qian, S.S. (2007) Regional scale stressor-response models in aquatic ecosystems. *Journal of American Water Resources Association*, 44(3):771-781.
59. Stow, C.A., Reckhow, K.H., Qian, S.S., Lamon, E.C., Arhonditsis, G.B., Borsuk, M.E. and Seo, D. (2007) Evaluating water quality model uncertainty for adaptive TMDL implementation. *Journal of American Water Resources Association*, 43(6):1499-1507.
60. Malve, O. and Qian, S.S. (2006) Estimating nutrients and chlorophyll a relationships in Finnish Lakes. *Environmental Science and Technology*, 40(24):7848-7853.
61. Qian, S.S. and R.E. Lyon (2006) Characterization of background levels of contaminants using a mixture of normal distributions, *Environmental Science and Technology*, 40(19): 6021-6025.
62. Stow, C.A., K.H. Reckhow, and S.S. Qian (2006) A Bayesian approach to retransformation bias in transformed regression, *Ecology*, 87(6):1472-1477.
63. Friedlaender, A.S., Halpin, P.N., Qian, SS, Lawson, GL, Weibe, PH, Thiele, D., and Read, A.J. (2006) Whale distribution in relation to prey abundance and oceanographic processes in shelf waters of the Western Antarctic Peninsula. *Marine Ecology Progress Series*, 317:297-310.
64. Redfern, J.V., Ferguson, M.C., Becker, E.A., Hyrenbach, K.D., Good, C., Barlow, J., Kaschner, K., Baumgartner, M.F., Forney, K.A., Ballance, L.T., Fauchald, P., Halpin, P., Hamazaki, T., Pershing, A.J., Qian, S.S., Read, A., Reilly, S.B., Torres, L., and Werner, F. (2006) Techniques for cetaceanhabitat modeling, *Marine Ecology Progress Series*, Vol. 310: 271-295.
65. Qian, S.S., K.G. Linden, M. Donnelly (2005) A Bayesian analysis of mouse infectivity data to evaluate the effectiveness of using ultraviolet light as a drinking water disinfectant. *Water Research*, (39):4229-4239.
66. Qian, S.S., K.H. Reckhow, J. Zhai, G. McMahon (2005) Nonlinear regression modeling of nutrient loads in streams – a Bayesian approach *Water Resources Research*, 41(7):W07012.
67. Stow, C.A., Qian, S.S., and Craig, J.K. (2005) A Declining Threshold for Hypoxia in the Gulf of Mexico. *Environmental Science and Technology*, 39, 716-723.
68. Lamon, E.C., Qian, S.S., and Richter, D. (2004) Temporal changes in the stream flow vs. sediment concentration relationship in the Yadkin River, NC, USA. *Journal of the American Water Resources Association*, 40(5):1219-1229.
69. Qian, S.S., Schulman, A., Koplos, J., Kotros, A., and Kellar, P. (2004) A Hierarchical Modeling Approach for Estimating National Distributions of Chemicals in Public Drinking Water Systems. *Environmental Science and Technology*, 38:1176-1182.
70. Stow, C.A., Lamon, E.C., Qian, S.S., Schrank, C.S. (2004) Will Lake Michigan Lake Trout Meet the Great Lakes Strategy 2002 PCB Reduction Goal?, *Environmental Science and Technology*, 38:359-363.
71. Qian, S.S., Donnelly, M., Schmelling, D.C., Messner, M., Linden, K.G., and Cotton, C. (2004) Ultraviolet Light Inactivation of Cryptosporidium and Giardia in Drinking Water: A Bayesian Meta-Analysis. *Water Research*, 38:317-326.
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### **Books and Book Chapters**

92. \*\* Qian, S.S. (2016) *Environmental and Ecological Statistics with R*. (2nd Ed) Chapman and Hall/CRC Press.

93. Qian, S.S. (2012) Analytical Options for Estimating Ecological Thresholds: Statistical Considerations. In: R.A. Gitzen, J.J. Millspaugh, A.B. Cooper, and D.S. Licht, (Eds.) *Design and Analysis of Long-term Ecological Monitoring Studies*, Cambridge University Press. 2012. pp. 279-297.
94. Qian, S.S. (2010) *Environmental and Ecological Statistics with R*. Chapman and Hall/CRC Press. (Published in August 2009)
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98. Stow, C.A.; Lamon, E.C.; Qian, S.S.; Soranno, P.A.; Reckhow, K.H. (2008) Bayesian Hierarchical/Multilevel Models for Inference and Prediction Using Cross-Sectional Lake Data. In: Miao, S.; Carstenn, S.; Nungesser, M. (eds.) *Real World Ecology: Large-scale and Long-term Case Studies and Methods*, Springer, 2008, pp. 111-136.
99. Shatkin, J.A. and Qian, S.S. (2005) Classification Schemes for Priority Setting and Decision Making. In: Linkov, I. and Ramadan, A.B. (eds), *Comparative Risk Assessment and Environmental Decision Making*, Springer, 2005, pp 213-243.
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**Presentations** (\*: since joining UT, †: my graduate student, ‡: other student and work as a result of my teaching)

1. \* S.S. Qian, C.A. Stow, T. Davis, D. Gossiaux, T. Johengen, A. Burtner, D. Palladino, and A. Ritzenthaler (2016) Forecasting the Risk of High Microcystin Concentration Events in Western Lake Erie. IAGLR 2016 Conference, University of Guelph, Guelph, Ontario, Canada, June 2016.
2. \* S.S. Qian, R Implementation of SPARROW. IAGLR 2016 Conference, University of Guelph, Guelph, Ontario, Canada, June 2016.
3. \* Yanos, C.L.†, S.S. Qian, C.M. Mayer, M.W. Rogers, and D.D. Kane. Effects of productivity gradients on fish-community structure in Lake Erie. 146th American Fisheries Society Annual Meeting, August 23, 2016.
4. \* Yanos, C.L.†, S.S. Qian, C.M. Mayer, M.W. Rogers, and D.D. Kane. Drivers of fish-community structure in Lake Erie. International Association of Great Lakes Research 59th Annual Conference on Great Lakes Research, June 10, 2016.
5. \* Nummer, S.A.†, S.S. Qian, J. Bossenbroek, and R.D. Harmel. Effect of Conservation Practices on Agricultural Nutrient Loss. International Association of Great Lakes Research 59th Annual Conference on Great Lakes Research, June 10, 2016.
6. \* Yanos, C.L.†, S.S. Qian, C.M. Mayer, M.W. Rogers, and D.D. Kane. Drivers of fish-community structure in Lake Erie. 7th Annual Midwest Graduate Research Symposium, April 9, 2016.
7. \* DuFour, M. R.†, Mayer, C. M., Qian, S. S., Kocovsky, P. M., Kraus, R. K., Vandergoot, C. S., and D. M. Warner.. Hydroacoustic abundance estimates and walleye behavior: a tale of two ships. International Association of Great Lakes Research Conference, Guelph, Ontario, June 2016.
8. \* DuFour†, M. R., Mayer, C. M., Qian, S. S., Kocovsky, P. M., Kraus, R. K., Vandergoot, C. S., and D. M. Warner. Hydroacoustic abundance estimates and walleye behavior: a tale of two ships. ODNR Division of Wildlife/The Ohio State University Research Review, Columbus, OH, January 2016.

9. \* S.S. Qian, T. Bridgeman, and P.C. Golnick‡ (2015) Apples to Apples: A Bayesian approach for comparing water quality measurements from different sources. IAGLR Annual Conference, May 2015, Burlington VT.
10. \* S.S. Qian and J.D. Chafin (2015), Quantifying and reducing uncertainty in estimated microcystin concentrations from the ELISA method. IAGLR Annual Conference, May 2015, Burlington VT.
11. \* P.C. Golnick‡, T.B. Bridgeman, J.D. Chafin, and S.S. Qian (2015), A Statistical Comparison of Sampling and Analytical Methods Used by Lake Erie Research Institutions. IAGLR Annual Conference, May 2015, Burlington VT.
12. \*Song Qian, Mark DuFour†, Christine Mayer, and Christopher Vandergoot. Statistics and Walleye apportionment – a prelude. Ohio Department of Natural Resources Research Review, January 29-30, 2015.
13. \*DuFour, M.R.†, Qian, S. S., Mayer, C. M., and C. S. Vandergoot. Bayesian shrinkage estimators in fisheries: improving population estimates by moving toward the middle. 75th Midwest Fish and Wildlife Conference, Indianapolis, IN, February, 2015.
14. \* Song Qian, T.F. Cuffney, R.H. Becker, S.K. Jackson, L.K. Cousino (2014) A hierarchical modeling approach for screening stream biological conditions. Joint Aquatic Sciences Meeting, May 19-23, Portland, OR.
15. \*Song Qian (2014) Statistical considerations in detecting and quantifying ecological thresholds. Joint Aquatic Sciences Meeting, May 19-23, Portland, OR.
16. \*Song Qian (2014) Implications of Stein’s Paradox in environmental standard compliance assessment. American Water Resources Association Annual Water Resources Conference, November 3-6, 2014, Washington, D.C.
17. \*P. Golnick‡, S.S. Qian, T.B. Bridgeman, Thermal threshold of hypoxia in Western Lake Erie, IAGLR-2014, May 26, 2014, Hamilton, Ontario, Canada
18. \*M. DuFour†, S.S. Qian, C. Mayer, C. Vanderroot, J. Tyson, P. Kocovsky, R. Kraus, and D. Warner, Coupling hydroacoustic and gillnet surveys: getting by with a little help from Bayesian friends. IAGLR-2014, May 28, 2014, Hamilton, Ontario, Canada
19. \*M. DuFour†, M. R., May, C. J., Pritt, J. J., Roseman, E. F., Mayer, C. M., Ludsin, S. A., Marschall, E.A., Fraker, M.E., Davis, J.J., Miner, J.G., Qian S.S., Vandergoot, C.S., and Tyson, J.T. Diversity in a multi-stock system: Temporal and spatial portfolio effects in Lake Erie walleye production. International Association of Great Lakes Research Conference, Hamilton, ON, May 2014
20. \*S.S. Qian. Zero-inflation in ecological data analysis A Bayesian hierarchical approach. Graduate Student Seminar Series, Department of Fisheries and Wildlife, Michigan State University, November 15, 2013.
21. \*Qian, S.S. and Cuffney, T.F., A Bayesian Hierarchical Modeling approach for macroinvertebrates species composition. 2013 Annual Conference of the Society of Freshwater Science, Jacksonville, Florida, May 2013.
22. \*Qian, S.S., When is a 0 really a zero? Seminar at NOAA-GLERL, Ann Arbor, MI, 27 November, 2012.
23. \*Qian, S.S., Bayesian hierarchical modeling in action. Department of Mathematics and Statistics Colloquium, Wright State University, Dayton, Ohio, March 29, 2013.
24. \*Qian, S.S., Cryptosporidium in your drinking water detection, quantification, and a Bayesian hierarchical model, Department of Environmental Sciences Seminar, 29 September, 2012.

## SERVICE

- Department computation committee
- Department program assessment committee (MS/PhD program)

- Faculty search committee, Department of Mathematics and Statistics (2013 and 2015)
- Associate Editor – Journal of the American Water Resources Association (2013-2016)
- Statistics Editor – Tree Physiology (2012-present)
- Editor, Environmental and Ecological Data Analysis and Modeling, a book series to be published jointly by Wiley and China Higher Education Press (2011-present)
- Manuscript and grant proposal review –  
 Manuscript review for *BioScience*, *Canadian Journal of Civil Engineering*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Conservation Letters*, *Ecological Applications*, *Ecology*, *Ecosystems*, *Environmental Engineering Science*, *Environmental Research Letters*, *Environmental Science and Technology*, *Frontier of Ecology and the Environment*, *Hydrological Processes*, *Journal of Agricultural, Biological, and Environmental Statistics*, *Journal of American Water Resources Association*, *Journal of Endangered Species Research*, *Journal of Environmental Quality*, *Journal of Environmental Engineering*, *Journal of Environmental Management*, *Journal of Great Lakes Research*, *Journal of Hydrological Engineering*, *Journal of the North American Benthological Society*, *Journal of Water Resources Planning and Management*, *Lake and Reservoir Management*, *Landscape Ecology*, *Limnology and Oceanography*, *Nature*, *Nature-Communication*, *Nature-Geoscience*, *PlosOne*, *Science of the Total Environment*, *Tree Physiology*, *Water*, *Water Research*, *Water Resources Research*
- Grant proposal review for National Science Foundation,  
 Department of Environmental Quality, State of Oregon,  
 Environmental Services, City of Portland, Oregon,  
 South Florida Water Management District,  
 Maryland Seagrant,  
 Water Resources Research Institute of the University of North Carolina,  
 Corporative Analysis of Marine Ecosystem Organization,  
 Ohio Water Resources Research Institute Program

## **SOCIETY MEMBERSHIPS**

American Water Resources Association, American Statistical Association, American Association for the Advancement of Science, American Society of Limnology and Oceanography, International Associate of Great Lakes Research, Society of Freshwater Science