

# LAWRENCE A. BAKER, Ph.D

## WaterThink, LLC

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### **CAPABILITIES**

- Research and analysis on wide range of water and environmental issues.
- Development of novel environmental management concepts.
- Integrated environmental science assessment.
- Writing at all levels - peer-reviewed journals, practitioner magazines and popular press.
- Team leadership and project management.
- Expert testimony.
- Public and technical speaking.

### **BACKGROUND**

#### **EDUCATION**

1984 Ph.D. Environmental Engineering Sciences, University of Florida.

1979 M.S. Civil and Environmental Engineering, Utah State University.

1973 B.S. Biology, Pennsylvania State University (emphasis in aquatic ecology).

#### **EXPERIENCE**

2008 WaterThink, LLC (owner).

2001-present Senior Fellow, Water Resources Center, University of Minnesota.  
Graduate Faculty, Water Resources Science Program (“Senior” standing).

1999-present Independent environmental consultant.

1992-1999 Assist. Professor, Department of Civil and Environmental Engineering, Arizona State University.

1987-1992 Research Associate, University of Minnesota.

1989-1991 Technical Director, Synthesis and Integration Project, Surface Water Acidification, EPA’s Environmental Research Laboratory, Corvallis, Oregon (on loan from U. of Minnesota).

#### **OTHER**

- Fulbright Senior Specialist Roster (candidacy approved 2005)

## **RECENT RESEARCH AND CONSULTING HIGHLIGHTS (PAST 5 YEARS)**

- Book editor, “The Water Environment of Cities”, 2009.
- Developed household model of carbon, nitrogen and phosphorus fluxes in households; implemented hybrid approach to estimate fluxes (including CO<sub>2</sub> emissions) for 3,000 households. (Sponsor: National Science Foundation).
- Developed framework for source reduction for urban stormwater management (for MPCA).
- Demonstrated use of whole-watershed phosphorus balances as a tool for lake management (for U.S. Forest Service).
- Developed model of salt contributions to wastewater in five southwestern cities (with CH2MHill, for the American Water Works Research Foundation).
- Developed adaptive management approach to reduce taste and odors in water supplies (with ASU, for the City of Phoenix).
- Extensive involvement (many projects) in the Central Arizona-Phoenix Long-Term Ecological Research Project over 10 years – whole city nitrogen and salt balances; urban heat island impacts; groundwater contamination; ecosystem resilience)

## **KEY SCIENCE/POLICY ASSESSMENT PROJECTS**

- Water Policy Study Committee, Citizens League of Minnesota (Leadership Team), ongoing. Project will develop core principles for managing Minnesota’s waters in the 21<sup>st</sup> Century
- Chairman, Human Health Committee, AZ Comparative Environmental Risk Project (1994-1995). Governor-appointed committee evaluated and ranked environmental risks to human health and produced a 200-page report.
- Technical Director, Synthesis and Integration Project for Surface Water Acidification, EPA’s Environmental Research Laboratory (1989-1991). Led group to prepared national state-of-science report on current status of surface water acidification in the U.S.; coordinated subcontractors; contributed to *Integrated Assessment* report to the U.S. Congress.

## **EXPERT TESTIMONY**

- Expert testimony regarding water quality for ethanol plants (clients: Minnesota Center for Environmental Advocacy; Midwest Environmental Advocates)
- SONAR for Minnesota nutrient standards, Sept. 2007 (written comments for MCEA).
- Minnesota Legislative Hearings on Acid Precipitation. Expert testimony for for Northern States Power Co., 1986.

## **HONORS AND AWARDS**

- Listed in *Who’s Who in America*. 58<sup>th</sup> ed., 2004.
- Best Teacher, Arizona Student Chapter of the American Society Civil Engineering, Fall 1997.
- Governor’s Recognition Award, 1996 (for leadership in Arizona Comparative Environmental Risk Project).
- ASU Wakonsee Fellowship, 1994 (teaching excellence).

- Best Journal Article, Corvallis EPA Environmental Research Laboratory, Fall 1990.
- Sommerfeld Doctoral Fellow, Department of Civil Engineering, U. of Minnesota, 1981-83.
- President, Environmental Engineering Graduate Student Association, U. of Florida (1980) and at U. of Minnesota (1982).

## **PUBLICATIONS (more than 100 total)**

### **BOOKS**

- Baker, L.A. (editor). 1994. *Environmental Chemistry of Lakes and Reservoirs*, Advances in Chemistry Series #237, American Chemical Society Books, Washington, D.C. 627 pp.
- Baker, L.A. (editor). 2009. *The Water Environment of Cities*. Springer Scientific, <http://www.springer.com/environment/environmental+management/book/978-0-387-84890-7>
- The End of Pollution*. Writing underway.

### **POLICY-RELATED SCIENCE ASSESSMENT REPORTS**

- ACERP 1995 (Committee chair). *Human Health: Part 4 of the Final Report of the Arizona Comparative Environmental Risk Project*. Human Health Committee (Governor's appointees) of the Arizona Comparative Risk Project for the Arizona Department of Environmental Quality. 215 pp.
- NAPAP. 1991. *1990 Integrated Assessment: Report to Congress*. (Primary Technical Contributor" to the Aquatic Assessment chapter). Prepared by NAPAP Integrated Task Group for the U.S. Congress. NAPAP, 722 Jackson Place, Washington, D.C.
- Baker, L.A., P.R. Kaufmann, A.T. Herlihy, and J.M. Eilers. 1990. *Current Acid-Base Status of Surface Waters. State-of-Science Report #9*, National Acid Precipitation Assessment Program, 722 Jackson Place, Washington, DC. 367 pp.

### **MANUALS AND REPORTS**

- Chapters for *Assessment of Stormwater Best Management Practices*, edited by J. Gulliver and J. Anderson, online at <http://wrc.umn.edu/outreach/stormwater>:
- Baker, L., B. Wilson, J. Gulliver, O. Moshiri, A.J. Erickson and R. Hozalsky. Chapter 2: Stormwater Processes.
- Baker, L. and B. Ashelon. 2007. Chapter 6: Analysis of Soils and Water
- Baker, L., R. Hozalski, and J. Gulliver 2007. Chapter 7: Source Reduction.
- Nieber, J., A.J. Erickson, L. Baker, and J. Gulliver and R. Hozalsky. Chapter 9: Infiltration Practices.
- Thompson, K., W. Christofferson, D. Robinette, J. Curl, L. Baker, J.Brereton, K.Reich 2005. *Characterizing and Managing Salinity Loadings in Reclaimed Water Systems*, American Water Works Association Research Foundation, Denver, CO.
- Sommerfeld, M., Westerhoff, P., and L. Baker. 2002. *Guidance Manual for Reducing MIB and Geosmin in Water Supplies in the Phoenix Metropolitan Area*. City of Phoenix, July 2002. ~60 pp.

- Westerhoff, P., M. Sommerfeld, and L. Baker. 2002. Reducing Taste and Odor and Other Algae-Related Problems for Surface Water Supplies in Arid Environments. Final Report to the City of Phoenix, July 2002. 300+ pp.
- Baker, L.A., P.L. Brezonik, and C. Kratzer. Nutrient loading-trophic state relationships for Florida Lakes. Publication #56, Florida Water Resources Center, University of Florida, Gainesville.

**JOURNAL ARTICLES AND BOOK CHAPTERS (graduate student coauthors are boldfaced and italicized)**

1. Baker, L. New directions in management of urban pollution. In: Baker, L. (ed.), *The Water Environment of Cities*, Springer Science, Lowell, MA.
2. Baker, L., J. P. Shanahan, and J. Holway. 2009. Principles for managing the urban water environment in the 21<sup>st</sup> century (synthesis chapter), Baker, L. (ed.) *The Water Environment of Cities*, Springer Scientific, Lowell, MA.
3. Baker, L., B. Wilson, D. Fulton and B. Horgan. 2008. Disproportionality as a framework to target nutrient reduction from urban landscapes (invited paper). *Cities and the Environment* 1(2): Article 7.
4. Kaye, J., A. Majumdar, C. Gries, A. Buyantuyev, N. Grimm, D. Hope, D. Zhu, W. Jenerette and L. Baker. 2008. Hierarchical Bayesian scaling of soil properties across urban, agricultural and desert ecosystems. *Ecological Applications* 18: 132-145.
5. Baker, L.A., **J. Schussler** and S. Snyder. 2008. Drivers of changes in lake clarity. *J. Lake and Reservoir Management* 24: 30-40.
6. Baker, L.A., et al. 2007. Symposium: effect of human choices on characteristics of human ecosystems. *Bulletin of the Ecological Society of America*, Oct. 2007, 404-409.
7. Baker, L. A. and P.L. Brezonik. 2007. Using whole-system mass balances to craft novel approaches for pollution reduction: examples at scales from households to urban regions. In: *Cities of the Future: Towards Integrated Sustainable Water and Landscape Management*, edited by V. Novotny and P. Brown, IWA Publishing, London.
8. **Schussler, J.**, L. Baker and H. Chester-Jones. 2007. Whole-system phosphorus model for analysis of P management in watersheds. *Ecological Engineering* 29:294-304.
9. **Savanick, S.**, L.A. Baker, J. Perry. 2007. Nitrogen budget of the University of Minnesota, Twin Cities Campus. *Urban Ecosystems* 10: 119-137
10. **Xu, Y.**, L. Baker, and P. Johnson. 2007. Effect of land use changes on temporal trends in groundwater nitrate concentrations in and around Phoenix, Arizona, *Ground Water* 27(2): 49-56.
11. Baker, L.A., **P. Hartzheim**, S. Hobbie, K. Nelson, J. King. 2007. Influence of consumption choices on C, N and P fluxes through households. *Urban Ecosystems* 10:97-117.
12. Kaye, J., P. Groffman, N. Grimm, L. Baker, and R. Pouyat. 2006. A distinct urban biogeochemistry? *Trends in Research in Ecology and Evolution* 4: 192-199.
13. Baker, L. Perils and pleasures of multidisciplinary research. 2006. *Urban Ecosystems* 9: 45-47.
14. Baker, L.A., P. Westerhoff, M. Sommerfeld. 2006 An adaptive management strategy using multiple barriers to control tastes and odors. *J. American Water Works Association* 98 (6): 113-126.
15. Westerhoff, P., L. Baker, M. Sommerfeld. 2005. Degradation of algal metabolites (2-methylisoborneol and geosmin) in semi-arid region reservoirs. *Water Research* 39:4899-4912.

16. Hope, D., W. Zhu, C. Gries, J. Oleson, J. Kaye, N. B. Grimm, L. Baker. 2005. Spatial variation in soil inorganic nitrogen across an arid urban ecosystem, *Urban Ecosystems* 8: 251-273.
17. **Nguyen, M.L.**, P. Westerhoff, L.A. Baker, M. Esparza-Soto, Q. Hu, M. Sommerfeld. 2005. Characteristics and reactivity of algae-produced dissolved organic carbon. *J. Env. Engineering*, 131:1574-1582.
18. Baker, L.A., T. Brazel, and P. Westerhoff. 2004. Environmental consequences of rapid urbanization in warm, arid lands: case study of Phoenix, Arizona (USA). In: *The Sustainable City III*, edited by N. Marchettini, C. Brebbia, E. Tiezzi, and L.C. Wadhwa, Advances in Architecture Series, WIT Press, Boston.
19. Mash, H., **M.L. Nguyen**, P.K. Westerhoff, L.A. Baker, and R. Neiman. 2004. Dissolved organic matter in Arizona reservoirs: end member analysis, *Organic Geochemistry* 35:831-843.
20. Hu, Q., M. Sommerfeld, L.A. Baker, and P. Westerhoff. 2003. Canal wall brushing - a control measure for taste and odor problems in drinking water supplies in arid environments. *J. Water Supply: Research and Technology – Aqua* 52:8: 545-554.
21. Baker, L.A., T. Brazel, N. Selovar, C. Martin, F. Steiner, N. McIntyre, A. Nelson, L. Musacchio. 2002. Urbanization and warming of Phoenix (Arizona, USA): Impacts, Feedbacks, and Mitigation. *Urban Ecosystems* 6: 183-203.
22. **Nyguen, My Lin**, L. Baker, and P. Westerhoff. 2002. Sources of DOC and DBP precursors in western U.S. watersheds and reservoirs. *J. Am. Water Works Assoc.* 94(5): 98-112.
23. Baker, L.A., D. Hope, **Y. Xu, Lisa Lauver**, J. Edmonds. 2001a. Nitrogen mass balance for the Central Arizona-Phoenix ecosystem. *Ecosystems* 4(6): 582-602.
24. Baker, L.A., D. Hope, **Y. Xu**, and **J. Edmonds**. 2001b. Multicompartment ecosystem nitrogen balances as a tool to understand and manage biogeochemical cycles in human ecosystems. *TheScienceWorld*, Proc. Second International Nitrogen Conference (N2001), Potomac, MD, October 14-18, 2001.
25. Grimm, N.B., L.A. Baker, and D. Hope. 2001. An ecosystem approach to understanding cities: familiar foundations and uncharted frontiers. In *Understanding Urban Ecosystems: A New Frontier for Science and Education*, edited by A.R. Berkowitz, C.H. Nilon, and K.S. Hollweg, Springer-Verlag, pp. 94-114.
26. **Gerke, S.**, L. Baker, **Y. Xu**. 2001. Sequential model of nitrogen transformations in a treatment wetland receiving lagoon effluent. *Water Research* 35 (16): 3857-3866.
27. Urban, N.R., C.J. Sampson, P.L. Brezonik, and L.A. Baker. 2001. Sulfur cycling in the water column of Little Rock Lake, Wisconsin. *Biogeochem.* 52: 41-77.
28. Baker, L.A., and P. Westerhoff . 2000. Chapter 6: Low-tech system to treat and reuse wastewater on the U.S.-Mexico border. In: Westerhoff, P. (ed.). *Water Issues on the U.S.-Mexico Border*, San Diego: San Diego State University Press.
29. **Whitmer, S.**, and L. Baker. 2000. Loss of bromide in a wetland tracer experiment. *J. Environmental Quality* 29: 2042-2045.
30. **Lauver, L.**, and L. Baker. 2000. Mass balance for wastewater nitrogen in the Central Arizona-Phoenix ecosystem. *Water Research* 34: 2754-2760
31. **Pinney, M.**, P. Westerhoff, L. Baker. 2000. Transformations of dissolved organic carbon through constructed wetlands. *Water Research* 34: 1897-1911.

32. **Farnsworth-Lee, L.**, and L.A. Baker. 2000. Conceptual model of aquatic plant decay and ammonia toxicity for shallow lakes. *J. Env. Eng. (ASCE)*, 126(3): 199-207.
33. **Johnson, J.S.**, L.A. Baker and P. Fox. 1999. Geochemical transformations during artificial recharge of groundwater: soil-water interactions of inorganic constituents. *Water Research* 33: 196-2006.
34. Baker, L.A. 1998. Design considerations and applications for wetland treatment of high-nitrate waters. *Water Science Technology* 38: 389-395.
35. Baker, L.A., **Qureshi, T.**, and M. Wyman. 1998. Sources and mobility of arsenic in the Salt and Verde Rivers, Arizona. *Water Resources Research* 34(6): 1543-1552.
36. **Ingersoll, T.** and L.A. Baker. 1998. Nitrate removal in wetland microcosms. *Water Research* 32: 766-684.
37. **Parks, S.**, and L.A. Baker. 1997. Sources and transport of organic carbon in an Arizona river-reservoir system. *Water Research* 31: 1751-1759.
38. Baker, L.A. 1996. Lakes and Reservoirs. Chapter 9 in *Handbook of Water Resources*, edited by L. Mays, McGraw-Hill Books, pp 9-1 to 9-56.
39. Urban, N.R., P.L. Brezonik, L.A. Baker, and L.A. Sherman. 1994. Sulfate reduction and diffusion in sediments of Little Rock Lake, Wisconsin. *Limnol. Oceanogr.* 39: 797-815.
40. Sherman, L.A., L.A. Baker, P.L. Brezonik, and E.P. Weir. 1994. Sediment porewater dynamics of Little Rock Lake, Wisconsin: Geochemical processes and seasonal and spatial variability. *Limnol. Oceanogr.* 39: 1155-1171.
41. Baker, L.A., D.E. Engstrom, and P.L. Brezonik. 1992. Recent sulfur enrichment in the sediments of Little Rock Lake, Wisconsin. *Limnol. Oceanogr.* 37: 689-702.
42. Kaufmann, P.R., A.T. Herlihy, and L.A. Baker. 1992. Sources of acidity in lakes and streams of the United States. *Environmental Pollution* 77: 115-122.
43. Baker, L.A. 1992. Introduction to nonpoint source pollution in the United States and prospects for wetland use. *Ecological Engineering* 1: 1-26.
44. Baker, L.A., A. Herlihy, and P. Kaufmann. 1991a. Acidic lakes and streams in the United States: role of acidic deposition. *Science* 252: 1151-1154. Also, Baker et al., Reply to Krug and Warnick, *Science* 253: 1334-1335.
45. Baker, L.A. J.M. Eilers, R.B. Cook, P.R. Kaufmann, and A.T. Herlihy. 1991b. Interregional comparison of surface water chemistry and biogeochemical processes. Chapter 17 in *Acidic Deposition and Aquatic Ecosystems*, edited by Don Charles, Springer-Verlag, New York, pp. 567-613.
46. Baker, L.A. 1991. Ion enrichment calculations. Appendix A in *Acidic Deposition and Aquatic Ecosystems*, edited by Don Charles, Springer-Verlag, New York, pp. 641-644.
47. Baker, L.A. 1991. Regional estimates of dry deposition. Appendix B in *Acidic Deposition and Aquatic Ecosystems*, edited by Don Charles, Springer-Verlag, New York, pp. 645-652
48. Baker, L.A., and E. Swain. 1990. Lake management in Minnesota. *Lake and Reservoir Management* 5: 1-10.
49. Webster, K., A.D. Newell, L.A. Baker, and P.L. Brezonik. 1990. Climatically induced rapid acidification of a softwater seepage lake. *Nature*: 347: 374-376. *This paper was awarded "Best Journal Publication", Corvallis Environmental Research Laboratory, Third Quarter, 1990.*

50. Baker, L.A., N.R. Urban, and P.L. Brezonik. 1989. Sulfur cycling in Little Rock Lake. Chapter 7 in *Biogenic Sulfur in the Environment*, edited by W. J. Cooper and E. S. Saltzman, ACS Symposium Series 393, American Chemical Society, Washington, D.C., pp. 79-100.
51. Urban, N.R., and L.A. Baker. 1989. Alkalinity generation associated with the formation of ester sulfates. *Limnol. Oceanogr.* 34: 1144-1146.
52. Baker, L.A., and P.L. Brezonik. 1988a. Dynamic model of in-lake alkalinity generation. *Water Resources Research* 24: 65-74.
53. Baker, L.A., C.D. Pollman, and J.M. Eilers. 1988b. Alkalinity regulation in Florida softwater lakes. *Water Resources Research* 24: 1069-1082.
54. Baker, L.A. and P.L. Brezonik. 1988c. Reply to "Comment on dynamic model of internal alkalinity generation" by Rudd et al., *Water Resources Research* 24: 1828-1830.
55. Baker, L.A., J. Tacconi, and P.L. Brezonik. 1988d. Role of sedimentation in regulating major ion composition of softwater lakes. *Verh. Internat. Verein. Limnol.* 23: 346-350.
56. Brezonik, P.L., L.A. Baker, and T.E. Perry. 1987. Mechanisms of alkalinity generation in acid-sensitive softwater lakes. Chapter 9 in *Sources and Fates of Aquatic Pollutants*, edited by Hites, R. A., and S.J. Eisenreich, Advances in Chemistry Series #216, American Chemical Society, Washington, pp. 229-260.
57. Baker, L.A., and P.L. Brezonik. 1985. Sulfate mass balance for a small, acidic lake. In: *Planetary Ecology*, edited by D.E. Caldwell, J.A. Brierley, and C.L. Brierley, Van Nostrand Reinhold Co., pp. 297-306.
58. Baker, L.A., P.L. Brezonik, and E.S. Edgerton. 1986a. Sources and sinks of ions in a softwater, acidic lake. *Water Resources Res.* 22: 715-722.
59. Baker, L.A., P.L. Brezonik, and C.D. Pollman. 1986b. Model of internal alkalinity generation in softwater lakes: sulfate component. *Water, Air, Soil Pollution* 30: 89-94.
60. Brezonik, P.L., L.A. Baker, J. Eaton, T. Frost, P. Garrison, T. Kratz, J. Magnuson, J. Perry, W. Rose, B. Shepard, W. Swenson, C. Watras, and K. Webster. 1986. Experimental acidification of Little Rock Lake, Wisconsin. *Water, Air, Soil Poll.* 30: 115-122.
61. Baker, L.A., P.L. Brezonik, E.S. Edgerton, and R.W. Ogburn, III. 1985. Sediment acid neutralization in softwater lakes. *Water, Air, Soil, Poll.* 25: 215-230

Published conference proceeding papers (about 30) available upon request

## **TECHNICAL CONFERENCE PRESENTATIONS**

### **INVITED CONFERENCE PRESENTATIONS (since 2000 only)**

#### **Speaker underlined.**

1. Baker, L., K. Nelson, J. McFadden, Jennifer King, and S. Hobbie. Complexity in Human-Nature Interactions across Landscapes. Symposium at the US-IALE Conference, Snow Bird, Utah, April 12-16, 2009.
2. Baker, L. ("featured speaker") Nutrient cycling in cities. Conference on Ecological Landscaping: From Scientific Principles to Public Practices and Policies, October 28-31, 2007 in Cleveland, Ohio.

3. Nelson, K., L. Baker, P. Hartzheim, S. Hobbie, J. King and M. Payton. The influence of choice on nutrient fluxes through households and what influences choice. Symposium on the Role of Choice on Characteristics of Urban Ecosystems, Ecological Society of America, San Jose, CA, August 5-10, 2007.
4. Baker, L. and P. Brezonik. Biogeochemical cycles in cities. Cities of the Future, the Wingspread Workshop. NSF and others, Resort, Racine, WI, July 12-14, 2006.
5. Grimm, N.B., J.W. Edmonds, D. Hope, P. Westerhoff, and L. Baker. Understanding the response of southwestern rivers to urbanization using long-term records of conservative and reactive constituents. North Am. Benthological Society, Anchorage, AK, June 2006.
6. Baker, L., and S. Wolf. Sources of salt to municipal wastewater. 29<sup>th</sup> Annual Conference, Water Quality Association, Los Vegas, NV, March 18-22, 2003.
7. Baker, L. Nutrient cycling in coupled urban-agricultural systems. Workshop on the Science of Nutrient Cycling in Coupled Systems, College of Agriculture, Food and Environmental Sciences, U. of Minnesota, Sept. 23, 2002.
8. Baker, L. and W. Stefanov. Information engineering: a new paradigm for environmental management in the 21<sup>st</sup> century. Minnesota Water Conference, April 17-19, 2002.
9. Baker, L. An Ecosystem-Level Approach for Engineering the Biogeochemical Cycles of Cities and Farms. Keynote Talk, Midwest Water Chemistry Conference, Oct. 6-7, 2001.
10. Panel on salinity management, AZ Water Pollution Control Association Annual Conf., May 2-5, 2001.
11. Baker, L., D. Hope, N. Grimm, C. Martin, J. Briggs, and J. Klopateck. Carbon cycling in the Central Arizona-Phoenix ecosystem. Advances in Ecosystem Carbon Inventory, Measurement, and Monitoring, 2000, USDA Forest Service, Raleigh, NC, Oct. 3-5, 2000.

**Contributed presentations (~ 50 national and 30 state and regional) are listed on my academic web site.**

### **RECENT ACADMIC SEMINARS AND GUEST LECTURES (since 2005)**

1. Integrating human behavior into a model of urban biogeochemistry. IGERT graduate student seminar, April 27, 2009.
2. Can household consumption be altered to improve urban ecosystems? Macalester College, March 26, 2009.
3. An evolving paradigm for urban storm water management. Guest lecture, Sustainable Land Use (D. Fulton), Dept. Fisheries, Wildlife, and Conservation Biology, Sept. 30, 2008.
4. Management of water and pollutants in urban systems. Guest lecture, Sustainable Landscape Design (D. Strong), Dept. Landscape Architecture, Sept. 4, 2008.
5. Household and urban ecosystems. "Faculty in the News" freshman seminar, August 28, 2008.
6. The urban water environment: principles for the 21<sup>st</sup> century. Guest lecture, Metropolitan Landscape Ecology, Department of Landscape Architecture, U. of M., March 11, 2008; also March 10, 2009.

7. More effective, cheaper, fairer: using ecosystem approaches to reduce pollution. Presented at the Cedar Creek Natural History Area, June 27, 2007; and at LimnoTech, Inc., Ann Arbor, MI, September 2007.
8. Understanding the role of choice on characteristics of urban ecosystems. Guest lectures, Kristen Nelson, Environmental Science and Policy class, November, 2007 and 2008.
9. Whole-watershed P balances. Seminar. Dept. Soil Water and Climate, U. of Minnesota, February 19, 2007.
10. Humans and lake ecosystems. Ecotourism class, Department of Forest Resources, U of M, March 2006.
11. Impact and feedbacks of urban warming. Applied Climatology class, Dept. Soil, Water and Climate, U of M, February 2005.
12. Nutrient cycling in urban ecosystems: toward a new paradigm for pollution management. Landscape Ecology, Dept. of Landscape Architecture, U of M, February 2005

## **TEACHING PROFILE**

### **COURSES TAUGHT**

- Water Policy (ongoing, 5<sup>th</sup> year)
- Environmental Chemistry Lab (ASU and U of M)
- Water Quality Modeling and Assessment (ASU)
- Introduction to Environmental Engineering (ASU)
- Water Quality Management (ASU)

### **GRADUATE STUDENT SUPERVISION**

13 M.S. + 3 Ph.D.

## **PUBLIC ENGAGEMENT**

### **NEWSPAPER AND MAGAZINE ARTICLES (since 2005)**

1. Baker, L. Minnesota's Water Environment in the 21<sup>st</sup> Century, *Minnesota Journal*, May 2008.
2. Baker, L. "The trouble with road salt", *Minneapolis Star and Tribune*, May 22, 2008.
3. Baker, L. Enemy of the Lake. "With Water in Mind" feature, *Minneapolis Star and Tribune*, January 27, 2008
4. Baker, L. Urban stormwater: getting at the source (Feature article). 2007. *Stormwater Magazine* 8(8) Nov. 2007. [http://www.gradingandexcavating.com/sw\\_0711\\_stormwater.html](http://www.gradingandexcavating.com/sw_0711_stormwater.html).
5. Baker, L. What goes in upriver – must come down [on urban ecosystems]. "With Water in Mind" column, *Minneapolis Star and Tribune*, June 24, 2007.
6. Baker, L. Instant runoff [on source reduction for stormwater]. "With Water in Mind" column, *Minneapolis Star and Tribune*, April 15, 2007.
7. Baker, L. A. and J. Schussler. Whole-watershed P balances for lake management. *LakeLine*, June 2007.
8. Baker, L. Minnesota's energy: past, present and future. Facts Unfiltered section, *Minnesota Journal*, Sept. 2006.
9. Baker, L. The Minnesota water environment. "Facts Unfiltered" section, *Minnesota Journal*, May 2006.

10. Baker, L. Preserving Minnesota's lakes for our kid's kids. *Minnesota Journal*, April 2006.
11. Baker, L. Why Michelle Bachman should take her crusade off campus. *Minneapolis Star and Tribune* (column), May 2005.

### **PUBLIC TALKS AND WORKSHOPS (past three years)**

1. Planning for C emissions inventory. City of Golden Valley, MN, March 2009.
2. Twin Cities Household Ecosystems Project: Carbon footprints and beyond. MN chapter, American Planning Association, Dec. 18, 2008. Also presented at the Twin Cities Research Group Brown Bag, March 11, 2009.
3. Issues convention on energy policy--beta test. DFL Central Committee Meeting, St. Paul, MN, July 12, 2008.
4. Household flux studies (with K. Nelson and S. Hobbie). Sustainability Education Initiative (presentation to G7-12 teachers), University of Minnesota Education Department, July 2008.
5. Future of Minnesota's waters. St. Luke's Church, Minnetonka, April 27, 2008.
6. Role of personal consumption in Minnesota's energy situation. Chisago County Audubon Society, April 14, 2008.
7. Reflections on an issues convention on energy, DFL District 51 Convention, April 5, 2008.
8. Water policy workshop. Organized for a Citizens League "Policy Forum", Feb. 2008.
9. "Action Forum" panelist, Augsburg College's Focus the Nation workshop, January 31, 2008.
10. Organizer, DFL "Issues Convention" on Energy, November 17, 2007.
11. Source reduction. Presented at 3 outreach workshops for the Minnesota Stormwater Assessment project throughout spring 2007.
12. Source reduction for urban stormwater management. Public Works Forum, Ramsey-Washington Watershed District, Dec. 21, 2006.
13. Toolkit to inform local lake management policy. Presented at the North-Central Minnesota Lake Stakeholders meeting, August, 2006
14. Phosphorus balances for watersheds (invited poster). "Agriculture for the 21<sup>st</sup> Century" 4<sup>th</sup> Annual Open House, Southern Research and Outreach Center, University of Minnesota, Waseca. September 14, 2006.
15. Analysis of Chisago County's Water Policies. Presentation by my 2006 Water Policy class to the Chisago County Water Policy Team, June 16, 2006.
16. The Future of Minnesota's Environment. Panelist, "Policy and a Pint" Series, Minnesota Citizens League event, Varsity Theater, Minneapolis, April 20, 2006.
17. Baker, L. Environmental policy and planning (plenary talk). First Conference on Minnesota Sustainable Tourism, University of Minnesota, April 19-20, 2006.

## **CITIZEN GROUPS**

**Citizen's League of Minnesota:** Leadership Team, Water Policy Study Committee (Leadership team), 2008, member of the Policy Committee (2005-present), Principles and Standards Committee (2006), Facts Unfiltered Committee for the *Minnesota Journal* (2006) and frequent contributor to the *Minnesota Journal*.

**Friends of the Sunrise River:** Chairman of the Board since 2008; editor for the "Sunrise River Currents". Co-organized (with Chisago County Environmental Services Division) Citizens' Stakeholder Workshop for the Sunrise River Water Quality Study.

**Minnesota Waters:** Conservation Partnership Proposal Review Team (2008).

## **PROFESSIONAL AND SCIENTIFIC SERVICE**

### **JOURNAL EDITORIAL BOARDS**

*Urban Ecosystems* (2001-current)

### **PROFESSIONAL SOCIETY SERVICE**

- Organizer, Symposium "Effect of Human Choices on Characteristics of Urban Ecosystems", held at the 2007 ESA Conference, San Jose, CA.
- Planning Committee, Minnesota Water Conference, 2004-2006.
- Program Committee (Surface Water Quality/Ecology subcommittee), Water Environment Federation, 1997-2000.
- Dissertation Awards Committee, Universities' Council on Water Resources (1997).
- Organizer, Symposium on Environmental Chemistry of Lakes and Reservoirs, American Chemical Society National Meeting, April 15-16, 1991, Atlanta, Georgia.