

Steve Kahl, Ph.D.

Associate Professor of Science
and External Sustainability Liason for the College

Publications: More than 130 peer-reviewed publications, book chapters, and reports.

Peer-Reviewed Publications

78. Nelson, S., C. Chen, and **J.S. Kahl**, in press 2017. Water chemistry matters: Mercury bioaccumulation in dragonfly larvae bio-sentinels of northeastern lakes is correlated with Al, pH, DOC, and lake morphology. *Environ Sci Technol*. Manuscript ID: es-2017-01131q.
77. Kristin E. Strock, S. J. Nelson, **J. S. Kahl**, J. E. Saros, and W. H. McDowell, 2014. Decadal trends reveal recent acceleration in the rate of recovery from acidification in the northeast US. *Environmental Sci Technol*. in press (on-line as of March 26, 2014)
76. Crowley, K., B. McNeil, G. Lovett, C. Canham, L. Rustad, E. Denny, R. Hallett, M. Arthur, J. Boggs, J. Compton, C. Driscoll, C. Goodale, **J. S. Kahl**, S. McNulty, S. Ollinger, L. Pardo, P. Schaberg, J. Stoddard, M. Weand, and K. Weathers, 2012. Do nutrient limitation patterns shift from nitrogen toward phosphorus with increasing nitrogen deposition across the northeastern United States? *Ecosystems* 15: 940-957.
75. Trowbridge, P., **J.S. Kahl**, D. Sassan, D. Heath, and E. Walsh, 2010. Relating road salt to chloride water quality violations in New Hampshire streams, *Environ. Sci. and Technol.*, 44:4903-4909.
74. Nelson, S., I. Fernandez, and **J.S. Kahl**, 2010. Mercury concentration and deposition in snow in eastern North America. *Hydrologic Processes* 14:1971-1980.
73. Nelson, S. K. Johnson, K. Weathers, C. Loftin, I. Fernandez, **J.S. Kahl** and D. Krabbenhoft, 2008. A comparison of winter mercury accumulation at forested and non-canopy sites measured with different snow sampling techniques. *Applied Geochemistry* 23:384-398.
72. Rosfjord, C., K. Webster, **J.S. Kahl**, S.A. Norton, I. Fernandez, and A. Herlihy, 2007. Anthropogenically-driven changes in chloride complicate interpretation of base cation trends in lakes recovering from acidic deposition. *Environ Sci Technol*, 41:7688 -7693
71. Hunt, K., **J.S. Kahl**, J. Rubin, and D. Mageean, 2007. Assessing the science-based needs of stakeholders; a case study on acid rain research and policy. *Journal of Contemporary Water Research and Education*, 136: 68-79.

70. **Kahl, J.S.**, S. Nelson, I. Fernandez, T. Haines, G.B. Wiersma, S. Norton, G. Jacobson Jr., A. Amirbahman, K. Johnson, M. Schauffler, J. Peckenham, L. Rustad, K. Tonnessen, M. Neilsen, K. Weathers, R. Lent, M. Bank, J. Elvir, J. Eckhoff, H. Caron, P. Ruck, J. Parker, J. Campbell, D. Manski, R. Breen, C. Roman, K. Sheehan, and A. Grygo, 2007. A conceptual framework for control of stream water geochemistry by landscape factors, Acadia National Park, USA. *Environmental Monitoring and Assess.* 126: 9-25.
69. Nelson, S.J., K.B. Johnson, K.C. Weathers, C.S. Loftin, I.J. Fernandez, **J.S. Kahl**, D.P. Krabbenhoft, 2007: Deposition, re-emission, and evasion: Mercury mass fluxes in winter at Acadia National Park, Maine, USA. *Applied Geochemistry*, in press.
68. Nielsen, M.G., and **J.S. Kahl**, 2007. Nutrient export from watersheds on Mount Desert Island; differences in export as a function of fire history. *Environmental Monitoring and Assess.* 126:69-80.
67. Schauffler, M., S.J. Nelson, **J.S. Kahl**, G.L. Jacobson Jr., T.A. Haines, W.A. Patterson III, and K.B. Johnson, 2007. Paleoecological assessment of watershed history in PRIMENet watersheds at Acadia National Park, USA. *Environmental Monitoring and Assess.* 126: 39-53.
66. Johnson, K.B., T.A. Haines, **J.S. Kahl**, S.A. Norton, Aria Amirbahman, K.D. Sheehan, 2007. Controls on mercury and methylmercury deposition for two watersheds in Acadia National Park, Maine. *Environmental Monitoring and Assess.* 126:55-67.
65. Nelson, S.J., K.B. Johnson, **J.S. Kahl**, T.A. Haines and I.J. Fernandez, 2007. Mass balances of mercury and nitrogen in burned and unburned forested watersheds at Acadia National Park, Maine, USA. *Environmental Monitoring and Assess.* 126:69-80.
64. Peckenham, J.M., **J.S. Kahl**, S.J. Nelson, K.B. Johnson and T.A. Haines, 2007. Landscape Controls on Mercury in Streamwater at Acadia National Park, USA. *Environmental Monitoring and Assess.* 126:97-104.
63. Sheehan, K. I. Fernandez, **J.S. Kahl**, and A. Amirbahman, 2006. Litterfall mercury in two forested watersheds, Acadia National Park. *Water Air Soil Pollut* 170: 249-265.
62. Dupont, J., T. Clair, C. Gagnon, D. Jeffries, **J.S. Kahl**, S. Nelson, and J Peckenham, 2005. Estimation of critical loads of acidity in the northeastern US and eastern Canada. *Environ. Monit. and Assess.* 109:275-291.
61. **Kahl, J.S.**, J. Stoddard, R. Haeuber, S. Paulsen, R. Birnbaum, F. Deviney, D. DeWalle, C. Driscoll, A. Herlihy, J. Kellogg, P. Murdoch, K. Roy, W. Sharpe, S. Urquhart, R. Webb, and K. Webster, 2004. Response of surface water chemistry to changes in acidic deposition: implications for future amendments to Clean Air Act. *Environmental Science and Technology*, Feature Article 38:484A-490A.
60. Lawler, J., J. Rubin, B.J. Cosby, I. Fernandez, **J.S. Kahl**, S. Norton, 2005. Predicting recovery from acidic deposition: Applying a modified TAF (Tracking Analysis Framework) Model to Maine' High Elevation Lakes. *Water Air Soil Pollut.* 164:383-389.

59. Evans, G.C., S. Norton, I. Fernandez, **J.S. Kahl**, and D. Hanson, 2005. Changes in concentrations of major and trace metals in northeastern U.S and Canadian sub-alpine forest floor. *Water, Air, and Soil Pollution* 163:245-267.
58. Campbell, J, J. Hornbeck, M. Mitchell, M. Adams, M. Castro, C. Driscoll, **J.S. Kahl**, and others, 2004. Input-output budgets for inorganic nitrogen for 24 watersheds in the northeastern United States. *Water Air Soil Pollut.*, 151:373-396.
57. Norton S., I. Fernandez, **J.S. Kahl**, and R. Reinhardt, 2004. Acidification trends and the evolution of neutralization mechanisms through time at the Bear Brook Watershed, Maine, USA. *Water, Air, Soil, Pollution Focus* 4:289-310.
56. Amirbahman, A., P. Ruck, I Fernandez, T. Haines, and **J.S. Kahl**, 2004. The effects of fire on mercury distribution in soils of Acadia National Park. *Water Air, Soil Pollut.*, 152: 313-331.
55. Peckenham, J., **J.S. Kahl**, and B. Mower, 2003. Background Mercury Concentrations in River Water in Maine, USA. *Environ. Monitoring and Assessment*, 89:129-152.
54. Fernandez, I, L. Rustad, S. Norton, **J.S. Kahl**, and B.J. Cosby, 2003. Experimental acidification causes soil base cation depletion at the Bear Brook Watershed in Maine. *J. Soil Soc Assoc Am.*, 67:1909-1919.
53. Amirbahman, A., A. Pearce, R. Bouchard, S. Norton, and **J.S. Kahl**, 2003. Relationship between hypolimnetic phosphorus and iron release from 11 lakes in Maine, USA. *Biogeochemistry* 65:369-385.
52. Amirbahman, A., A. Reid, T. Haines, **J.S. Kahl**, and C. Arnold, 2002. Association of Methylmercury with Dissolved Humic Acids. *Environ. Sci. Technol.* 36:690-695.
51. Pellerin, B., I Fernandez, S. Norton, and **J.S. Kahl**, 2002. Soil aluminum distribution in the near-stream zone at the Bear Brook Watershed in Maine. *Water Air Soil Pollution* 134:189-204.
50. Norton, S., B.J. Cosby, I. Fernandez, **J.S. Kahl**, and R. Church, 2001. Long-term and seasonal variations in CO₂: linkages to catchment alkalinity generation. *Hydrol. Earth Science Systems* 5:83-91.
49. Norton, S.A. and **J.S. Kahl**, 2001. Impacts of marine aerosols on surface water chemistry at Bear Brook Watershed, Maine. *Verh. Internat. Verein. Limnol. (SIL)* 27:1280-1284.
48. **Kahl, J.S.** Norton, I. Fernandez, L. Rustad, and M. Handley, 1999. Nitrogen and sulfur input-output budgets in the experimental and reference watersheds, Bear Brook Watershed in Maine (BBWM). *Environ. Monitoring and Assessment* 55:113-131.
47. David, M., G. Vance, and **J. Kahl**, 1999. Chemistry of dissolved organic carbon at Bear Brook Watershed, Maine: Stream water response to (NH₄)₂SO₄ additions. *Environ. Monitoring and Assessment* 55:149-163.
46. Stoddard, J.L., **J.S. Kahl** (8th co-author), and 21 others, 1999. Recovery of lakes and streams from acidification: regional trends in North America and Europe. *Nature* 401:575-578.

45. Norton, S., **J. Kahl** and I. Fernandez, 1999. Altered soil-soil water interactions inferred from stream water chemistry at an artificially acidified watershed at Bear Brook Watershed, Maine USA. *Environ. Monitoring and Assessment* 55:97-111.
44. Norton, S.A., **J.S. Kahl**, I.J. Fernandez, L.E. Rustad, T.A. Haines, S.C. Nodvin, J.P. Scofield, T.C. Strickland, P.J. Wigington, and J. Lee, 1999. The Bear Brook Watershed in Maine (BBWM). *Environ. Monitoring and Assessment* 55:7-51.
43. Roy, S., S.A. Norton, I.J. Fernandez, and **J.S. Kahl**, 1999. Linkages of P and Al export at high discharge at the Bear Brook Watershed in Maine. *Environ. Monitoring and Assessment* 55:133-147.
42. Stoddard, J.L. C.T. Driscoll, **J.S. Kahl**, and J. Kellogg, 1998. Can site-specific trends be extrapolated to the regional level? *Ecological Applications*, 8:288-299.
41. Norton, S.A., G.C. Evans, and **J.S. Kahl**, 1997. Comparison of Hg and Pb fluxes to hummocks and hollows of ombrotrophic Big Heath bog and to nearby Sargent Mt. Pond, Maine, USA: *Water, Air, and Soil Pollut.* 100:271-286.
40. Stoddard, J., C. Driscoll, **J.S. Kahl**, and J. Kellogg, 1998. A regional analysis of lake acidification trends for the northeastern US, 1982-94. *Environ. Monit. and Assess.* 51:399-413.
39. **Kahl, J.S.**, I.J. Fernandez, L.E. Rustad, and J. Peckenham, 1996. Threshold application rates of wood ash to an acidic forest soil. *J. Environ. Qual.* 25:220-227.
38. Pugh, A.L., S.A. Norton, M. Schauffler, G.L. Jacobson, Jr., **J.S. Kahl**, W.F. Brutseart, and C.F. Mason, 1996. Interactions between peat and salt-contaminated runoff in Alton Bog, Maine, USA. *J. Hydrology* 182:83-104.
37. Mitchell, M.J., C.T. Driscoll, **J.S. Kahl**, G.E. Likens, P.S. Murdoch, and L. Pardo, 1996. Climatic control of nitrate loss from forested watersheds in the northeastern United States. *Environ. Sci. Technol.* 30:2609-2612.
36. Norton, S.A., M.J. Handley, **J.S. Kahl**, and N.E. Peters, 1996. Re-evaluation of colorimetric Cl data from natural waters with high DOC. *Water, Air, Soil Pollution* 91:283-298.
35. Cosby, B.J., S.A. Norton, and **J.S. Kahl**, 1996. Using a paired-watershed manipulation experiment to evaluate a catchment-scale biogeochemical model. *Science of the Total Environment* 183:49-66.
34. **Kahl, J.S.**, T.A. Haines, S.A. Norton, and R.B. Davis, 1995. Recent temporal trends in the acid-base chemistry of surface waters in Maine, USA (reply to comment by Mattson and Likens). *Water, Air, and Soil Pollution* 83:101-104.
33. Postek, K.M., C.T. Driscoll, **J.S. Kahl**, and S.A. Norton, 1995. Changes in the concentrations and speciation of Al in response to experimental additions of ammonium sulfate to the Bear Brook Watershed, Maine, USA. *Water Air Soil Pollut* 85:1733-1738.
32. Uddameri, V., S.A. Norton, **J.S. Kahl**, and J.P. Scofield, 1995. Randomized intervention analysis of the response of the West Bear Brook watershed to chemical manipulation. *Water, Air, and Soil Pollution* 79:131-146.

31. Davis, R.B., D.S. Anderson, S.A. Norton, P.R. Sweets, J. Ford, and **J.S. Kahl**, 1994. Sedimented diatoms in northern New England lakes and their use as pH and alkalinity indicators. *Can. J. Fish. Aquatic Sci.* 51:1855-1876.
30. Rustad, L., **J.S. Kahl**, S. Norton, and I. Fernandez, 1994. Under-estimation of dry deposition by throughfall in mixed northern hardwood forests. *J. Hydrology* 162:319-336.
29. Norton, S.A., **J.S. Kahl**, I.J. Fernandez, L.E. Rustad, J.P. Scofield, and T.A. Haines, 1994. Response of the West Bear Brook Watershed, Maine, USA, to the addition of $(\text{NH}_4)_2\text{SO}_4$: three year results. *Forest Ecology and Management* 68:61-73.
28. **Kahl, J.S.**, S.A. Norton, I.J. Fernandez, K.J. Nadelhoffer, C.T. Driscoll, and J.D. Aber, 1993. Experimental inducement of nitrogen-saturation on a watershed-scale. *Environ. Sci. and Technol.* 27:565-568.
27. Binford, M.W., **J.S. Kahl**, and S.A. Norton, 1993. Interpretation of ^{210}Pb profiles and verification of the CRS dating model in PIRLA project cores. *J. Paleolimn.* 9:275-296.
26. **Kahl, J.S.**, T.A. Haines, S.A. Norton, and R.B. Davis, 1993. Recent temporal trends in the acid-base chemistry of surface waters in Maine, USA. *Water, Air, and Soil Pollution*, 67:281-300 (and reply to comment by Mattson and Likens; *WASP* 83:101-104, 1995).
25. **Kahl, J.S.**, S.A. Norton, T.A. Haines, E.A. Rochette, R.H. Heath, and S.C. Nodvin, 1992. Mechanisms of episodic acidification in low-order streams in Maine, USA. *Environ. Pollut.* 78:37-44.
24. Stam, A., M. Mitchell, H. Krouse, and **J. Kahl**, 1992. Stable sulfur isotopes in precipitation and stream solutions in a northern hardwood watershed. *Water Res. Res.* 28:231-239.
23. Norton, S.A., M. Verta, and **J.S. Kahl**, 1992. Relative contribution to lake sediment chemistry by atmospheric deposition. *Verhandlungen Soc. Intern. Limnol.* 24:6199-6206.
22. David, M.R., G.F. Vance, and **J.S. Kahl**, 1992. Chemistry of dissolved organic carbon and organic acids in two streams draining forested watersheds. *Water Resources Research* 28:389-396.
21. Norton, S.A., R.W. Bienert, M.W. Binford, and **J.S. Kahl**, 1992. Stratigraphy of total metals in PIRLA cores. *J. Paleolimn.* 7:191-214.
20. Norton, S.A. R.F. Wright, **J.S. Kahl**, and J.P. Scofield, 1992. The MAGIC simulation of surface water acidification at, and preliminary results from, the Bear Brook Watershed Manipulation, Maine. *Environ. Pollut.* 77:279-86.
19. Heath, R.H., **J.S. Kahl**, S.A. Norton, and I.J. Fernandez, 1992. Episodic acidification caused by the sea-salt effect in coastal streams, USA. *Water Resources Research* 28:1081-1088.
18. Norton, S.A., J.C. Brownlee, and **J.S. Kahl**, 1992. Artificial acidification of a non-acidic and an acidic headwater stream in Maine, USA. *Environ. Pollut.* 77:123-128.
17. Norton, S.A., and **J.S. Kahl**, 1991. Progress in understanding the chemical stratigraphy of metals in lake sediments in relation to acidic deposition. *Hydrobiologia* 214:77-84.

16. Norton, S.A., **J.S. Kahl**, A. Henriksen, and R.F. Wright, 1990. Buffering of pH by sediments in lakes and streams. *in: Advances in Environmental Sciences*, v.3: Acidic Precipitation. Norton, Lindberg and Page, eds. Springer-Verlag, NY.
15. **Kahl, J.S.**, S.A. Norton, R.K. MacRae, T.A. Haines, and R.B. Davis, 1989. The influence of organic acidity on the chemistry of Maine surface waters. *Water, Air, and Soil Pollution* 46:221-234.
14. Norton, S.A., M.J. Mitchell, **J.S. Kahl**, and G.F. Brewer, 1989. In-lake alkalinity generation by sulfate reduction: A paleolimnological assessment. *Water, Air, and Soil Pollut.* 39:33-45.
13. **Kahl, J.S.**, and M. Scott, 1988. The aquatic chemistry of Maine's high elevation lakes: results from the HELM project. *Lake and Reservoir Management* 4:33-40.
12. Norton, S.A., **J.S. Kahl**, D.F. Brakke, G.F. Brewer, T.A. Haines, and S.C. Nodvin, 1988. Regional patterns and local variability of dry and occult deposition strongly influence sulfate concentrations in Maine lakes. *Science of the Total Environment* 72:183-196.
11. Norton, S.A., and **J.S. Kahl**, 1987. A comparison of lake sediments and ombrotrophic peat deposits as long term monitors of atmospheric pollution. *in: New Approaches to Monitoring Aquatic Ecosystems*, ASTM STP 940, T. Boyle, ed., Am. Soc. Testing and Materials, Philadelphia, pp. 40-57.
10. **Kahl, J.S.**, 1982. Present and inferred historic atmospheric deposition of heavy metals at two eastern Maine sites. *Northeastern Environ. Sci.* 1:170-175.

SPECIAL JOURNAL ISSUES and PEER REVIEWED BOOK CHAPTERS

9. **Kahl, J.S.** (2012). Special journal issue for the EPA Clean Air Markets Division LTM/TIME programs (in progress).
8. Nelson, S. and **J.S. Kahl**, (guest editors), 2007. The PRIMENet gauged watersheds at Acadia National Park: a natural-design paired watershed experiment. Special issue of *Environmental Monitoring and Assessment* v. 126, No 1-3, March 2007.
7. **Kahl, J.**, S. Norton, I. Fernandez, L. Rustad, and M. Handley, 1999. Nitrogen and sulfur input-output budgets in the experimental and reference watersheds at BBWM. The Bear Brook Watershed in Maine: the first decade (1987-1997). Norton and Fernandez, eds. Kluwer Academic Publishers Dordrecht/Boston/London.
6. **Kahl, J.S.**, S.A. Norton, C.S. Cronan, I.J. Fernandez, T.A. Haines, and L.C. Bacon, 1991. Chemical relationships of surface water chemistry and acidic deposition in Maine. Chapter 7 *in: Regional Case Studies: Acid Deposition and Aquatic Ecosystems*, D. Charles, ed., Springer-Verlag. NY, pp 203-236.
5. Norton, S.A., P.J. Dillon, R.D. Evans, G. Mierle, and **J.S. Kahl**, 1990. The history of atmospheric deposition of Cd, Hg, and Pb in North America: evidence from lake and peat cores. *in: Lindberg et al., (eds). Sources, Deposition, and Canopy Interactions. Acid Precipitation*, volume 3, Springer-Verlag, NY.

4. Norton, S.A., D.F. Brakke, **J.S. Kahl**, and T.A. Haines, 1989. Major influences on lake water chemistry in Maine. Jackson Volume Series, Studies in Maine Geology, vol. 5, pp. 109-124. R. Tucker and R. Marvinney, eds. Maine Geological Surv., Augusta, ME
3. **Kahl, J.S.**, 1987. Preliminary chemical comparisons of Maine, USA, small lakes, with the results of the U.S. EPA Eastern Lake Survey. Proceedings of the International Symp. on Acidification & Water Pathways, pp 209-218. Bolkesjo, Norway. May, 1987.
2. Norton, S.A. and **J.S. Kahl**, 1986. The record of atmospheric deposition of lead in lake sediments and peat: Pathways, Cycling, and Transformation, in Lead in the Environment, Royal Society of Canada, P. Stokes, ed., 38 p.
1. **Kahl, J.S.**, S.A. Norton, and J.S. Williams, 1984. Chronology, magnitude and paleolimnologic record of changing metal fluxes related to atmospheric deposition of acids and metals in New England. In, Geological Aspects of Acid Precipitation, Owen Bricker (ed.). Chapter 2, pp. 23-31. Ann Arbor Science.

Public presentations

128. **Kahl, J.S.**, 2016. Moderator of two expert panels on Maine's solar energy policies. Waterville (June) and Rockport (July).
127. **Kahl, J.S.**, 2015. Real world applications of environmental science and policy. Invited lecture to the PSU ES&P senior seminar. April, 2015.
126. **Kahl, J.S.** 2015. History and current funding options for solar electricity. Invited talk, Unity Business Exchange. May 12, 2015.
125. **Kahl, J.S.**, 2013. Developing a regional stormwater utility to protect the economic resource of Lake Winnepesaukee. Northeast Planners Association Annual Conference. Meredith, NH. October, 2013.
124. **Kahl, J.S.**, 2013. Stormwater Utilities as a sustainable management tool: every community will want one. Maine Water Conference. Augusta, Maine. April, 2013.
123. **Kahl, J.S.** 2012. The future of stormwater management: infiltration methods! GrowSmart Maine annual conference (invited), Augusta ME. October, 2012.
122. **Kahl, J.S.** 2012. The end of 'pipes and ponds' in stormwater management; what's in it for towns? Plymouth NH Planning Board, October, 2012.
121. **Kahl, J.S.** 2012. Brownfield re-development planning. Northern Maine Development Commission, Caribou Maine. September, 2012.
120. **Kahl, J.S.** 2012. A regional stormwater utility to protect the economic resource of Lake Winnepesaukee: a win-win-win proposal (invited). Lakes Region Planning Commission, Meredith NH. July, 2012.
119. **Kahl, J.S.** 2012. The 2010 report from the NH Stormwater Commission: going beyond current Maine regulations. Maine Water Conference, Augusta, Maine, March, 2012
118. **Kahl, J.S.** 2012. Multi-disciplinary geospatial approaches to environmental problem solving. Invited lecture, NOAA coastal program, Charleston SC, February, 2012.

117. **Kahl, J.S.** 2012. Maximizing permit credits while minimizing risk in stormwater management. MEREDA annual breakfast (invited), Bangor Maine. February, 2012
116. **Kahl, J.S.** 2012. The 2010 report from the NH Stormwater Commission: incentive-based methods to reduce impact. NH Water Conference, Plymouth State Univ, April, 2012
115. **Kahl, J.S.** 2012. Solving the road salt problem in northeastern surface waters. Maine DEP Salt Management Working Group (invited) January, 2012, Augusta Maine.
114. **Kahl, J.S.** 2012. Stormwater regulation and mitigation: Shaw Brook in Hermon, an impaired stream. Town of Hermon Select Board, December, 2011.
113. **Kahl, J.S.** 2011. Acid rain: is it (still) a watershed management issue? Invited lecture, University of UNH, November, 2011.
112. **Kahl, J.S.** 2011. Stormwater management: the inconvenient impervious truth. Presentation to the Bangor Area Stormwater Group (invited). August, 2011.
111. **Kahl, J.S.**, 2011. Cycles, not trends? Long-term biogeochemical responses to policy success in the Federal Clean Air Act. Annual meeting of the EPA Clean Air Market Division's LTM program. Durham, NH. June, 2011
110. **Kahl, J.S.**, 2011. Needs, opportunities, and pitfalls for NH water and wastewater infrastructure. NH Water Pollution Control Association Legislative Breakfast, March, 2011. Concord, NH.
109. **Kahl, J.S.**, 2010. The link between phosphorus, nitrogen, and invasive plants. Annual meeting of the Lake Winnepesaukee Association. August, 2010.
108. **Kahl, J.S.**, 2010. Incentive-based policies & social marketing to protect water quality in Lake Winnepesaukee. Laconia Conservation Commission meeting. March, 2010
107. **Kahl, J.S.**, 2009. We know how to protect lake water quality, so why don't we do it? Maine Lakes Congress, St. Joseph's College, Maine. June, 2009.
106. **Kahl, J.S.**, and M. McGarry, 2009. Seven Habits of Highly Successful Science Translators. NSF REU lecture, Hubbard Brook Experimental Forest, June, 2009.
105. **Kahl, J.S.**, 2009 (invited). The power of partnerships for environmental protection. Keynote talk, NH Lakes Congress, June, 2009.
104. **Kahl, J.S.**, 2009 (invited). Long-term trends in lake chemistry in New England and indicators of recovery from acidic deposition. EPA LTM/TIME workshop, Penn State, June, 2009.
103. **Kahl, J.S.**, 2008 (invited). Shoreland protection and land use policy: Developing incentive-based policies. Maine Land Use Regulation Commission meeting, Bangor Maine. October, 2008.
102. **Kahl, J.S.**, 2008 (invited). Incentive-based environmental policies as part of a 'silver buckshot' approach to reducing climate change. Integrated Design—Integrated Development Conference, Plymouth State University. July, 2008.

101. **Kahl, J.S.**, 2008 (invited). Impervious surfaces and cumulative impact: how to reduce impacts with incentive-based policies and BMPs. NH DES Comprehensive Shoreland Protection Act workshop, Meredith NH. June, 2008.
100. **Kahl, J.S., et al.**, 2008. Twenty year changes in spatial patterns of CI distribution in the northeastern US. NH Water Conference, April, 2008)
99. **Kahl, J.S.**, 2008 (invited). (Non?)Sustainability of water resources in NH. Pease Library Lecture Series, 2008.
98. **Kahl, J.S.**, 2007 (invited). Policy implications for recent temporal and spatial trends in CI in New England waters. Short course in soil science, New England Consulting Soil Scientists, Plymouth, NH March, 2007.
97. **Kahl, J.S.**, 2007 (invited). The challenge of 'cumulative impact': can we develop incentive-based environmental solutions? Plenary talk, annual NH DES Watershed Conference, Concord NH. November, 2007
96. **Kahl, J.S.**, 2007. New threats and new incentive-based solutions to protect northeastern lakes. PSU Science Colloquium, Sept 2007.
95. **Kahl, J.S.**, 2007 (invited). Developing a real-time web-based Watershed Information Management System. Lake Winnepesaukee Watershed Association annual meeting, August, 2007.
94. **Kahl, J.S., et al.**, 2007 (invited). Prioritizing threats to the Waukegan drinking water supply. Lake Waukegan Watershed Advisory Committee annual meeting, August, 2007.
93. **Kahl, J.S.**, 2007 (invited). Using societal-based incentives to address new threats to New England Lakes. Short course for New England Lake Science Academy, Camp Kieve, Maine. July, 2007.
92. **Kahl, J.S.**, 2007. Chloride in Lake Waukegan Tributaries. PSU Boyd Science Center Colloquium, April 2007.
91. **Kahl, J.S., et al.**, 2007. Chloride in the New England Environment; an indicator of increasing development pressure. Maine Water Conference, March, 2007.
90. **Kahl, J.S.**, 2007 (invited). The Center for the Environment: meeting the new regional university mission. PSU Alumni Association annual meeting. December, 2006.
89. **Kahl, J.S.**, 2006 (invited). Using scientifically defensible criteria to establish set-backs from water bodies. NH DES annual Watershed Conference, November 2006.
88. **Kahl, J.S.** 2006 (invited). Acid rain in New England: using high elevation lakes as sentinels of change. Maine Mountain Conference, October 21, 2006. Rangeley, Maine.
87. **Kahl, J.S.**, 2006 (invited). Watershed imperviousness as an indicator and policy tool. NH Lakes Management Advisory Committee, August, 2006.

86. **Kahl, J.S., et al.**, 2006 (invited). The design of a national mercury monitoring network: Learning from the acid rain experience. The Eighth International Mercury Conference, Madison WI, August 8, 2006.
85. **Kahl, J.S. et al.**, 2006. Obfuscation of trends in base cations by regional salt contamination. Hubbard Brook Committee of Scientists annual meeting, July 12, 2006.
84. **Kahl, J.S.**, 2006 (invited). New England lakes: increasing threats and the need for *incentive-based* solution. NHLA annual meeting, June 17, 2006.
83. **Kahl, J.S.**, 2006 (invited). A new incentive-based approach to setting lakeshore set-backs. **NH Lakes Commission. Concord**, May 8, 2006.
82. Kahl, J.S., 2006 (invited). Determining sources of salt contamination in groundwater. UNH Dept of Earth Sciences. April, 2006.
81. Kahl, J.S., 2006 (invited). 'Natural and human-derived sources of acidity in Maine Atlantic Salmon Rivers'. Atlantic Salmon Commission workshop, Bangor ME. April 10, 2006.
80. Kahl, J.S., 2006 Using imperviousness criteria to set lake front set backs. Maine Water Conference, March, 2006.
79. Kahl, J.S., 2006 (invited). Mercury in the environment. Talk to legislative environmental luncheon, January 17, 2006.
78. Kahl, J.S., 2005 (invited). The intersection of environmental science and environmental policy. NH Charitable Foundation Lakes Region annual meeting, Meredith, NH, September, 2005.
77. Kahl, J.S., 2005 (invited). Tracking response and recovery in surface waters in the northeastern US. Annual meeting of the Ecological Society of America, Montreal, August, 2005.
76. Kahl, J.S., 2005 (invited). Cumulative Impact. Squam Lakes Association annual meeting, June, 2005.
75. Kahl, J.S., 2005. Unexpected threats to NH lakes. Squam Watershed workshop and final report, Plymouth State University, June, 2005.
74. Kahl, J.S., and Catherine Rosfjord, 2005 (invited). Acid rain and the Clean Air Act in the northeastern US. Annual meeting of the NH-ME Androscoggin River Watershed Council, Bethel, June, 2005.
73. Kahl, J.S. J. Stoddard, and K. Webster, 2005 (invited). Success and uncertainties for the Clean Air Act. Annual meeting of the New England Chapter of the North American Lake Management Society, Plymouth State University, June, 2005.

72. Kahl, J.S., 2005 (invited). Developing a lake research agenda for NH. NSF workshop on lake research infrastructure in the northeast, Colby Sawyer College, April 2005.
71. Kahl, J.S., 2004 (invited). Determining sources of salinity in groundwater. Winter meeting of the Geological Society of NH, Concord NH, January, 2005.
70. Kahl, J.S., 2004 (invited). Field pH should be measured in the laboratory. NH Freshwater Symposium, December, 2004.
67. Kahl, J.S., 2004. The 2003 evaluation of the Clean Air Act: trends in northeastern surface waters. Research lecture series, Plymouth State University, November, 2004.
66. Kahl, J.S., S. Nelson, and A. Grygo, 2004. Surface water chemistry data for the northeastern US for interpreting climate and acid rain trends. Northeast Ecosystems Research Consortium meeting, Durham, NH, October, 2004.
65. Kahl, J.S., S. Nelson, K. Johnson, K. Sheehan, T. Haines, I. Fernandez, and A. Amirbahman, 2004 (invited). Mercury biogeochemistry in gauged-paired watersheds at Acadia National Park. USGS 2004 Mercury Workshop, Reston VA.
64. Kahl, J.S., K. Webster, M. Diehl, and C. Rosfjord, 2004. Successes of the Clean Air Act Amendments of 1990. Maine Water Conference plenary talk, Augusta, ME, 2004.
63. Kahl, J.S. and K. Johnson, 2004. Acid-Base Chemistry and Historical Trends in Downeast Salmon Rivers. Maine Water Conference, Augusta ME, April 2004.
62. Kahl, J.S., 2004 (invited). The Clean Air Act Amendments of 1990; testing a program designed to evaluate environmental policy. Lecture, Colby College. April, 2004.
61. Kahl, J.S., 2004. The Clean Air Act of 1990: a hemispheric experiment with unintended(?) consequences. VP-R Research Café, University of Maine, Feb. 2004.
60. Kahl, J.S., S. Paulsen, and J. Stoddard, 2003 (invited). Evaluating of the effectiveness of the Clean Air Act for changes in surface water acidification. *Plenary*, National Atmospheric Deposition Program annual meeting, October, 2003. Washington DC.
59. **Kahl, J.S.**, 2003 (invited). Is water chemistry the smoking gun for endangered Atlantic Salmon? *Lecture*, College of the Atlantic, July, 2003.
58. **Kahl, J.S.**, 2003 (invited). Chemistry trends and spatial distribution of Maine lakes. Maine Volunteer Lake Monitoring Program annual meeting. Lewiston ME. June, 2003.
57. **Kahl, J.S.**, 2003 (invited). Biologically-relevant aquatic chemistry: the intersection of the Clean Air Act and the Endangered Species Act. US EPA Corvallis OR Research Laboratory, April 18, 2003.

56. **Kahl, J.S.**, J. Stoddard, and D. Manski, 2003. Evaluating the effectiveness of the Clean Air Act in recovery of surface waters: The 2002 EPA Assessment of the Clean Air Act. George Wright Society biannual meeting. San Diego, CA, April 15, 2003.
55. **Kahl, J.S.**, and K. Tonnessen, 2003. Developing a cooperative national research network of calibrated watersheds in the National Parks. George Wright Society biannual meeting. San Diego, CA, April 14, 2003.
54. **Kahl, J.S.**, and K. Johnson, 2003. Status and trends in water chemistry in downeast Maine relative to Atlantic salmon. Proceedings, Water quality and recovery of Atlantic Salmon; is there a link? March, 2003.
53. **Kahl, J.S.**, 2003. pH: the persistently problematic parameter for public policy planning. Proceedings, Water quality & recovery of Atlantic salmon; is there a link? March, 2003.
52. **Kahl, J.S.**, 2002 (invited). Priority land-based environmental issues facing the Gulf of Maine Watershed. The Gulf of Maine Summit and Watershed Forum, Blue Hill, Maine. November 8, 2002.
51. **Kahl, J.S.**, J. Stoddard, K. Webster, and R. Haeuber, 2002. The 2002 Assessment of the Clean Air Act: surface water trends from the northeast US and upper midwest US. North American Lake Management Society annual meeting, Anchorage Alaska. October, 2002.
50. **Kahl, J.S.**, 2002 (invited). '*How Maine lakes work*'. Special session on lakes, Maine Water Conference, May, 2002.
49. **Kahl, J.S.**, 2001 (invited). Indicators of recovery from acidification (or not) in surface waters of the northeastern US. *Plenary*, Gordon Research Conference on Biogeochemistry of Forested Watersheds, July, 2001.
48. **Kahl, J.S.**, 2001 (invited). Northeastern regional aquatic chemistry: implications for the Clean Air Act. Desert Research Institute, Reno NV. May 9, 2001.
47. **Kahl, J.S.**, 2001 (invited). Building a world-class watershed science program. University of Vermont, Burlington, VT. April 16, 2001.
46. **Kahl, J.S.**, 2001 (invited). A multi-system assessment of status and trends related to acid rain. 25th annual meeting of New England Association of Environmental Biologists. Norwich CT, April 4, 2001.
45. **Kahl, J.S.**, 2001. Chemical mass balances and trends in PRIMENet watersheds: comparison with long-term regional responses. Third annual Aquatic Research in Acadia symposium, College of the Atlantic, Bar Harbor, ME. March 27, 2001.
44. **Kahl, J.S.**, 2000 (invited). A regional assessment of aquatic effects from acidic deposition. Annual meeting of the Northeast Regional Air Quality Committee, November, 2000.
43. **Kahl, J.S.**, S. Norton, I. Fernandez, 2000 (invited). Biogeochemistry of mercury and nitrogen at Acadia N.P., PRIMENet annual meeting, Shenandoah N.P, November, 2000.

42. **Kahl, J.S.**, J. Peckenham, and S. Vidito, 2000. Developing harvester-defined water quality 'Best Management Practices' during forestry operations. Forest Information Exchange annual meeting, Orono, ME. October, 2000.
41. **Kahl, J.S.**, 2000 (invited). Acid rain and Maine salmon: is there a link? Forum on restoration of salmon, University of Maine, Machias, October, 2000.
40. **Kahl, J.S.**, 2000 (invited). Climate change and water resources: fact, speculation, and data needed. Maine forum on response to climate change, Augusta ME, April 20.
39. **Kahl, J.S.**, 2000 (invited). Maine and the Clean Air Act re-authorization. Spring meeting keynote, Maine Lakes Conservancy Institute, April 1.
38. **Kahl, J.S.**, 2000 (invited). How to create a successful water institute. National Institutes for Water Resources annual meeting, Washington DC, March 2000.
37. **Kahl, J.S.**, S.A. Norton, and S. Vidito, 2000. Comparative major ion chemistry in upland watersheds. Symposium on Aquatic Research in Acadia National Park, March, 2000.
36. **Kahl, J.S.**, and S.A. Norton, 2000. Long term regional response in aquatic chemistry: how Acadia fits in. Symposium on Aquatic Research in Acadia National Park, March, 2000.
35. **Kahl, J.S.**, I. Fernandez, S. Norton, B. Wiersma, G. Jacobson, and T. Haines, 1999 (invited). Patterns of N and Hg geochemistry in paired gauged watersheds at Acadia National Park. Maine Health and ecological sciences annual symposium, Bar Harbor, May, 1999.
34. **Kahl, J.S.** 1999 (invited). Acid-base trends in Maine lakes; the 1990s surprise! Annual meeting of the New England Chapter of the North American Lake Management Society, Lewiston ME June 1999.
33. **Kahl, J.S.**, S. Norton, P. Lowkes, M. Handley, J. Cangelosi, I. Fernandez, 1999. Relative changes in sulfate and base cations, 1982-1999. AGU annual meeting, May, 1999. Boston (also session co-organizer).
32. **Kahl, J.S.**, I. Fernandez, D. Mageean, S. Ballard, J. Cosby, S. Norton, P. Ludwig, L. Rustad, 1999 (invited). Linking watershed scale indicators of changes in atmospheric deposition to regional response patterns. Annual NSF/EPA Water and Watersheds program meeting, Washington DC. April, 1999.
31. **Kahl, J.S.**, S. Norton, and I. Fernandez, 1999 (invited keynote). Response of Maine surface waters to changing atmospheric deposition. The 1990s response to acidic deposition, March, 1999, Washington DC. Ecological Society of America.
30. **Kahl, J.S.**, I. Fernandez, S. Norton, B. Wiersma, G. Jacobson, and T. Haines, 1998. Patterns of N and Hg geochemistry in paired gauged watersheds at Acadia National Park. NPS NRPP project meeting, January, 1999. Orono.
29. **Kahl, J.S.**, I. Fernandez, S. Norton, B. Wiersma, G. Jacobson, and T. Haines, 1998 (invited). Inferring regional patterns and responses in N and Hg biogeochemistry using two sets of gauged paired-watersheds. Annual EPA DISPro program meeting, Pt. Reyes, California, November, 1998.

28. **Kahl, J.S.**, 1998 (invited). What have we learned about aquatic effects of acid rain in the past 15 years? Geol. Society of Maine 'short course' conference, Augusta, Maine, October, 1998.
27. **Kahl, J.S.**, I.J. Fernandez, S.A. Norton, L.E. Rustad, and B.J. Cosby, 1998 (invited). Scaling Indicators of Experimental Watershed-Based Acidification to the Regional Response of High Elevation Lakes. AGU spring meeting, Boston. May, 1998.
26. **Kahl, J.S.**, S.A. Norton, and M.J. Handley, 1998. Acid-Base Trends in Maine Surface Waters; the 1990s Surprise. AGU spring meeting, Boston. May, 1998.
25. **Kahl, J.S.**, 1998 (invited). Trends in acid-base chemistry in Maine surface waters. New England Governor's & Canadian Premier's Annual Conference. Feb. 1998. Portland, ME.
24. **Kahl, J.S.**, S.A. Norton, M. Snow, and D. Tepper, 1997 (invited). Identifying sources of salt water in Maine groundwater. Maine Water Conference, April, 1997, Augusta, Maine.
23. **Kahl, J.S.**, S.A. Norton, and I.J. Fernandez, 1996 (invited). Experimental-induced changes in nitrogen dynamics at the Bear Brook Watershed, Maine. AGU Chapman conference on nitrogen cycling in forested catchments, Sunriver, OR, September, 1996.
22. **Kahl, J.S.**, S.A. Norton, and I.J. Fernandez, 1996. Hydrograph separation in upland catchments: Do chemical tracers work? AGU Spring meeting, Baltimore, May, 1996.
21. **Kahl, J.S.**, S.A. Norton, and I.J. Fernandez, 1995. Experimentally-induced changes in stream chemistry at the Bear Brook Watershed, Maine. 1995 Gordon Conference, NH.
20. **Kahl, J.S.**, S.A. Norton, I.J. Fernandez, M.J. Mitchell, A. Stam, and J.P. Scofield, 1995. Experimentally-induced changes in watershed mass balances at the Bear Brook Watershed, Maine. Special session at 'Acid Reign 1995', Gothenburg, Sweden. Co-author of six other abstracts in the special session.
19. **Kahl, J.S.** and S.A. Norton, 1994 (invited). Underestimation of new water in upland catchments using isotopic & chemical tracers. AGU, San Francisco. Dec., 1994.
18. **Kahl, J.S.** and S.A. Norton, 1993 (invited). Interpretation of isotopic and chemical hydrologic tracers of watershed response in a catchment-scale chemical manipulation, Bear Brook Watershed, Maine. AGU Annual meeting, San Francisco, December, 1993.
17. **Kahl, J.S.**, M.J. Mitchell, K.J. Nadelhoffer, S.A. Norton, and I.J. Fernandez, 1993. A multi-isotope approach to a catchment-scale experiment, Bear Brook Watershed, Maine. ASLO annual meeting, Edmunton, Canada, June 1993.
16. **Kahl, J.S.**, S.A. Norton, I.J. Fernandez, T.A. Haines, L.E. Rustad, and J.S. Scofield, 1992 (invited). Catchment-level chemical manipulation at Bear Brook, Maine: The EPA Watershed Manipulation Project. ASLO annual meeting, Santa Fe, NM, 1992.
15. **Kahl, J.S.**, J. Scofield, R. Heath, and S. Norton, 1991. Accurate stream watershed hydro-chemical mass balances: how many samples are enough? ASLO annual meeting, Halifax

14. **Kahl, J.S.**, M. Scott, J. Kirtland, and D. Courtemanch, 1991. The case against liming of acidic lakes in the northeastern US. NALMS annual meeting, Denver, 1991.
13. **Kahl, J.S.**, S. Norton, T. Haines, E. Rochette, R. Heath, and S. Nodvin, 1990. Mechanisms of episodic acidification in low-order streams in Maine, USA. International Conf. on Acid Deposition, Royal Society Edinburgh, Glasgow.
12. **Kahl, J.S.**, L.E. Rustad, I.J. Fernandez, S.A. Norton, and E.A. Rochette, 1989. Catchment-level chemical manipulation at Bear Brook, Maine: The EPA Watershed Manipulation Project. In: American Geophysical Union Fall Meeting, San Francisco.
11. **Kahl, J.S.**, S. Norton, T. Haines, C. Fay, and R. Davis, 1988. The influence of organic acidity on the chemistry of Maine surface waters. Invited talk, Kejimikujik Conference on Organic Acidity, Halifax, NS.
10. **Kahl, J.S.**, and S.A. Norton, 1988 (invited). Relationships of acidic deposition to surface water chemistry in New England. ASLO annual meeting, Boulder CO, 1988.
9. **Kahl, J.S.** An overview of the impacts of acidic deposition in Maine (invited). WPCF Conference on Acid Precipitation. Hartford, May, 1988.
8. **Kahl, J.S.**, and S.A. Norton, 1987. Three methods of estimating biogenic silica in sediments of sub-alpine Rocky Mountain lakes, USA. 23rd SIL Congress, Hamilton, NZ.
7. **Kahl, J.S.**, J.L. Andersen, and S.A. Norton, 1986. Application of a modified Henriksen model of inferred past chemistry to the surface waters of Acadia National Park, Maine. ASLO annual meeting, Kingston RI, June 1986.
6. **Kahl, J.S.**, S.A. Norton, and J.L. Andersen, 1986. Episodic pH depressions in surface waters at Acadia National Park, Maine, unrelated to changes in sulfate concentrations. ASLO, Kingston, RI. June, 1986.
5. **Kahl, J.S.**, J.L. Andersen, and S.A. Norton, 1986 (invited). The geochemistry of the surface waters of Acadia National Park. The Fourth Conference on Science in the National Parks, R. Herrmann, and C. Cummings, eds. Ft. Collins, CO, July, 1986.
4. Norton, S.A., and **J.S. Kahl**, 1985. Sediment and water chemistry interdependencies. Extended abstracts 25(2):75-79. Presented at the American Chemical Society, Division of Environ. Chemistry, Chicago, September, 1985.
3. **Kahl, J.S.**, and J.A. Andersen, 1984 (invited). Causes and effects of atmospheric pollution due to fossil fuel combustion. Symposium on Energy and the Environment, College of the Atlantic, Bar Harbor, Maine, June, 1984.
2. Norton, S.A., T.A. Haines, and **J.S. Kahl**, 1984. The potential for health effects from acidic precipitation induced changes in water supplies. Maine Biology and Medical Sciences Symposium, University of Maine, Orono, Maine, May, 1984.
1. **Kahl, J.S.**, S.A. Norton, and J.S. Williams, 1982. Chronology, magnitude and paleolimnologic record of changing metal fluxes related to atmospheric deposition of acids and metals in New England. American Chemical Society 185th National Meeting, March, 1982.