

CURRICULUM VITAE

Gene Elden Likens

Date of Birth: 6 January 1935
Place of Birth: Pierceton, Indiana USA

*Founding Director, President Emeritus
Distinguished Senior Scientist Emeritus
Cary Institute of Ecosystem Studies*
Box AB
Millbrook, NY 12545*

*November 2007, organizational name change: **Cary Institute of Ecosystem Studies**

<http://www.caryinstitute.org/science-program/our-scientists/dr-gene-e-likens>

In residence (August – December 2014 - 2018) at University of Connecticut, Storrs

Distinguished Research Professor (Ecology and Evolutionary Biology)
Special Advisor to the UCONN President on Environmental Affairs
University of Connecticut -- UCONN
Storrs, Connecticut 06268

EMPLOYMENT:

Sept. 1957 - Sept. 1961	Graduate Assistant in Zoology, University of Wisconsin
Sept. 1961 - Dec. 1961	Instructor in Zoology, Dartmouth College
Jan. 1962 - June 1962	Project Assistant in Zoology, University of Wisconsin
June 1962 - Nov. 1962	Research Associate in Zoology, University of Wisconsin
Nov. 1962 - Feb. 1963	Research Associate in Meteorology, University of Wisconsin
Feb. 1963 - Sept. 1963	Instructor in Biological Sciences, Dartmouth College
Sept. 1963 - Oct. 1963	Visiting Lecturer in Zoology, University of Wisconsin
Sept. 1963 - June 1966	Assistant Professor, Biological Sciences, Dartmouth College
July 1966 - June 1969	Associate Professor, Biological Sciences, Dartmouth College
Jan. 1968 - March 1968	Visiting Associate Ecologist, Brookhaven National Laboratory
July 1969 - June 1972	Associate Professor, Section of Ecology and Systematics, Cornell University

July 1972 - Aug. 1983	Professor, Section of Ecology and Systematics, Cornell University
Sept. 1973 - Aug. 1974	Acting Chairman, Section of Ecology and Systematics, Cornell University
Sept. 1978 - Aug. 1979	Visiting Professor, Center for Advanced Research and Department of Environmental Sciences, University of Virginia, Charlottesville, Virginia
July 1982 - June 1983	Chairman, Section of Ecology and Systematics, Cornell University
Jan. 1983 - Sept. 1983	Charles A. Alexander Professor of Biological Sciences, Section of Ecology and Systematics, Cornell University
Sept. 1983 - July 2018	Adjunct Professor, Section of Ecology and Systematics, Cornell University; 2003, Department of Ecology and Evolutionary Biology [changed Dept. name]
Sept. 1983 - Nov. 1993	Vice President, The New York Botanical Garden, The Bronx, New York
Sept. 1983 - Nov. 1993	Director, Institute of Ecosystem Studies; and Director, Mary Flagler Cary Arboretum, Millbrook, New York
Nov. 1993 - June 2007	President and Director, Institute of Ecosystem Studies
March 1984 - <i>present</i>	Professor, Department of Ecology and Evolutionary Biology, Yale University
March 1985 - <i>present</i>	Professor, Graduate Field of Ecology, Rutgers University
Sept. 1985 - <i>present</i>	Fellow, Timothy Dwight College, Yale University
May 2003 - <i>present</i>	Adjunct Professor, Department of Biological Sciences, University at Albany, State University of New York
Nov. 2004 - <i>present</i>	Distinguished Research Professor, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut
June 2007 - <i>present</i>	Founding Director and President Emeritus, Cary Institute of Ecosystem Studies
October 2009 - <i>present</i>	Honorary Professor, Jinan University, Guangzhou, China
October 2009 - <i>present</i>	Einstein Professor, Chinese Academy of Science
July 2012 - <i>present</i>	Distinguished Senior Scientist Emeritus, Cary Institute of Ecosystem Studies

2011 - 2013 Guest Visiting Professor, Department of Limnology, EBC-
Uppsala University, Sweden

July 2012 - *present* Special Advisor to the President on Environmental Affairs,
and Distinguished Research Professor, University of
Connecticut, Storrs, CT

EDUCATION:

1955 - 1957	Manchester College	B.S.	(Zoology)
1957 - 1959	University of Wisconsin-Madison	M.S.	(Zoology)
1959 - 1962	University of Wisconsin-Madison	Ph.D.	(Zoology)

HONORARY DEGREES:

1979	Manchester College	D.Sc.	(Honorary)
1985	Rutgers University	D.Sc.	(Honorary)
1989	Plymouth State College, Univ. System of New Hampshire	D.Sc.	(Honorary)
1990	Miami University	D.Sc.	(Honorary)
1991	Union College [Doctor of Humane Letters]		(Honorary)
1992	Universität für Bodenkultur, Vienna, Austria	[Doctor, H.C.]	(Honorary)
1993	Marist College	D.Sc.	(Honorary)
1998	Wageningen Agricultural University, The Netherlands	D.Sc.	(Honorary)
2004	University of Connecticut, Storrs	D.Sc.	(Honorary)
2012	Montclair State University	D.Sc.	(Honorary)
2018	Uppsala University, Sweden	D.Sc.	(Honorary)

TEACHING EXPERIENCE:

Sept. 1955 - June 1956	Assistant in Zoology, Manchester College
Sept. 1956 - June 1957	Assistant in Zoology, Manchester College
Sept. 1957 - June 1959	Graduate Teaching Assistant in Zoology, University of Wisconsin-Madison
Sept. 1961 - Dec. 1961	Instructor in Zoology, Dartmouth College

Feb. 1963 - Sept. 1963	Instructor in Biological Sciences, Dartmouth College
Sept. 1963 - Oct. 1963	Visiting Lecturer in Zoology, University of Wisconsin-Madison
Oct. 1963 - June 1966	Assistant Professor, Biological Sciences, Dartmouth College
July 1966 - June 1969	Associate Professor, Biological Sciences, Dartmouth College
July 1969 - June 1972	Associate Professor, Section of Ecology and Systematics, Cornell University
July 1972 - Aug. 1983	Professor, Section of Ecology and Systematics, Cornell University
Sept. 1978 - Aug. 1979	Visiting Professor, Center for Advanced Research and Dept. Environmental Sciences, University of Virginia, Charlottesville
April - May 1995	Visiting Professor, Institute of Forest Ecology, Universität für Bodenkultur, Vienna, Austria
March 2001	Walker Ames Professorship, University of Washington, Seattle
February - April 2004	Miegunyah Distinguished Fellow, School of Botany, University of Melbourne, Australia
November - December 2007	Nicholas School of the Environment, Duke University, Durham, North Carolina
Autumn 2005 - present	Distinguished Research Professor, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs
February - April 2011; Sept. - Nov. 2012; March - April 2013	Guest Visiting Professor, Department of Limnology, EBC-Uppsala University, Sweden
August – Sept. 2011	Guest Visiting Professor, Department of Geography and Earth Sciences, University of New England, Armidale, New South Wales, Australia
November 2011	Guest Visiting Professor, Department of Natural Resources, University of Missouri-Columbia

DISTINGUISHED MEMBERSHIPS:

American Academy of Arts and Sciences (*elected 1979*)

National Academy of Sciences (*elected 1981*)
The Royal Swedish Academy of Sciences (*elected Foreign Member, 1988*)
The British Ecological Society (*elected Honorary Member, 1991*)
The Royal Danish Academy of Sciences and Letters (*elected Foreign Member, 1994*)
Austrian Academy of Sciences (*elected Foreign Member, 2000*)
The International Water Academy (*Chair No. 186 - elected Life Member, 2003*)
American Philosophical Society (*elected 2006*)

MEMBERSHIPS IN SCIENTIFIC SOCIETIES AND FRATERNITIES:

American Association for the Advancement of Science (*Fellow 1965*)
American Institute of Biological Sciences (*President Elect 2001; President 2002;
Past President 2003*)
American Polar Society
American Society of Limnology and Oceanography (*Vice President 1975-76;
President 1976-77*)
American Water Resources Association (*Honorary Member*)
Australian Society of Limnology (*Lifetime Member*)
The British Ecological Society (*Honorary Member, elected 1991*)
Ecological Society of America (*Vice President 1978-79; President 1981-82; Honorary
Fellow 2012-)*)
Foreign Correspondents' Club of Japan (*Honorary Member; 2003-2004*)
Freshwater Biological Association
Gamma Alpha
The Hudson River Environmental Society
INTECOL (*Honorary Member, 2005*)
International Water Resources Association (*Charter Member*)
International Association for Great Lakes Research
International Association for Sediment Water Science
Phi Sigma
Societas Internationalis Limnologiae (*U.S. National Representative since 1970 to*

2016; Executive Vice President 1998-2001; President 2001-2007); 2007, name changed to International Society of Limnology, but also retaining SIL (Societas Internationalis Limnologiae).

Sigma Xi

COMMENCEMENT ADDRESSES:

1. **Rutgers University**, “Are we pulling the plug on our life support systems?” (New Brunswick, New Jersey); 23 May 1985.
2. **Goshen College**, “Protecting Earth’s Environment – It’s the right thing to do” (Goshen, Indiana); 22 April 1990.
3. **Miami University**, “What on Earth are we passing to our children?” (Oxford, Ohio); 13 May 1990.
4. **University of Connecticut**, “Embrace Life” (Storrs, Connecticut); 8 May 2004.
5. **Montclair State University**, “Our Future” (Montclair, New Jersey); 12 May 2012.

BOARDS OF TRUSTEES/DIRECTORS:

- Board of Trustees, Environmental Defense, New York, NY, 1985-2005 [Vice Chair (1999-2005), Honorary Trustee (2005-**present**)]
- Trustee and President, Board of Trustees, Institute of Ecosystem Studies, Millbrook, New York, 1993-2007
- Board of Directors, Island Press, 1994-2002
- Board of Trustees, Hubbard Brook Research Foundation, 1994-**present** [Vice Chair (2002-2003), Acting Chair (2003), Vice Chair (2006)]
- Board of Directors, Aldo Leopold Foundation, Inc., Baraboo, Wisconsin, 1997-2007, 2008-2014, 2016-2017. [Vice Chair (2010, 2011)]
- Board of Directors, American Institute of Biological Sciences, 2001-2004 [President (2002)]
- President, Societas Internationalis Limnologiae, 2001-2007 [U.S. National Representative – 2007-2016]
- Board of Directors, Scenic Hudson, 2007-2009; President’s Council of Advisors, 2009-**present**
- Board of Directors, Hudson River Foundation, 2007-**present**

AWARDS AND HONORS:

1. Who’s Who in the East, 1964-present.

Outstanding Young Men of America, 1965.

Who's Who in America, Marquis, 1979-present.

Who's Who in Technology Today, J. Dick & Co., 3rd edition, 1981.

Who's Who in the World, Marquis, 1980-present.

Who's Who in Frontier Science and Technology, Marquis, 1983-present.

International Who's Who, 1986-1987.

Who's Who in Science and Engineering, 3rd Edition, 1995; 5th edition, 1999. 12th Edition, 2016-2017.

American Men and Women of Science, 21st edition, 2002.

National Register's Who's Who in Executives & Professionals, 2003.

Chosen by Hudson Valley Magazine as "1989 The Best of Hudson Valley -- Best Environmentalist." 21 Club.

2. American Motors Conservation Award, Professional Category; 1969.
3. NATO Senior Fellowship, England and Sweden; 1969.
4. Guggenheim Fellowship; 1972 - 1973.
5. Certificate of Appreciation, Environmental Protection Agency, Region II; 1976 and 1978.
6. U.S. Forest Service 75th Anniversary Award, for significant contributions to forestry and conservation, U.S. Department of Agriculture; 1980.
7. *Science Citation Index* and the *Social Sciences Citation Index* identified Likens *et al.* 1970. *Ecological Monographs* 40:23, as one of the most cited items in its field; Citation Classic in *Current Contents* 12(36):28 (1981).
8. G. E. Hutchinson Award for Excellence in Research (first time awarded), presented by the American Society of Limnology and Oceanography; October 1982.
9. Distinguished Achievement Award, Laboratory of Biomedical and Environmental Studies, University of California, Los Angeles; October 1982.
10. Honorary Membership Award 1983, in recognition of eminence in water-resources science and technology, American Water Resources Association; October 1983.
11. Selected as Baldi Lecturer, Society of International Limnology; 1983.
12. Acid Rain '84 Citizens Award, presented to Hubbard Brook Experimental Forest, with special recognition to Gene Likens for outstanding contributions toward solving the acid rain problem. Manchester, New Hampshire; January 1984.
13. Regents Medal of Excellence, Bicentennial of Board of Regents and the University of the

- State of New York, 'New York: State of Agriculture and Natural Resources.' Syracuse, New York; October 1984.
14. Certificate of Appreciation, IV International Congress of Ecology, Syracuse, New York; August 1986.
 15. The New York Academy of Sciences Award, "in recognition of his world wide influence in ecology and environmental education through the results of the Hubbard Brook Ecosystem Study that led to discoveries of major importance including acid rain and forest harvesting practices." New York, New York; December 1986.
 16. First International ECI Prize in Limnetic Ecology, The Ecology Institute, Oldendorf/Luhe, Germany; April 1988.
 17. The New York Botanical Garden Distinguished Service Award, The New York Botanical Garden; May 1989.
 18. 1990 AIBS Distinguished Scientist Award, American Institute of Biological Sciences; August 1990.
 19. Elected as Honorary Member, The British Ecological Society; September 1991.
 20. The Garden Club of America Special Citation, for outstanding achievement in ecology and environmental education, Baltimore, Maryland; May 1992.
 21. 1993 Tyler Prize, The World Prize for Environmental Achievement; December 1993. (with F. H. Bormann)
 22. 1994 Australia Prize for Science and Technology, The Parliament House, Canberra, Australia; April 1994.
 23. Elected Foreign Member, The Royal Danish Academy of Sciences and Letters, Natural Sciences Class; April 1994.
 24. Einar Naumann-Augustus Thienemann Medal, Societas Internationalis Limnologiae, São Paulo, Brazil; August 1995.
 25. Eminent Ecologist, Ecological Society of America, Snowbird, Utah; August 1995.
 26. Distinguished Service Award, Hudson River Environmental Society, Inc.; November 1997.
 27. 1997 R. A. Vollenweider Award and Lectureship in Aquatic Sciences (granted annually to an eminent freshwater scientist for global contribution to advancement of aquatic sciences), National Water Research Institute and Canada Centre for Inland Waters, Burlington, Ontario, Canada; March 1998.
 28. Storm King Award, presented by Scenic Hudson, New York, New York; May 1998.
 29. Award of Excellence, National Council of State Garden Clubs, Inc., Atlanta, GA; May

- 1999.
30. AIBS Lifetime Accomplishment Award, American Institute of Biological Sciences, Washington, D.C.; March 2000.
 31. G. Evelyn Hutchinson Chair in Ecology, Institute of Ecosystem Studies, Millbrook, NY; April 2000 - 2007.
 32. Gene E. Likens Laboratory, named and dedicated, Institute of Ecosystem Studies, Millbrook, NY; November 2000.
 33. Walker-Ames Professorship, Ocean and Fishery Sciences, Zoology, Forest Resources and Civil Engineering Departments, University of Washington, Seattle; March 2001.
 34. Huxley Medal, Institute of Biology, London, UK, instituted in 1900 in memory of Thomas Henry Huxley, “the highest honor at the disposal of the Royal Anthropological Institute of London and acknowledges lifetime achievement at the highest level in all fields of anthropology.” April 2001.
 35. 2001 National Medal of Science, Washington, D.C.; June 2002.
 36. 2003 Blue Planet Prize for “outstanding scientific research achievements and help to solve global environmental problems.” The Asahi Glass Foundation, Tokyo, Japan; October 2003. (with F.H. Bormann)
 37. Miegunyah Distinguished Visiting Fellowship, University of Melbourne, Australia; January - April 2004.
 38. North American Benthological Society awards 2004 Hynes Young Investigator Award to E. Bernhardt for Bernhardt and Likens, “DOC enrichment alters nitrogen dynamics in a forest stream,” *Ecology* 83(6):1689-1700 (2002), for excellent science.
 39. Science Leadership Award, U.S. Forest Service Centennial Congress. Presented to Gene Likens, F. H. Bormann, R. S. Pierce, N. M. Johnson, “In recognition of outstanding contributions in science leadership and resource stewardship during our first century of service.” Washington, D.C.; January 2005.
 40. Awarded Honorary Membership, INTECOL, to recognize distinguished contributions to ecological science; July 2005.
 41. Naming and dedication of the “Gene E. Likens Science Division Conference Room” in the new Science Center, Manchester College, North Manchester, Indiana; September 2005.
 42. *Limnology and Oceanography* 51(1), Part 2, *Special Issue* “Eutrophication of Freshwater and Marine Ecosystems,” dedicated to Gene E. Likens “in recognition of his career-long contributions to ecosystem science.” January 2006.
 43. Elected to American Philosophical Society; April 2006.

44. Centennial Award, Botanical Society of America, Chico State University, Chico, CA; August 2006.
45. Awarded Flagship Fellowship, “Water for a Healthy Country” CSIRO, Canberra, Australia; December 2007 - May 2008.
46. Awarded CERF Research Fellowship, Australian National University, Canberra, Australia; July 2008 - May 2010.
47. Black Rock Forest Consortium’s 2008 Dr. E. G. Stillman Award; June 2008.
48. Awarded Einstein Professorship of Chinese Academy of Sciences; March 2009.
49. Honorary Professorship, Jinan University, Guangzhou, China; November 2009.
50. American Publishers Award, 2009 Honorable Mention Multivolume Reference/Science Presented to Academic Press/Elsevier Inc. for Encyclopedia of Inland Waters, Editor-in-Chief Gene E. Likens, Professional & Scholarly Publishing Division, Association of American Publishers, Inc.
51. Inducted: Basketball Hall of Fame, Kosciusko County, Indiana. Announced December 2010; Induction Ceremony; June 2011. http://kchalloffame.com/2011_Inductees.php
52. Elected to Connecticut Academy of Science and Engineering; May 2011.
53. Gusi Peace Prize, Philippines; August 2011. (Awarded November 2011, but unable to attend ceremony and accept prize).
54. Honorary Degree (and Convocation Speech), Doctor of Sciences, Montclair State University, Montclair, New Jersey; May 2012.
55. Honorary Fellow, Ecological Society of America; September 2012.
56. Manchester University Alumni Honor Award; May 2013.
57. Alfred C. Redfield Lifetime Achievement Award, Joint Aquatic Sciences Meeting, Association for the Sciences of Limnology and Oceanography, Portland, Oregon; May 2014.
58. Leading Educators of the World – 2015, International Biographical Centre, Cambridge, England; 2015.
59. “To Dr. Gene E. Likens in recognition to (sic) his valuable contributions to long-term studies and ecosystem research in the Southern Hemisphere and worldwide.” Southern Connection Meeting, Punta Arenas, Chile, 19 January 2016. Award was an original work of art in metal and wood, with plaque.
60. Gene E. Likens Science Award – awarded at the Dutchess County Regional Science Fair to the winning young scientist.
61. Visiting Fellow at the Australian National University, Canberra, Australia – 17 Feb to 31

March 2017.

62. BBVA Foundation Frontiers of Knowledge Award in Ecology and Conservation Biology. June, 2017, Madrid, Spain.
63. PROSE Award from the American Association of Publishers for, “Hubbard Brook: The Story of a Forest Ecosystem”, by Richard T. Holmes and Gene E. Likens (Yale University Press). This award was given to the most noteworthy professional and scholarly publication in the Biological Sciences for 2017.
64. New England Society Book Award – 2017 (Specialty category) for Hubbard Brook: The Story of a Forest Ecosystem, by Richard T. Holmes and Gene E. Likens (Yale University Press).
65. Plaque honoring the leadership and scientific achievements of Gene E. Likens & Phyllis C. Likens. Naming/Dedication of the Likens Conservation Campus at Mirror Lake. Mirror Lake, NH. 9 July 2017.
66. 2017 Environmental Stewardship Award. Manchester University, North Manchester, IN. Saturday, 15 October 2017.
67. Honorary Doctoral Degree. Uppsala University, Sweden. 26 January 2018.
68. Nominated for the Presidency of the American Academy of Arts and Sciences – 2018.

INVITED LECTURES:

1. Williams Summer Institute for College Teachers; 1966, 1967.
2. Drew Summer Institute for College Teachers; 1968.
3. Lecture Series, Division of Biological Sciences, University of Michigan, Ann Arbor; 1977.
4. Paul C. Lemon Ecology Lecture, State University of New York at Albany, New York; 1978.
5. Cornell Alumni University; July 1978.
6. Distinguished Senior Scientist Lecture Series, W.K. Kellogg Biological Station, Michigan State University, Hickory Corners, Michigan; 1978.
7. C.P. Snow Lecturer, Ithaca College, Ithaca, New York, April 1979; April 1989.
8. Distinguished Ecologist Lecturer, North Carolina State University, Raleigh, North Carolina; 1980.
9. Robert S. Campbell Lecture, University of Missouri, Columbia, Missouri; 1980.
10. College of Science Lectureship in Biology, Lecture Series, University of Notre Dame, Indiana; October 1982.
11. Nelson Distinguished Lecture in Biology, Rutgers University (Busch Campus), New

- Jersey; March 1983.
12. Sigma Xi Lecture, The Academy of Natural Sciences, Philadelphia, Pennsylvania; March 1983.
 13. Tenth Edgardo Baldi Memorial Lecture, Societas Internationalis Limnologiae, XXII Congrès de Limnologie, Lyon, France; August 1983.
 14. Tansley Lecture for the British Ecological Society, University of Leicester, England; December 1983.
 15. 1983 Annual Meeting of the Coalition of Northeastern Governors, Secaucus, New Jersey; December 1983.
 16. Steinhaus Memorial Lecture, University of California, Irvine; January 1984.
 17. Barbara Cushing Paley Memorial Lecture, The New York Botanical Garden, The Bronx, New York; December 1984.
 18. Henry J. Oosting Memorial Lecture in Ecology, Duke University, Department of Botany, Durham, North Carolina; April 1985.
 19. Rilett Visiting Scholar for 1985, Department of Biological Sciences and the Beta Lambda Chapter of Phi Sigma Society, Illinois State University, Normal-Bloomington, Illinois; April 1985.
 20. Participant and Speaker, United States -- China Air Pollution Technology Workshop, Nanjing Botanical Garden, Nanjing, China; and Institute of Environmental Chemistry, Academia Sinica, Beijing, People's Republic of China; November 1985.
 21. Visiting Scholar, James Madison University, Harrisonburg, Virginia; April 1988.
 22. Speaker/Participant, Pontifical Academy of Sciences, Study Week on Modern Approach for the Protection of the Environment, Vatican City State, Italy; November 1987.
 23. Commemorative Speaker, Meeting to commemorate Svante Odèn and his pioneering contribution in environmental science, Skokloster and Uppsala, Sweden; November-December 1987.
 24. James Norris Oliphant Fellowship Distinguished Fellows Lecture Series, Sigma Phi, Cornell University, Ithaca, New York; April 1988.
 25. Mid-Hudson Biologist Group, State University of New York College at New Paltz; April 1988.
 26. 1988 Jack R. Hargis Lecture in Biology, University of Minnesota, Duluth; September 1988.
 27. Plenary Speaker, International Mountain Watershed Symposium "Subalpine Watershed Processes and Water Quality," Lake Tahoe; June 1988.

28. Robert H. Woodworth Lecture in Science, Bennington College, Bennington, Vermont; October 1988.
29. Class of 1960 Visiting Scholars, Williams College, Williamstown, Massachusetts; November 1988.
30. Graduate Biology Club, Western Connecticut State University, Danbury, Connecticut; March 1988.
31. Speaker for the seminar series on Ecology-Economics-Ethics: The Broken Circle, Yale University; February 1989.
32. Culpeper Fellow Lecturer, The Charles E. Culpeper Foundation, Inc., The Millbrook School, Millbrook, New York; February 1989.
33. 1988 Ecology Institute Prize Lecturer, Biologische Anstalt Helgoland, Hamburg, Federal Republic of Germany; August 1989.
34. Keynote Speaker/Participant, Chapman Conference, American Geophysical Union, Bar Harbor, Maine; September 1989.
35. Speaker/Participant, The Global Environment: Are We Overreacting? Conference, Smithsonian Institution, Washington, D.C.; September 1989.
36. Distinguished Lectureship for Frontier in Life Sciences, Boyce Thompson Institute for Plant Research at Cornell University, Ithaca, New York; November 1989.
37. Speaker/Participant, International Workshop on Comparative Studies of North and South American Temperate Ecosystems: Theory, Approaches and Limitations, Termas de Chillán, Chile; January 1990.
38. Speaker 'Earth in Rebellion' series, The New York Botanical Garden Environmental Issues Forum, New York, New York; February 1990.
39. A. E. Waller Lecture, Ohio State University, Columbus, Ohio; April 1990.
40. Keynote Speaker, Centennial Science Symposium and Annual Meeting of Indiana Academy of Sciences, Manchester College, North Manchester, Indiana; April 1990.
41. Olin Lecture on the Environment, Fairfield University, Fairfield, Connecticut; October 1990.
42. Keynote Speaker, Annual Conference on Environmental Problems: Global and Regional Concerns, Vermont Academy of Arts and Sciences, Burlington, Vermont; October 1990.
43. Plenary Speaker, First European Symposium on Terrestrial Ecosystems: Forests and Woodlands, Commission of the European Communities, Florence, Italy; May 1991.
44. Lecturer in "Golden Series", Institut für Forstökologie, Universität für Bodenkultur, Vienna, Austria; May 1991.

45. Keynote Speaker, Gordon Research Conference on Hydrological-Geochemical-Biological Interactions in Forested Catchments, Holderness, New Hampshire; July 1991.
46. William V. Kaeser Memorial Scholar for 1991, Center for Limnology, University of Wisconsin-Madison; September 1991.
47. Distinguished Scientist Lecture Series, Bard College, Annandale-on-Hudson, New York; November 1991.
48. Plenary Speaker, American Society of Limnology and Oceanography, 1992 Aquatic Sciences Meeting, Santa Fe, New Mexico; February 1992.
49. 1992 Donnell Foster Hewett Lecture Series, Department of Earth and Environmental Sciences, Lehigh University, Bethlehem, Pennsylvania; April 1992.
50. Honorary Invited Speaker, Honorary Doctorate Ceremony, Universität für Bodenkultur, Vienna, Austria; November 1992.
51. Speaker, Zone III Conservation Meeting, The Garden Club of America, Lakeville, Connecticut; September 1992.
52. Keynote Speaker, Freshwater Imperative Meeting, Friday Harbor, Washington; January 1993.
53. Speaker, Conservation and National Affairs Meeting, The Garden Club of America, Washington, D.C.; February 1993.
54. Miles C. Horton Special Lecture, Colloquium on Aquatic Ecology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia; March 1993.
55. Invited Speaker, MBL Friday Evening Lecture Series, Marine Biological Laboratory, Woods Hole, Massachusetts; August 1993.
56. Invited Guest Speaker, GRIL Symposium (Groupe de Recherche InterUniversitaire en Limnologie), University of Quebec at Montreal, McGill University, University of Montreal; March 1994.
57. The Second Granville H. Sewell Distinguished Lecture in Environmental Sciences, Columbia University, School of Public Health, Division of Environmental Sciences, New York, New York; March 1994.
58. Distinguished Ecologist Series of Lectures, Colorado State University, Fort Collins, Colorado; April 1994.
59. Lectures associated with The 1994 Australia Prize: 1994 Australia Prize Public Lecture at the National Convention Centre, Canberra, Australia, 27 April 1994; Seminar, RSBS Australian National University, 28 April 1994; After Dinner Address, Australian Academy of Science, Canberra, 28 April 1994; Seminar, Monash University, and The University of Melbourne, 29 April 1994; Seminar, Sydney Water Board, and Australian Water Technologies, Science & Environment, North Ryde, 2 May 1994; After Dinner Address,

- Joint Academies of Science, Technological Sciences and Engineering, Social Sciences, Humanities, 2 May 1994; Seminar, Murdoch University, 5 May 1994.
60. Plenary Speaker, International Conference on Ecosystem Monitoring and Protected Areas and Second International Conference on Science and the Management of Protected Areas, Dalhousie University, Halifax, Nova Scotia, Canada; May 1994.
 61. Invited Speaker, International Arid Lands Consortium Workshop on Arid Lands Management--Towards Ecological Sustainability, Jerusalem and the Negev Desert, Israel; June 1994.
 62. The First Raymond Lindeman Memorial Lecture, Department of Ecology, Evolution and Behavior, University of Minnesota, St. Paul, Minnesota; October 1994.
 63. Distinguished Lecturer in Biological/Environmental Science, Ohio Northern University, Ada, Ohio; November 1994.
 64. Invited Speaker, Marist College Center for Lifetime Study Convocation, Poughkeepsie, New York; September 1995.
 65. Hans Jenny Memorial Lecture, Division of Ecosystem Sciences, University of California, Berkeley; April 1996.
 66. Invited Keynote Speaker/Participant, Symposium on Institute of Ecology: Past, Present and Future, The University of Georgia, Athens; October 1996.
 67. Invited Speaker and Participant, Tyler Environmental Prize Pavilion Dedication and Conference on International Environmental Science, Policy, and Security in the 21st Century, University of Southern California, Los Angeles; November 1996.
 68. Conference Lecture, II Southern Connection Congress on Southern Temperate Biota and Ecosystems: Past, Present and Future, Valdivia, Chile; January 1997.
 69. Topical Lecture, American Association for the Advancement of Science [AAAS] Meeting, Seattle, Washington; February 1997.
 70. The First Noye Johnson Distinguished Lectureship, Department of Earth Sciences, Dartmouth College, Hanover, New Hampshire; April 1997.
 71. Invited Speaker and Panelist, The Recovery and Future of the Northeastern Forest, A Symposium presented by The Center for Conservation Biology and Environmental Studies, Connecticut College and the Connecticut Forest and Park Association, New London, Connecticut; April 1997.
 72. Invited Lecturer, Center for Freshwater Studies, University of Alabama, Tuscaloosa; April 1997.
 73. Invited Lecture, Switzer Foundation, Hubbard Brook Experimental Forest, New Hampshire; November 1997.

74. Joseph Henry Science Lecture, co-sponsored by American Association of University Women and General Electric Research and Development Center, Schenectady, New York; November 1997.
75. Invited Lecture, Hudson River Environmental Society, Inc., Newburgh, New York; November 1997.
76. Opening Plenary Lecture and closing summary statement; Research in the Taieri Catchment, A symposium supporting multidisciplinary environmental research in Otago and celebrating the sesquicentennial of Dunedin, University of Otago, Dunedin, New Zealand; February 1998.
77. Invited Lecturer (in conjunction with 80th Anniversary of Wageningen Agricultural University); March 1998.
78. R.A. Vollenweider Award and Lectureship in Aquatic Sciences, Canada Centre for Inland Waters, National Water Research Institute; March 1998.
79. The Edward Bronfman Family Foundation Lecture, University of Vermont, Burlington; April 1998.
80. Invited Speaker, American Philosophical Society, Philadelphia, PA; April 1998.
81. Invited Lecture, Department of Natural Resources and Environmental Sciences, University of Illinois, Champaign; October 1998.
82. Invited Speaker, Eville Gorham Symposium, University of Minnesota, St. Paul; November 1998.
83. Joan Milliken Stroud Memorial Lecture, Stroud Water Research Center, Avondale, PA; November 1998.
84. Edwin Way Teale Lecture, University of Connecticut, Storrs; December 1998.
85. Plenary Lecture, American Society of Limnology and Oceanography Aquatic Sciences Meeting, Santa Fe, New Mexico; February 1999.
86. Video Teleconference Lecture “Ecosystem Structure and Function, Change over Time” with University of Vermont’s course, “Health and the Environment: Exploring Critical Connections – Part II: Ecology, Human Health, and Emerging Infections” Institute of Ecosystem Studies, Millbrook, NY; April 1999.
87. Plenary Lecture, Conference Summary Lecture and “Biogeochemistry of calcium: Long-term studies at Hubbard Brook” at ‘Frontiers of Catchment Biogeochemistry’ Conference, CSIRO Land and Water, Canberra, ACT, Australia; November/December 1999.
88. Invited Speaker, Landcare Research New Zealand Ltd., Lincoln University, Lincoln, NZ; February 2000.

89. Plenary Speaker, 'Biology: Challenges for the New Millennium,' American Institute of Biological Sciences 51st Annual Meeting, Washington, D.C.; March 2000.
90. Invited Speaker, Recent Advances in Limnology and Oceanography Seminar Series, "Limnology and Freshwater Ecosystems in the Twenty-First Century," Great Lakes WATER Institute, University of Wisconsin-Milwaukee, WI; May 2000.
91. Invited Speaker, The Effects of Acid Deposition on Northeastern Forests, "Acid Deposition in Context." Hubbard Brook Research Foundation and Society for the Protection of New Hampshire Forests, New Hampshire Technical Institute, Concord, NH; June 2000.
92. Walker-Ames Lecture, University of Washington, Seattle; March 2001.
93. Invited Lecturer, "Integrated Catchment Knowledge and Management," Watershed Ecology and Management Class, University of Washington, Seattle; March 2001.
94. Huxley Lecture, The Royal Society and Institute of Biology, London, UK; April 2001.
95. Invited Lecturer, Nicholas School of the Environment and Earth Sciences, Duke University; April 2002.
96. Plenary Speaker, Biogeomon 2002, University of Reading, United Kingdom; August 2002.
97. Lane Family Lecture in Environmental Science, Washington State University, Pullman; September 2002.
98. Keynote Speaker, Biogeochemical Cycles in Temperate Forest Ecosystems, International Workshop, Bilateral [international] scientific and technological cooperation between Flanders and Chile, Universidad Austral de Chile, Valdivia; November 2002.
99. Festschrift Dinner Speaker, Lee M. Talbot Festschrift, "From Conservation to Sustainability: The Co-Evolution of Science and Policy." Washington, D.C.; April 2003.
100. Commemorative Address, 2003 Blue Planet Prize, "Environmental Challenges in the Twenty-First Century and Our Respect for Nature." The Asahi Glass Foundation, Tokyo, Japan; October 2003.
101. Foreign Correspondents' Club of Japan, 2003 Blue Planet Prize, Tokyo, Japan; October 2003.
102. Invited Speaker, National Institute for Environmental Studies, Tsukuba City, Japan (in conjunction with Blue Planet Prize); October 2003.
103. Invited Speaker, Austrian Academy of Sciences, Vienna, Austria; November 2003.
104. Invited Lecturer, Universität für Bodenkultur, Institute of Forest Ecology, Vienna, Austria; November 2003.
105. Invited Speaker, School of Science & Engineering Colloquium Series, SUNY New Paltz, NY; November 2003.

106. Invited Lecturer, School of Botany, University of Melbourne, Australia; February and March 2004.
107. Invited Speaker, Director's Circle, Royal Botanic Gardens, Melbourne, Australia; February 2004.
108. Invited Lecturer (with Professor Peter Cullen), Australian Land & Water and Cooperative Research Centre for Freshwater Ecology, Canberra, Australia; February 2004.
109. Invited Speaker, Australian Institute of International Affairs, Melbourne, Australia; March 2004.
110. Invited Speaker, Australia-Israel Chamber of Commerce (with Governor John Landy), Melbourne, Australia; March 2004.
111. Miegunyah Lecture, University of Melbourne, Australia; March 2004.
112. Invited Speaker, Dinner at Government House (with Governor John Landy), Melbourne, Victoria, Australia; April 2004.
113. Invited Lecturer, Madison Ecology Group, and Spring Symposium, University of Wisconsin-Madison; April 2004.
114. Keynote Speaker, Center for the Environment, Plymouth State University, Plymouth, NH; June 2004.
115. Invited Speaker, Lake Sunapee Protective Association, Sunapee, NH; July 2004.
116. Invited Speaker, Squam Lakes Science Center, Holderness, NH; July 2004.
117. Presidential Address, International Society of Theoretical and Applied Limnology, Lahti, Finland; August 2004.
118. Canon Environmental Scholar, College of William and Mary and Virginia Institute of Marine Sciences, Williamsburg, VA; September 2004.
119. Invited Speaker, Science in the Northwoods, at Camp Manito-wish, Boulder Junction, WI; September 2004.
120. Keynote Speaker, 100 Years of Athletics, Manchester College, North Manchester, IN; September 2004.
121. Banquet Speaker, Center for Environmental Information, Rochester, NY; October 2004.
122. Moore Lecture, Department of Environmental Sciences, University of Virginia, Charlottesville, VA; October 2004.
123. Keynote Lecture, Virginia Mountain Stream Symposium, University of Virginia, Charlottesville, VA; October 2004.
124. Invited Lecturer and Panelist, 'The Liberal Education: Dead or Alive,' Dartmouth College, Hanover, NH; November 2004.

125. Lecture, Summer School Session to Trinity College and University of Melbourne, Melbourne, Australia (videoconferenced from Marist College); December 2004.
126. Banquet Speaker, New York State Federated Garden Club's 2005 Annual Meeting, Poughkeepsie, NY; March 2005.
127. Honors' Seminar Speaker, Rubenstein School of Environment and Natural Resources, University of Vermont, Burlington, VT; March 2005.
128. Science Center Symposium Dedication, Invited Presenter of 'Reflections', "Liberal Education: A Personal View", Manchester College, North Manchester, Indiana; September 2005.
129. Invited Speaker, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut; November 2005.
130. Keynote Lectures (2), Environmental Chemistry Student Symposium, Pennsylvania State University, State College, PA; March 2006.
131. Invited Lecturer, Northwest Fisheries Science Center, Seattle, Washington; October 2006.
132. Keynote Lecture, International Workshop, "Ecosystem Services in the Neotropics: State of the Art and Future Challenges." FORECOS, Universidad de Chile, Valdivia; November 2006.
133. Conservation Law Foundation, 'Understanding Ecological and Economic Impacts of Acid Rain on Northeastern Forests' – Implications for Timber Owners, Investors, Forest Managers, Sugarmakers, State Governments – University of New Hampshire, Durham; November 2006.
134. Cornell University, Program of Biogeochemistry and Environmental Biocomplexity; December 2006.
135. Invited Lecturer, Senda Darwin, Chiloe Island, Chile; March 2007.
136. Presidential Lecture, International Society of Limnology (formerly, International Association of Theoretical and Applied Limnology; Societas Internationalis Limnologiae). SIL Meeting, Montreal, Quebec, Canada; August 2007.
137. Invited Lecturer, Ecology Center, Utah State University, Logan, Utah; October 2007.
138. Cornell-Gladstone-Hanlon-Kaufmann Lecture Series, State University of New York, Oneonta; October 2007.
139. Invited Lecturer, University of Connecticut-Storrs; October 2007.
140. Invited Speaker, Duke University; November 2007.
141. Invited Lecturer, Monash University; December 2007.

142. Invited Lecturer, CSIRO, Canberra, ACT, Australia. February, May 2008; Adelaide, S.A., March 2008; Wodonga, VIC, March 2008; Townsville, Qld., April 2008.
143. Invited Lecturer, Australian Rivers Institute, Griffith University, Brisbane, Queensland, Australia; April 2008.
144. Invited Lecturer, University of Queensland, Brisbane, Australia; April 2008.
145. Invited Speaker, National Water Commission, Canberra, ACT, Australia; February 2008; Adelaide; May 2008.
146. Invited Lecturer, University of Canberra, ACT, Australia; May 2008.
147. Invited Special Lecturer, Australian Rivers Institute, Conservatorium Theatre, Queensland Conservatorium, Griffith University, Brisbane, Queensland, Australia; August 2008.
148. Invited Speaker and Panelist, Aldo Leopold Centennial Celebration 2009. A Cultural Conversation: Aldo Leopold, the Southwest, and the Evolution of a Land Ethic for the Future. National Hispanic Cultural Center, Albuquerque, NM; February 2009.
149. Invited Lecturer, Southern Illinois University, Carbondale, Illinois; March 2009.
150. Invited Plenary Speaker, 3rd Connecticut Conference on Natural Resources (CCNR), University of Connecticut-Storrs; March 2009.
151. 2009 Jane and Whitney Harris Lecturer, University of Missouri-St. Louis and Missouri Botanical Garden; March 2009.
152. Graduate-Student Invited Lecturer, Program in Ecology, Evolution, and Conservation Biology's seminar series, University of Illinois, Champaign-Urbana; March/April 2009.
153. At-Large H. Burr Steinbach Scholar, Massachusetts Institute of Technology and the Woods Hole Oceanographic Institution, Woods Hole, Massachusetts; July 2009.
154. Invited Lecturer, Session on Special Series on Coupled Biogeochemical Cycles at 94th Ecological Society of America, Albuquerque, NM; August 2009.
155. Conservation and Landscape Ecology (CLE) Invited Speaker, "Dynamics of Nitrogen Biogeochemistry", Fenner School of Environment and Society, Australian National University, Canberra; September 2009.
156. Plenary Lecture, International Society of Limnology (SIL), Nanjing, China; October 2009.
157. Einstein Professorship Lecture, Chinese Academy of Sciences, Nanjing, China; November 2009.
158. Invited Lecturer, Graduate School of the Chinese Academy of Sciences, Beijing, China; November 2009.
159. Honorary Ph.D. Lecture, Jinan University, Guangzhou, China; November 2009.

160. Invited Lecturer, Southern China Botanical Garden, Guangzhou, China; November 2009.
161. Invited Speaker, “Effective Ecological Monitoring”, Fenner School of Environment and Society, Australian National University, Canberra; March 2010.
162. Conservation and Landscape Ecology (CLE) Invited Speaker, “Mountain-top coal mining in the U.S.”, Fenner School of Environment and Society, Australian National University, Canberra; April 2010.
163. Presented Keynote Address to National Natural Resource Management Knowledge Conference, Darwin, NT, Australia [conference 20-22 April 2010].
164. Plenary Speaker and Workshop Synthesizer for Meeting of Motueka Integrated Catchment Management Workshop, 10-year anniversary meeting, Nelson, New Zealand. “Integrated Research, Monitoring and Management at the Catchment Scale (from rainwater to the sea and everything in between)” [workshop, 26-29 April 2010].
165. Invited Speaker – National Water Commission, Canberra, Australia; May 2010.
166. Keynote Lecture, Hubbard Brook Research Foundation Consortium Second Annual Meeting, “Mirror Lake: Ecological Insights from Long-Term Studies”, Plymouth State University, Plymouth, NH; June 2010.
167. Edwin Way Teale Lecture, University of Connecticut, Storrs; September 2010.
168. Invited Speaker, Austrian Academy of Sciences and Bodenkultur Institute (BOKU) Lecture - Vienna, Austria; October 2010.
169. Invited Speaker, Department of Ecology and Evolutionary Biology; University of Connecticut, Storrs, public lecture; November 2010.
170. Invited Speaker, Marist College; January 2011.
171. Invited Speaker, University of Pennsylvania, Philadelphia; January 2011.
172. Invited Speaker, Department of Limnology, Uppsala University; March 2011.
173. Invited Speaker, IGB (Leibniz-Institute of Freshwater Ecology and Inland Fisheries), Institute of Biology Free University of Berlin, Germany; April 2011.
174. Invited Plenary Speaker, North American Benthological Society (NABS), Providence, RI; May 2011.
175. Invited Speaker, University of New England, Armidale, New South Wales, Australia; August 2011.
176. Invited Speaker, University of Wyoming, Laramie; October 2011.
177. J. Michael Dunmire Lecture, University of Missouri, Columbia; November 2011.
178. Invited Speaker, Greenwich Bruce Museum, Greenwich, CT; December 2011.

179. Invited Convocation Speaker, College of Mathematics and Science; Montclair State University, NJ, May 2012.
180. Invited Speaker, Global Change Biology class, Department of Limnology, University of Vienna, Austria; October 2012.
181. Invited Speaker, Global Element Cycles course, Geosciences Department, Lund University, Lund, Sweden; November 2012.
182. Invited Speaker, Uppsala University, Sweden; April 2013.
183. Keynote Speaker, Hubbard Brook Ecosystem Study 50th Celebration, Robert S. Pierce Ecosystem Laboratory, Northern Research Station, Hubbard Brook Experimental Forest, North Woodstock, NH; July 2013.
184. Invited Speaker, Kansas State University, Biology Department, Manhattan, Kansas; October 2013.
185. Invited Speaker, Jones Center Conference: Conservation and Natural Resource Management in an Uncertain Future: Using the Southeastern U.S. as a Model for Managing Change. Bainbridge, Georgia; November 2013.
186. Invited Speaker, University of Connecticut Ecology and Evolutionary Biology; December 2013.
187. Invited Speaker, Water Management Meeting, Hartford, CT; January 2014.
188. University of Connecticut Seminar Series. "Acid Rain: A long unfinished journey." April 2, 2015.
189. Presentation, GLEON meeting – Trout Lake. August 19, 2015.
190. Featured Presentation, HBEF 60th Anniversary Meeting. October 10, 2015.
191. Lecture, University of Connecticut. Current Issues in Environmental Science. November 5, 2015.
192. Presentation and Class Discussion, University of Maryland. Classic Readings in Ecology. November 6, 2015.
193. Lecture, University of Connecticut. Plants in a Changing World. November 10, 2015.
194. Presentation, Great Mountain Forest Lecture Series. "Land and Ethics: Aldo Leopold's Legacy in the 21st Century" (with Buddy Huffaker). Norfolk Library, Norfolk, CT. November 14, 2015.
195. Lecture, North Carolina State University, Raleigh, NC. "Acid Rain, the long, but unfinished journey from discovery to political action." November 19, 2015.
196. Honorary Lecture, Cary Institute of Ecosystem Studies, Millbrook, NY. "Lessons from a Forest Ecosystem." Ned Ames Honorary Lecture. June 24, 2016.

197. Lecture to geohydrology class at Queen's University, Kingston, Ontario via SKYPE. "Hubbard Brook Ecosystem Study". 30 November, 2016.
198. Lecture to limnology class on "stream ecosystems", University of Connecticut. 29 November 2016.
199. Lecture to LTER distributed course on "Long-term Ecological Research: Advancing Ecological Theory" via the internet. Lecture title: "Mass Balance in Watershed Science". 11 November 2017.
200. Plenary Lecture to UCOWR/NIWR Annual Water Resources Conference, 26 June 2018 (Pittsburgh, PA). "Insights into Water Quality from Long-Term Research and Monitoring: Lessons Learned and Implications for the Future"
201. Lecture to Plants in a Changing World class, University of Connecticut. 2 October 2018. "Acid rain: A long and unfinished journey from discovery to political action".
202. Helz Lecture, University of Maryland. 18 October 2018. "Acid Rain: A long and unfinished journey from discovery to political action".
203. Lecture, Department of Geology, University of Maryland, "Lessons learned from long-term studies of a forest ecosystem". 19 October 2018.
204. Keynote Lecture to 2018 Scientific Symposium and Fall Meeting of National Atmospheric Deposition Program, Albany, NY: "Environmental Insights from NADP and Hubbard Brook Pertaining to Acid Rain". 8 Nov 2018.
205. Lecture to Limnology Class on "stream ecosystems", University of Connecticut. 13 November 2018.

PROFESSIONAL ACTIVITIES, COMMITTEES, ETC.

1. Director, NSF Undergraduate Research Participation Program, Department of Biological Sciences, Dartmouth College; 1964-1967.
2. Member, Governor's Radiation Advisory Committee, New Hampshire; 1964-1969.
3. Member, New Hampshire Natural Preserves Forum; 1964-1969.
4. Received travel awards from NSF and NIH to attend XVI International Congress of Limnology in Poland; 1965.
5. Chairman, New England Division of the Task Force for the Conservation of Aquatic Ecosystems, U.S. I.B.P.; 1966-1967.
6. Member, NSF Science Faculty Fellowship Panel; 1966, 1968, 1970.
7. Member, U.S. National Committee, International Hydrological Decade; 1966-1970.
8. Representative of the American Society of Limnology and Oceanography to the AIBS Inter-Society Committee; 1967.

9. Member, Subcommittee on Conservation of Ecosystems, U.S. I.B.P.; 1967-1968.
10. Received travel award from NSF to attend XVII International Congress of Limnology in Israel; 1968.
11. Member-at-Large and Member of Board of Directors, American Society of Limnology and Oceanography; 1969-1972.
12. Member, Advisory Committee, Eastern Deciduous Forest Biome, Analysis of Ecosystems, U.S. I.B.P.; 1970-1971.
13. Member, Steering Committee, Cornell Program on Science, Technology and Society; 1970-1972.
14. Member, Governing Board, Water Resources and Marine Sciences Center, Cornell University; 1970-1972.
15. Ecological Advisor, U.S. Senate Committee on Public Works; 1970-1973.
16. U.S. National Representative to Societas Internationalis Limnologiae, 1970-**present**; Executive Vice President, 1998-2002; President, 2004-2007.
17. Received travel award from American Society of Limnology and Oceanography and the Ecological Society of America to attend XVIII International Congress of Limnology in Russia; 1971.
18. Member, External Advisory Committee, Grassland Biome, Analysis of Ecosystems, U.S. I.B.P.; 1971-1972.
19. Chairman, Study Committee, Ecological Society of America; 1971-1974.
20. Member, National Academy of Sciences Panel for Southeast Asia Regional Workshop on the Use and Protection of Water Resources, Singapore; 1972.
21. Member, Committee on Biology of Pest Species, NAS, National Research Council; 1973-1976.
22. Member, Committee on Water Quality Policy, NAS, National Research Council; 1973-1976.
23. Member, Freshwater Sciences Committee, Pacific Science Association; 1973-1975.
24. Member, Water Research Strategy Review Committee, U.S. Environmental Protection Agency; 1974.
25. Received travel award from the Ecological Society of America to attend the First International Congress of Ecology in The Netherlands; 1974.
26. Member, Program Committee, First International Symposium on Acid Precipitation and the Forest Ecosystem, Ohio State University, Columbus, Ohio; 1974-1975.
27. Resource Advisor, New York State Department of Environmental Conservation; 1974-

- 2000.
28. Member, Scientific Advisory Committee, Edmund Niles Huyck Preserves, Inc.; 1974-1979.
 29. Member, Ecology Advisory Committee and Science Advisory Board, U.S. Environmental Protection Agency; 1975-1978.
 30. Member, Cayuga Station Impact Study Steering Committee, representing Tompkins County Environmental Management Council; 1975-1976.
 31. Member, Program Committee, IAGLR First Specialty Symposium on Precipitation and Aquatic Ecosystems, Orillia, Canada; 1975.
 32. Member, NATO Advanced Research Institute on Acid Rain; 1976-1978.
 33. Invited by the government of Norway to participate and chair a working group for an International Conference on the Effects of Acid Precipitation, Telemark, Norway; 1976.
 34. Participant, SCOR-NAS Working Group on Tropospheric Transport of Pollutants to the Ocean, Miami, Florida; 1976.
 35. Participant, Dahlem Konferenzen on Global Chemical Cycles and Their Alterations by Man, West Berlin; 1976.
 36. Member, Precipitation Committee of the American Geophysical Union Section of Hydrology; 1977-1981.
 37. Member, UNESCO Man and the Biosphere Directorate, Project 2 -- Temperate Forests; 1976-1978.
 38. External examiner, Department of Biology, Dalhousie University; 1977.
 39. Participant, Jubilee Symposium for 500-year celebration, University of Uppsala, Sweden; 1977.
 40. Member, Review Panel for the Department of Biological Sciences, State University of New York at Buffalo; 1977.
 41. Member, Assembly of Life Sciences, NAS National Research Council; 1977-1982.
 42. Participant, NATO Advanced Research Institute on Effects of Acid Precipitation on Terrestrial Ecosystems, University of Toronto, Canada; 1978.
 43. Participant, EPA-DOE Workshop on Effects of Acid Precipitation on Aquatic Ecosystems, Sagamore Conference Center, Adirondack Mountains, New York; 1978.
 44. Member, Program Committee, Norwegian Ministry of the Environment, International Conference on the Ecological Impact of Acid Precipitation, Oslo, Norway; 1979-1980.
 45. Member, Scientific Advisory Committee, Committee for the Development of Oceanography in Israel, Israel Oceanographic and Limnological Research Institute; 1978-

- 2000.
46. Member, Editorial Committee, *Annual Review of Ecology and Systematics*, Annual Reviews, Inc., Palo Alto, California; 1979-1982.
 47. Participant/Chairperson, International Workshop on Ecosystem Nitrogen Cycles, Terrestrial Nitrogen Cycles -- Processes, Ecosystem Strategies and Management Impacts. SCOPE/UNEP International Nitrogen Unit and the Commission for Research on Natural Resources of the Swedish Council for Planning and Coordination of Research. Gysinge Wårdshus, Österfornebo, Sweden; September 1979.
 48. Member, Steering Committee for the Biological Effects Governing Board, National Atmospheric Deposition Program; 1979-1981.
 49. Consultant for SRI International, Menlo Park, California; 1979.
 50. Elected to membership in The Explorer's Club; 1979.
 51. Member, Review Panel for Gray Freshwater Biological Institute, University of Minnesota; 1979.
 52. Chairperson, NAS/NRC Workshop on the Flux of Carbon by Rivers to the Oceans, Woods Hole, Massachusetts; 1980.
 53. Chairperson of Policy Board, EPA Ecosystems Research Center, Cornell University; 1980.
 54. Member, Advisory Panel for the Congress of the U.S. Office of Technology Assessment (OTA) on the Impacts of Atmospheric Alteration; 1981-1984.
 55. Member, Review Group for Wetlands Protection, Environmental Defense Fund, Washington, D.C.; 1982.
 56. Member, Steering Committee, Ecotoxicology Program, The Andrew W. Mellon Foundation for a research and training program in ecotoxicology at the Institute for Comparative and Environmental Toxicology, Cornell University; 1982.
 57. Member, Nominating Committee, National Academy of Sciences; 1982-1984, 1987.
 58. Member, Acid Rain Peer Review Panel, Office of Science and Technology Policy (OSTP), Washington, D.C.; 1982-1984.
 59. Member, Science Advisory Board *ad hoc* committee to review National Acid Precipitation Assessment Program, U.S. Environmental Protection Agency; 1983-1984.
 60. Participant/Speaker, Briefing on Acid Rain Legislation, Center for Energy and Environmental Management and *Inside EPA Weekly Report*, Arlington, Virginia; June 1983.
 61. Advisor to President Reagan and the Cabinet on Acid Rain; September 1983.
 62. Associate Editor, American Water Resources Association; 1983-1988.

63. Participant/Lecturer, 1983 Annual Meeting of the Coalition of Northeastern Governors, "Cleaning Up: Northeast Conference on Acid Rain and Hazardous Waste," Secaucus, New Jersey; December 1983.
64. Elected Member, Corporation of The New York Botanical Garden; 1984-1993.
65. Senior Advisor, Center of Energy and Environment Research [CEER], Department of Energy and University of Puerto Rico; 1983-1988.
66. Participant, NATO Advanced Research Workshop on Biogeochemical Cycles of Sulfur and Nitrogen in Remote Areas, Bermuda Biological Station for Research, St. George's, Bermuda; October 1984.
67. Participant/Speaker, CSIRO Division of Atmospheric Research and Bureau of Meteorology, The Scientific Application of Baseline Observations of Atmospheric Composition (SABOAC), Aspendale, Australia; November 1984.
68. Chairman/Organizer/Participant, First Cary Conference on The Status and Future of Ecosystem Science. Institute of Ecosystem Studies, Millbrook, New York; April/May 1985.
69. Chairman/Organizer/Participant, Symposium on Differentiating Between Natural Oscillations and Man-Made Perturbations in Aquatic Ecosystems. 48th Annual Meeting, American Society of Limnology and Oceanography, Minneapolis, Minnesota; June 1985.
70. Member, Scientific Advisory Committee, The Ecosystems Center, Marine Biological Laboratory, Woods Hole, Massachusetts; 1984-1985.
71. Member, *ad hoc* committee, Acid Rain: Science and Policy, Millbrook, New York and New York, New York; 1984-1985.
72. Member, U.S. Environmental Protection Agency Steering Committee for Mountain Cloudwater Chemistry, State University of New York, Albany, New York; 1984-1985.
73. Member, Environmental Advisory Board to Governor Mario M. Cuomo, State of New York; 1985-1994.
74. Advisor on Acid Rain to Drew Lewis, Special Envoy to President Reagan and to William Davis, Special Envoy to Prime Minister Mulroney, The White House, Washington, D.C.; August 1985.
75. Elected Chairman, Section of Population Biology, Evolution and Ecology (27), National Academy of Sciences; 1986-1989.
76. Participant, United States: China Air Pollution Technology Workshop, Nanjing Botanical Garden, Nanjing, China; and Institute of Environmental Chemistry, Academia Sinica, Beijing, People's Republic of China; November 1985.
77. Visiting Fellow, Chisholm Institute of Technology, Water Studies Centre, East Caulfield (Melbourne), Australia; February 1987.

78. Member, Editorial Advisory Board for Science Year, World Book, Inc.; 1987-1991.
79. Convenor/Participant, Second Cary Conference on Long-Term Studies in Ecology: Approaches and Alternatives. Institute of Ecosystem Studies, Millbrook, NY; May 1987.
80. Member, Board of Directors, Association for Ecosystem Research Centers (AERC); 1987-1996.
81. Trustee, Environmental Defense Fund, New York, New York; 1987-2005; Chairman, Scientific Advisory Committee, EDF, 1990-2005; Vice Chair, 1999-2005. **Honorary Trustee; 2005-present.**
82. Advisory Committee Member, Ph.D. Program in Biological Sciences, Fordham University; 1988-1990.
83. LTER Cedar Creek Advisory Panel Member, Cedar Creek, Minnesota; 1988-2002.
84. Advisor, Sand County Foundation, Aldo Leopold Memorial Reserve, Baraboo, Wisconsin; 1988-2001.
85. Invited Speaker, Testimony presented before U.S. House of Representatives Subcommittee on Natural Resources, Agriculture Research and Environment, Washington, D.C.; April 1988.
86. Member, Environmental Sciences Division Advisory Committee, Oak Ridge National Laboratory, Oak Ridge, Tennessee; 1988-2002.
87. Panel Member for Hudson River Foundation Symposium on Making the Estuary. Mohonk Mountain House, New Paltz, New York; November 1988.
88. External Reviewer, Department of Biological Sciences, University of Notre Dame, Indiana; November 1988, March 1997.
89. Advisor for Sierra Club Legal Defense Fund on Hoosier National Forest, Bloomington, Indiana; 1988.
90. Scientific Advisory Committee for Joseph W. Jones Ecological Research Center at Ichauway, Newton, Georgia; 1988-present [*Chairman 1988-2012*].
91. Advisor, Pace Center Advisory Board, Pace University of Law, Center for Environmental Legal Studies, White Plains, New York; 1988-2002.
92. Steering Committee/Participant, Third Cary Conference on Comparative Analyses of Ecosystems: Patterns, Mechanisms, and Theories. Institute of Ecosystem Studies, Millbrook, New York; May 1989.
93. Advisor, School of Natural Resources, University of Vermont, Burlington, Vermont; September 1988.
94. Member, External Advisory Committee, Marine Biological Laboratory, Woods Hole, Massachusetts; 1989-1992.

95. Advisor appointed by Governor Mario Cuomo, Commission on the Adirondacks in the Twenty-First Century, State of New York; 1989-1992.
96. Invited Participant, Meeting of experts held by the Friedrich Ebert Foundation and the United Nations Centre for Science and Technology for Development on Peace, Development and the Role of Science and Technology, United Nations, New York; September 1989.
97. Member of Advisory Panel for Crisis in the Atmosphere, *The Infinite Voyage*, A Production of WQED/Pittsburgh in association with the National Academy of Sciences; 1989.
98. Member of Advisory Board, *Environmental Quarterly*, educational television series for WNET/THIRTEEN, New York, New York; 1990.
99. Participant and Member of Planning Workshop for 1991 International Symposium on Terrestrial Ecosystems: Forests and Woodlands, Florence, Italy (May 1991), Commission of the European Communities, Brussels, Belgium; March 1990.
100. Member, Selection Committee for Chair in Freshwater Biology at the Freshwater Biology Laboratory of Copenhagen University, Denmark; 1989-1990.
101. Symposium Chair/Panelist, The New York Natural History Conference, Albany, New York; June 1990.
102. Member, NRC/NAS Commission on Geosciences, Environment and Resources (CGER); 1990-1993.
103. Member, NRC/NAS Board on Environmental Studies and Toxicology (BEST); 1990-1993.
104. Plenary Chairman, International Conference on Acidic Deposition, Glasgow, Scotland; September 1990.
105. Steering Committee and Participant, Fourth Cary Conference on Human versus Natural Influence on Ecosystems: Implications for Theory and Practice. Institute of Ecosystem Studies, Millbrook, New York; May 1991.
106. Member, Committee of Environmental Quality Bond Act, New York State; 1990.
107. Member, Advisory Committee, U.S. Baikal Research Association, for Baikal International Center for Ecological Research (BICER); 1991-2002.
108. Editor (with J. Lawton) of Book Series, Methods in Ecology, Blackwell Publications; 1991-2005.
109. Member, National Commission on the Environment, World Wildlife Fund, Washington, D.C.; 1991-1992.
110. Faculty Committee Member, Institute for Biospheric Studies, Yale University; 1991-1994.
111. Convenor/Participant, Antarctic Dry Valleys: Terrestrial and Aquatic Ecosystems.

- Institute of Ecosystem Studies, Millbrook, New York; October 1991.
112. Steering Committee and Participant, Fifth Cary Conference on Linking Populations, Species Interactions, and Ecosystems. Institute of Ecosystem Studies, Millbrook, New York; 1992-1993.
 113. Participant, U.S. Geological Survey/Institute of Ecosystem Studies, Workshop on Large Rivers. Institute of Ecosystem Studies, Millbrook, New York; March-April 1992.
 114. Steering Committee, The Freshwater Imperative (FWI); 1992-1994.
 115. Member, Visiting Committee of Advisory Board, Center for the Environment, Cornell University; 1992-1995.
 116. Chairman of Steering Committee, National Science Foundation Workshop, Integrated Regional Models: Analysis of Interactions Between Humans and their Environment. Institute of Ecosystem Studies, Millbrook, New York; 1992-1993.
 117. Member, Challenges for Limnology Committee, American Society of Limnology and Oceanography; 1992-1993.
 118. Honorary Member, Bat Conservation International; 1992.
 119. Member, Kilham Memorial Lecture Committee, Societas Internationalis Limnologiae (SIL); 1992-2007.
 120. Member, Advisory Committee, Audubon Society of New Hampshire; 1993-1994.
 121. Member, Scientific Advisory Committee for the National Resource Ecology Laboratory, Colorado State University, Ft. Collins, Colorado; 1994-1997.
 122. Member, Life Sciences External Review Committee, University of Maryland System; 1995.
 123. Member, Scientific Advisory Committee for the Center for Ecological Health Research, University of California, Davis; 1995-1998.
 124. Member, Review Team, Cooperative Research Centre for Freshwater Ecology, Canberra, Australia; 1996, 1998.
 125. Member, Advisory Board, *Ecosystems*; 1997-2012.
 126. Member, ASLO Journal Committee (American Society of Limnology and Oceanography); 1997-1999.
 127. Organized and Chaired Environmental Defense Fund Workshop on High Volume Organic Wastes, New York, New York; January 1998.
 128. Organized and Chaired Environmental Defense Fund Workshop on Antibiotic Resistance, Islamorada, Florida; January 1999.
 129. Invited member of Independent Science Panel formed through the International Council

- for Scientific Unions, at the request of World Heritage Committee of UNESCO, Review of proposed uranium mine near Kakadu National Park, Australia; April 1999-May 2000.
130. Member, LTER Committee on Scientific Initiatives [CoSi]; 1999-2005.
 131. Advisor, Landcare Research New Zealand Ltd., Lincoln, NZ; January/February 2000.
 132. Governor's Advisory Committee for the Henry Hudson Institute for Riverine and Estuarine Research and Education; 2000-2003.
 133. Organized and Chaired Environmental Defense Fund 'Science Day' Workshop on Atmospheric Nitrogen, Menlo Park, California; May 2000.
 134. Organized and Chaired Environmental Defense 'Science Day' Workshop on Invasion of Alien Species, New York, New York; January 2001.
 135. Reviewer, Narran Lakes Project, NSW, Australia; February 2001, April 2004.
 136. Co-Organized and Led: Ethics in Scientific Research, Monash University, Melbourne, Australia; February 2001.
 137. Advisor, The Science Center Advisory Committee, Manchester College, North Manchester, Indiana; 2000-2005.
 138. President-Elect; Board of Directors; Executive Committee; Chair of Long-Range Planning Committee, American Institute of Biological Sciences (AIBS), 2001; President, 2002; Past President, 2003.
 139. President; Executive Committee, Societas Internationalis Limnologiae (SIL), 2001-2003; Re-Elected President, 2004-2007.
 140. Attended Council for Scientific Society Presidents' Meeting, Washington, D.C.; May 2002.
 141. Editor-in-Chief of the Encyclopedia of Inland Waters, Elsevier Publishing; 2005-2007.
 142. Invited Participant, ASLO Workshop 'Emerging Research Issues for Limnology: The Study of Inland Waters', American Society of Limnology and Oceanography, Boulder, CO; December 2002.
 143. Keynote Speaker and Science Panel Chair, Lee M. Talbot Festschrift, "From Conservation to Sustainability: The Co-Evolution of Science and Policy." Washington, D.C.; April 2003.
 144. Recorded Interview with Jackie May of ABC's "Earthbeat." March 2004.
 145. Presentation and Discussion with Dialectic Society's 'Soapbox Discussion Series', the Environment Club and Green Group of Trinity College, University of Melbourne; March 2004.
 146. National Advisory Board, National Ecological Observatory Network [NEON]; 2004-2007.
 147. Presentation and Discussions at Plymouth State University Center for the Environment

- Retreat, Minary Center, Meredith, NH; June 2004.
148. Invited Speaker and Panelist, “The Liberal Education: Dead or Alive?” Dartmouth College, Hanover, NH; November 2004.
 149. Editorial Advisor, *Limnology*, The Japanese Society of Limnology; April 2005-March 2007.
 150. Invited Participant, ‘Sulfur Budgets of Small, Forested Watersheds’ Workshop at Syracuse University; February 2005.
 151. Discussant/Speaker, AAAS Meeting, Washington, D.C.; February 2005.
 152. Euro-Limpacs Review Expert, European Commission, Brussels; May 2005.
 153. External Advisory Committee, Strategic Assessment of the School of Natural Resources and Environment, University of Michigan, Ann Arbor; August 2005.
 154. Recorded Interview (Live), WillI Radio Station, Willimantec, CT; November 2005.
 155. Invited to Kindergarten Class at Chancellor Livingston Elementary School to discuss science topics with children (‘Ecology of Moose Antlers!’), Rhinebeck, NY; December 2005.
 156. Honorary Board Member, Friends of Mirror Lake Association (FMLA), North Woodstock, NH; 2007-*present*.
 157. Recorded Radio Interview, “Conversation with Gene E. Likens”, 4ZZ Radio, Brisbane, Queensland, Australia. www.thewire.org.au – produced by Heidi Millington; 11 April 2007.
 158. Invited to workshop, CSIRO Healthy Waters Ecosystems, Theme Planning Meeting, Christian Lab, Black Mountain, Canberra, Australia; January 2008.
 159. Invited to workshop, CLLAMM Futures Workshop (Coorang Lower Lakes and Murray Mouth), University of Adelaide and Flinders University, Adelaide, S.A., Australia; March 2008.
 160. Invited to workshop, TRaCK Workshop (Tropical Rivers and Coastal Knowledge), Charles Darwin University, Darwin, NT, Australia; April-May 2008.
 161. Recorded Radio Interview, ABC interview on 666 AM with Genevieve Jacobs; 7 May 2008.
 162. Organized Workshop, Ecosystems Workshop, The Carrington, Bungendore, NSW, Australia; April 2008.
 163. Speaker and Co-Organizer, Colloquium Celebrating Centennial of Limnology at Cornell University, Ithaca, NY; April 2009.
 164. Invited to Review Program, The Thomas Foundation. Noosaville, Queensland, Australia;

- April 2010.
165. Invited Eminent Reviewer, Murray Darling Basin Authority, Canberra, ACT, Australia; May 2010.
 166. Speaker and Plenary Session Chair, Society of International Limnology (SIL) Congress, Cape Town, South Africa; August 2010.
 167. Guest Visiting Professor in Environmental Science, Uppsala University, Uppsala, Sweden; February-April 2011.
 168. Plenary Speaker and Panel Participant, North American Benthological Society (NABS) Annual Meeting, Providence, RI; May 2011.
 169. Advisory Board Member, Sub-Antarctic Biocultural Conservation (SABC) Research Cluster Program, University of North Texas and IEB; May 2011-
 170. Guest Visiting Professor in Department of Geography and Planning, University of New England, Armidale, New South Wales, Australia; August 2011.
 171. Guest Visiting Professor and Speaker, University of Wyoming, Laramie; October 2011.
 172. Invited Member, Lewis and Clark Fund for Exploration and Field Research Committee, American Philosophical Society; 2011-2014.
 173. Guest Visiting Professor and J. Michael Dunmire Invited Speaker, University of Missouri, Columbia; November 2011.
 174. Invited Speaker, Greenwich Bruce Museum, Greenwich, CT; December 2011.
 175. Radio Interview, Wayne Norman Wili Radio Show, Willimantic, CT; December 2011.
 176. Participant and Speaker, OPUS Workshop, National Science Foundation; September 2012.
 177. Invited Participant, Environmental Laureate's Convention, European Environment Foundation, Freiburg, Germany; March 2013.
 178. Guest Visiting Professor, Department of Limnology, EBC-Uppsala University, Sweden; March-April 2013.
 179. Interview with WAMC Allison Dunne, "Researchers find acid rain legacy impacts eastern waters." The news story was broadcast on WAMC on 28 August 2013.
<http://wamc.org/post/researchers-find-acid-rain-legacy-impacts-eastern-waters>
 180. Interview with Rebekah Marcarelli, "Acid rain threatens chemistry of rivers and streams by changing alkalinity; 'legacy effect' from 5 decades of pollution may be bad news for aquatic life." The news story was published in Headlines and Global News on 28 August 2013. <http://www.hngn.com/articles/11057/20130827/acid-rain-threatens-chemistry-rivers-streams-changing-alkalinity-legacy-effect.htm>

181. Interview with Catherine Griffin, “Rivers and streams in U.S. change their chemistry due to acid rain.” The news story was published in the Science World Report on 27 August 2013. <http://www.scienceworldreport.com/articles/9075/20130827/rivers-streams-change-chemistry-due-acid-rain.htm>
182. Interview with Tamarra Kemsley, “Rivers in eastern U.S. becoming alkaline, affecting water supplies.” The news story was published in Nature World News on 27 August 2013. <http://www.natureworldnews.com/articles/3673/20130827/rivers-eastern-becoming-alkaline-affecting-water-supplie.htm>
183. “In U.S. ‘rivers on Roloids’ are legacy of acid rain.” The news story was published on AFP.com on August 27, 2013. <http://www.google.com/hostednews/afp/article/ALeqM5gX9k1MdtKstEeg1H8W8K57zKUAkw?docId=CNG.03d45342ac8babb91b38e0b587305283.481>
184. “Human activity negatively impacts water chemistry.” The news story was published on Environmental News Network on August 26, 2013. <http://www.enn.com/ecosystems/article/46358>
185. Interview with NPR Christopher Joyce, “Rivers On Roloids’: How Acid Rain Is Changing Waterways” NPR - September 13, 2013. <http://www.npr.org/2013/09/13/221725348/rivers-on-roloids-how-acid-rain-is-changing-waterways?sc=17&f=1001>
186. Interview with Cory Edgar, NPR ‘Earthwise’; September 2013.
187. Interview, Ensia, long-term ecological research; November 2013.
188. Interview with Mike Tennyson; 5 May 2014.
189. Interview with Sam of NHPR, update on acid rain; 24 May 2014.
190. University of Connecticut Water Planning Meeting. 20 February 2015.
191. Meeting of the Scientific Advisory Committee, Jones Ecological Research Center. February 9-13, 2015, and October 20-23, 2015.
192. Hubbard Brook Committee of Scientists meeting. Cary Institute of Ecosystem Studies, Millbrook, NY, April 7, 2015 and October 7, 2015.
193. Meeting, American Philosophical Society. Philadelphia, PA, April 23-25, 2015.
194. Board Meeting and River Tour, Hudson River Foundation. June 5-7, 2015 and October 2, 2015.
195. Board Meetings, Hubbard Brook Research Foundation. July 7, 2015, September 24, 2015, and October 26, 2015 (Program Committee)
196. Annual Hubbard Brook Cooperators’ meeting. Hubbard Brook Experimental Forest, July 8-10, 2015.
197. Ecological Society of America Meeting. Baltimore, MD, August 9-13, 2015.

198. Meeting with The Nature Conservancy/University of Connecticut, Storrs. September 25, 2015.
199. Attended, Great Mountain Forest Board Meeting. Norfolk, CT, November 12, 2015.
200. Attended, 33 Congress of the International Society of Limnology in Torino, Italy. July 31, 2016 – August 5, 2016. (Presented scientific paper, “Long-term chemical changes in Mirror Lake, New Hampshire, USA”; co-chaired session (Biochemistry and Ecology of Inland Waters); US National Representative to the International Committee.)
201. Presented, Novus IV Workshop at Hubbard Brook, New Hampshire. September 27 – September 30. (“Insights from long-term studies of ecosystems at Hubbard Brook and the future.”)

BOOKS:

1. Likens, G. E. (ed.). 1972. Nutrients and Eutrophication. American Society of Limnology and Oceanography, Special Symposia. Lawrence, Kansas. Volume I. 328 pp.
2. Likens, G. E., F. H. Bormann, R. S. Pierce, J. S. Eaton and N. M. Johnson. 1977. Biogeochemistry of a Forested Ecosystem. Springer-Verlag New York Inc. 146 pp.
3. Bormann, F. H. and G. E. Likens. 1979. Pattern and Process in a Forested Ecosystem. Springer-Verlag New York Inc. 253 pp.
4. Rodhe, W., G. E. Likens and C. Serruya (eds.). 1979. Lake Metabolism and Management. Papers Emanating from the Limnological Jubilee Symposium of Uppsala University (1477-1977), Sweden. *Ergebnisse Limnol. Arch. Hydrobiol.* 13.
5. Wetzel, R. G. and G. E. Likens. 1979. *Limnological Analyses*. W. B. Saunders Co., Philadelphia. 357 pp.
6. Likens, G. E. (ed.). 1981. Some Perspectives of the Major Biogeochemical Cycles, Vol. 17. SCOPE IVth General Assembly, Stockholm, Sweden. John Wiley & Sons Ltd., Chichester. 170 pp.
7. Likens, G. E. (ed.). 1985. *An Ecosystem Approach to Aquatic Ecology: Mirror Lake and Its Environment*. Springer-Verlag New York Inc. 516 pp.
8. Likens, G. E. (ed.). 1989. *Long-Term Studies in Ecology. Approaches and Alternatives*. Springer-Verlag New York Inc. 214 pp.
9. Wetzel, R. G. and G. E. Likens. 1991. *Limnological Analyses. Second Edition*. Springer-Verlag New York Inc. 391 pp.
10. Likens, G. E. 1992. *The Ecosystem Approach: Its Use and Abuse. Excellence in Ecology, Vol. 3*. Ecology Institute, Oldendorf/Luhe, Germany. 167 pp.
11. Train, R. E., P.A.A. Berle, J. E. Bryson, A. W. Clausen, D. M. Costle, M. M. Kunin, G. E. Likens, C. A. Matos, G. S. Omenn, P. H. O'Neill, A. M. Rivlin, P. Robinson, S. C.

- Rockefeller, W. D. Ruckelshaus, G. R. Scott, J. G. Speth, L. M. Thomas, V. J. Tschinkel and R. M. White. 1993. Choosing a Sustainable Future. The Report of the National Commission on the Environment. Island Press, Washington, D.C. 180 pp.
12. Groffman, P. M. and G. E. Likens (eds.). 1994. Integrated Regional Models: Interactions Between Humans and Their Environment. Chapman & Hall, New York. 157 pp.
 13. Likens, G. E. and F. H. Bormann. 1995. Biogeochemistry of a Forested Ecosystem. Second Edition, Springer-Verlag New York Inc. 159 pp.
 14. Pickett, S. T. A., R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). 1997. The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity. Chapman & Hall, New York. 466 pp.
 15. Wetzel, R. G. and G. E. Likens. 2000. Limnological Analyses. Third Edition. Springer-Verlag New York Inc. 429 pp.
 16. Likens, G. E. (Editor-in-Chief). 2009. Encyclopedia of Inland Waters. 3 Volumes. Elsevier, Academic Press.
 17. Winter, T. C. and G. E. Likens (eds.). 2009. Mirror Lake: Interactions among Air, Land and Water. University of California Press. 361 pp.
 18. Likens, G. E. (Editor). 2010. Biogeochemistry of Inland Waters. Elsevier, Academic Press.
 19. Likens, G. E. (Editor). 2010. Lake Ecosystem Ecology. Elsevier, Academic Press.
 20. Likens, G. E. (Editor). 2010. Plankton of Inland Waters. Elsevier, Academic Press.
 21. Likens, G. E. (Editor). 2010. River Ecosystem Ecology. Elsevier, Academic Press.
 22. Lindenmayer, D. B. and G. E. Likens. 2010. Effective Ecological Monitoring. CSIRO Publishing and Earthscan. 170 pp.
 23. Weathers, K. C., D. L. Strayer and G. E. Likens (eds.). 2013. Fundamentals of Ecosystem Science. Elsevier Academic Press. 312 pp. (available in Spanish)
 24. Likens, G. E. 2013. Biogeochemistry of a Forested Ecosystem, Third Edition. Springer. 208 pp.
 25. Holmes, R. T. and G. E. Likens. 2016. Hubbard Brook: The Story of a Forest Ecosystem. Yale University Press, New Haven. 271 pp.
 26. Lindenmayer, D. B. and G. E. Likens. 2018. Effective Ecological Monitoring (2nd Edition). CSIRO Publishing. 224 pp.
 27. Weathers, K. C., D. L. Strayer and G. E. Likens (eds.). 2019. Fundamentals of Ecosystem Science. (2nd Edition), Elsevier Academic Press. In Press.

PUBLICATIONS:

1. Likens, G. E. and A. D. Hasler. 1960. Movement of radiosodium in a chemically stratified lake. *Science* 131(3414):1676-1677.
2. Likens, G. E. and A. D. Hasler. 1962. Movements of radiosodium (Na^{24}) within an ice-covered lake. *Limnol. Oceanogr.* 7(1):48-56.
3. Hasler, A. D. and G. E. Likens. 1963. Biological and physical transport of radionuclides in stratified lakes. pp. 463-470. In: V. Schultz and A. W. Klement, Jr. (eds.). Radioecology. American Institute of Biological Sciences and Reinhold Publ. Corp., New York.
4. Likens, G. E. 1964. An unusual distribution of algae in an Antarctic lake. *Bull. Torrey Bot. Club* 91(3):213-217.
5. Likens, G. E. 1964. Pesticide pollution of freshwater ecosystems. *Bull. Ecol. Soc. Amer.* 45(4):157-159.
6. Ragotzkie, R. A. and G. E. Likens. 1964. The heat balance of two Antarctic lakes. *Limnol. Oceanogr.* 9(3):412-425.
7. Likens, G. E. 1965. Measurement of background radiation in lakes. *Ecology* 46(4):544-548.
8. Likens, G. E. and R. A. Ragotzkie. 1965. Vertical water motions in a small ice-covered lake. *J. Geophys. Res.* 70(10):2333-2344.
9. Likens, G. E. and P. L. Johnson. 1966. A chemically stratified lake in Alaska. *Science* 153(3738):875-877.
10. Likens, G. E. and R. A. Ragotzkie. 1966. Rotary circulation of water in an ice-covered lake. *Verh. Internat. Verein. Limnol.* 16(1):126-133.
11. Bormann, F. H. and G. E. Likens. 1967. Nutrient cycling. *Science* 155(3761):424-429.
12. Johnson, N. M. and G. E. Likens. 1967. A steady-state thermal gradient in the sediments of a meromictic lake. *J. Geophys. Res.* 72(12):3049-3052.
13. Likens, G. E. 1967. Some chemical characteristics of meromictic lakes in North America. pp. 17-62. In: D. Jackson (ed.). Some Aspects of Meromixis. Syracuse University, Syracuse, New York.
14. Likens, G. E., F. H. Bormann, N. M. Johnson and R. S. Pierce. 1967. The calcium, magnesium, potassium, and sodium budgets for a small-forested ecosystem. *Ecology* 48(5):772-785.
15. Bormann, F. H., G. E. Likens, D. W. Fisher and R. S. Pierce. 1968. Nutrient loss accelerated by clear-cutting of a forest ecosystem. pp. 187-195. In: Symposium on Primary Productivity and Mineral Cycling in Natural Ecosystems. University of Maine Press, Orono; Also in *Science* 159(3817):882-884.
16. Fisher, D. W., A. W. Gambell, G. E. Likens and F. H. Bormann. 1968. Atmospheric

- contributions to water quality of streams in the Hubbard Brook Experimental Forest, New Hampshire. *Water Resour. Res.* 4(5):1115-1126.
17. Johnson, N. M., G. E. Likens, F. H. Bormann and R. S. Pierce. 1968. Rate of chemical weathering of silicate minerals in New Hampshire. *Geochim. Cosmochim. Acta* 32:531-545.
 18. Kilham, P. and G. E. Likens. 1968. Penetration of light in the lakes of Grafton County, New Hampshire. NH Department of Resources and Economic Development, Concord, New Hampshire. 93 pp.
 19. Likens, G. E. 1968. Limnology -- recent studies on meromictic lakes. pp. 232-233. In: McGraw-Hill Yearbook of Science and Technology. McGraw-Hill Book Co., New York.
 20. Likens, G. E. and P. L. Johnson. 1968. A limnological reconnaissance in interior Alaska. U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, NH, Research Report 239. 45 pp.
 21. Smith, W. H., F. H. Bormann and G. E. Likens. 1968. Response of chemoautotrophic nitrifiers to forest cutting. *Soil Science* 106(6):471-473.
 22. Bormann, F. H. and G. E. Likens. 1969. A watershed approach to problems of nutrient cycling in forest ecosystems. pp. 2303-2306. In: Proc. 6th World Forestry Congress, Vol. 2, Tech. Comm. III. Madrid, Spain.
 23. Bormann, F. H. and G. E. Likens. 1969. The watershed-ecosystem concept and studies of nutrient cycles. pp. 49-76. In: G. VanDyne (ed.). The Ecosystem Concept in Natural Resource Management, Chap. IV. Academic Press, New York.
 24. Bormann, F. H., G. E. Likens and J. S. Eaton. 1969. Biotic regulation of particulate and solution losses from a forest ecosystem. *BioScience* 19(7):600-610.
 25. Collins, L. W. and G. E. Likens. 1969. The effect of altitude on the distribution of aquatic plants in some lakes of New Hampshire, USA. *Verh. Internat. Verein. Limnol.* 17:154-172.
 26. Eaton, J. S., G. E. Likens and F. H. Bormann. 1969. Use of membrane filters in gravimetric analyses of particulate matter in natural waters. *Water Resour. Res.* 5(5):1151-1156.
 27. Johnson, N. M., G. E. Likens, F. H. Bormann, D. W. Fisher and R. S. Pierce. 1969. A working model for the variation in stream water chemistry at the Hubbard Brook Experimental Forest, New Hampshire. *Water Resour. Res.* 5(6):1353-1363.
 28. Likens, G. E., F. H. Bormann and N. M. Johnson. 1969. Nitrification: importance to nutrient losses from a cutover forested ecosystem. *Science* 163(3872):1205-1206.
 29. Likens, G. E. and N. M. Johnson. 1969. Measurement and analysis of the annual heat budget for the sediments in two Wisconsin lakes. *Limnol. Oceanogr.* 14(1):115-135.

30. Likens, G. E. and P. L. Johnson. 1969. Measurements of background radiation in aquatic habitats in Alaska. pp. 319-328. In: D. J. Nelson and F. C. Evans (eds.). Proc. 2nd National Symposium on Radioecology. Ann Arbor, Michigan.
31. McConnochie, K. and G. E. Likens. 1969. Some trichoptera of the Hubbard Brook Experimental Forest in central New Hampshire. *Can. Field Nat.* 83(2):147-154.
32. Bormann, F. H. and G. E. Likens. 1970. The nutrient cycles of an ecosystem. *Sci. Amer.* 223(4):92-101.
33. Bormann, F. H., T. G. Siccama, G. E. Likens and R. H. Whittaker. 1970. The Hubbard Brook Ecosystem Study: composition and dynamics of the tree stratum. *Ecol. Monogr.* 40(4):373-388.
34. Likens, G. E. and F. H. Bormann. 1970. Chemical analyses of plant tissues from the Hubbard Brook ecosystem in New Hampshire. *Yale University School of Forestry Bulletin* 79. 25 pp.
35. Likens, G. E., F. H. Bormann, N. M. Johnson, D. W. Fisher and R. S. Pierce. 1970. Effects of forest cutting and herbicide treatment on nutrient budgets in the Hubbard Brook watershed-ecosystem. *Ecol. Monogr.* 40(1):23-47.
36. Likens, G. E. and J. S. Eaton. 1970. A polyurethane stemflow collector for trees and shrubs. *Ecology* 51(5):938-939.
37. Likens, G. E. and J. J. Gilbert. 1970. Notes on quantitative sampling of natural populations of planktonic rotifers. *Limnol. Oceanogr.* 15(5):816-820.
38. Pierce, R. S., J. W. Hornbeck, G. E. Likens and F. H. Bormann. 1970. Effect of elimination of vegetation on stream water quantity and quality. pp. 311-328. In: International Symposium on the Results of Research on Representative and Experimental Basins. Wellington, New Zealand. Internat. Assoc. Sci. Hydrol.
39. Siccama, T. G., F. H. Bormann and G. E. Likens. 1970. The Hubbard Brook Ecosystem Study: productivity, nutrients, and phytosociology of the herbaceous layer. *Ecol. Monogr.* 40(4):389-402.
40. Bormann, F. H. and G. E. Likens. 1971. The ecosystem concept and the rational management of natural resources. *Yale Sci. Mag.* 45(7):2-8.
41. Bowers, R., P. Hohenberg, G. E. Likens, W. Lynn, D. Nelkin and M. Nelkin. 1971. A program to coordinate environmental research. *Amer. Sci.* 59(2):183-187.
42. Likens, G. E. 1971. Lake, meromictic. pp. 435-437. In: McGraw-Hill Encyclopedia of Science and Technology, Vol. 7. McGraw-Hill Book Co., New York.
43. Likens, G. E., A. F. Bartsch, G. H. Lauff and J. E. Hobbie. 1971. Nutrients and eutrophication. *Science* 172(3985):873-874.
44. Likens, G. E., F. H. Bormann, R. S. Pierce and D. W. Fisher. 1971. Nutrient-hydrologic

- cycle interaction in small forested watershed-ecosystems. pp. 553-563. In: P. Duvigneaud (ed.). Proc. Brussels Symposium on Productivity of Forest Ecosystems, 1969. UNESCO, Paris.
45. Fisher, S. G. and G. E. Likens. 1972. Stream ecosystem: organic energy budget. *BioScience* 22(1):33-35.
 46. Gosz, J. R., G. E. Likens and F. H. Bormann. 1972. Nutrient content of litterfall on the Hubbard Brook Experimental Forest, New Hampshire. *Ecology* 53(5):769-784.
 47. Johnson, N. M., R. C. Reynolds and G. E. Likens. 1972. Atmospheric sulfur: its effect on the chemical weathering of New England. *Science* 177(4048):514-516.
 48. Likens, G. E. 1972. Effects of deforestation on water quality. pp. 133-140. In: Proc. American Society of Civil Engineers Symposium on the Interdisciplinary Aspects of Watershed Management, 1970. Bozeman, Montana.
 49. Likens, G. E. 1972. Eutrophication and aquatic ecosystems. pp. 3-13. In: G. E. Likens (ed.). Nutrients and Eutrophication. Proc. American Society of Limnology and Oceanography Special Symposia, Vol. 1. Lawrence, Kansas.
 50. Likens, G. E. 1972. Mirror Lake: its past, present and future? *Appalachia* 39(2):23-41.
 51. Likens, G. E. 1972. The chemistry of precipitation in the central Finger Lakes Region. Water Resources and Marine Sciences Center Tech. Report 50. Cornell University, Ithaca, New York. 47 pp. + 14 figs.
 52. Likens, G. E. and F. H. Bormann. 1972. Biogeochemical cycles. *The Science Teacher* 39(4):15-20.
 53. Likens, G. E. and F. H. Bormann. 1972. Nutrient cycling in ecosystems. pp. 25-67. In: J. Wiens (ed.). Ecosystem Structure and Function. Oregon State University Press, Corvallis.
 54. Likens, G. E., F. H. Bormann and N. M. Johnson. 1972. Acid rain. *Environment* 14(2):33-40.
 55. Pierce, R. S., C. W. Martin, C. C. Reeves, G. E. Likens and F. H. Bormann. 1972. Nutrient loss from clearcuttings in New Hampshire. pp. 285-295. In: Symposium on Watersheds in Transition. Fort Collins, Colorado. American Water Resources Association and Colorado State University.
 56. Burton, T. M. and G. E. Likens. 1973. The effect of strip-cutting on stream temperatures in the Hubbard Brook Experimental Forest, New Hampshire. *BioScience* 23(7):433-435.
 57. Eaton, J. S., G. E. Likens and F. H. Bormann. 1973. Throughfall and stemflow chemistry in a northern hardwood forest. *J. Ecol.* 61(2):495-508.
 58. Fisher, S. G. and G. E. Likens. 1973. Energy flow in Bear Brook, New Hampshire: an integrative approach to stream ecosystem metabolism. *Ecol. Monogr.* 43(4):421-439.

59. Gosz, J. R., G. E. Likens and F. H. Bormann. 1973. Nutrient release from decomposing leaf and branch litter in the Hubbard Brook forest, New Hampshire. *Ecol. Monogr.* 43(2):173-191.
60. Hobbie, J. E. and G. E. Likens. 1973. The output of phosphorus, dissolved organic carbon and fine particulate carbon from Hubbard Brook watersheds. *Limnol. Oceanogr.* 18(5):734-742.
61. Likens, G. E. 1973. Primary production: freshwater ecosystems. *Human Ecol.* 1(4):347-356.
62. Whittaker, R. H. and G. E. Likens. 1973. Carbon in the biota. pp. 281-302. In: G. M. Woodwell and E. V. Pecan (eds.). Carbon and the Biosphere. U.S. Atomic Energy Commission, CONF-720510, Springfield, Virginia.
63. Whittaker, R. H. and G. E. Likens. 1973. Introduction (the primary production of the biosphere). *Human Ecol.* 1(4):301-302.
64. Whittaker, R. H. and G. E. Likens. 1973. Primary production: the biosphere and man. *Human Ecol.* 1(4):357-369.
65. Bormann, F. H., G. E. Likens, T. G. Siccama, R. S. Pierce and J. S. Eaton. 1974. The export of nutrients and recovery of stable conditions following deforestation at Hubbard Brook. *Ecol. Monogr.* 44(3):255-277.
66. Cogbill, C. V. and G. E. Likens. 1974. Acid precipitation in the northeastern United States. *Water Resour. Res.* 10(6):1133-1137.
67. Hornbeck, J. W. and G. E. Likens. 1974. The ecosystem concept for determining the importance of chemical composition of snow. pp. 139-151. In: Advanced Concepts of Techniques in the Study of Snow and Ice Resources. ISBN 0-309-02235-5. National Academy of Sciences, Washington, D.C.; Also, 31st Annual Eastern Snow Conference Proc., pp. 145-155.
68. Likens, G. E. 1974. The runoff of water and nutrients from watersheds tributary to Cayuga Lake, New York. Water Resources and Marine Sciences Center Publ. 81. Cornell University, Ithaca, New York. 124 pp.
69. Likens, G. E. 1974. Water and nutrient budgets for Cayuga Lake, New York. Water Resources and Marine Sciences Center Publ. 82. Cornell University, Ithaca, New York. 91 pp.
70. Likens, G. E. and F. H. Bormann. 1974. Acid rain: a serious regional environmental problem. *Science* 184(4142):1176-1179.
71. Likens, G. E. and F. H. Bormann. 1974. Effects of forest clearing on the northern hardwood forest ecosystem and its biogeochemistry. pp. 330-335. In: Proceedings of the First International Congress of Ecology, September 1974. Centre Agric. Publ. Doc. Wageningen, The Hague, The Netherlands.

72. Likens, G. E. and F. H. Bormann. 1974. Linkages between terrestrial and aquatic ecosystems. *BioScience* 24(8):447-456.
73. Sturges, F. W., R. T. Holmes and G. E. Likens. 1974. The role of birds in nutrient cycling in a northern hardwoods ecosystem. *Ecology* 55(1):149-155.
74. Whittaker, R. H., F. H. Bormann, G. E. Likens and T. G. Siccama. 1974. The Hubbard Brook Ecosystem Study: forest biomass and production. *Ecol. Monogr.* 44(2):233-254.
75. Burton, T. M. and G. E. Likens. 1975. Energy flow and nutrient cycling in salamander populations in the Hubbard Brook Experimental Forest, New Hampshire. *Ecology* 56(5):1068-1080.
76. Burton, T. M. and G. E. Likens. 1975. Salamander populations and biomass in the Hubbard Brook Experimental Forest, New Hampshire. *Copeia* 3:541-546.
77. Gerhart, D. Z. and G. E. Likens. 1975. Enrichment experiments for determining nutrient limitation: four methods compared. *Limnol. Oceanogr.* 20(4):649-653.
78. Gosz, J. R., G. E. Likens, J. S. Eaton and F. H. Bormann. 1975. Leaching of nutrients from leaves of selected tree species in New Hampshire. pp. 630-641. In: F. G. Howell, J. B. Gentry and M. H. Smith (eds.). Mineral Cycling in Southeastern Ecosystems. ERDA Symp. Series CONF-740513. Augusta, Georgia; May 1974.
79. Hornbeck, J. W., G. E. Likens, R. S. Pierce and F. H. Bormann. 1975. Strip cutting as a means of protecting site and streamflow quality when clearcutting northern hardwoods. pp. 209-229. In: B. Bernier and C. H. Winget (eds.). Proc. 4th N. Amer. Forest Soils Conference on Forest Soils and Forest Land Management, August 1973, Quebec, Canada.
80. Hornbeck, J. W., R. S. Pierce, G. E. Likens and C. W. Martin. 1975. Moderating the impact of contemporary forest cutting on hydrologic and nutrient cycles. pp. 423-433. In: Proc. of Internat. Symp. On Hydrologic Sciences. Publ. 117. Tokyo, Japan.
81. Jordan, M. J. and G. E. Likens. 1975. An organic carbon budget for an oligotrophic lake in New Hampshire, USA. *Verh. Internat. Verein. Limnol.* 19(2):994-1003.
82. Lehman, J. T., D. B. Botkin and G. E. Likens. 1975. The assumptions and rationales of a computer model of phytoplankton population dynamics. *Limnol. Oceanogr.* 20(3):343-364.
83. Lehman, J. T., D. B. Botkin and G. E. Likens. 1975. Lake eutrophication and the limiting CO₂ concept: a simulation study. *Verh. Internat. Verein. Limnol.* 19(2):300-304.
84. Likens, G. E. 1975. Acid precipitation: our understanding of the phenomenon. pp. 45-75. In: Proc. of a Conference on Emerging Environmental Problems. May 1975, Rensselaerville, New York. EPA-902/9-75-001.
85. Likens, G. E. 1975. Nutrient flux and cycling in freshwater ecosystems. pp. 314-348. In:

- F. G. Howell, J. B. Gentry and M. H. Smith (eds.). Mineral Cycling in Southeastern Ecosystems. ERDA Symp. Series CONF-740513. May 1974, Augusta, Georgia.
86. Likens, G. E. 1975. Primary production and inland aquatic ecosystems. Chapter 9, pp. 185-202. In: H. Lieth and R. H. Whittaker (eds.). Primary Productivity of the Biosphere. Springer-Verlag New York Inc.
87. Likens, G. E. and F. H. Bormann. 1975. An experimental approach in New England landscapes. pp. 7-29. In: A. D. Hasler (ed.). Proc. INTECOL Symp. On Coupling of Land and Water Systems, 1971. Leningrad. Springer-Verlag New York Inc.
88. Likens, G. E. and F. H. Bormann. 1975. Acidity in rainwater: has an explanation been provided? *Science* 188:957-958.
89. Likens, G. E. and M. B. Davis. 1975. Post-glacial history of Mirror Lake and its watershed in New Hampshire, USA: an initial report. *Verh. Internat. Verein. Limnol.* 19(2):982-993.
90. Makarewicz, J. C. and G. E. Likens. 1975. Niche analysis of a zooplankton community. *Science* 190:1000-1003.
91. Walker, K. F. and G. E. Likens. 1975. Meromixis and a reconsidered typology of lake circulation patterns. *Verh. Internat. Verein. Limnol.* 19(2):442-458.
92. Whittaker, R. H. and G. E. Likens. 1975. The biosphere and man. Chapter 15, pp. 305-328. In: H. Lieth and R. H. Whittaker (eds.). Primary Productivity of the Biosphere. Springer-Verlag New York Inc.
93. Whittaker, R. H., G. E. Likens and H. Lieth. 1975. Scope and purpose of this volume. Chapter 1, pp. 3-5. In: H. Lieth and R. H. Whittaker (eds.). Primary Productivity of the Biosphere. Springer-Verlag New York Inc.
94. Vlijm, L. and G. E. Likens. 1975. Discussion. pp. 232-236. In: W. H. van Dobben and R. H. Lowe-McConnel (eds.). Unifying Concepts in Ecology. Dr. W. Junk B.V. Publishers, The Hague.
95. Cogbill, C. V. and G. E. Likens. 1976. Reply to Comment on 'Acid precipitation in the northeastern United States.' *Water Resour. Res.* 12(3):571.
96. Galloway, J. N. and G. E. Likens. 1976. Calibration of collection procedures for determination of precipitation chemistry. pp. 137-156. In: L. S. Dochinger and T. A. Seliga (eds.). Proc. The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem. USDA Tech. Report NE-23; Also, *Water, Air, and Soil Pollut.* 6:241-258.
97. Galloway, J. N., G. E. Likens and E. S. Edgerton. 1976. Acid precipitation in the northeastern United States: pH and acidity. *Science* 194:722-724.
98. Galloway, J. N., G. E. Likens and E. S. Edgerton. 1976. Hydrogen ion speciation in the acid precipitation of the northeastern United States. pp. 383-396. In: L. S. Dochinger and T. A. Seliga (eds.). Proc. The First Internat. Symp. on Acid Precipitation and the

- Forest Ecosystem. USDA Tech. Report NE-23; Also, *Water, Air, and Soil Pollut.* 6:423-433.
99. Gosz, J. R., G. E. Likens and F. H. Bormann. 1976. Organic matter and nutrient dynamics of the forest floor in the Hubbard Brook forest. *Oecologia (Berl.)* 22:305-320; Also, pp. 311-319. In: J. K. Marshall (eds.). *The Belowground Ecosystem: A Synthesis of Plant Associated Processes*. Science Series No. 26, Ft. Collins, Colorado (1977).
100. Hornbeck, J. W., G. E. Likens and J. S. Eaton. 1976. Seasonal patterns in acidity of precipitation and the implications for forest-stream ecosystems. pp. 597-609. In: L. S. Dochinger and T. A. Seliga (eds.). *Proc. The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem*. USDA Forest Service General Tech. Report NE-23; Also, *Water, Air, and Soil Pollution* 7:355-365 (1977).
101. Likens, G. E. 1976. Acid precipitation. *Chemical and Engineering News* 54:29-44.
102. Likens, G. E., F. H. Bormann, J. S. Eaton, R. S. Pierce and N. M. Johnson. 1976. Hydrogen ion input to the Hubbard Brook Experimental Forest, New Hampshire during the last decade. pp. 397-407. In: L. S. Dochinger and T. A. Seliga (eds.). *Proc. The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem*. USDA Forest Serv. General Tech. Report NE-23; Also, *Water, Air, and Soil Pollution* 6:435-445.
103. Likens, G. E., N. M. Johnson, J. N. Galloway and F. H. Bormann. 1976. Acid precipitation: strong and weak acids. *Science* 194:643-645.
104. Likens, G. E. and R. S. Pierce. 1976. Effects on aquatic systems. pp. 8-10. In: *Workshop Report on Acid Precipitation and the Forest Ecosystem*. USDA Forest Service General Tech. Report NE-26.
105. Miller, J. M., J. N. Galloway and G. E. Likens. 1976. The use of ARL trajectories for the evaluation of precipitation chemistry data. pp. 131-132. In: L. S. Dochinger and T. A. Seliga (eds.). *Proc. The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem*. USDA Forest Service General Tech. Report NE-23.
106. Bormann, F. H. and G. E. Likens. 1977. The fresh air - clean water exchange. *Natural History* 86(9):62-71; Also, *Environment* 79/80:198-200 (1979).
107. Bormann, F. H., G. E. Likens and J. Melillo. 1977. Nitrogen budget for an aggrading northern hardwood forest ecosystem. *Science* 196(4293):981-983.
108. Delwiche, C. C. and G. E. Likens. 1977. Biological response to fossil fuel combustion products. pp. 73-88. In: W. Stumm (ed.). *Global Chemical Cycles and Their Alterations by Man*. Dahlem Konferenzen, Berlin.
109. Lerman, A. (Rapporteur), M. Bernhard, B. Bolin, C. C. Delwiche, D. H. Ehhart, S. P. Gessel, D. R. Kester, W. E. Krumbein, G. E. Likens, F. T. Mackenzie, W. A. Reiners, W. Stumm, G. M. Woodwell and P. J. Zinke. 1977. Fossil fuel burning: its effects on the biosphere and biogeochemical cycles. Group Report. pp. 275-289. In: W. Stumm (eds.). *Global*

- Chemical Cycles and Their Alterations by Man. Dahlem Konferenzen, Berlin.
110. Likens, G. E. 1977. Precipitation sampling techniques. pp. 334-339. In: J. Prospero (ed.). Background Papers for a Workshop on the Tropospheric Transport of Pollutants to the Ocean. Miami, Florida. December 1975.
 111. Likens, G. E., J. S. Eaton and J. S. Galloway. 1977. Precipitation as a source of nutrients for terrestrial and aquatic ecosystems. pp. 552-570. In: R. G. Semonin and R. W. Beadle (Coordinators). ERDA Symp. Series 41, Precipitation Scavenging (1974). Champaign, Illinois. CONF-741003.
 112. Likens, G. E. and G. R. Hendrey. 1977. Acid precipitation (letter response). *Chemical and Engineering News* 55(25):60-61.
 113. Eaton, J. S., G. E. Likens and F. H. Bormann. 1978. The input of gaseous and particulate sulfur to a forest ecosystem. *Tellus* 30:546-551.
 114. Galloway, J. N. and G. E. Likens. 1978. The collection of precipitation for chemical analysis. *Tellus* 30:71-82.
 115. Glass, N. R., G. E. Likens and L. S. Dochinger. 1978. The ecological effects of atmospheric deposition. pp. 113-119. In: EPA, ORD Decision Series, Energy/Environment III. EPA-600/9-78-022.
 116. Gosz, J. R., R. T. Holmes, G. E. Likens and F. H. Bormann. 1978. The flow of energy in a forest ecosystem. *Sci. Amer.* 238(3):92-102.
 117. Likens, G. E. 1978. Precipitation (meteorology). pp. 303-305. In: McGraw-Hill Yearbook of Science and Technology, McGraw-Hill Book Co., New York.
 118. Likens, G. E., F. H. Bormann, R. S. Pierce and W. A. Reiners. 1978. Recovery of a deforested ecosystem. *Science* 199(4328):492-496.
 119. Likens, G. E. and O. L. Loucks. 1978. Analysis of five North American lake ecosystems. III. Sources, loading and fate of nitrogen and phosphorus. *Verh. Internat. Verein. Limnol.* 20:568-573.
 120. Makarewicz, J. C. and G. E. Likens. 1978. Zooplankton niches and the community structure controversy. *Science* 200(4340):458-463.
 121. Miller, J. M., J. N. Galloway and G. E. Likens. 1978. Origin of air masses producing acid precipitation at Ithaca, New York: a preliminary report. *Geophys. Res. Letters* 5(9):757-760.
 122. Moeller, R. E. and G. E. Likens. 1978. Seston sedimentation in Mirror Lake, New Hampshire, and its relationship to long-term sediment accumulation. *Verh. Internat. Verein. Limnol.* 20:525-530.
 123. Richey, J. E., R. C. Wissmar, A. H. Devol, G. E. Likens, J. S. Eaton, R. G. Wetzel, W. E. Odum, P. H. Rich, O. L. Loucks, R. T. Prentki and N. M. Johnson. 1978. Carbon flux in

- four lake ecosystems: a structural approach. *Science* 202(4373):1183-1186.
124. Woodwell, G. M., R. H. Whittaker, W. A. Reiners, G. E. Likens, C. C. Delwiche and D. B. Botkin. 1978. The biota and the world carbon budget. *Science* 199(4325):141-146.
125. Bilby, R. E. and G. E. Likens. 1979. Effect of hydrologic fluctuations on the transport of fine particulate organic carbon in a small stream. *Limnol. Oceanogr.* 24(1):69-75.
126. Bormann, F. H. and G. E. Likens. 1979. Catastrophic disturbance and the steady state in northern hardwood forests. *Amer. Sci.* 67(6):660-669.
127. Cole, J. J. and G. E. Likens. 1979. Measurements of mineralization of phytoplankton detritus in an oligotrophic lake. *Limnol. Oceanogr.* 24(3):541-547.
128. Galloway, J. N. and G. E. Likens. 1979. Atmospheric enhancement of metal deposition in Adirondack lake sediments. *Limnol. Oceanogr.* 24(3):427-433.
129. Galloway, J. N., B. J. Cosby, Jr. and G. E. Likens. 1979. Acid precipitation: measurement of pH and acidity. *Limnol. Oceanogr.* 24(6):1161-1165.
130. Likens, G. E. 1979. Session IX: Summing up and recommendations. p. 67. In: G. R. Hendrey (ed.). *Limnological Aspects of Acid Precipitation*. Internat. Workshop at Sagamore Lake Conference Center, September 1978. EPA, Corvallis and Brookhaven National Laboratory, 51074.
131. Likens, G. E. and F. H. Bormann. 1979. The role of watershed and airshed in lake metabolism. pp. 195-211. In: W. Rodhe, G. E. Likens and C. Serruya (eds.). *Lake Metabolism and Management*. Papers Emanating from the Jubilee Symposium of Uppsala University, Sweden. *Arch. Hydrobiol. Beih. Ergebn. Limnol.* 13.
132. Likens, G. E. and T. J. Butler. 1979. Trends in acid precipitation in the eastern U.S. pp. 104-108. In: M. MacCracken (coordinator), *The Multistate Atmospheric Power Production Pollution Study -- MAP3S*. Progress Report for FY1977 and FY1978. DOE/EV-0040.
133. Likens, G. E., R. F. Wright, J. N. Galloway and T. J. Butler. 1979. Acid rain. *Sci. Amer.* 241(4):43-51.
134. Makarewicz, J. C. and G. E. Likens. 1979. Structure and function of the zooplankton community of Mirror Lake, New Hampshire. *Ecol. Monogr.* 49(1):109-127.
135. Meyer, J. L. and G. E. Likens. 1979. Transport and transformation of phosphorus in a forest stream ecosystem. *Ecology* 60(6):1255-1269.
136. Whittaker, R. H., G. E. Likens, F. H. Bormann, J. S. Eaton and T. G. Siccama. 1979. The Hubbard Brook Ecosystem Study: forest nutrient cycling and element behavior. *Ecology* 60(1):203-220.
137. Woodwell, G. M., R. H. Whittaker, W. A. Reiners, G. E. Likens, C. C. Delwiche and D. B. Botkin. 1979. Reply to 'Where has all the carbon gone?' by C. W. Ralston. *Science*

204:1354-1356.

138. Bilby, R. E. and G. E. Likens. 1980. Importance of organic debris dams in the structure and function of stream ecosystems. *Ecology* 61(5):1107-1113.
139. Eaton, J. S., G. E. Likens and F. H. Bormann. 1980. Wet and dry deposition of sulfur at Hubbard Brook. pp. 69-75. In: T. C. Hutchinson and M. Havas (eds.). Effects of Acid Precipitation on Terrestrial Ecosystems. NATO Conf. Series 1: Ecology 4. Plenum Publishing Corp.
140. Hall, R. J. and G. E. Likens. 1980. Ecological effects of experimental acidification on a stream ecosystem. pp. 375-376. In: D. Drabløs and A. Tollan (eds.). Ecological Impact of Acid Precipitation. Proc. of Internat. Conf., Sandefjord, Norway. March 1980.
141. Hall, R. J. and G. E. Likens. 1980. Ecological effects of whole-stream acidification. pp. 443-451. In: D. S. Shriner, C. R. Richmond and S. E. Lindberg (eds.). Atmospheric Sulfur Deposition -- Environmental Impact and Health Effects. Proc. Second Life Sciences Symp., Gatlinburg, Tennessee. October 1979.
142. Hall, R. J., G. E. Likens, S. B. Fiance and G. R. Hendrey. 1980. Experimental acidification of a stream in the Hubbard Brook Experimental Forest, New Hampshire. *Ecology* 61(4):976-989.
143. Jordan, M. J. and G. E. Likens. 1980. Measurement of planktonic bacterial production in an oligotrophic lake. *Limnol. Oceanogr.* 25(4):721-734.
144. Last, F. T., G. E. Likens, B. Ullrich and L. Walløe. 1980. Acid precipitation -- progress and problems. Conference Summary. pp. 10-12. In: D. Drabløs and A. Tollan (eds.). Ecological Impact of Acid Precipitation. Proc. of Internat. Conf., Sandefjord, Norway. March 1980.
145. Likens, G. E. 1980. The influence of reduced streamflows on water quality: a discussion. pp. 49-68. In: W. O. Spofford, Jr., A. L. Parker and A. V. Kneese (eds.). Energy Development in the Southwest: Problems of Water, Fish and Wildlife in the Upper Colorado River Basin, Vol. 2. Resources for the Future, Washington, D.C.
146. Likens, G. E., F. H. Bormann and J. S. Eaton. 1980. Variations in precipitation and streamwater chemistry at the Hubbard Brook Experimental Forest during 1964 to 1977. pp. 443-464. In: T. C. Hutchinson and M. Havas (eds.). Effects of Acid Precipitation on Terrestrial Ecosystems. NATO Conference Series 1: Ecology 4. Plenum Publishing Corp.
147. Galloway, J. N. and G. E. Likens. 1981. Acid precipitation: the importance of nitric acid. *Atmos. Environ.* 15(6):1081-1085.
148. Hall, R. J. and G. E. Likens. 1981. Chemical flux in an acid-stressed stream. *Nature* 292(5821):329-331.
149. Johnson, N. M., C. T. Driscoll, J. S. Eaton, G. E. Likens and W. H. McDowell. 1981. "Acid rain," dissolved aluminum and chemical weathering at the Hubbard Brook Experimental

- Forest, New Hampshire. *Geochim. Cosmoch. Acta* 45(9):1421-1437.
150. Leonard, R. L., C. R. Goldman and G. E. Likens. 1981. Some measurements of the pH and chemistry of precipitation at Davis and Lake Tahoe, California. *Water Air Soil Poll.* 15:153-167.
 151. Likens, G. E. 1981. The not so gentle rain. pp. 212-227. In: Yearbook of Science and the Future. Encyclopaedia Britannica.
 152. Likens, G. E. and T. J. Butler. 1981. Recent acidification of precipitation in North America. *Atmos. Environ.* 15(7):1103-1109.
 153. Likens, G. E., F. H. Bormann and N. M. Johnson. 1981. Interactions between major biogeochemical cycles in terrestrial ecosystems. pp. 93-112. In: G. E. Likens (ed.). Some Perspectives of the Major Biogeochemical Cycles. SCOPE 17. John Wiley & Sons Ltd., Chichester.
 154. Meyer, J. L., G. E. Likens and J. Sloane. 1981. Phosphorus, nitrogen, and organic carbon flux in a headwater stream. *Arch. Hydrobiol.* 91(1):28-44.
 155. Strayer, D. L., J. J. Cole, G. E. Likens and D. Buso. 1981. Biomass and annual production of the freshwater mussel *Elliptio complanata* in an oligotrophic, softwater lake. *Freshwater Biol.* 11:435-440.
 156. Cole, J. J., G. E. Likens and D. L. Strayer. 1982. Photosynthetically produced dissolved organic carbon: an important carbon source for planktonic bacteria. *Limnol. Oceanogr.* 27(6):1080-1090.
 157. Driscoll, C. T. and G. E. Likens. 1982. Hydrogen ion budget of an aggrading forested ecosystem. *Tellus* 34:283-292.
 158. Galloway, J. N., G. E. Likens, W. C. Keene and J. M. Miller. 1982. The composition of precipitation in remote areas of the world. *J. Geophys. Res.* 87(11):8771-8786.
 159. Hall, R. J., J. M. Pratt and G. E. Likens. 1982. Effects of experimental acidification on macroinvertebrate drift diversity in a mountain stream. *Water Air Soil Poll.* 18:273-287.
 160. Likens, G. E. 1982. Acid rain. The World Book Encyclopedia, World Book. Childcraft International, Inc. Chicago, Illinois.
 161. Likens, G. E. 1982. Meromictic lake. pp. 346-348. In: McGraw-Hill Book Co., Professional and Reference Book Division, Encyclopedia of Science and Technology, 5th edition.
 162. Likens, G. E. and R. E. Bilby. 1982. Development, maintenance and role of organic-debris dams in New England streams. pp. 122-128. In: F. J. Swanson, R. J. Janda, T. Dunne and D. W. Swanston (eds.). Sediment Budgets and Routing in Forested Drainage Basins. USDA Forest Service General Technical Report PNW-141.
 163. Confer, J. L., T. Kaaret and G. E. Likens. 1983. Zooplankton diversity and biomass in

- recently acidified lakes. *Can. J. Fish. Aquat. Sci.* 40(1):36-42.
164. Lazrus, A. L., P. L. Haagenson, G. L. Kok, B. J. Huebert, C. W. Kreitzberg, G. E. Likens, V. A. Mohnen, W. E. Wilson and J. W. Winchester. 1983. Acidity in air and water in a case of warm frontal precipitation. *Atmos. Environ.* 17(3):581-591.
 165. Likens, G. E. 1983. A priority for ecological research. *Bull. Ecol. Soc. Amer.* 64(4):234-243.
 166. Likens, G. E., E. S. Edgerton and J. N. Galloway. 1983. The composition and deposition of organic carbon in precipitation. *Tellus* 35B:16-24.
 167. Butler, T. J., C. V. Cogbill and G. E. Likens. 1984. Effect of climatology on precipitation chemistry. *Bull. Amer. Meteorol. Soc.* 65(6):639-640.
 168. Cogbill, C. V., G. E. Likens and T. J. Butler. 1984. Uncertainties in historical aspects of acid precipitation: getting it straight. *Atmos. Environ.* 18(10):2261-2270.
 169. Cole, J. J., G. E. Likens and J. E. Hobbie. 1984. Decomposition of planktonic algae in an oligotrophic lake. *Oikos* 42:257-266.
 170. Cole, J. J., W. H. McDowell and G. E. Likens. 1984. Sources and molecular weight of "dissolved" organic carbon in an oligotrophic lake. *Oikos* 42:1-9.
 171. Galloway, J. N., G. E. Likens and M. Hawley. 1984. Acid precipitation: natural versus anthropogenic components. *Science* 226:829-831.
 172. Hall, R. J. and G. E. Likens. 1984. Effect of discharge rate on biotic and abiotic chemical flux in an acidified stream. *Can. J. Fish. Aquat. Sci.* 41(8):1132-1138.
 173. Havas, M., T. Hutchinson and G. E. Likens. 1984. Effect of low pH on sodium regulation in two species of *Daphnia*. *Can. J. Zool.* 62(10):1965-1970.
 174. Havas, M., T. Hutchinson and G. E. Likens. 1984. Red herrings in acid rain research. *Environ. Sci. Technol.* 18(6):176A-186A.
 175. Johnson, N. M., G. E. Likens, M. C. Feller and C. T. Driscoll. 1984. Technical comment on "Acid rain on acid soil: a new perspective." *Science* 225:1424-1425.
 176. Likens, G. E. 1984. Acid rain: the smokestack is the "smoking gun." *Garden* 8(4):12-18.
 177. Likens, G. E. 1984. Beyond the shoreline: a watershed-ecosystem approach. *Verh. Internat. Verein. Limnol.* 22:1-22.
 178. Likens, G. E. 1984. Response to 'Maybe acid rain isn't the villain.' *Fortune* 110(3):11-12.
 179. Likens, G. E. 1984. We must take prompt action now. *The Wall Street Journal*, 28 June 1984, page 28.
 180. Likens, G. E., F. H. Bormann, R. S. Pierce, J. S. Eaton and R. E. Munn. 1984. Long-term trends in precipitation chemistry at Hubbard Brook, New Hampshire. *Atmos. Environ.*

18(12):2641-2647.

181. Munn, R. E., G. E. Likens, B. Weisman, J. W. Hornbeck, C. W. Martin and F. H. Bormann. 1984. A meteorological analysis of the precipitation chemistry event samples at Hubbard Brook, New Hampshire. *Atmos. Environ.* 18(12):2775-2779.
182. Bormann, F. H. and G. E. Likens. 1985. Air and watershed management and the aquatic ecosystem. pp. 436-444. In: G. E. Likens (ed.). *An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment*. Springer-Verlag New York Inc.
183. Bormann, R. E., F. H. Bormann and G. E. Likens. 1985. Catastrophic disturbance and regional land use. pp. 65-72. In: G. E. Likens (ed.). *An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment*. Springer-Verlag New York Inc.
184. Davis, M. B., R. E. Moeller, G. E. Likens, J. Ford, J. Sherman and C. Goulden. 1985. Paleoecology of Mirror Lake and its watershed. pp. 410-429. In: G. E. Likens (ed.). *An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment*. Springer-Verlag New York Inc.
185. deNoyelles, F. and G. E. Likens. 1985. Phytoplankton. pp. 161-175 and pp. 250-257. In: G. E. Likens (ed.). *An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment*. Springer-Verlag New York Inc.
186. Driscoll, C. T., J. N. Galloway, J. F. Hornig, G. E. Likens, M. Oppenheimer, K. A. Rahn and D. W. Schindler. 1985. Is there scientific consensus on acid rain? Excerpts from six governmental reports. Special Publication of the Institute of Ecosystem Studies, Millbrook, New York. 13 pp.
187. Hall, R. J. and G. E. Likens. 1985. Experimental acidification of a stream tributary to Hubbard Brook. EPA Environmental Research Brief, EPA/600/M-85/011. 6 pp.
188. Hall, R. J., C. T. Driscoll, G. E. Likens and J. M. Pratt. 1985. Physical, chemical and biological consequences of episodic aluminum additions to a stream. *Limnol. Oceanogr.* 30(1):212-220.
189. Havas, M. and G. E. Likens. 1985. Toxicity of aluminum and hydrogen ions to *Daphnia catawba*, *Holopedium gibberum*, *Chaoborus punctipennis* and *Chironomus anthracinus* from Mirror Lake, New Hampshire. *Can. J. Zool.* 63:1114-1119.
190. Havas, M. and G. E. Likens. 1985. Changes in ²²Na influx and outflux in *Daphnia magna* (Straus) as a function of elevated Al concentrations in soft water at low pH (acidic deposition). *Proc. Natl. Acad. Sci. USA* 82:7345-4349.
191. Havas, M., T. Hutchinson and G. E. Likens. 1985. Acid rain research. *Environ. Sci. Technol.* 19(1):20,26.
192. Havas, M., T. C. Hutchinson and G. E. Likens. 1985. Comment on 'Red herrings in acid rain research.' [Reply]. *Environ. Sci. Technol.* 19(7):646-648.

193. Johnson, N. M., G. E. Likens and J. S. Eaton. 1985. Stability, circulation and energy flux in Mirror Lake. pp. 108-127. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
194. Jordan, M. J., G. E. Likens and B. J. Peterson. 1985. Organic carbon budget. pp. 292-301. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
195. Likens, G. E. 1985. The aquatic ecosystem and air-land-water interactions. pp. 430-435. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
196. Likens, G. E. 1985. An experimental approach for the study of ecosystems. *J. Ecology* 73(2):381-396.
197. Likens, G. E. 1985. The lake ecosystem. pp. 337-344. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
198. Likens, G. E. 1985. Mirror Lake: cultural history. pp. 72-83. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
199. Likens, G. E. and F. H. Bormann. 1985. An ecosystem approach. pp. 1-8. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
200. Likens, G. E. and R. E. Moeller. 1985. Chemistry. pp. 392-410. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
201. Likens, G. E. and R. E. Moeller. 1985. Fossil pigments. pp. 387-391. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
202. Likens, G. E., J. S. Eaton and N. M. Johnson. 1985. Physical and chemical environment. pp. 89-108. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
203. Likens, G. E., B. J. Peterson and J. J. Cole. 1985. Periphyton. pp. 175-177. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
204. Likens, G. E., F. H. Bormann, R. S. Pierce and J. S. Eaton. 1985. The Hubbard Brook Valley. pp. 9-39. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
205. Likens, G. E., J. S. Eaton, N. M. Johnson and R. S. Pierce. 1985. Flux and balance of water and chemicals. pp. 135-155. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic

- Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
206. Makarewicz, J. C., G. E. Likens and M. J. Jordan. 1985. The pelagic region. pp. 322-337. In: G. E. Likens (ed.). An Ecosystem Approach to Aquatic Ecology: Mirror Lake and its Environment. Springer-Verlag New York Inc.
 207. Mitterer, R. H. and G. E. Likens. 1985. Biogeochemistry. In: McGraw-Hill Encyclopedia of Science and Technology, 6th edition.
 208. Oppenheimer, M., J. N. Galloway, G. E. Likens and S. A. Norton. 1985. Acid deposition. *Science* 227(4691):1154-1156.
 209. Prospero, J. M., W. C. Keene, J. N. Galloway, R. J. Delmas, L. Granat, G. Gravenhorst and G. E. Likens. 1985. The deposition of sulfur and nitrogen from the remote atmosphere working-group report. pp. 177-200. In: J. N. Galloway, R. J. Charlson, M. O. Andreae and H. Rodhe (eds.). The Biogeochemical Cycling of Sulfur and Nitrogen in the Remote Atmosphere. Bermuda Biological Station, Bermuda. D. Reidel Publishing Company.
 210. Richey, J. S., W. H. McDowell and G. E. Likens. 1985. Nitrogen transformation in a small mountain stream. *Hydrobiologia* 124(2):129-139.
 211. Galloway, J. N. and G. E. Likens. 1986. The composition of precipitation in remote areas of the world. *Atmos. Environ. & Acid Rain (China)* 1(2):34-39.
 212. Hornbeck, J. W., C. W. Martin, R. S. Pierce, F. H. Bormann, G. E. Likens and J. S. Eaton. 1986. Clearcutting northern hardwoods: effects on hydrologic and nutrient ion budgets. *Forest Science* 32(3):667-686.
 213. Likens, G. E. 1986. Acid rain: causes, consequences and correctives. *Atmos. Environ. & Acid Rain (China)* 1(1):33-40.
 214. Likens, G. E. 1986. Future of ecosystem studies. *Bull. Ecol. Soc. Amer.* 67(3):257-258.
 215. Martin, C. W., R. S. Pierce, G. E. Likens and F. H. Bormann. 1986. Clearcutting affects stream chemistry in the White Mountains of New Hampshire. USDA Forest Service Research Paper NE-579. 12 pp.
 216. Nodvin, S. C., C. T. Driscoll and G. E. Likens. 1986. The effect of pH on sulfate adsorption by a forest soil. *Soil Science* 142(2):69-75.
 217. Nodvin, S. C., C. T. Driscoll and G. E. Likens. 1986. Simple partitioning of anions and dissolved organic carbon in a forest soil. *Soil Science* 142(1):27-35.
 218. Strayer, D. L. and G. E. Likens. 1986. An energy budget for the zoobenthos of Mirror Lake, New Hampshire. *Ecology* 67(2):303-313.
 219. Strayer, D. L., J. S. Glitzenstein, C. Jones, J. Kolasa, G. E. Likens, M. McDonnell, G. G. Parker and S.T.A. Pickett. 1986. Long-term ecological studies: an illustrated account of their design, operation, and importance to ecology. Occasional Publication of the Institute of Ecosystem Studies, No. 2. Millbrook, New York. 38 pp.

220. Weathers, K. C., G. E. Likens, F. H. Bormann, J. S. Eaton, W. B. Bowden, J. Andersen, D. A. Cass, J. N. Galloway, W. C. Keene, K. D. Kimball, P. Huth and D. Smiley. 1986. A regional acidic cloud/fog water event in the eastern United States. *Nature* 319:657-659.
221. Bormann, F. H. and G. E. Likens. 1987. Changing perspectives on air-pollution stress. *BioScience* 37(6):370.
222. Bormann, F. H., W. B. Bowden, R. S. Pierce, S. P. Hamburg, G. K. Voigt, R. C. Ingersoll and G. E. Likens. 1987. The Hubbard Brook sandbox experiment. pp. 215-256. *In*: W. R. Jordan, M. E. Gilpin and J. D. Aber (eds.). *Restoration Ecology*. Cambridge University Press.
223. Galloway, J. N., Z. Dianwu, X. Jiling and G. E. Likens. 1987. Acid rain: a comparison of China, United States and a remote area. *Science* 236:1559-1562.
224. Hall, R. J., C. T. Driscoll and G. E. Likens. 1987. Importance of hydrogen ions and aluminium in regulating the structure and function of stream ecosystems: an experimental test. *Freshwater Biol.* 18:17-43.
225. Hedin, L. O., G. E. Likens and F. H. Bormann. 1987. Decrease in precipitation acidity resulting from decreased SO_4^{2-} concentration. *Nature* 325:244-246.
226. Hornbeck, J. W., C. W. Martin, R. S. Pierce, F. H. Bormann, G. E. Likens and J. S. Eaton. 1987. The northern hardwood forest ecosystem: ten years of recovery from clearcutting. USDA Forest Service, Northeastern Forest Experiment Station, NE-RP-596. 30 pp.
227. Likens, G. E. 1987. Acid rain: do we know enough? p. 40. *In*: Environment 2000, New York State (Plenary Session).
228. Likens, G. E. 1987. Chemical wastes in our atmosphere -- an ecological crisis. *Ind. Crisis Q.* 1(4):13-33.
229. Likens, G. E. 1987. Concern for sustained ecological research. *Environ. Conserv.* 17(3):271-272.
230. Likens, G. E. 1987. More action on acid rain. (Letter to the Editor). *Poughkeepsie Journal*, 22 April 1987, page 4A.
231. Likens, G. E. 1987. Preface - page V. *In*: S. O. Rohmann and N. Lilienthal (eds.). *Tracing a River's Toxic Pollution. A Case Study of the Hudson River, Phase II. An INFORM Report.* 209 pp.
232. Likens, G. E., J. J. Cole, J. Kolasa, J. McAninch, M. McDonnell, G. G. Parker and D. L. Strayer. 1987. Status and future of ecosystem science. Occasional Publication of the Institute of Ecosystem Studies, No. 3. Millbrook, New York. 24 pp.
233. Likens, G. E., W. C. Keene, J. M. Miller and J. N. Galloway. 1987. Chemistry of precipitation from a remote, terrestrial site in Australia. *J. Geophys. Res.*

92(D11):13,299-13,314.

234. Mayer, M. S. and G. E. Likens. 1987. The importance of algae in a shaded headwater stream as food for an abundant caddisfly (Trichoptera). *J. N. Am. Benthol. Soc.* 6(4):262-269.
235. Caraco, N., J. J. Cole, G. E. Likens, M. D. Mattson and S. Nolan. 1988. A very imbalanced nutrient budget for Mirror Lake, New Hampshire, U.S.A. *Verh. Internat. Verein. Limnol.* 23:170-175.
236. Driscoll, C. T., N. M. Johnson, G. E. Likens and M. C. Feller. 1988. Effects of acidic deposition on the chemistry of headwater streams: a comparison between Hubbard Brook, New Hampshire, and Jamieson Creek, British Columbia. *Water Resour. Res.* 24(2):195-200.
237. Hedin, L. O., M. S. Mayer and G. E. Likens. 1988. The effect of deforestation on organic debris dams. *Verh. Internat. Verein. Limnol.* 23:1135-1141.
238. Likens, G. E. 1988. Information needs -- Aquatic. pp. 101-119. In: J. C. White (ed.). *Acid Rain: The Relationship between Resources and Receptors*. Elsevier Science Publishing Co., Inc.
239. Likens, G. E. 1988. Water Pollution. *The World Book Encyclopedia* 21:137-138.
240. Lovett, G. M., C. G. Jones and G. E. Likens. 1988. Acid rain report. (Response to P. Abelson's Editorial, 9 October 1987). *Science* 239:128.
241. McDowell, W. H. and G. E. Likens. 1988. Origin, composition, and flux of dissolved organic carbon in the Hubbard Brook Valley. *Ecol. Monogr.* 58(3):177-195.
242. Nodvin, S. C., C. T. Driscoll and G. E. Likens. 1988. Soil processes and sulfate loss at the Hubbard Brook Experimental Forest. *Biogeochemistry* 5:185-199.
243. Weathers, K. C., G. E. Likens, F. H. Bormann, S. H. Bicknell, B. T. Bormann, B. C. Daube, Jr., J. S. Eaton, J. N. Galloway, W. C. Keene, K. D. Kimball, W. H. McDowell, T. G. Siccama, D. Smiley and R. Tarrant. 1988. Cloudwater chemistry from ten sites in North America. *Environ. Sci. Technol.* 22(8):1018-1026.
244. Weathers, K. C., G. E. Likens, F. H. Bormann, J. S. Eaton, K. Kimball, J. N. Galloway, T. G. Siccama and D. Smiley. 1988. Chemical concentrations in cloud water from four sites in the eastern United States. pp. 345-357. In: M. H. Unsworth and D. Fowler (eds.). *Acid Deposition at High Elevation Sites*. Kluwer Academic Publishing, Dordrecht, the Netherlands.
245. Asbury, C. E., F. A. Vertucci, M. D. Mattson and G. E. Likens. 1989. Acidification of Adirondack lakes. *Environ. Sci. Technol.* 23(3):362-365.
246. Caraco, N., J. J. Cole and G. E. Likens. 1989. Evidence for sulfate-controlled phosphorus release from sediments of aquatic systems. *Nature* 341(6240):316-318.

247. Driscoll, C. T., G. E. Likens, L. O. Hedin, J. S. Eaton and F. H. Bormann. 1989. Changes in the chemistry of surface waters: 25-year results at the Hubbard Brook Experimental Forest, New Hampshire. *Environ. Sci. Technol.* 23(2):137-143.
248. Driscoll, C. T., G. E. Likens, L. O. Hedin and F. H. Bormann. 1989. A reply to C. W. Chen and L. E. Gomez's Letter to the Editor, 'Surface Water Chemistry.' *Environ. Sci. Technol.* 23(7):754,789.
249. Driscoll, C. T., G. E. Likens, L. O. Hedin and F. H. Bormann. 1989. Reply to P. J. Dillon, 'Changes in the chemistry of surface waters.' *Environ. Sci. Technol.* 23(9):1028.
250. Driscoll, C. T., G. E. Likens, L. O. Hedin and F. H. Bormann. 1989. Reply to G. R. Holdren, Jr. and M. R. Church, 'Changes in the chemistry of surface waters.' *Environ. Sci. Technol.* 23(9):1079-1080.
251. Fox, D. G., A. M. Bartuska, J. G. Byrne, E. Cowling, R. Fisher, G. E. Likens, S. E. Lindberg, R. A. Linthurst, J. Messer and D. S. Nichols. 1989. A screening procedure to evaluate air pollution effects on Class I wilderness areas. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. General Tech. Report RM-168, 36 pp.
252. Likens, G. E. 1989. Acid rain and its effects on sediments in lakes and streams. *Hydrobiologia* 176/177:331-348; Also, pp. 331-348. In: P. G. Sly and B. T. Hart (eds.). Sediment-Water Interactions, Proc. Fourth Internat. Symposium, Kluwer Academic Publishers, Dordrecht, Belgium.
253. Likens, G. E. 1989. Alarmed by deterioration of lake shorelines [Letter to the Editor.] *Vilas County News & Review*, Eagle River, Wisconsin; 1 November 1989.
254. Likens, G. E. 1989. Concluding remarks. pp. 209-210. In: G. E. Likens (ed.). Long-Term Studies in Ecology. Springer-Verlag New York Inc.
255. Likens, G. E. 1989. Evaluating stresses on temperate forest ecosystems. pp. 161-198. In: G. B. Marini-Bettolo (ed.). A Study Week on: A Modern Approach to the Protection of the Environment. [Pontifical Academy of Sciences, The Vatican. 2-7 November 1989.] Pontificiae Academiae Scientiarvm Scripta Varia 75.
256. Likens, G. E. 1989. Some aspects of air pollution on terrestrial ecosystems and prospects for the future. *Ambio* 18(3):172-178.
257. Likens, G. E. 1989. Letter to the Editor in response to C. V. Runyon's, 'Does the acid rain hypothesis hold water?' *The Science Teacher*, November, pp. 10, 12.
258. Mitchell, M. J., C. T. Driscoll, R. D. Fuller, M. B. David and G. E. Likens. 1989. Effect of whole-tree harvesting on the sulfur dynamics of a forest soil. *Soil Sci. Soc. Am. J.* 53(3):933-940.
259. Vertucci, F. A. and G. E. Likens. 1989. Spectral reflectance and water quality of Adirondack Mountain region lakes. *Limnol. Oceanogr.* 34(8):1660-1676.

260. Winter, T. C., J. S. Eaton and G. E. Likens. 1989. Evaluation of inflow to Mirror Lake, New Hampshire. *Water Resour. Bull.* 25(5):991-1008.
261. Asbury, C. E., M. D. Mattson, F. A. Vertucci and G. E. Likens. 1990. Reply to J. R. Kramer and R. C. Metcalf and R. W. Gerlach [Letter to the Editor], 'Acidification to Adirondack lakes.' *Environ. Sci. Technol.* 24(3):387-390.
262. Caraco, N., J. Cole and G. E. Likens. 1990. A comparison of phosphorus immobilization in sediments of freshwater and coastal marine systems. *Biogeochemistry* 9:277-290.
263. Caraco, N. F., J. J. Cole, G. E. Likens and S. Nolan. 1990. Atmospheric inputs of phosphorus to an oligotrophic lake. pp. 361-369. In: I. G. Poppoff, C. R. Goldman, L. S. Loeb and L. B. Leopold (eds.). International Mountain Watershed Symposium: Subalpine Processes and Water Quality. Lake Tahoe, June 1988.
264. Cole, J. J., N. F. Caraco and G. E. Likens. 1990. Short-range atmospheric transport: a significant source of phosphorus to an oligotrophic lake. *Limnol. Oceanogr.* 35(6):1230-1237.
265. Driscoll, C. T., C. E. Johnson, T. G. Siccama and G. E. Likens. 1990. Biogeochemistry of trace metals at the Hubbard Brook Experimental Forest, N.H. pp. 637-648. In: Proc. of 1990 EPA/A+WMA Internat. Symp.: Measurement of Toxics and Related Air Pollutants. Air and Waste Management Association. Pittsburgh, Pennsylvania.
266. Giblin, A. E., G. E. Likens, D. White and R. W. Howarth. 1990. Sulfur storage and alkalinity generation in New England lake sediments. *Limnol. Oceanogr.* 35(4):852-869.
267. Hedin, L. O., L. Granat, G. E. Likens and H. Rodhe. 1990. Strong similarities in seasonal concentration ratios of SO_4^{2-} , NO_3^- and NH_4^+ in precipitation between Sweden and the northeastern United States. *Tellus* 42B:454-462.
268. Hedin, L. O., G. E. Likens, K. M. Postek and C. T. Driscoll. 1990. A field experiment to test whether organic acids buffer acid deposition. *Nature* 345:798-800.
269. Likens, G. E. 1990. Insights from Hubbard Brook: Importance of long-term data. pp. 3-24. In: I. G. Poppoff, C. R. Goldman, S. L. Loeb and L. B. Leopold (eds.). International Mountain Watershed Symposium: Subalpine Processes and Water Quality. Lake Tahoe, June 1988.
270. Likens, G. E., L. O. Hedin and T. J. Butler. 1990. Some long-term precipitation chemistry patterns at the Hubbard Brook Experimental Forest: extremes and averages. *Verh. Internat. Verein. Limnol.* 24(1):128-135.
271. Likens, G. E., F. H. Bormann, L. O. Hedin, C. T. Driscoll and J. S. Eaton. 1990. Dry deposition of sulfur: a 23-yr record for the Hubbard Brook Forest Ecosystem. *Tellus* 42B:319-329.
272. Mattson, M. D. and G. E. Likens. 1990. Air pressure and methane fluxes. *Nature* 347(6295):718-719.

273. Pierce, R. S., F. H. Bormann and G. E. Likens. 1990. The ecosystem approach to forest hydrological research. pp. 92-98. In: P. F. Ffolliott and D. P. Guertin (eds.). Proc. of a Workshop, Forest Hydrological Resources in China. An Analytical Assessment. U.S. Man and the Biosphere Program. Harbin, China; August 1987.
274. Westman, W. E., R. K. Peet and G. E. Likens. 1990. A Biographical Memoir: Robert H. Whittaker 1920-1980. *Biographical Memoirs* 59:424-444.
275. Butler, T. J. and G. E. Likens. 1991. The impact of changing regional emissions on precipitation chemistry in the eastern United States. *Atmos. Environ.* 25A(2):305-315.
276. Caraco, N. F., J. J. Cole and G. E. Likens. 1991. A cross-system study of phosphorus release from lake sediments. pp. 241-258. In: J. J. Cole, G. M. Lovett and S. E. G. Findlay (eds.). Comparative Analysis of Ecosystems: Patterns, Mechanisms, and Theories. Springer-Verlag New York Inc.
277. Caraco, N. F., J. J. Cole and G. E. Likens. 1991. Phosphorus release from anoxic sediments: lakes that break the rules. *Verh. Internat. Verein. Limnol.* 24(5):2985-2988.
278. Giblin, A. E., G. E. Likens and R. W. Howarth. 1991. Reply to R. Stauffer [Letter to the Editor], 'Sulfur storage and alkalinity generation in New England lake sediments.' *Limnol. Oceanogr.* 36(6):1265-1271.
279. Likens, G. E. 1991. Human-accelerated environmental change. *BioScience* 41(3):130.
280. Likens, G. E. 1991. Some consequences of long-term human impacts on ecosystems. *Revista Chilena de Historia Natural* 64(3):597-614.
281. Likens, G. E. 1991. Toxic winds: whose responsibility? pp. 136-152. In: F. H. Bormann and S. R. Kellert (eds.). Ecology, Economics, Ethics: The Broken Circle. Yale University Press.
282. Basnet, K., G. E. Likens, F. N. Scatena and A. E. Lugo. 1992. Hurricane Hugo: damage to a tropical rain forest in Puerto Rico. *J. Tropical Ecology* 8(1):47-56.
283. Caraco, N. F., J. J. Cole and G. E. Likens. 1992. New and recycled primary production in an oligotrophic lake: insights for summer phosphorus dynamics. *Limnol. Oceanogr.* 37(3):590-602.
284. Driscoll, C. T., C. E. Johnson and G. E. Likens. 1992. Patterns in the biogeochemistry at the Hubbard Brook Experimental Forest, New Hampshire, USA. pp. 244-255. In: A. Teller, P. Mathy and J.N.R. Jeffers (eds.). Responses of Forest to Environmental Changes. Commission of European Communities. Elsevier Applied Science, London and New York.
285. Giblin, A. E., G. E. Likens and R. W. Howarth. 1992. The importance of reduced inorganic sulfur to the sulfur cycle of lakes. In: E. T. Degens, S. Kempe, A. Lein and Y. Sorokin (eds.). Interactions of Biogeochemical Cycles in Aqueous Ecosystems. Proc. SCOPE/UNEP Workshop at Listvyanka/Irkutsk, USSR. September 1988.

286. Hultberg, H. and G. E. Likens. 1992. Sulphur deposition to forested catchments in northern Europe and North America -- large-scale variations and long-term dynamics. pp. 1343-1365. In: S. E. Schwartz and W.G.N. Slinn (coordinators). Fifth Internat. Conf. on Precipitation Scavenging and Atmosphere-Surface Exchange. Vol. 3--The Summers Volume: Applications and Appraisals. Hemisphere Publishing Corp.
287. Likens, G. E. 1992. Clean Air Act did not stop acid rain. In: Earth Summit Times.
288. Likens, G. E. 1992. Meromictic lake. pp. 649-651. In: McGraw-Hill Encyclopedia of Science and Technol., 7th edition. Vol. 10. McGraw-Hill Publishing Co.
289. Likens, G. E. 1992. Some applications on the ecosystem approach to environmental problems and resource management. pp. 16-30. In: A. Teller, P. Mathy and J. N. R. Jeffers (eds.). Responses of Forest Ecosystems to Environmental Changes. Commission of European Communities. Elsevier Applied Science, London and New York.
290. Lovett, G. M., G. E. Likens and S. S. Nolan. 1992. Dry deposition of sulfur to the Hubbard Brook Experimental Forest: a preliminary comparison of methods. pp. 1391-1401. In: S. E. Schwartz and W.G.N. Slinn (coordinators). Fifth Internat. Conference on Precipitation Scavenging and Atmosphere-Surface Exchange. Vol. 3--The Summers Volume: Applications and Appraisals. Hemisphere Pub. Corp.
291. Weathers, K. C., G. M. Lovett and G. E. Likens. 1992. The influence of a forest edge on cloud deposition. pp. 1415-1423. In: S. E. Schwartz and W. G. N. Slinn (coordinators). Fifth Internat. Conference on Precipitation Scavenging and Atmosphere-Surface Exchange. Vol. 3--The Summers Volume: Applications and Appraisals. Hemisphere Publishing Corp.
292. Basnet, K., F. N. Scatena, G. E. Likens and A. E. Lugo. 1993. Ecological consequences of root grafting in tabonuco (*Dacryodes excelsa* Vahl) trees in the Luquillo Experimental Forest, Puerto Rico. *Biotropica* 25:28-35.
293. Bukaveckas, P., G. E. Likens, D. C. Buso and T. C. Winter. 1993. Hydrologic controls of chemical flux rates in the Mirror Lake watershed. *Verh. Internat. Verein. Limnol.* 25(1):419-422.
294. Caraco, N. F., J. J. Cole and G. E. Likens. 1993. Sulfate control of phosphorus availability in lakes: a test and re-evaluation of Hasler and Einsele's Model. *Hydrobiologia* 253:275-280.
295. Likens, G. E. and P. M. Groffman. 1993. Integrated regional models [workshop review]. *Bull. Ecol. Soc. Amer.* 74(3):226-228.
296. Mattson, M. D. and G. E. Likens. 1993. Redox reactions of organic matter decomposition in a soft water lake. *Biogeochemistry* 19:149-172.
297. Harriman, R., G. E. Likens, H. Hultberg and C. Neal. 1994. Influence of Management Practices in Catchments on Freshwater Acidification: Afforestation in the United

- Kingdom and North America. pp. 83-101. In: C.E.W. Steinberg and R. F. Wright (eds.). Acidification of Freshwater Ecosystems: Implications for the Future. Dahlem Konferenzen, Berlin, Germany. John Wiley & Sons Ltd.
298. Hedin, L. O., L. Granat, G. E. Likens, T. A. Buishand, J. N. Galloway, T. J. Butler and H. Rodhe. 1994. Steep declines in atmospheric base cations in regions of Europe and North America. *Nature* 367:351-354.
299. Likens, G. E. 1994. Human-Accelerated Environmental Change--An Ecologist's View. 1994 Australia Prize Winner Presentation. Murdoch University, Perth, Australia. 16 pp.
300. Likens, G. E. 1994. Pioneering the ecosystem approach. *Limnology News [Winter 1994]* 7:1-3.
301. Likens, G. E. 1994. Watersheds. pp. 812-813. In: R. A. Eblen and W. R. Eblen (eds.). The Encyclopedia of the Environment. Houghton Mifflin Company, New York.
302. Likens, G. E., C. T. Driscoll, D. C. Buso, T. G. Siccama, C. E. Johnson, D. F. Ryan, G. M. Lovett, T. Fahey and W. A. Reiners. 1994. The biogeochemistry of potassium at Hubbard Brook. *Biogeochemistry* 25:61-125.
303. Siccama, T. G., S. P. Hamburg, M. A. Arthur, R. D. Yanai, F. H. Bormann and G. E. Likens. 1994. Corrections to the allometric equations and plant tissue chemistry for the Hubbard Brook Experimental Forest. *Ecology* 75(1):246-248.
304. Butler, T. J. and G. E. Likens. 1995. A direct comparison of throughfall plus stemflow, and estimates of dry and total deposition for sulfur and nitrogen. *Atmos. Environ.* 29(11):1253-1266.
305. Christ, M., Y. Zhang, G. E. Likens and C. T. Driscoll. 1995. Nitrogen retention capacity of a northern hardwood forest soil under ammonium sulfate additions. *Ecol. Appl.* 5(3):802-812.
306. Johnson, C. E., T. G. Siccama, C. T. Driscoll, G. E. Likens and R. E. Moeller. 1995. Changes in lead biogeochemistry in response to decreasing atmospheric inputs. *Ecol. Appl.* 5(3):813-822.
307. Likens, G. E. 1995. Environmental issues in the 1990s. Australian Academy of Technological Sciences and Engineering - *ATS Focus* 85:2-3.
308. Likens, G. E. 1995. Sustained ecological research and the protection of ecosystems. pp. 13-21. In: T. B. Herman, S. Bondrup-Nielsen, J. H. M. Willison and N. W. P. Munro (eds.). Ecosystem Monitoring and Protected Areas. Proc. International Conference on Science and the Management of Protected Areas. Wolfville, Nova Scotia, Canada.
309. Likens, G. E. 1995. Water pollution [revised and reprinted]. pp. 137-139. In: The World Book Encyclopedia, World Book Publishing, Vol. 21.
310. Mattson, M. D. and G. E. Likens. 1995. Comment on 'Recent trends in the acid-base

- status of surface waters in Maine, USA--Kahl et al. 1993'. *Water Air Soil Poll.* 83:97-99.
311. Ochs, C. A., J. J. Cole and G. E. Likens. 1995. Population dynamics of bacterioplankton in an oligotrophic lake. *J. Plankton Res.* 17(2):365-391.
312. Pardo, L. H., C. T. Driscoll and G. E. Likens. 1995. Patterns of nitrate loss from a chronosequence of clear-cut watersheds. *J. Water Air Soil Poll.* 85:1659-1664.
313. Weathers, K. C., G. M. Lovett and G. E. Likens. 1995. Cloud deposition to a spruce forest edge. *Atmos. Environ.* 29(6):665-672.
314. Galloway, J. N., W. C. Keene and G. E. Likens. 1996. Processes controlling the composition of precipitation at a remote southern hemispheric location: Torres del Paine National Park, Chile. *J. Geophys. Res.* 101(D3):6883-6897.
315. Hedin, L. O. and G. E. Likens. 1996. Atmospheric dust and acid rain. *Sci. Amer.* 275(6):88-92.
316. Holmes, R. T. and G. E. Likens. 1996. A checklist of organisms of the Hubbard Brook watershed-ecosystems, including Mirror Lake. Second Edition. March 1996. 56 pp.
317. Likens, G. E. 1996. Air pollution and forest health. *Environ. Review* 3(8):1-6.
318. Likens, G. E., C. T. Driscoll and D. C. Buso. 1996. Long-term effects of acid rain: response and recovery of a forest ecosystem. *Science* 272:244-246.
319. Likens, G. E., C. T. Driscoll and D. C. Buso. 1996. Acid rain revisited? *Science* 273:293-295.
320. Mitchell, M. J., C. T. Driscoll, J. S. Kahl, G. E. Likens, P. S. Murdoch and L. H. Pardo. 1996. Climatic control of nitrate loss from forested watersheds in the Northeast United States. *Environ. Sci. Technol.* 30(8):2609-2612.
321. Romanowicz, R. B., C. T. Driscoll, T. J. Fahey, C. E. Johnson, G. E. Likens and T. G. Siccama. 1996. Changes in the biogeochemistry of potassium following a whole-tree harvest. *Soil Sci. Soc. Amer. J.* 60:1664-1674.
322. Berger, T. W., S. L. Tartowski and G. E. Likens. 1997. Trifluoroacetate retention in a northern hardwood forest soil. *Environ. Sci. Technol.* 31(7):1916-1921.
323. Findlay, S., G. E. Likens, L. Hedin, S. G. Fisher and W. H. McDowell. 1997. Organic matter dynamics in Bear Brook, Hubbard Brook Experimental Forest, New Hampshire, USA. *J. North Amer. Benthol. Soc.* 16(1):43-46.
324. Likens, G. E. 1997. Access roads endanger ecosystems. [Letter to the Editor]. *Millbrook Round Table*, December 11, 1997. p. A13.
325. Likens, G. E., S. L. Tartowski, T. W. Berger, D. G. Richey, C. T. Driscoll, H. G. Frank and A. Klein. 1997. Transport and fate of trifluoroacetate in upland forest and wetland ecosystems. *Proc. Natl. Acad. Sci. USA* 94:4499-4503.

326. Ostfeld, R. S., S. T. A. Pickett, M. Shachak and G. E. Likens. 1997. Defining the scientific issues. pp. 3-10. In: S. T. A. Pickett, R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman & Hall, New York.
327. Ostfeld, R. S., S. T. A. Pickett, M. Shachak and G. E. Likens. 1997. Themes [in *Biodiversity and its Ecological Linkages*]. pp. 123-124. In: S. T. A. Pickett, R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman & Hall, New York.
328. Ostfeld, R. S., S. T. A. Pickett, M. Shachak and G. E. Likens. 1997. Themes [in *Toward a New Conservation Theory*]. p. 201. In: S. T. A. Pickett, R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman & Hall, New York.
329. Ostfeld, R. S., S. T. A. Pickett, M. Shachak and G. E. Likens. 1997. Themes [in *Application of Conservation Ecology*]. p. 297. In: S. T. A. Pickett, R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman & Hall, New York.
330. Pickett, S. T. A., R. S. Ostfeld, M. Shachak and G. E. Likens. 1997. Themes [in *Foundations for a Comprehensive Conservation Theory*]. *Application of Conservation Ecology*. pp. 81-82. In: S. T. A. Pickett, R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman & Hall, New York.
331. Pickett, S. T. A., R. S. Ostfeld, M. Shachak and G. E. Likens. 1997. Themes [in *Synthesis and a Forward Look*]. pp. 361-362. In: S. T. A. Pickett, R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman & Hall, New York.
332. Pickett, S. T. A., M. Shachak, R. S. Ostfeld and G. E. Likens. 1997. *Toward a comprehensive conservation theory*. pp. 384-399. In: S. T. A. Pickett, R. S. Ostfeld, M. Shachak and G. E. Likens (eds.). *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman & Hall, New York.
333. Richey, D. G., C. T. Driscoll and G. E. Likens. 1997. Soil retention of trifluoroacetate. *Environ. Sci. Technol.* 31(6):1723-1727.
334. Richey, D. G., C. T. Driscoll and G. E. Likens. 1997. Soil retention of TFA in LTER soil. *Network News, U.S. LTER Newsletter* 20:10-11.
335. Vitousek, P. M., J. D. Aber, R. W. Howarth, G. E. Likens, P. A. Matson, D. W. Schindler, W. H. Schlesinger and G. D. Tilman. 1997. Human alteration of the global nitrogen cycle: causes and consequences. *Issues Ecol.* 1:1-15.
336. Vitousek, P. M., J. D. Aber, R. W. Howarth, G. E. Likens, P. A. Matson, D. W. Schindler, W. H. Schlesinger and D. G. Tilman. 1997. Human alteration of the global nitrogen

- cycle: sources and consequences. *Ecological Applications* 7(3):737-750.
337. Weathers, K. C. and G. E. Likens. 1997. Clouds in southern Chile: an important source of nitrogen-to-nitrogen-limited ecosystems? *Environ. Sci. Technol.* 31(1):210-213.
338. Bukaveckas, P. A., G. E. Likens, T. C. Winter and D. C. Buso. 1998. A comparison of methods for deriving solute flux rates using long-term data from streams in the Mirror Lake watershed. *Water Air Soil Poll.* 105:277-293.
339. Butler, T. J. and G. E. Likens. 1998. Weekly and daily precipitation chemistry network comparisons in the eastern U.S.: NADP/NTN vs. MAP3S/AIRMoN. *Atmos. Environ.* 32(21):3749-3765.
340. Driscoll, C. T., G. E. Likens and M. R. Church. 1998. Recovery of surface waters in the northeastern U.S. from decreases in atmospheric deposition of sulfur. *Water Air Soil Poll.* 105:319-329.
341. Likens, G. E. 1998. Limitations to intellectual progress in ecosystem science. pp. 247-271. In: M. L. Pace and P. M. Groffman (eds.). *Successes, Limitations and Frontiers in Ecosystem Science*. 7th Cary Conference, Institute of Ecosystem Studies, Millbrook, New York. Springer-Verlag New York Inc.
342. Likens, G. E. and K. Fallon Lambert. 1998. The importance of long-term data in addressing regional environmental issues. *Northeastern Nat.* 5(2):127-136.
343. Likens, G. E., C. T. Driscoll, D. C. Buso, T. G. Siccama, C. E. Johnson, G. M. Lovett, T. J. Fahey, W. A. Reiners, D. F. Ryan, C. W. Martin and S. W. Bailey. 1998. The biogeochemistry of calcium at Hubbard Brook. *Biogeochemistry* 41(2):89-173.
344. Likens, G. E., K. C. Weathers, T. J. Butler and D. C. Buso. 1998. Solving the acid rain problem. *Science* 282(5396):1991-1992.
345. Weathers, K. C. and G. E. Likens. 1998. Acid rain. pp. 1549-1561. In: W. N. Rom (ed.). *Environmental and Occupational Medicine*, 3rd edition. Lippincott-Raven Publ., Philadelphia.
346. Weathers, K. C., G. M. Lovett, G. E. Likens and N. Caraco. 1998. Cloud water in southern Chile: Whence come the nutrients? pp. 313-315. In: R. S. Schemenauer and J. Bridgman (eds.). *First International Conference on Fog and Fog Collection*. IDRC, Ottawa, Canada.
347. Zhang, Y., M. J. Mitchell, M. Christ, H. R. Krouse and G. E. Likens. 1998. Stable sulfur isotopes in biogeochemistry at Hubbard Brook Experimental Forest, New Hampshire. *Biogeochemistry* 41:259-275.
348. Alewell, C., M. J. Mitchell, G. E. Likens and H. R. Krouse. 1999. Sources of stream sulfate at the Hubbard Brook Experimental Forest: Long-term analyses using stable isotopes. *Biogeochemistry* 44:281-299.

349. Berger, T. W. and G. E. Likens. 1999. Effects of acid anion additions (trifluoroacetate and bromide) on soil solution chemistry of a northern hardwood forest soil. *Water, Air and Soil Pollution* 116:479-499.
350. Christ, M. J., C. T. Driscoll and G. E. Likens. 1999. Watershed- and plot-scale tests of the mobile anion concept. *Biogeochemistry* 47(3):335-353.
351. Holmes, R. T. and G. E. Likens. 1999. Organisms of Hubbard Brook Valley, New Hampshire. USDA Forest Service, Northeastern Research Station, General Tech. Report NE-257. 32 pp.
352. Joyce, L. A., J. J. Landsberg, M. Stafford Smith, J. Ben-Asher, J. R. Cavazos Doria, K. Lajtha, G. E. Likens, A. Perevolotsky and U. Safriel. 1999. Ecosystem-level consequences of management options. pp. 97-116. In: T. W. Hoekstra and M. Shachak (eds.). *Arid Lands Management -- Toward Ecological Sustainability*. Univ. Illinois Press, Urbana and Chicago.
353. Likens, G. E. 1999. Afterword: Reflections and Needs. pp. 269-272. In: T. W. Hoekstra and M. Shachak (eds.). *Arid Lands Management -- Toward Ecological Sustainability*. Univ. Illinois Press, Urbana and Chicago.
354. Likens, G. E. 1999. The science of nature, the nature of science: long-term ecological studies at Hubbard Brook. *Proc. Am. Philos. Soc.* 143(4):558-572.
355. Rosenberry, D. O., P. A. Bukaveckas, D. C. Buso, G. E. Likens, A. M. Shapiro and T. C. Winter. 1999. Movement of road salt to a small New Hampshire lake. *Water, Air, and Soil Pollut.* 109:179-206.
356. Steinhart, G. S., G. E. Likens and D. Soto. 1999. Nutrient limitation in Lago Chaiquenes (Parque Nacional Alerce Andino, Chile): Evidence from nutrient enrichment experiments and physiological assays. *Revista Chilena de Historia Natural* 72(4): 559-568.
357. Zhang, Y., M. J. Mitchell, C. T. Driscoll and G. E. Likens. 1999. Changes in soil sulfur constituents in a forested watershed eight years after whole-tree harvesting. *Can. J. Forest Res.* 29:356-364.
358. Alewell, C., M. J. Mitchell, G. E. Likens and H. R. Krouse. 2000. Assessing the origin of sulfate⁻ deposition at the Hubbard Brook Experimental Forest. *The Journal of Environmental Quality* 29(3):759-767.
359. Buso, D. C., G. E. Likens and J. S. Eaton. 2000. Chemistry of precipitation, streamwater and lakewater from the Hubbard Brook Ecosystem Study: a record of sampling protocols and analytical procedures. General Tech. Report NE-275. Newtown Square, PA: USDA Forest Service, Northeastern Research Station. 52 pp.
360. Campbell, J. L., J. W. Hornbeck, W. H. McDowell, D. C. Buso, J. B. Shanley and G. E. Likens. 2000. Dissolved organic nitrogen budgets for upland, forested ecosystems in

- New England. *Biogeochemistry* 49:123-142.
361. Hall, R. O., Jr. and G. E. Likens. 2000. Ecological implications of high discharge variability in streams of the Hubbard Brook Experimental Forest. *Verh. Internat. Verein. Limnol.* 27:2353-2358.
362. Johnson, C. E., C. T. Driscoll, T. G. Siccama and G. E. Likens. 2000. Element fluxes and landscape position in a northern hardwood forest watershed ecosystem. *Ecosystems* 3:159-184.
363. Larison, J. R., G. E. Likens, J. W. Fitzpatrick and J. G. Crock. 2000. Cadmium toxicity among wildlife in the Colorado Rocky Mountains. *Nature* 406:181-183.
364. Lewis, G. P. and G. E. Likens. 2000. Low stream nitrate concentrations associated with oak forests on the Allegheny High Plateau of Pennsylvania. *Water Resour. Res.* 36(10):3091-3094.
365. Likens, G. E. 2000. Earth resurgent. *Yale Alumni Magazine Letters* 64(1):12-13.
366. Likens, G. E. 2000. A long-term record of ice cover for Mirror Lake, New Hampshire: effects of global warming? *Verh. Internat. Verein. Limnol.* 27(5):2765-2769.
367. Martin, C. W., G. E. Likens and D. C. Buso. 2000. Comparison of long-term precipitation chemistry measurements at the Hubbard Brook Experimental Forest, New Hampshire. *Water Air Soil Poll.* 120(3-4):359-379.
368. Martin, C. W., J. W. Hornbeck, G. E. Likens and D. C. Buso. 2000. Impacts of intensive harvesting on hydrology and nutrient dynamics of northern hardwood forests. *Can. J. Forest Res.* 57(Suppl. 2):19-29.
369. Steinhart, G. S., G. E. Likens and P. M. Groffman. 2000. Denitrification in stream sediments in five northeastern (USA) streams. *Verh. Internat. Verein. Limnol.* 27(3):1331-1336.
370. Weathers, K. C., G. M. Lovett, G. E. Likens and N. M. Caraco. 2000. Cloudwater inputs of nitrogen to forest ecosystems in southern Chile: forms, fluxes and sources. *Ecosystems* 3:590-595.
371. Weathers, K. C., G. M. Lovett, G. E. Likens and R. Lathrop. 2000. The effect of landscape features on deposition to the Hunter Mountain, Catskill Mountains, New York. *Ecol. Appl.* 10(2):528-540.
372. Berger, T. W., C. Eagar, G. E. Likens and G. Stinger. 2001. Effects of calcium and aluminum chloride additions on foliar and throughfall chemistry in sugar maples. *For. Ecol. Manage.* 149:75-90.
373. Butler, T. J., G. E. Likens and B. J. B. Stunder. 2001. Regional-scale impacts of Phase I of the Clean Air Act Amendments in the USA: the relation between emissions and concentrations, both wet and dry. *Atmos. Environ.* 35(6):1015-1028.

374. Driscoll, C. T., G. B. Lawrence, A. J. Bulger, T. J. Butler, C. S. Cronan, C. Eagar, K. Fallon Lambert, G. E. Likens, J. L. Stoddard and K. C. Weathers. 2001. Acid Rain Revisited: advances in scientific understanding since the passage of the 1970 and 1990 Clean Air Act Amendments. Hubbard Brook Research Foundation. Science Links Publication. Vol. 1, No. 1. pp. 1-20.
375. Driscoll, C. T., G. B. Lawrence, A. J. Bulger, T. J. Butler, C. S. Cronan, C. Eagar, K. Fallon Lambert, G. E. Likens, J. L. Stoddard and K. C. Weathers. 2001. Acidic deposition in the northeastern United States: sources and inputs, ecosystem effects, and management strategies. *BioScience* 51(3):180-198.
376. Gbondo-Tugbawa, S. S., C. T. Driscoll, J. D. Aber and G. E. Likens. 2001. Evaluation of an integrated biogeochemical model (PnET-BGC) at a northern hardwood forest ecosystem. *Water Resour. Res.* 37(4):1057-1070.
377. Hall, R. O., Jr., G. E. Likens and H. M. Malcom. 2001. Trophic basis of invertebrate production in two streams at the Hubbard Brook Experimental Forest. *J. N. Amer. Benthol. Soc.* 29(3):432-447.
378. Hall, R. O., Jr., K. H. Macneale, E. S. Bernhardt, M. Field and G. E. Likens. 2001. Biogeochemical responses of two forest streams to a two-month calcium addition. *Freshwater Biol.* 46(3):291-302.
379. Likens, G. E. 2001. Arthur D. Hasler – A personal note. *Resolution of Respect, Bull. Ecol. Soc. Amer.* 82(3):173.
380. Likens, G. E. 2001. Biogeochemistry, the watershed approach: some uses and limitations. In: *Frontiers of Catchment Biogeochemistry*. CSIRO Land and Water, Canberra, Australia. *Mar. Freshwater Res.* 52(1):5-12
381. Likens, G. E. 2001. Ecosystems: Energetics and Biogeochemistry. pp. 53-88. In: W. J. Kress and G. Barrett (eds.). *A New Century of Biology*. Smithsonian Institution Press, Washington and London.
382. Likens, G. E. 2001. Eugene P. Odum, the ecosystem approach, and the future. pp. 309-328. In: G. W. Barrett and T. L. Barrett (eds.). *Holistic Science: The Evolution of the Georgia Institute of Ecology (1940-2000)*. Taylor & Francis Publishing, New York.
383. Likens, G. E. 2001. Watersheds. pp. 1370-1371. In: R. A. Eblen and W. R. Eblen (eds.) *The Environment Encyclopedia*, Vol. 10. Marshall Cavendish: Tarrytown, NY.
384. Likens, G. E., T. J. Butler and D. C. Buso. 2001. Long- and short-term changes in sulfate deposition: Effects of the 1990 Clean Air Act Amendments. *Biogeochemistry* 52(1):1-11.
385. Mitchell, M. J., B. Mayer, S. W. Bailey, J. W. Hornbeck, C. Alewell, C. T. Driscoll and G. E. Likens. 2001. Use of stable isotope ratios for evaluating sulfur sources and losses at the Hubbard Brook Experimental Forest. *Water Air Soil Poll.* 130:75-86.
386. Scott, N. S., G. E. Likens, J. S. Eaton and T. G. Siccama. 2001. Loss of trace metals

- following whole-tree harvest of a northeastern deciduous forest. *Biogeochemistry* 54:197-217.
387. Aber, J. D., S. V. Ollinger, C. T. Driscoll, G. E. Likens, R. T. Holmes, R. J. Freuder and C. L. Goodale. 2002. Inorganic nitrogen losses from a forested ecosystem in response to physical, chemical, biotic, and climatic perturbations. *Ecosystems* 5(7):648-658.
388. Barrett, G. W. and G. E. Likens. 2002. Eugene P. Odum: pioneer of ecosystem ecology. *BioScience* 52(11):1047-1048.
389. Bernhardt, E. S. and G. E. Likens. 2002. Dissolved organic carbon enrichment alters nitrogen dynamics in a forest stream. *Ecology* 83(6):1689-1700.
390. Bernhardt, E. S., R. O. Hall, Jr. and G. E. Likens. 2002. Whole-system estimates of nitrification and nitrate uptake in streams of the Hubbard Brook Experimental Forest. *Ecosystems* 5(5):419-430.
391. Blum, J. D., A. Klaue, C. A. Nezat, C. T. Driscoll, C. E. Johnson, T. G. Siccama, C. Eagar, T. J. Fahey and G. E. Likens. 2002. Mycorrhizal weathering of apatite as an important calcium source in base-poor forest ecosystems. *Nature* 417:729-731.
392. Dijkstra, F. A., N. van Breemen, A. G. Jongmans, G. R. Davies and G. E. Likens. 2002. Calcium weathering in forested soils and the effect of different tree species. *Biogeochemistry* 62(3):253-275.
393. Driscoll, C. T., G. B. Lawrence, A. J. Bulger, T. J. Butler, C. S. Cronan, C. Eagar, K. F. Lambert, G. E. Likens, J. L. Stoddard and K. C. Weathers. 2002. Response to W. E. Sharpe's "Acid deposition explains sugar maple decline in the East". *BioScience* 52(1):5-6.
394. Gbondo-Tugbawa, S. S., C. T. Driscoll, M. J. Mitchell, J. D. Aber and G. E. Likens. 2002. A model to simulate the response of a northern hardwood forest ecosystem to changes in S deposition. *Ecol. Appl.* 12(1):8-23.
395. Gilliland, A. B., T. J. Butler and G. E. Likens. 2002. Monthly and annual bias in weekly (NADP/NTN) versus daily (AIRMoN) precipitation chemistry data in the Eastern USA. *Atmos. Environ.* 36:5197-5206. (nominated by NOAA Director for NOAA OAR "outstanding paper award", 2005)
396. Hall, R. O., Jr., E. S. Bernhardt and G. E. Likens. 2002. Relating nutrient uptake with transient storage in forested mountain streams. *Limnol. Oceanogr.* 47(1):255-265.
397. Kelly, V. R., G. M. Lovett, K. C. Weathers and G. E. Likens. 2002. Trends in atmospheric concentration and deposition compared to regional and local pollutant emissions at a rural site in southeastern New York, USA. *Atmos. Environ.* 36:1569-1575.
398. Kobe, R. K., G. E. Likens and C. Eagar. 2002. Tree seedling growth and mortality responses to manipulations of calcium and aluminum in a northern hardwood forest. *Can. J. Forest Res.* 32:954-966.

399. Likens, G. E. 2002. AIBSnews: AIBS Active in Ohio Science Standards Battle. *BioScience* 52(8):755-756.
400. Likens, G. E. 2002. Arthur Davis Hasler, 1908-2001: A Biographical Memoir. National Academy of Sciences Biographical Memoirs, The National Academy Press, Washington, D.C. Vol. 82, 14 pp.
401. Likens, G. E. 2002. The new AIBS. Editorial, *BioScience* 52(1):3.
402. Likens, G. E. 2002. A thimbleful of powder. Editorial, *BioScience* 52(7):547.
403. Likens, G. E., D. C. Buso and J. W. Hornbeck. 2002. Variation in chemistry of stream water and bulk deposition across the Hubbard Brook Valley, New Hampshire, USA. *Verh. Internat. Verein. Limnol.* 28(1):402-409.
404. Likens, G. E., C. T. Driscoll, D. C. Buso, M. J. Mitchell, G. M. Lovett, S. W. Bailey, T. G. Siccama, W. A. Reiners and C. Alewell. 2002. The biogeochemistry of sulfur at Hubbard Brook. *Biogeochemistry* 60(3):235-316.
405. Macneale, K. H., G. E. Likens and B. L. Peckarsky. 2002. Feeding strategy of an adult stonefly (Plecoptera): implications for egg production and dispersal. *Verh. Internat. Verein. Limnol.* 28(2):1140-1146.
406. Marino, R., F. Chan, R. W. Howarth, M. Pace and G. E. Likens. 2002. Ecological and biogeochemical interactions constrain planktonic nitrogen fixation in estuaries. *Ecosystems* 5(7):719-724.
407. Stearns, F. W. and G. E. Likens. 2002. One hundred years of recovery of a pine forest in northern Wisconsin. *Amer. Midl. Natur.* 148(1):2-19.
408. Steinhart, G. S., G. E. Likens and D. Soto. 2002. Physiological indicators of nutrient deficiency in phytoplankton in southern Chilean lakes. *Hydrobiologia* 489:21-27.
409. Stelzer, R. S., G. E. Likens, D. C. Buso and J. H. McCutchan. 2002. Seasonal variation of phosphorus in precipitation at Hubbard Brook Experimental Forest. *Verh. Internat. Verein. Limnol.* 28:1211-1215.
410. Bailey, S. W., D. C. Buso and G. E. Likens. 2003. Implications of sodium mass balance for interpreting the calcium cycle of a forested ecosystem. *Ecology* 84(2):471-484.
411. Bernhardt, E. S., G. E. Likens, D. C. Buso and C. T. Driscoll. 2003. In-stream uptake dampens effects of major forest disturbance on watershed nitrogen export. *Proc. Nat. Acad. Sci. USA* 100(18):10304-10308.
412. Butler, T. J., G. E. Likens, F. M. Vermeylen and B. J. B. Stunder. 2003. The relation between NO_x emissions and precipitation NO_3^- in the eastern USA. *Atmos. Environ.* 37(15):2093-2104.
413. Caraco, N. F., J. J. Cole, G. E. Likens, G. M. Lovett and K. C. Weathers. 2003. Variation in NO_3^- export from flowing waters of vastly different sizes: does one model fit all?

Ecosystems 6(4):344-352.

414. Fitzhugh, R. D., G. E. Likens, C. T. Driscoll, M. J. Mitchell, P. M. Groffman, T. J. Fahey and J. P. Hardy. 2003. Role of soil freezing events in interannual patterns of stream chemistry at the Hubbard Brook Experimental Forest, New Hampshire. *Environ. Sci. Tech.* 37:1575-1580.
415. Harris, G. P., S. W. Bigelow, J. J. Cole, H. Cyr, L. L. Janus, A. P. Kinzig, J. F. Kitchell, G. E. Likens, K. H. Reckhow, D. Scavia, D. Soto, L. M. Talbot and P. H. Templer. 2003. The role of models in ecosystem management. pp. 299-307. In: C. D. Canham, J. J. Cole and W. K. Lauenroth (eds). *Models in Ecosystem Science*. Cary Conference IX, Institute of Ecosystem Studies, Millbrook, NY. Princeton University Press.
416. Houlton, B. Z., C. T. Driscoll, T. J. Fahey, G. E. Likens, P. M. Groffman, E. S. Bernhardt and D. C. Buso. 2003. Nitrogen dynamics in ice storm-damaged forest ecosystems: implications for nitrogen limitation theory. *Ecosystems* 6(5):431-443.
417. Likens, G. E. 2003. Use of long-term data, mass balances and stable isotopes in watershed biogeochemistry: the Hubbard Brook model. *Gayana Botanica* 60(1):3-7.
418. Marino, R., R. W. Howarth, F. Chan, J. J. Cole and G. E. Likens. 2003. Sulfate inhibition of molybdenum-dependent nitrogen fixation by planktonic cyanobacteria under seawater conditions: a non-reversible effect. *Hydrobiologia* 500:277-293.
419. Stelzer, R. S., J. Heffernan and G. E. Likens. 2003. The influence of dissolved nutrients and particulate organic matter quality on microbial respiration and biomass in a forest stream. *Freshwater Biol.* 48:1925-1937.
420. Winter, T. C., D. C. Buso, D. O. Rosenberry, G. E. Likens, A. M. Sturrock, Jr. and D. P. Mau. 2003. Evaporation determined by the energy-budget method for Mirror Lake, New Hampshire. *Limnol. Oceanogr.* 48(3):995-1009.
421. Bernhardt, E. S. and G. E. Likens. 2004. Controls on periphyton biomass in heterotrophic streams. *Freshwater Biol.* 49:14-27.
422. Campbell, J. L., J. W. Hornbeck, M. J. Mitchell, M. B. Adams, M. S. Castro, C. T. Driscoll, J. S. Kahl, J. N. Kochenderfer, G. E. Likens, J. A. Lynch, P. S. Murdoch, S. J. Nelson and J. B. Shanley. 2004. Input-output budgets of inorganic nitrogen for 24 forest watersheds in the Northeastern United States: a review. *Water Air Soil Poll.* 151:373-396.
423. Driscoll, C. T., G. B. Lawrence, A. J. Bulger, T. J. Butler, C. S. Cronan, C. Eagar, K. F. Lambert, G. E. Likens, J. L. Stoddard and K. C. Weathers. 2004. Acidic deposition in the northeastern United States: Sources and inputs, ecosystem effects and management strategies. pp. 159-190. In: J. M. Gunn, R. J. Steedman, and R. A. Ryder (eds.). *Boreal Shield Watersheds, Section III: Biological Effects and Management Reactions*. Lewis Publishers.

424. Groffman, P. M., C. T. Driscoll, C. Eagar, M. C. Fisk, T. J. Fahey, R. T. Holmes, G. E. Likens and L. Pardo. 2004. A new governance structure for the Hubbard Brook Ecosystem Study. *Bull. Ecol. Soc. Amer.* 85(1):5-6.
425. Groffman, P. M., C. T. Driscoll, G. E. Likens, T. J. Fahey, R. T. Holmes, C. Eagar and J. D. Aber. 2004. Nor gloom of night: a new conceptual model for the Hubbard Brook Ecosystem Study. *BioScience* 54(2):139-148.
426. Likens, G. E. 2004. Biogeochemistry: some opportunities and challenges for the future. *Water Air Soil Poll.: Focus* 4(2-3):5-24.
427. Likens, G. E. 2004. Meromictic lakes. McGraw-Hill Encyclopedia.
428. Likens, G. E. 2004. Perils of a thirsty city. Editorial, *Herald Sun*, 9 April 2004.
429. Likens, G. E. 2004. Some perspectives on long-term biogeochemical research from the Hubbard Brook Ecosystem Study. *Ecology* 85(9):2355-2362.
430. Likens, G. E., B. K. Dresser and D. C. Buso. 2004. Short-term, temperature response in forest floor and soil to ice storm disturbance in a northern hardwood forest. *North. J. Appl. For.* 21(4):209-219.
431. Likens, G. E., D. C. Buso, B. K. Dresser, E. S. Bernhardt, R. O. Hall, Jr., K. H. Macneale and S. W. Bailey. 2004. Buffering an acidic stream in New Hampshire with a silicate mineral. *Restor. Ecol.* 12(3):419-428.
432. Macneale, K. H., B. L. Peckarsky and G. E. Likens. 2004. Contradictory results from different methods for measuring direction of insect flight. *Freshwater Biol.* 49:1260-1268.
433. Peters, S. C., J. D. Blum, C. T. Driscoll and G. E. Likens. 2004. Dissolution of wollastonite during the experimental manipulation of Hubbard Brook Watershed 1. *Biogeochemistry* 67:309-329.
434. Bernhardt, E. S., G. E. Likens, R. O. Hall, Jr., D. C. Buso, S. G. Fisher, T. M. Burton, J. L. Meyer, W. H. McDowell, M. S. Mayer, W. B. Bowden, S. E. G. Findlay, K. H. Macneale, R. S. Stelzer and W. H. Lowe. 2005. Can't see the forest for the stream? In-stream processing and terrestrial nitrogen exports. *BioScience* 55(3):219-230.
435. Butler, T. J., G. E. Likens, F. M. Vermeylen and B. J. B. Stunder. 2005. The impact of changing nitrogen oxide emissions on wet and dry nitrogen deposition in the northeastern USA. *Atmos. Environ.* 39:4851-4862.
436. Fahey, T. J., T. G. Siccamo, C. T. Driscoll, G. E. Likens, J. Campbell, C. E. Johnson, J. D. Aber, J. J. Cole, M. C. Fisk, P. M. Groffman, R. T. Holmes, P. A. Schwarz and R. D. Yanai. 2005. The biogeochemistry of carbon at Hubbard Brook. *Biogeochemistry* 75(1):109-176.
437. Kaushal, S. S., P. M. Groffman, G. E. Likens, K. T. Belt, W. P. Stack, V. R. Kelly, L. E. Band

- and G. T. Fisher. 2005. Increased salinization of fresh water in the northeastern United States. *Proc. Natl. Acad. Sci. USA* 102(38):13517-13520.
438. Kelly, V. R., G. M. Lovett, K. C. Weathers and G. E. Likens. 2005. Trends in atmospheric ammonium concentrations in relation to atmospheric sulfate and local agriculture. *Environ. Poll.* 135:363-369.
439. Likens, G. E. 2005. A Biologist's View of Liberal Education. In: The Liberal Education: Dead or Alive? Conference, Dartmouth College.
440. Likens, G. E. 2005. Foreword. pp. v-vi. In: G. M. Lovett, C. G. Jones, M. G. Turner and K. C. Weathers (eds.). Ecosystem Function in Heterogeneous Landscapes. Springer-Verlag New York Inc.
441. Likens, G. E. 2005. Foreword. pp. xi-xii. In: R. J. Naiman, H. Décamps and M. E. McClain (eds.). Riparia: Ecology, Conservation, and Management of Streamside Communities. Elsevier Academic Press, Inc.
442. Likens, G. E. 2005. Professor Robert G. Wetzel. *SIL News* 46:1-3.; Robert G. Wetzel, 1936-2005. *Limnol. Oceanogr. Bull.* 14(2):44-45.
443. Likens, G. E. 2005. Providing Limnological Leadership in Tomorrow's World. SIL Presidential Address, Lahti, Finland. *Verh. Internat. Verein. Limnol.* 29(1):1-10.
444. Likens, G. E. and W. Lampert. 2005. In memoriam, Professor Robert G. Wetzel, 1936-2005. *Arch. Hydrobiol.* 163(4):431-433.
445. Likens, G. E. and D. A. Pillard. 2005. Obituary, Frank A. Vertucci, 1956-2005. *Limnol. Oceanogr. Bull.* 14(4):83.
446. Likens, G. E., D. C. Buso and T. J. Butler. 2005. Long-term relationships between SO₂ and NO_x emissions and SO₄²⁻ and NO₃⁻ concentration in bulk deposition at the Hubbard Brook Experimental Forest, New Hampshire. *J. Environ. Monitor.* 7(10):964-968.
447. Lovett, G. M., G. E. Likens, D. C. Buso, C. T. Driscoll and S. W. Bailey. 2005. The biogeochemistry of chlorine at Hubbard Brook, New Hampshire, USA. *Biogeochemistry* 72:191-232.
448. Lowe, W. and G. E. Likens. 2005. Moving headwater streams to the head of the class. *BioScience* 55(3):196-197.
449. Lowe, W. H., K. H. Nislow and G. E. Likens. 2005. Forest structure and stream salamander diets: implications for terrestrial-aquatic connectivity. *Verh. Internat. Verein. Limnol.* 29(1):279-286.
450. Macneale, K. H., B. L. Peckarsky and G. E. Likens. 2005. Stable isotopes identify dispersal patterns of stonefly populations living along stream corridors. *Freshwater Biol.* 50:1117-1130.
451. Gliwicz, Z. M., M. Gophen, R. Gulati, D. Hamilton, B. Boss, S. Ostroumov, J. Padisak, B.

- Wehrli and G. E. Likens. 2006. Memoriam: Professor Robert G. Wetzel. *Ecol. Stud. Haz. Sol.* 11:207.
452. Groffman, P. M., M. C. Fisk, C. T. Driscoll, G. E. Likens, T. J. Fahey, C. Eagar and L. H. Pardo. 2006. Calcium additions and microbial nitrogen cycle processes in a northern hardwood forest. *Ecosystems* 9:1289-1305.
453. Likens, G. E. 2006. Meromictic lake. McGraw-Hill Encyclopedia. pp. 679-681.
454. Likens, G. E. 2006. Some reflections on ESA: then and now. *Bull. Ecol. Soc. Amer.* 87(4):326-328.
455. Likens, G. E. and D. C. Buso. 2006. Variation in streamwater chemistry throughout the Hubbard Brook Valley. *Biogeochemistry* 78:1-30.
456. Lowe, W. H., G. E. Likens and B. J. Cosentino. 2006. Self-organisation in streams: the relationship between movement behaviour and body condition in a headwater salamander. *Freshwater Biol.* 51(11):2052-2062.
457. Lowe, W. H., G. E. Likens and M. E. Power. 2006. Linking scales in stream ecology. *BioScience* 56(7):591-597.
458. Lowe, W. H., G. E. Likens, M. A. McPeck and D. C. Buso. 2006. Linking direct and indirect data on dispersal: isolation by slope in a headwater stream salamander. *Ecology* 87(2):334-339.
459. Marino, R., F. Chan, R. W. Howarth, M. L. Pace and G. E. Likens. 2006. Ecological constraints on planktonic nitrogen fixation in saline estuaries. I. Nutrient and trophic controls. *Mar. Ecol. Prog. Ser.* 309:25-39.
460. Pace, M. L. and G. E. Likens. 2006. Hiding scientific findings is unfair to public. Editorial, *Poughkeepsie Journal*, 2 March 2006.
461. Stelzer, R. S. and G. E. Likens. 2006. Effects of sampling frequency on estimates of dissolved silica export by streams: the role of hydrological variability and concentration-discharge relationships. *Water Resour. Res.* 42(7):1-10
462. Tripler, C. E., S. S. Kaushal, G. E. Likens and M. T. Walter. 2006. Patterns in potassium dynamics in forest ecosystems. *Ecol. Lett.* 9:451-466.
463. Weathers, K. C., G. E. Likens and T. J. Butler. 2007. Acid rain. pp. 1507-1520. In: W. N. Rom (ed.). *Environmental and Occupational Medicine, Fourth Edition*. Lippincott Williams & Wilkins, a Wolters Kluwer business, Philadelphia, PA.
464. Campbell, J. L., C. T. Driscoll, C. Eagar, G. E. Likens, T. G. Siccama, C. E. Johnson, T. J. Fahey, S. P. Hamburg, R. T. Holmes, A. S. Bailey and D. C. Buso. 2007. Long-term trends from ecosystem research at the Hubbard Brook Experimental Forest. Gen. Tech. Rep. NRS-17. Newtown Square, PA: U.S. Dept. Agriculture, Forest Service, Northern Research Station. 41 pp.

465. Judd, K. E., G. E. Likens and P. M. Groffman. 2007. High nitrate retention during winter in soils of the Hubbard Brook Experimental Forest. *Ecosystems* 10:217-225.
466. Lewis, G. P. and G. E. Likens. 2007. Changes in stream chemistry associated with insect defoliation in Pennsylvania hemlock-hardwoods forest. *Forest Ecol. Manag.* 238:199-211.
467. Likens, G. E. 2007. Environment in Focus: Acid Rain. Earth Portal. 4 pp.
468. Likens, G. E. 2007. Surprises from long-term studies at the Hubbard Brook Experimental Forest, USA. pp. 68-77. *In: A Better Future for the Planet Earth, Vol. III -- Commemorative Book for Blue Planet Prize Winners, Asahi Glass Foundation, Tokyo, Japan.*
469. Likens, G. E. and F. H. Bormann. 2007. Environmental challenges in the Twenty-First Century and our respect for nature. *2003 Blue Planet Prize Commemorative Lecture*, pp. 78-95. *A Better Future for the Planet Earth Vol. III -- Commemorative Book for Blue Planet Prize Winners, Asahi Glass Foundation, Tokyo, Japan.*
470. Lovett, G. M., D. A. Burns, C. T. Driscoll, J. C. Jenkins, M. J. Mitchell, L. Rustad, J. B. Shanley, G. E. Likens and R. Haeuber. 2007. Who needs environmental monitoring? *Front. Ecol. Environ.* 5(5):253-260.
471. McLaughlan, K. K., J. M. Craine, W. W. Oswald, P. R. Leavitt and G. E. Likens. 2007. Changes in nitrogen cycling during the past century in a northern hardwood forest. *Proc. Natl. Acad. Sci. USA* 104(18):7466-7470.
472. Rosenberry, D. O., T. C. Winter, D. C. Buso and G. E. Likens. 2007. Comparison of 15 evaporation methods applied to a small mountain lake in the northeastern USA. *J. Hydrology* 340(3-4):149-166.
473. Siccama, T. G., T. J. Fahey, C. E. Johnson, T. Sherry, E. G. Denny, E. B. Girdler, G. E. Likens and P. Schwarz. 2007. Population and biomass dynamics of trees in a northern hardwood forest at Hubbard Brook. *Can. J. Forest Res.* 37:737-749.
474. Warren, D. R., E. S. Bernhardt, R. O. Hall, Jr. and G. E. Likens. 2007. Forest age, wood and nutrient dynamics in headwater streams of the Hubbard Brook Experimental Forest, NH. *Earth Surf. Proc. Land.* 32:1154-1163.
475. Anderson, C. B., G. E. Likens, R. Rozzi, J. Gutiérrez, J. J. Armesto and A. Poole. 2008. Integrating science and society through long-term socio-ecological research. *Environ. Ethics* 30(3):295-312; *Environ. Ethics* 30(S3):81-99 (Spanish Version).
476. Butler, T. J., M. D. Cohen, F. M. Vermeylen, G. E. Likens, D. Schmeltz and R. S. Artz. 2008. Regional precipitation mercury trends in the eastern USA, 1998-2005: declines in the Northeast and Midwest, but no change in the Southeast. *Atmos. Environ.* 42:1582-1592.
477. Conley, D. J., G. E. Likens, D. C. Buso, L. Saccone, S. W. Bailey and C. E. Johnson. 2008. Deforestation causes increased dissolved silicate losses in the Hubbard Brook

- Experimental Forest. *Glob. Chang. Biol.* 14:2548-2554.
478. Eviner, V. T. and G. E. Likens. 2008. Effects of pathogens on terrestrial ecosystem function. pp. 260-283. *In*: R. S. Ostfeld, F. Keesing and V. T. Eviner (eds.). *Infectious Disease Ecology: Effects of Ecosystems on Disease and of Disease on Ecosystems*. Cary Conference XI, Princeton University Press.
479. Greene, B. T., W. H. Lowe and G. E. Likens. 2008. Forest succession and prey availability influence the strength and scale of terrestrial-aquatic linkages in a headwater salamander system. *Freshwater Biol.* 53:2234-2243.
480. Kelly, V. R., G. M. Lovett, K. C. Weathers, S. E. G. Findlay, D. L. Strayer, D. J. Burns and G. E. Likens. 2008. Long-term sodium chloride retention in a rural watershed: legacy effects of road salt on streamwater concentration. *Environ. Sci. Technol.* 42:410-415.
481. Likens, G. E. 2008. Sustainable conservation: can it be done? pp. 51-61. *In*: Rockwood, L. L., R. E. Stewart and T. Dietz (eds.). *Foundations of Environmental Sustainability. The Coevolution of Science and Policy*. Lee M. Talbot Festschrift, George Mason University, Fairfax, VA. Oxford University Press.
482. Likens, G. E. 2008. Understanding, using and protecting inland waters of the world. SIL Presidential Address, 2007 Montreal. *Verh. Internat. Verein. Limnol.* 30(2):165-170.
483. Lowe, W. H., M. A. McPeck, G. E. Likens and B. J. Cosentino. 2008. Linking movement behaviour to dispersal and divergence in plethodontid salamanders. *Mol. Ecol.* 17:4459-4469.
484. Rosenberry, D. O., T. C. Winter, D. C. Buso and G. E. Likens. 2008. Reply to comment by J. Szilagyi on "Comparison of 15 evaporation methods applied to a small mountain lake in the northeastern USA" [*J. Hydrol.* 340(3-4)[2007]149-166]. *J. Hydrology* 348:566-567.
485. Saccone, L., D. J. Conley, G. E. Likens, S. W. Bailey, D. C. Buso and C. E. Johnson. 2008. Factors that control the range and variability of amorphous silica in soils in the Hubbard Brook Experimental Forest. *Soil Science Soc. Am. J.* 72(6):1637-1644.
486. Warren, D. R., G. E. Likens, D. C. Buso and C. E. Kraft. 2008. Status and distribution of fish in an acid-impacted watershed of the Northeastern United States (Hubbard Brook, NH). *Northeast Nat.* 15(3):375-390.
487. Bade, D. L., K. Bouchard and G. E. Likens. 2009. Algal co-limitation by N and P persists after 30 years in Mirror Lake (New Hampshire, USA). *Verh. Internat. Verein. Limnol.* 30(7):1121-1123.
488. Buso, D. C., G. E. Likens, J. W. LaBaugh and D. Bade. 2009. Nutrient dynamics. pp. 69-203. *In*: T. C. Winter and G. E. Likens (eds.). *Mirror Lake: Interactions among Air, Land and Water*. University of California Press.
489. Conley, D. J., H. W. Paerl, R. W. Howarth, D. F. Boesch, S. P. Seitzinger, K. E. Havens, C. Lancelot and G. E. Likens. 2009. Controlling eutrophication: nitrogen and

- phosphorus. *Science* 323:1014-1015.
490. Conley, D. J., H. W. Paerl, R. W. Howarth, D. F. Boesch, S. P. Seitzinger, K. E. Havens, C. Lancelot and G. E. Likens. 2009. Response to Letters 'Controlling eutrophication: nitrogen and phosphorus'. *Science* 324:721-725.
491. Cosentino, B. J., W. H. Lowe and G. E. Likens. 2009. Demography and movement of the northern spring salamander in four New Hampshire headwater streams. *Verh. Internat. Verein. Limnol.* 30(5):677-680.
492. Hairston, N. G., Jr. and G. E. Likens. 2009. The Legacy of James G. Needham: A Century of Limnology at Cornell University and the first course on Limnology in the Americas. *ASLO Bulletin* 18(2):30-32; and *SILNews* 54:25-27 (June 2009).
493. Kelly, V. R., K. C. Weathers, G. M. Lovett and G. E. Likens. 2009. Effect of climate change between 1984 and 2007 on precipitation chemistry at a site in northeastern USA. *Environ. Sci. Tech.* 43(10):3461-3466.
494. LaBaugh, J. W., D. C. Buso and G. E. Likens. 2009. Evaluation of methods and uncertainties in the chemical budgets. pp. 225-299. *In*: T. C. Winter and G. E. Likens (eds.). *Mirror Lake: Interactions among Air, Land and Water*. University of California Press.
495. Likens, G. E. 2009. Inland waters. pp. 1-5. *In*: G. E. Likens (ed.). *Encyclopedia of Inland Waters*, volume 1. Oxford, Elsevier.
496. Likens, G. E. 2009. A limnological introduction to Mirror Lake. pp. 1-21. *In*: T. C. Winter and G. E. Likens (eds.). *Mirror Lake: Interactions among Air, Land and Water*. University of California Press.
497. Likens, G. E. 2009. Acid rain: the once and future issue. *Discovery Earth: Discovery Channel*. <http://dsc.discovery.com/earth/my-take/acid-rain.html>.
498. Likens, G. E. and J. F. Franklin. 2009. Ecosystem thinking in the Northern Forest – and beyond. *BioScience* 59(6):511-513.
499. Likens, G. E. and J. W. LaBaugh. 2009. Mirror Lake: Past, present and future. *In*: T. C. Winter and G. E. Likens (eds.). pp. 301-328. *Mirror Lake: Interactions among Air, Land and Water*. University of California Press.
500. Likens, G. E., K. F. Walker, P. E. Davies, J. Brookes, J. Olley, W. J. Young, M. C. Thoms, P. S. Lake, B. Gawne, J. Davis, A. H. Arthington, R. Thompson and R. L. Oliver. 2009. Ecosystem science: toward a new paradigm for managing Australia's inland aquatic ecosystems. *Mar. Freshwater Res.* 60:271-279.
501. Lindenmayer, D. and G. E. Likens. 2009. Adaptive monitoring: a new paradigm for long-term research and monitoring. *Trends Ecol. Evol.* 24(9):482-486.
502. Lindenmayer, D. B., G. E. Likens, J. F. Franklin and R. Muntz. 2009. Opportunity in the

- wake of natural “disasters”. *Science* 324:463.
503. Searchinger, T., S. P. Hamburg, J. Melillo, W. Chameides, P. Havlik, D. M. Kammen, G. E. Likens, R. M. Lubowski, M. Obersteiner, M. Oppenheimer, G. P. Robertson, W. H. Schlesinger and G. D. Tilman. 2009. Fixing a critical climate accounting error. *Science* 326:527-528.
504. Stewart, K., K. Walker and G. E. Likens. 2009. Meromictic lakes. Chapter 27. In: G. E. Likens (ed.). *Encyclopedia of Inland Waters*. Oxford, Elsevier.
505. Warren, D. R., C. E. Kraft, W. S. Keeton, J. S. Nunery and G. E. Likens. 2009. Dynamics of wood recruitment in streams of the northeastern U.S. *Forest Ecol. Manag.* 258(5):804-813.
506. Winter, T. C. and G. E. Likens. 2009. Summary and Conclusions. pp. 329-333. In: T. C. Winter and G. E. Likens (eds.). *Mirror Lake: Interactions among Air, Land and Water*. University of California Press.
507. Gleick, P. H., *et al.* [Likens, G. E.] + 255 signed authors. 2010. Climate change and the integrity of science. *Science* 328:689-690.
508. Kaushal, S. S., G. E. Likens, N. A. Jaworski, M. L. Pace, A. M. Sides, D. Seekell, K. T. Belt, D. H. Secor and R. L. Wingate. 2010. Rising stream and river temperatures in the United States. *Front. Ecol. Environ.* 8(9):461-466.
509. Lake, P. S., G. E. Likens and D. S. Ryder. 2010. Integrating science, policy and management of rivers: Peter Cullen’s legacy. *Mar. Freshwater Res.* 61(7):733-735.
510. Likens, G. E. 2010. Acid rain. In: C. J. Cleveland (ed.). *Encyclopedia of Earth*. (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). [First published in the *Encyclopedia of Earth* October 2006; Last revised October 17, 2011] <http://www.eoearth.org/article/Acid_rain>
511. Likens, G. E. 2010. The role of science in decision making: does evidence-based science drive environmental policy? *Front. Ecol. Environ.* 8(6):e1-e8. doi:10.1890/090132
512. Likens, G. E. and D. C. Buso. 2010. Long-term changes in streamwater chemistry following disturbance in the Hubbard Brook Experimental Forest, USA. *Verh. Internat. Verein. Limnol.* 30(10):1577-1581.
513. Likens, G. E. and D. C. Buso. 2010. Salinization of Mirror Lake by road salt. *Water Air Soil Poll.* 205:205-214.
514. Lindenmayer, D. B. and G. E. Likens. 2010. Improving ecological monitoring. *Trends Ecol. Evol.* 25:200-201.
515. Lindenmayer, D. B. and G. E. Likens. 2010. The science and application of ecological monitoring. *Biol. Conserv.* 143(6):1317-1328.
516. Lindenmayer, D. B., G. E. Likens and J. F. Franklin. 2010. Rapid responses to facilitate

- ecological discoveries from major disturbances. *Front. Ecol. Environ.* 8(10):527-532.
517. Lindenmayer, D. B., G. E. Likens, C. J. Krebs and R. J. Hobbs. 2010. Improved probability of detection of ecological “surprises”. *Proc. Natl. Acad. Sci. USA* 107(51):21957-21962.
518. Pace, M. L., S. E. Hampton, K. E. Limburg, E. M. Bennett, E. M. Cook, A. E. Davis, J. M. Grove, K. Y. Kaneshiro, S. L. LaDeau, G. E. Likens, D. M. McKnight, D. C. Richardson and D. L. Strayer. 2010. Communicating with the public: opportunities and rewards for individual ecologists. *Front. Ecol. Environ.* 8(6):292-298.
519. Palmer, M. A., E. S. Bernhardt, W. H. Schlesinger, K. N. Eshleman, E. Foufoula-Georgiou, M. S. Hendryx, A. D. Lemly, G. E. Likens, O. L. Loucks, M. E. Power, P. S. White and P. R. Wilcock. 2010. Mountaintop mining consequences. *Science* 327:148-149.
520. Ryder, D. S., M. Tomlinson, B. Gawne and G. E. Likens. 2010. Defining and using ‘best available science’: a policy conundrum for the management of aquatic ecosystems. *Mar. Freshwater Res.* 61(7):821-828.
521. Searchinger, T., S. P. Hamburg, J. Melillo, W. Chameides, P. Havlik, D. M. Kammen, G. E. Likens, R. M. Lubowski, M. Obersteiner, M. Oppenheimer, G. P. Robertson, W. H. Schlesinger and G. D. Tilman. 2010. Letter Response re: Fixing a critical climate accounting error. Carbon calculations to consider: Response. *Science* 327:780-781.
522. Searchinger, T., S. P. Hamburg, J. Melillo, W. Chameides, P. Havlik, D. M. Kammen, G. E. Likens, M. Obersteiner, M. Oppenheimer, G. P. Robertson, W. H. Schlesinger, R. M. Lubowski and G. D. Tilman. 2010. Letter Response re: Fixing a critical carbon accounting error – Bioenergy: counting on incentives. Response to Pingoud *et al.* *Science* 327:1199-1201.
523. Butler, T. J., F. M. Vermeylen, M. Rury, G. E. Likens, B. Lee, G. E. Bowker and L. McCluney. 2011. Response of ozone and nitrate to stationary source NO_x emission reductions in the eastern USA. *Atmos. Environ.* 45:1084-1094.
524. Judd, K. E., G. E. Likens, D. C. Buso and A. S. Bailey. 2011. Minimal response in watershed nitrate export to severe soil frost raises questions about nutrient dynamics in the Hubbard Brook Experimental Forest. *Biogeochemistry* 106:443-459.
525. Likens, G. E. 2011. Limnological measures related to climate change in the Hubbard Brook Valley, USA. *Inland Waters* 1(2):93-99.
526. Likens, G. E. and T. J. Butler. 2011. Acid rain. Encyclopaedia Britannica (updated 01/07/15). <http://www.britannica.com/EBchecked/topic/3761/acid-rain>
527. Likens, G. E. and D. B. Lindenmayer. 2011. A Strategic Plan for an Australian Long-Term Environmental Monitoring (LTEM) Network. *Austral Ecol.* 36:1-8. doi:10.1111/j.1442-9993.2010.02179 (2010).
528. Likens, G. E., T. J. Butler and M. A. Rury. 2011. Acid rain. *Encyclopedia of Global Studies*.

529. Lindenmayer, D. B. and G. E. Likens. 2011. Direct measurement versus surrogate indicator species for evaluating environmental change and biodiversity loss. *Ecosystems* 14:47-59. doi:10.1007/s10021-010-9394-6
530. Lindenmayer, D. B. and G. E. Likens. 2011. Effective monitoring of agriculture. *J. Environ. Monitor.* 13:1559-1563. doi:10.1039/C0EM00691B
531. Lindenmayer, D. B. and G. E. Likens. 2011. Losing the culture of ecology. *Bull. Ecol. Soc. Am.* 92:245–246. doi:10.1890/0012-9623-92.3.245
532. Lindenmayer, D. B., R. J. Hobbs, G. E. Likens, C. J. Krebs and S. C. Banks. 2011. Newly discovered landscape traps produce regime shifts in wet forests. *Proc. Natl. Acad. Sci.* 108(38):15887-15891. doi:10.1073/pnas.1110245108
533. Lindenmayer, D. B., G. E. Likens, A. Haywood and L. Miezi. 2011. Adaptive monitoring in the real world: proof of concept. *Trends Ecol. Evol.* 26(12):641-646. doi:10.1016/j.tree.2011.08.002
534. McGuire, K. J. and G. E. Likens. 2011. Historical roots of forest hydrology and biogeochemistry: Chapter 1. pp. 3-26. In: D. F. Levia, D. Carlyle-Moses and T. Tanaka (eds.). *Forest Hydrology and Biogeochemistry: Synthesis of Past Research and Future Directions*. Ecological Studies Series, No. 216, Springer-Verlag, Heidelberg, Germany.
535. Mitchell, M. J. and G. E. Likens. 2011. Watershed sulfur biogeochemistry: shift from atmospheric deposition dominance to climatic regulation. *Environ. Sci. Tech.* 45:5267-5271. doi:org/10.1021/es200844n
536. Mitchell, M. J., G. Lovett, S. Bailey, F. Beall, D. Burns, D. Buso, T. A. Clair, F. Courchesne, L. Duchesne, C. Eimers, I. Fernandez, D. Houle, D. S. Jeffries, G. E. Likens, M. D. Moran, C. Rogers, D. Schwede, J. Shanley, K. C. Weathers and R. Vet. 2011. Comparisons of watershed sulfur budgets in southeast Canada and northeast US: new approaches and implications. *Biogeochemistry* 103:181-207. doi:10.1007/s10533-010-9455-0.
537. Rozzi, R., J. J. Armesto, J. R. Gutiérrez, F. Massardo, G. E. Likens, C. B. Anderson, A. Poole, K. Moses, E. Hargrove, A. Mansilla, J. Kennedy, M. F. Willson, K. Jax, C. G. Jones, J. B. Callicott and M.T.K. Arroyo. 2012. Integrating ecology and environmental ethics: earth stewardship in the Southern end of the Americas. *BioScience* 62(3):226-236.
538. Bernal, S., L. O. Hedin, G. E. Likens, S. Gerber and D. C. Buso. 2012. Complex response of the forest nitrogen cycle to climate change. *Proc. Natl. Acad. Sci.* 109(9):3406-3411. doi:10.1073/pnas.1121448109
539. Brundtland, G. H., P. Ehrlich, J. Goldemberg, J. Hansen, A. Lovins, G. E. Likens, S. Manabe, B. May, H. Mooney, K.-H. Robèrt, E. Salim, G. Sato, S. Solomon, N. Stern, B. Watson, Barefoot College, Conservation International, International Institute for Environment and Development, and International Union for the Conservation of Nature. 2012. *Environment and Development Challenges: The Imperative to Act. Blue Planet Prize*

Joint Laureates UNEP Report, for Rio+20 Meeting, Rio de Janeiro, Brazil. United Nations Conference on Sustainable Development. The Asahi Glass Foundation.

540. Butler, T. J. and G. E. Likens. 2012. Acid rain. pp.11-15. *In*: A.-H. El-Shaarawi and W. Piegorsch (eds.). *Encyclopedia of Environmetrics Second Edition*. John Wiley & Sons Ltd, Chichester, UK. doi:10.1002/9780470057339.vaa003.pub2
541. Butler, T. J. and G. E. Likens. 2012. Acid rain. *In*: *Encyclopædia Britannica. Encyclopædia Britannica Online Academic Edition*. Encyclopædia Britannica Inc. <<http://www.britannica.com/EBchecked/topic/3761/acid-rain>>
542. D’Elia, C. F and G. E. Likens. 2012. Four words that can make us cringe. *BioScience* 62(12):1012-1013. doi:10.1525/bio.2012.62.12.2
543. Glazer, A. N. and G. E. Likens. 2012. The water table: the shifting foundation of life on land. *Ambio* 41(7):657-669. doi:10.1007/s13280-012-0328-8
544. Kelly, V., K. C. Weathers, G. M. Lovett and G. E. Likens. 2012. A comparison of two collectors for monitoring precipitation chemistry. *Water Air Soil Poll.* 223:951-954. doi:10.1007/s11270-011-0912-8
545. Kerr, J. G., M. C. Eimers, I. F. Creed, M. B. Adams, F. Beall, D. Burns, J. L. Campbell, S. F. Christopher, T. A. Clair, F. Courchesne, L. Duchesne, I. Fernandez, D. Houle, D. S. Jeffries, G. E. Likens, M. J. Mitchell, J. Shanley and H. Yao. 2012. The effect of seasonal drying on sulphate dynamics in streams across southeastern Canada and the northeastern USA. *Biogeochemistry* 111:393-409. doi:10.1007/s10533-011-9664-1.
546. Likens, G. E. and D. C. Buso. 2012. Dilution and the elusive baseline. *Environ. Sci. Tech.* 46(8):4382-4387. doi:10.1021/es3000189
547. Likens, G. E. and D. B. Lindenmayer. 2012. Integrating approaches leads to more effective conservation of biodiversity. *Biodivers. Conserv.* 21(13):3323-3341. doi:10.1007/s10531-012-0364-5
548. Likens, G. E., T. Butler and M. Rury. 2012. Acid rain. pp. 18-20. *In*: H. Anheier and M. Juergensmeyer (eds.). *Encyclopedia of global studies*. Thousand Oaks, CA. SAGE Publications, Inc. doi:10.4135/9781452218557.n6
549. Lindenmayer, D. B., W. Blanchard, L. McBurney, D. Blair, S. C. Banks, G. E. Likens, J. Franklin, W. F. Laurance, J. A. R. Stein and P. Gibbons. 2012. Interacting factors driving a major loss of large trees with cavities in a forest ecosystem. *PLoS ONE* 7(10):1-16. doi:10.1371/journal.pone.0041864 (In the top 10% of PLOS ONE articles most cited.)
550. Lindenmayer, D. B., G. E. Likens, A. Andersen, D. Bowman, C. M. Bull, E. Burns, C. R. Dickman, A. A. Hoffman, D. A. Keith, M. J. Liddell, A. J. Lowe, D. J. Metcalfe, S. R. Phinn, J. Russell-Smith, N. Thurgate and G. M. Wardle. 2012. The value and importance of long-term studies in ecology. *Austral Ecol.* 37:745-757. doi:10.1111/j.1442-9993.2011.02351.x

551. Lowe, W. H., M. A. McPeck, G. E. Likens and B. J. Cosentino. 2012. Decoupling of genetic and phenotypic divergence in a headwater landscape. *Mol. Ecol.* 21:2399-2409. doi:10.1111/j.1365-294X.2012
552. Miles, G. R., M. J. Mitchell, B. Mayer, G. E. Likens and J. Welker. 2012. Long-term analysis of Hubbard Brook stable oxygen isotope ratios of streamwater and precipitation sulfate. *Biogeochemistry* 111:443-454. doi:10.1007/s10533-011-9670-3
553. Ross, D. S., J. B. Shanley, J. L. Campbell, G. B. Lawrence, S. W. Bailey, G. E. Likens, B. C. Wemple, G. Fredriksen and A. E. Jamison. 2012. Spatial patterns of soil nitrification and nitrate export from forested headwaters in the northeastern United States. *J. Geophys. Res.* 117:G01009. doi:10.1029/2009JG001740
554. Svensson, T., G. M. Lovett and G. E. Likens. 2012. Is chloride a conservative ion in forest ecosystems? *Biogeochemistry* 107:125-134. doi:10.1007/s10533-010-9538-y
555. Argerich, A., S. L. Johnson, S. D. Sebestyen, C. C. Rhoades, E. Greathouse, J. D. Knoepp, M. B. Adams, G. E. Likens, J. L. Campbell, W. H. McDowell, F. Scatena and G. G. Ice. 2013. Trends in stream nitrogen concentrations for forested reference catchments across the USA. *Environ. Res. Lett.* 8(1):e014039. doi:10.1088/1748-9326/8/1/014039
556. Green, M. B., A. S. Bailey, S. W. Bailey, J. J. Battles, J. L. Campbell, C. T. Driscoll, T. Fahey, L. Lepine, G. E. Likens, S. V. Ollinger and P. G. Schaberg. 2013. Decreased water flowing from a forest amended with calcium silicate. *Proc. National Acad. Sci.* 110(15):5999-6003. doi:10.1073/pnas.1302445110.
557. Green, M. B., A. S. Bailey, S. W. Bailey, J. J. Battles, J. L. Campbell, C. T. Driscoll, T. Fahey, L. Lepine, G. E. Likens, S. V. Ollinger and P. G. Schaberg. 2013. Reply to Smith and Shortle: lacking evidence of hydraulic efficiency changes. *Proc. Nat. Acad. Sci.* 110(40):E3740. doi:10.1073/pnas.1312130110
558. Kaushal, S. S., G. E. Likens, R. Utz, M. L. Pace, M. Grese and M. Yepsen. 2013. Increased river alkalization in the Eastern U.S. *Environ. Sci. & Tech.* 47(18):10302-10311. doi:10.1021/es401046s.
559. LaBaugh, J. W., P. T. Harte, A. M. Shapiro, P. A. Hsieh, C. D. Johnson, D. J. Goode, W. W. Wood, D. C. Buso, G. E. Likens and T. C. Winter. 2013. Physical, chemical, and isotopic data from groundwater in the watershed of Mirror Lake, and in the vicinity of Hubbard Brook, near West Thornton, New Hampshire, 1983 to 1997. U.S. Geological Survey Open-File Report 2013-1087. 147 pp. <http://pubs.usgs.gov/of/2013/1087/>
560. Likens, G. E. 2013. Resolution of Respect: F. Herbert Bormann, 1922-2012. *Bull. Ecol. Soc. Amer.*, October, 94(4):304-308.
561. Likens, G. E. 2013. The Hubbard Brook Ecosystem Study—Celebrating 50 years. *Bull. Ecol. Soc. Amer.*, October, 94(4):336-337.

562. Lindenmayer, D. B. and G. E. Likens. 2013. Benchmarking open access science against good science. *Bull. Ecol. Soc. Amer., October, 94(4):338-340.*
563. Lindenmayer, D. B. and G. E. Likens. 2013. Don't do big-data science backward. *Nature 499:284.*
564. Rhoades, C. C., J. H. McCutchan, Jr., L. A. Cooper, D. W. Clow, T. M. Detmer, J. S. Briggs, J. D. Stednick, T. T. Veblen, R. M. Ertz, G. E. Likens and W. M. Lewis, Jr. 2013. Biogeochemistry of beetle-killed forest: explaining a weak nitrate response. *Proc. Nat. Acad. Sci. USA 110(5):1756-1760.*
565. Warren, D. R., K. E. Judd, D. L. Bade, G. E. Likens and C. E. Kraft. 2013. Effects of wood removal on stream habitat and nitrate uptake in two northeastern U.S. headwater streams. *Hydrobiologia 717:119-131. doi:10.1007/s10750-013-1578-6.*
566. Westgate, M., G. E. Likens and D. B. Lindenmayer. 2013. Adaptive management of biological systems: a review. *Biol. Conserv. 158:128-139.*
567. Youngentob, K. N., G. E. Likens, J. E. Williams and D. B. Lindenmayer. 2013. A survey of long-term terrestrial ecology studies in Australia. *Austral Ecol. 38:365-373. doi:10.1111/j.1442-9993.2012.02421.x*
568. Butler, T. and Likens, G. E. 2013. Acid Rain. *Encyclopedia of Environmetrics. 1.*
569. Likens, G. E. 2014. The Ecosystem Approach for Understanding and Resolving Environmental Problems. Pp. 103-110. In; *Environment and Development Challenges. The Imperative to Act. The Blue Planet Prize Laureates. University of Tokyo Press.*
570. Likens, G. E. and S. W. Bailey. 2014. The discovery of acid rain at the Hubbard Brook Experimental Forest: A story of collaboration and long-term research. pp. 463-482. In: D. Hayes, et al. (ed.). *US Forest Service Experimental Forests and Ranges, Chapter 20. Springer, New York.*
571. Likens, G. E. and T. J. Butler. 2014. Atmospheric acid deposition. *Encyclopedia of Natural Resources. Taylor & Francis. doi:10.1081/E-ENRA-120047613*
572. Likens, G. E. and L. O. Hedin. 2014. F. Herbert Bormann 1922-1912: A Biographical Memoir. *National Academy of Sciences Press, 13 pp.*
573. Lindenmayer, D. B., P. S. Barton, P. W. Lane, M. J. Westgate, L. McBurney, D. Blair, P. Gibbons and G. E. Likens. 2014. An empirical assessment and comparison of species-based and habitat-based surrogates: a case study of forest vertebrates and large old trees. *PLoS ONE 9(2):e89807. doi:10.1371/journal.pone.0089807*
574. Lindenmayer, D. B., S. C. Banks, W. L. Laurance, J. F. Franklin and G. E. Likens. 2014. Broad decline of populations of large old trees. *Conserv. Lett. 7(1):72-73. doi:10.1111/conl.12079*
575. Lindenmayer, D. B., D. Blair, L. McBurney, S. C. Banks, J. A. R. Stein, R. J. Hobbs, G. E.

- Likens, and J. F. Franklin. 2014. Principles and practices for biodiversity conservation and restoration forestry: a 30 year case study on the Victorian montane ash forests and the critically endangered Leadbeater's Possum. *Aust. Zool.* 36:441-460.
576. Lindenmayer, D. B., W. F. Laurance, J. F. Franklin, G. E. Likens, S. C. Banks, W. Blanchard, P. Gibbons, K. Ikin, D. Blair, L. McBurney, A. D. Manning and J. A. R. Stein. 2014. New policies for old trees: averting a global crisis in a keystone ecological structure. *Conserv. Lett.* 7(1):61-69. doi:10.1111/conl.2013
577. McGuire, K. J., Torgersen, C. E., G. E. Likens, D. C. Buso, W. H. Lowe and S. W. Bailey. 2014. Network analysis reveals multiscale controls on streamwater chemistry. *Proc. Nat. Acad. Sci. USA* 111: 7030-7035. doi:10.1073/pnas.1404820111
578. Smith, V. H., W. K. Dodds, K. E. Havens, D. R. Engstrom, H. W. Paerl, B. Moss and G. E. Likens. 2014. Comment: cultural eutrophication of natural lakes in the United States is real and widespread. *Limnol. Oceanogr.* 59:2217–2225.
579. Yanai, R., N. Tokuchi, J. Campbell, M. Green, E. Matsuzaki, S. Laseter, C. Brown, A. Bailey, P. Lyons, C. R. Levine, D. Buso, G. E. Likens, J. Knoepp and K. Fukushima. 2014. Sources of uncertainty in estimating stream solute export from headwater catchments. *Hydrol. Process.* 31:2982-2986. doi:10.1002/hyp.10265
580. Wilson, A. M. and G. E. Likens. 2015. Content Volatility of Scientific Topics in Wikipedia: A Cautionary Tale. *PLoS ONE* 10(8):e0134454. doi:10.1371/journal.pone.0134454. (altmetric score – 320)
581. Benettin, P., S. W. Bailey, J. L. Campbell, M. B. Green, A. Rinaldo, G. E. Likens, K. J. McGuire, and G. Botter. 2015. Linking water age and solute dynamics in streamflow at the Hubbard Brook Experimental Forest, NH, USA, *Water Resources Research* 51:9256-9272. doi:10.1002/2015WR017552
582. Lindenmayer, D. B., E. L. Burns, P. Tennant, C. R. Dickman, P. T. Green, D. A. Keith, D. J. Metcalfe, J. Russell-Smith, G. M. Wardle, D. Williams, K. Bossard, C. Delacey, I. Hanigan, C. M. Bull, G. Gillespie, R. J. Hobbs, C. J. Krebs, G. E. Likens, J. Porter, and M. Vardon. 2015. Contemplating the future: Acting now on long-term monitoring to answer 2050's questions. *Austral Ecology* 40:213-224.
583. Durán, J., J. L. Morse, P. M. Groffman, J. L. Campbell, L. M. Christenson, C. T. Driscoll, T. J. Fahey, M. C. Fisk, G. E. Likens, J. M. Melillo, M. J. Mitchell, P. H. Templer, and M. A. Vadeboncoeur. 2015. Climate change decreases nitrogen pools and mineralization rates in one northern hardwood forests. *Ecosphere* 7(3):e01251. doi:10.1002/ecs2.1251
584. Puntsag, T., M. J. Mitchell, J. L. Campbell, E. S. Klein, G. E. Likens, and J. M. Welker. Arctic Vortex changes alter the sources and isotopic values of precipitation in NE US. 2016. *Nature - Scientific Reports* 6:22647. doi:10.1038/srep22647

585. Keene, W. C., J. N. Galloway, G. E. Likens, F. A. Deviney, K. N. Mikkelsen, J. L. Moody and J. R. Maben. 2016. Atmospheric wet deposition in remote regions: benchmarks for environmental change. *Journal of the Atmospheric Sciences* 72:2947–2978.
586. Golladay, S. W., K. L. Martin, J. M. Vose, D. N. Wear, A. P. Covich, R. J. Hobbs, K. D. Klepzig, G. E. Likens, R. J. Naiman, and A. W. Shearer. 2016. Achievable Future Conditions as a Framework for Guiding Forest Conservation and Management. *Forest Ecology and Management* 360:80-96.
587. Tydecks, L., V. Bremerich, I. Jentschke, G. E. Likens, and K. Tockner. Biological Field Stations – a Global Infrastructure for Research, Education, and Public Engagement. Advance Access at *BioScience* 66:164–171. doi:10.1093/biosci/biv174
588. Butler, T., F. Vermeulen, C. M. Lehman, G. E. Likens, and M. Puchalski. 2016. Increasing ammonia concentration trends in large regions of the USA derived from the NADP/AMoN Network. *Atmospheric Environment* 144:1-9. doi:10.1016/j.atmosenv.2016.06.033
589. Leys, B., K. McLaughlan, J. Craine, C. E. Johnson, G. E. Likens, and B. LaCroix. 2016. Natural and anthropogenic drivers of calcium depletion in a northern forest during the last millennium. *PNAS* 113:E5091. doi:10.1073/pnas.1604909113
590. Clymans, W., D. Conley, J. Battles, P. Frings, M.M. Koppers, G. Likens, and C. Johnson. 2016. Silica uptake and release in live and decaying biomass in a northern hardwood forest. *Ecology* 97:3044–3057.
591. Rosi-Marshall, E. J., E. S. Bernhardt, D. C. Buso, C. T. Driscoll, and G. E. Likens. 2016. Acid rain mitigation experiment shifts a forested watershed from a net sink to a net source of nitrogen. *PNAS* 113:7580-7583. doi:10.1073/pnas.1607287113
592. Butler, T.J. and G.E. Likens. 2016. Acid rain. Encyclopaedia Britannica. Encyclopaedia Britannica, Inc.
593. Timofeyev, M. A., E. A. Silow, A. W. Mackay, M. V. Moore, and G. E. Likens. 2016. Safeguarding the world’s largest lake. Letter to the Editor. *Nature* 538:41.
594. Conniff, R. 2016. The Acid Rain Economy: How the Free Market Tackled an Environmental Challenge. From Research to Reward (a series produced by the National Academy of Sciences).
595. Likens, G. E. 2017. Fifty years of continuous precipitation and stream chemistry data from the Hubbard Brook ecosystem study (1963–2013). *Ecology* 98:2224. doi:10.1002/ecy.1894
596. Benettin, P., K. McGuire, S. Bailey, G. Likens, A. Rinaldo, and G. Botter. 2017. Young runoff fraction controls stream water age and solute concentration dynamics. *Hydrological Processes* 31:2982–2986. <https://doi.org/10.1002/hyp.11243>

597. Lindenmayer, D. B., G. E. Likens, and J. F. Franklin. 2018. Earth Observation Networks (EONs): finding the right balance. *Trends in Ecology & Evolution* 33:1-3.
598. Likens, G. E. and T. Butler. 2018. Acid Rain: Causes, Consequences, and Recovery in Terrestrial, Aquatic, and Human Systems. pp. 23-31. In: D. A. Dellasala and M. I. Goldstein (eds.). *Encyclopedia of the Anthropocene*. Elsevier.
599. Kaushal, S. S., G. E. Likens, M. L. Pace, R. M. Utz, S. Haq, J. Gorman, and M. Grese. 2018. Freshwater salinization syndrome on a continental scale. *Proceedings of the National Academy of Sciences* 115:E574-E583. doi:10.1073/pnas.1711234115
600. Sullivan, T. J., C. T. Driscoll, C. M. Beier, D. Burtraw, I. J. Fernandez, J. N. Galloway, D. A. Gay, C. L. Goodale, G. E. Likens, G. M. Lovett, and S. A. Watmough. 2018. Air pollution success stories in the United States: The value of long-term observations. *Environmental Science and Policy* 84:69-73.
601. Lindenmayer, D., and G. E. Likens. 2018. Maintaining the culture of ecology (guest editorial). *Frontiers in Ecology and the Environment* 16:195.
602. Groffman, P. M., C. T. Driscoll, J. Duran, J. L. Campbell, L. M. Christenson, T. J. Fahey, M. C. Fisk, C. Fuss, G. E. Likens, G. M. Lovett, L. Rustad, and P. Templer. 2018. Nitrogen oligotrophication in northern hardwood forests. *Biogeochemistry*, 1-17. <https://doi.org/10.1007/s10533-018-0445-y>
603. Lovett, G. M., C. L. Goodale, S. V. Ollinger, C. B. Fuss, A. P. Ouimette, and G. E. Likens. 2018. Nutrient retention during ecosystem succession: a revised conceptual model. *Frontiers in Ecology and the Environment* 16:532–538. doi:10.1002/fee.1949
604. Marinos, R., J. L. Campbell, C. T. Driscoll, G. E. Likens, W. H. McDowell, E. Rosi, L. E. Rustad, and E. S. Bernhardt. 2018. Give and take: A watershed acid rain mitigation experiment increases baseflow nitrogen retention but increases stormflow nitrogen export. *Environmental Science and Technology*. <https://doi.org/10.1021/acs.est.8b03553>
605. Kaushal, S. S., G. E. Likens, M. L. Pace, S. Haq, K. L. Wood, J. G. Galella, C. Morel, T. R. Doody, B. Wessel, P. Kortelainen, A. Raike, V. Skinner, R. Utz, and N. Jaworski. 2018. Novel ‘chemical cocktails’ in inland waters are a consequence of the freshwater salinization syndrome. *Phil. Trans. R. Soc. B* 20180017. In Press. <http://dx.doi.org/10.1098/rstb.2018.0017>

COLLABORATORS’ PUBLICATIONS

1. Gulati, R. 2009. Shaking Hands with a Limnologist: The Great Limnologist – Gene E. Likens. *SILNews* 55:33-34 (December 2009).
2. Lewis, W. M. 2010. Gene Likens: A Leader for our Science. pp. 27-31. In: P. Gastescu (ed.). *Lakes, Reservoirs and Ponds*. Romanian Limnogeographical Association.

REPORTS, TAPES, LETTERS and MISCELLANEOUS

1. Likens, G. E. 1970. Testimony presented at the Hearings before the Subcommittee on Air and Water Pollution of the Committee on Public Works, U.S. Senate, Water Pollution, Part 3. pp. 950-987.
2. Likens, G. E. 1971. A checklist of organisms for the Hubbard Brook ecosystems. Section of Ecology and Systematics, Cornell University, Ithaca, New York. Unpublished manuscript, 37 pp. -- REVISED 1973, 54 pp. -- REVISED 1996 [Holmes, R.T. and G.E. Likens], 56 pp.
3. Likens, G. E. 1972. The forest landscape: its ecosystem and biogeochemistry. In: American Association for the Advancement of Science Symposium on Temperate Climate Forestry and the Forest Ecosystem. Washington, D.C. Audiotape distributed by AAAS.
4. Likens, G. E., A. W. Bolle and E. Edelson. 1973. Forest ecology and management. In: Speaking of Science, Conversations with Outstanding Scientists, Vol. II, No. 6. Audiotape distributed by AAAS.
5. Likens, G. E. 1977. Acid rain: causes and consequences. Institute of Water Resources, University of Connecticut, Storrs. 1976-77 Seminar Series Presentation. Unpublished Manuscript, 17 pp.
6. Likens, G. E. and D. D. Miller. 1978. Measurement of changes in carbon flux and storage in the biosphere. Research Program Development Paper for Energy Research and Development Administration (ERDA). Unpublished Manuscript, Cornell University, Ithaca, New York. 54 pp.
7. Likens, G. E. 1980. The impact of acid precipitation on ecosystems in eastern North America. School of Graduate Studies Alumni Association and Department of Botany, University of Toronto, Canada. Unpublished Manuscript, 27 pp.
8. Likens, G. E. 1980. Where has all the water gone? C.P. Snow Lecture Series, Ithaca College, Ithaca, New York. Unpublished Manuscript, 14 pp.
9. Likens, G. E. (Committee Chairman). 1981. Flux of organic carbon by rivers to the oceans. Report of a Workshop prepared by Committee on Flux of Organic Carbon to the Ocean, Division of Biological Sciences, National Research Council; U.S. Department of Energy CONF-8009140.
10. Orians, G. H. (chapter coordinator), E. L. Charnov, W. T. Edmondson, G. E. Likens, R. T. Paine, P. H. Raven, D. W. Schindler and O. Solbrig (contributing authors). 1981. pp. 191-218. In: Outlook for Science and Technology: The Next Five Years. Report prepared by the National Research Council for the National Science Foundation. 397 pp.
11. Galloway, J. N., W. C. Keene and G. E. Likens. 1981. Progress Report -- Global Precipitation Chemistry Program. Atmospheric Research Laboratory, National

- Oceanographic and Atmospheric Administration, Silver Spring, Maryland. 80 pp.
12. Munn, R. E., G. E. Likens, B. Weisman, J. Hornbeck, C. W. Martin, F. H. Bormann, G. W. Oehlert and R. Bloxam. 1982. Final Report to the U.S. Department of Energy -- A climatological analysis of the Hubbard Brook (New Hampshire) precipitation chemistry data. Institute for Environmental Studies, University of Toronto. 220 pp.
 13. Galloway, J. N., J. M. Miller, G. E. Likens and W. C. Keene. 1983. A summary of results from the global precipitation project. WMO Tech. Conference on Observation and Measurement of Atmospheric Contaminants. October 1983. Vienna, Austria.
 14. Hall, R. J. and G. E. Likens. 1984. Experimental acidification of a stream tributary to Hubbard Brook. EPA Project Summary, Environment Research Laboratory, Duluth, Minnesota. 20 pp.
 15. Keene, W. C., J. N. Galloway, G. E. Likens and J. M. Miller. 1985. Recent contributions of the Global Precipitation Chemistry Project. pp. 88-90. In: E. C. Nickerson (ed.). Geophysical Monitoring for Climatic Change. Summary Report No. 13, 1984. U.S. Department of Commerce, Washington, D.C.
 16. Galloway, J. N. and G. E. Likens. 1985. Global Precipitation Chemistry Project. Task Group Project 8M2CO582. GPCP Research summary for NAPAP Review, September 1985. 5 pp.
 17. Eaton, J. S., K. C. Weathers and G. E. Likens. 1986. Inter-laboratory Comparison Report. Report between Institute of Ecosystem Studies, Millbrook, New York and the Illinois State Water Survey, Champaign, Illinois. 39 pp.
 18. Keene, W. C., J. N. Galloway, G. E. Likens and J. M. Miller. 1986. The Global Precipitation Chemistry Project. pp. 105-107. In: Geophysical Monitoring for Climatic Change. Summary Report No. 14, 1985. U.S. Department of Commerce, Washington, D.C.
 19. Basnet, K. and G. E. Likens. 1987. Studies of vegetational and geological controls of hillslope stability in the Luquillo Experimental Forest, Puerto Rico. Report to the USDA Forest Service, Rio Piedras, Puerto Rico. Institute of Ecosystem Studies, Millbrook, New York. 35 pp.
 20. Keene, W. C., J. N. Galloway, G. E. Likens and J. M. Miller. 1987. The Global Precipitation Chemistry Project. pp. 134-136. In: R. C. Schnell (ed.). Geophysical Monitoring for Climatic Change, Summary Report No. 15, 1986. U.S. Department of Commerce, Washington, D.C.
 21. Butler, T. J. and G. E. Likens. 1988. Operation and research at the Ithaca MAP3S Regional Precipitation Chemistry Site. Annual Progress Report for 1988, prepared for U.S. Department of Energy. DOE/ER/60292-4.
 22. Keene, W. C., J. N. Galloway, G. E. Likens and J. M. Miller. 1988. The Global

- Precipitation Chemistry Project. Contribution to the 16th GMCC Annual Report, NOAA.
23. Keene, W. C., J. N. Galloway, G. E. Likens and J. M. Miller. 1988. The Global Precipitation Chemistry Project. Contribution to the 17th GMCC Annual Report, NOAA.
 24. Butler, T. J. and G. E. Likens. 1989. Operation and research at the Ithaca MAP3S Regional Precipitation Chemistry Site. Annual Progress Report for 1989, prepared for U.S. Department of Energy. DOE/ER/60292-4.
 25. Bukaveckas, P. A. and G. E. Likens. 1990. Effects of lake and watershed liming on lake productivity and trophic interactions. Annual Report for the U.S. Fish and Wildlife Service. 36 pp.
 26. Bukaveckas, P. A. and G. E. Likens. 1992. Effects of lake and watershed liming on lake productivity and trophic interactions. Annual Report for the U.S. Fish and Wildlife Service. 38 pp.
 27. Bukaveckas, P. A. and G. E. Likens. 1994. Effects of lake and watershed liming on lake productivity and trophic interactions. Annual Report for the U.S. Fish and Wildlife Service. 38 pp.
 28. Driscoll, C. T. and G. E. Likens. 1994. Transport and fate of trifluoroacetate in the terrestrial environment. *In*: Alternative Fluorocarbons Environmental Acceptability Workshop on Decomposition of TFA in the Environment, Washington, D.C. 13 pp.
 29. Lewis, W. M., E. J. Fee, G. E. Likens, S. W. Chisholm, N. G. Hairston, Jr., S. T. Threlkeld, C. F. D'Elia, J. E. Hobbie and R. G. Wetzel. 1995. Challenges for limnology in the United States and Canada: An Assessment of the Discipline in the 1990's. Report of the American Society of Limnology and Oceanography Challenges for Limnology Committee. Special Edition of ASLO Bulletin 4(2). 20 pp.
 30. Ayala, F. J., R. R. Colwell, P. R. Ehrlich, W. H. Eshbaugh, J. Franklin, D. W. Freckman, D. H. Knight, S. A. Levin, G. E. Likens, J. Lubchenco, J. L. Meyer, H. A. Mooney, G. H. Orians, R. T. Paine, P. G. Risser and G. M. Woodwell. 1996. Open Letter from Leaders of Scientific Professional Societies: RE: The Endangered Species Act. *Bull. Ecol. Soc. Amer.* 77(2):116-119.
 31. Colwell, R., J. Lubchenco, D. Freckman, H. Mooney, S. Levin, J. Meyer, G. Likens, P. Risser and G. Orians. 1996. Open Letter from Leaders of Scientific Professional Societies. RE: The Endangered Species Act. *Bull Ecol. Soc. Amer.* 77(2):119-120.
 32. Likens, G. E. 2001. Evaluation of the proposed CRCFE Narran Lakes Project – Narran Lakes Nature Reserve, NSW. Unpublished Report, Narran Lakes Project Review. Walgett, NSW, Australia. 6 pp.
 33. Butler, T., G. E. Likens, M. Cohen and F. Vermeylen. 2006. Final Report to NOAA Mercury in the Environment and Patterns of Mercury Deposition from the NADP/MDN

- Mercury Deposition Network. Institute of Ecosystem Studies Final Report to NOAA. 46 pp.
34. Butler, T., G. E. Likens, M. Cohen and F. Vermeulen. 2007. Final Report to NOAA Mercury in the Environment and Patterns of Mercury Deposition from the NADP/MDN Mercury Deposition Network. Institute of Ecosystem Studies Final Report to NOAA. 87 pp.
 35. Likens, G. E. 2010. A Strategic Plan for an Australian Long-term Environmental Monitoring Network. Report to Australian Government's Department of Environment, Water, Heritage and the Arts (DEWHA), May 2010. 39 pp.
 36. Likens, G. E. 2010. Developing a basis for a Long-Term Ecological Research Network in Australia and a Systematic Approach to Environmental Monitoring. Final Fellowship Report to the Commonwealth for Environment Research Facilities (CERF), Department of Environment, Water, Heritage and the Arts (DEWHA), June 2010. Canberra, ACT, Australia. 14 pp.
 37. Likens, G. E. 2010. A Review of The Nature Conservancy / Biodiversity Program of The Thomas Foundation. 12 pp.
 38. Likens, G. E. 2010. Evaluation of the Murray Darling Basin Authority Draft Basin Plan. 12 pp.
 39. Howarth, R. W. [and 58 co-signers, including G. E. Likens]. 2011. Letter to Governor Andrew Cuomo, 15 September 2011 [regarding the ability of municipal drinking water filtration systems to adequately remove contaminants of the sort found in return fluids from hydraulic fracturing, should they somehow enter the water system].
 40. Butler, T. and G. E. Likens. 2014. Report to NOAA Air Resources Laboratory 2013 Monitoring and Research at NADP/ AIRMoN NY67. 52 pp.
 41. Biographical profile in American Men and Women of Science. Gale Cengage Learning. <http://amws.mobius365.com/SUILogin?q=ZV3j5a>
 42. Weymann, R., and > 200 co-signers. 2016. An open letter regarding climate change from concerned members of the U.S. National Academy of Sciences. September 2016.
 43. Timofeyev, M. A., E. A. Silow, A. W. Mackay, M. V. Moore, and G. E. Likens. 2016. Letter to the Editor. Nature.
 44. Lindenmayer, D., et al. 2017. Save Australia's ecological research. Letter & Supplemental Material. Science 357:557.
 45. Ripple, W. J., et al. 2017. World scientists' warning to humanity: a second notice. Viewpoint. BioScience 67:1026.
 46. VNYheetteer nskap Vetenskapsredaktionen Vetenskapsredaktör: Maria Gunther Så försurar våra utsläpp marken.

ABSTRACTS:

1. Bormann, F. H., G. E. Likens, N. M. Johnson and R. S. Pierce. 1963. Hydrologic mineral cycle interaction in a small forested ecosystem. *Bull. Ecol. Soc. Amer.* 44(3):86.
2. Likens, G. E. and A. D. Hasler. 1964. Transport of radionuclides in an ice-covered lake. *Verh. Internat. Verein. Limnol.* 15(1):258.
3. Likens, G. E., N. M. Johnson, F. H. Bormann and R. S. Pierce. 1964. Hydrologic mineral cycle interaction in a small forested ecosystem. *Bull. Ecol. Soc. Amer.* 45(3):88.
4. Bormann, F. H. and G. E. Likens. 1966. Comparative nutrient losses in solution and in particulate matter from an undisturbed northern hardwood ecosystem. *Bull. Ecol. Soc. Amer.* 47(3):115.
5. Johnson, N. M., G. E. Likens, F. H. Bormann and R. S. Pierce. 1966. Bulk chemical changes and rate of chemical weathering in central New Hampshire. *Trans. Amer. Geophys. Union* 47:83-84.
6. Johnson, N. M., G. E. Likens, F. H. Bormann and R. S. Pierce. 1966. Chemical weathering and major cation cycling in a podzolization environment. *Geo. Soc. Amer., Special Paper No. 82:102.*
7. Likens, G. E., F. H. Bormann, N. M. Johnson and R. S. Pierce. 1966. The cation budget for a small forested ecosystem. *Bull. Ecol. Soc. Amer.* 47(3):115.
8. Bormann, F. H. and G. E. Likens. 1967. Nutrient ramifications of clearcutting a forest ecosystem. *Bull. Ecol. Soc. Amer.* 48(3):119.
9. Johnson, N. M. and G. E. Likens. 1967. Steady-state heat flow conditions in the sediments of a small meromictic lake. *Trans. Amer. Geophys. Union* 48:211.
10. Likens, G. E., F. H. Bormann, N. M. Johnson and R. S. Pierce. 1967. The effect of forest management on the nutrient budget of a northern hardwood ecosystem. *Bull. Ecol. Soc. Amer.* 48(2):53.
11. Johnson, N. M., G. E. Likens, F. H. Bormann and R. S. Pierce. 1968. Rate of generation of nutrient-minerals from silicate minerals in podzol soils. *Bull. Ecol. Soc. Amer.* 49(2):60.
12. Siccama, T. G., F. H. Bormann and G. E. Likens. 1968. Preliminary evaluation of the herb compartment of the Hubbard Brook northern hardwood forest ecosystem. *Bull. Ecol. Soc. Amer.* 49(3):112.
13. Gosz, J. R., G. E. Likens, F. H. Bormann and J. S. Eaton. 1969. Leaching losses from leaves of selected tree species. *Bull. Ecol. Soc. Amer.* 50(2):72.
14. Siccama, T. G., D. Botkin, F. H. Bormann and G. E. Likens. 1969. Computer simulation of a northern hardwood forest. *Bull. Ecol. Soc. Amer.* 50(2):93.

15. Fisher, S. G. and G. E. Likens. 1970. The annual detritus budget of a small stream. *Abstracts of papers submitted for the 33rd Annual Meeting of the American Society of Limnology and Oceanography, University of Rhode Island.*
16. Gosz, J. R., G. E. Likens and F. H. Bormann. 1970. Intrasystem nutrient cycling from litter fall on the Hubbard Brook Experimental Forest. *Bull. Ecol. Soc. Amer.* 51(2):27.
17. Burton, T. M. and G. E. Likens. 1971. Population estimates of salamanders in the Hubbard Brook Experimental Forest, New Hampshire. *Bull. Ecol. Soc. Amer.* 52(4):34.
18. Makarewicz, J. C. and G. E. Likens. 1971. Fluctuation and distribution of zooplankton biomass in a lake ecosystem. *Abstracts of papers submitted for the 34th Annual Meeting of the American Society of Limnology and Oceanography, University of Manitoba.*
19. Sturges, F. W., R. T. Holmes and G. E. Likens. 1971. The role of birds in mineral cycling in the Hubbard Brook watershed-ecosystems. *Bull. Ecol. Soc. Amer.* 52(4):34.
20. Burton, T. M. and G. E. Likens. 1972. The effect of strip-cutting on stream temperature in the Hubbard Brook Experimental Forest, New Hampshire. *Abstracts of papers submitted for the Special Meeting of the American Society of Limnology and Oceanography with the American Institute of Biological Sciences, University of Minnesota, Minneapolis.*
21. deNoyelles, F. and G. E. Likens. 1972. Phytoplankton species distribution and biomass in a small oligotrophic lake. *Abstracts of papers submitted for the 35th Annual Meeting of the American Society of Limnology and Oceanography, Florida State University, Tallahassee.*
22. Gosz, J. R., G. E. Likens and F. H. Bormann. 1972. Element turnover rates on the Hubbard Brook Experimental Forest, New Hampshire. *Bull. Ecol. Soc. Amer.* 53(2):32.
23. Likens, G. E., N. M. Johnson, F. H. Bormann and R. S. Pierce. 1972. Nutrient budgets for an oligotrophic lake in New Hampshire. *Abstracts of papers submitted for the 35th Annual Meeting of the American Society of Limnology and Oceanography, Florida State University, Tallahassee.*
24. Reiners, W. A., G. E. Likens and F. H. Bormann. 1972. Vegetation recovery and the nutrient budget of a clear-cut watershed at Hubbard Brook Experimental Forest. *Bull. Ecol. Soc. Amer.* 53(2):37.
25. Likens, G. E. 1974. Precipitation as a source of nutrients for natural ecosystems. *EOS Trans. Amer. Geophys. Union* 55(4):248.
26. Coghill, C. V. and G. E. Likens. 1974. Acid precipitation in the northeastern United States. *EOS Trans. Amer. Geophys. Union* 55(4):247.
27. Lehman, J. T., D. B. Botkin and G. E. Likens. 1974. The assumptions and rationales of a computer model of phytoplankton population dynamics. *J. Phycol. Suppl.* 10:11.

28. Lehman, J. T., D. B. Botkin and G. E. Likens. 1974. Ecological implications of a computer model of phytoplankton population dynamics subject to temperature, light, and nutrient constraints. *Bull. Ecol. Soc. Amer.* 55(2):19.
29. Lehman, J. T., D. B. Botkin and G. E. Likens. 1974. Computer simulation of population dynamics of phytoplankton subjected to constraints of temperature, light and nutrients. *Abstracts for the XIX Congress Internat. Assoc. Theor. Appl. Limnol., Winnipeg, Canada, August 1974.* p. 120.
30. Likens, G. E. and M. B. Davis. 1974. Post-glacial history of Mirror Lake and its watershed in New Hampshire, U.S.A. *Abstracts for the XIX Congress Internat. Assoc. Theor. Appl. Limnol., Winnipeg, Canada, August 1974.* p. 123.
31. Jordan, M. J. and G. E. Likens. 1974. A carbon budget for an oligotrophic lake in New Hampshire, U.S.A. *Abstracts for the XIX Congress Internat. Assoc. Theor. Appl. Limnol., Winnipeg, Canada, August 1974.* p. 20.
32. Walker, K. F. and G. E. Likens. 1974. The influence of morphometry on lake circulation patterns, with particular reference to meromixis. *Abstracts for the XIX Congress Internat. Assoc. Theor. Appl. Limnol., Winnipeg, Canada, August 1974.* p. 221.
33. Bormann, F. H., G. E. Likens and J. M. Melillo. 1975. A nitrogen budget for an undisturbed northern hardwood forest ecosystem: The Hubbard Brook Ecosystem Study. *Bull. Ecol. Soc. Amer.* 56(2):38.
34. Galloway, J. N. and G. E. Likens. 1975. Calibration of collection procedures for determination of precipitation chemistry. *Abstracts for The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem. Columbus, Ohio, May 1975.* p. 9.
35. Galloway, J. N., G. E. Likens and E. S. Edgerton. 1975. Some aspects of hydrogen ion chemistry of acid precipitation in central New York. *Abstracts for The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem. Columbus, Ohio, May 1975.* p. 28.
36. Gosz, J. R., G. E. Likens and F. H. Bormann. 1975. Energy budget for a northern hardwood forest. *Bull. Ecol. Soc. Amer.* 56(2):38.
37. Hornbeck, J. W., G. E. Likens and J. S. Eaton. 1975. Seasonal variation in acidity of precipitation and the implications for forest-stream ecosystems. *Abstracts for The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem. Columbus, Ohio.* p. 41.
38. Likens, G. E., J. S. Eaton, F. H. Bormann, R. S. Pierce and N. M. Johnson. 1975. Hydrogen ion input to the Hubbard Brook Experimental Forest, New Hampshire during the last decade. *Abstracts for The First Internat. Symp. on Acid Precipitation and the Forest Ecosystem. Columbus, Ohio.* p. 29.
39. Miller, J. M., J. N. Galloway and G. E. Likens. 1975. The use of ARL trajectories for the evaluation of precipitation chemistry data. *Abstracts for The First Internat. Symp. on*

- Acid Precipitation and the Forest Ecosystem. Columbus, Ohio. p. 7.*
40. Eaton, J. S., G. E. Likens and F. H. Bormann. 1976. The biogeochemistry of sulfur in a northeastern forest ecosystem. *Abstracts for the 10th Middle Atlantic Regional Meeting. February 1976. Philadelphia, Pennsylvania.*
 41. Galloway, J. N., C. L. Schofield, E. Yost and G. E. Likens. 1976. Influences of acid precipitation on the water and sediment geochemistry of Adirondack mountain lakes. *Abstracts of papers submitted for the 39th Annual Meeting, American Society of Limnology and Oceanography. Savannah, Georgia.*
 42. Jordan, M. J. and G. E. Likens. 1976. Dark bottle sulfate uptake as a measure of aquatic bacterial carbon production. *Abstracts of papers submitted for the 39th Annual Meeting, American Society of Limnology and Oceanography. Savannah, Georgia.*
 43. Galloway, J. N. and G. E. Likens. 1977. Acid precipitation: The importance of nitric acid. *Abstracts submitted to AGU Symposium on the Quality of Precipitation. Washington, D.C.*
 44. Jordan, M. J. and G. E. Likens. 1977. Pelagic bacterial production measured by uptake of $^{35}\text{SO}_4$ and $^{14}\text{CO}_2$. *Abstracts of papers submitted for the 40th Annual Meeting, American Society of Limnology and Oceanography. East Lansing, Michigan.*
 45. Meyer, J. L. and G. E. Likens. 1977. Phosphorus, nitrogen, and organic carbon flux in headwater stream ecosystems. *Abstracts of papers submitted for the 40th Annual Meeting, American Society of Limnology and Oceanography. East Lansing, Michigan.*
 46. Moeller, R. E. and G. E. Likens. 1977. A three-year record of seston sedimentation related to long-term sediment accumulation in Mirror Lake, New Hampshire. *Abstracts of papers submitted for SIL XX Congress, Copenhagen. August 1977.*
 47. Melillo, J. M., F. H. Bormann and G. E. Likens. 1977. Nitrification in a mid-successional northern hardwood forest ecosystem. *Bull. Ecol. Soc. Amer. 58(2):17.*
 48. Glass, N. R., G. E. Likens and L. S. Dochinger. 1978. The ecological effects of atmospheric deposition. *Abstracts of papers for The Third National Conference Interagency Energy/Environment R&D Program. Washington, D.C. June 1978.*
 49. Fiance, S. B., R. J. Hall and G. E. Likens. 1978. The effects of experimental acidification on a small stream community. *Bull. Ecol. Soc. Amer. 59(2):67.*
 50. Hall, R. J., S. B. Fiance, G. E. Likens and G. R. Hendrey. 1978. Effects of experimental acidification on stream insect emergence. *Bull. Ecol. Soc. Amer. 59(2):67.*
 51. Hall, R. J., G. E. Likens, G. R. Hendrey and S. B. Fiance. 1978. Experimental stream acidification in the Hubbard Brook Experimental Forest. *Abstracts of papers submitted to the 41st Annual Meeting, American Society of Limnology and Oceanography. Victoria, B.C. June 1978.*

52. Hornbeck, J. W. and G. E. Likens. 1978. Chemical content of streams draining two cutover forests in New England. *EOS Trans., Amer. Geophys. Union* 59(4):282.
53. Hall, R. J. and G. E. Likens. 1979. Stress effects of hydrogen-ion concentration on food-chain dynamics in a mountain stream. *Abstracts of papers submitted for the 42nd Annual Meeting of the American Society of Limnology and Oceanography*. Stony Brook, New York. June 1979.
54. Hendrey, G. R., R. J. Hall and G. E. Likens. 1979. Experimental stream acidification: Effects on benthic algal productivity. *Abstracts of papers submitted for the 42nd Annual Meeting of the American Society of Limnology and Oceanography*. Stony Brook, New York. June 1979.
55. Likens, G. E. and R. E. Bilby. 1979. Development, maintenance and role of organic debris dams in streams. *Abstracts of papers for Workshop on Sediment Budgets and Routing in Forest Catchments*. Corvallis, Oregon. June 1979.
56. Hall, R. J., G. E. Likens, S. B. Fiance and G. R. Hendrey. 1980. Ecological effects of experimental stream acidification in the Hubbard Brook Experimental Forest, New Hampshire. *Abstract submitted for the Internat. Conference on The Ecological Impact of Acid Precipitation*. Sandefjord, Norway. March 1980.
57. Confer, J. L., T. Kaaret and G. E. Likens. 1980. Zooplankton, acid rain and high altitude lakes of the northeastern U.S. *Abstracts of papers submitted for the 43rd Annual Meeting, American Society of Limnology and Oceanography*. Knoxville, Tennessee. June 1980.
58. Galloway, J. N., G. E. Likens and J. Miller. 1981. Processes that control the composition of precipitation in remote areas. *Abstract for Symposium on the Role of the Oceans in Atmospheric Chemistry, IAMAP Third Scientific Assembly*.
59. Lazrus, A., G. E. Likens, V. Mohnen, G. Kok and W. E. Wilson. 1981. The relationship of air composition to rain acidity. *Abstract for paper 81-13.5 at 74th Annual Meeting, APCA, Philadelphia, Pennsylvania*. June 1981.
60. Cole, J. J. and G. E. Likens. 1982. Annual cycle of algal decomposition in an oligotrophic lake. *Abstracts of papers submitted for the 45th Annual Meeting, American Society of Limnology and Oceanography*. North Carolina State University, Raleigh, North Carolina. June 1982.
61. Hornbeck, J. W., C. W. Martin, R. S. Pierce, G. E. Likens, J. S. Eaton and F. H. Bormann. 1982. Impacts of even-age management on nutrient and hydrologic cycles of northern hardwood forests. *Bull. Ecol. Soc. Amer.* 63(2):158.
62. Galloway, J. N., J. M. Miller, G. E. Likens and W. C. Keene. 1983. A summary of results from the global precipitation chemistry project. *Abstract of Paper for World Meteorological Organization (WMO), Vienna, Austria*.

63. Hooper, R. P., C. A. Shoemaker and G. E. Likens. 1983. An analysis of the hydrologic factors influencing the impact of acid precipitation on stream solute concentration. *Abstract for Amer. Geophys. Union Meeting, San Francisco, California. December 1983.*
64. Likens, G. E., F. H. Bormann, R. S. Pierce and R. E. Munn. 1983. Long-term trends in precipitation chemistry at Hubbard Brook, New Hampshire. *Abstract of paper for the Fifth International Conference of the Commission on Atmospheric Chemistry and Global Pollution (CACGP), Christ Church, Oxford, England. September 1983.*
65. Munn, R. E., G. E. Likens, B. Weisman, J. W. Hornbeck, C. W. Martin and F. H. Bormann. 1983. A meteorological analysis of the precipitation chemistry event samples at Hubbard Brook, New Hampshire. *Abstract for First International Conf. of the Commission on Atmospheric Chemistry and Global Pollution. Christ Church, Oxford, Ohio. September 1983.*
66. Hornbeck, J. W., C. W. Martin, R. M. Bloxam, R. E. Munn, G. E. Likens and B. Weisman. 1983. Relationships of storm type and trajectory to precipitation chemistry. *Abstract for Symposium on Perspectives on Acid Precipitation: Thermal Energy's Vexing Side. University of Vermont, Burlington. September 1983.*
67. Likens, G. E., W. C. Keene, J. M. Miller and J. N. Galloway. 1984. The chemistry of precipitation in Katherine, Australia. *Abstract for The Scientific Application of Baseline Observations of Atmospheric Composition. Apendale, Australia. November 1984. pp. 56-58.*
68. Keene, W. C., J. N. Galloway, G. E. Likens and J. M. Miller. 1985. Contributions of the Global Precipitation Chemistry Project. *Abstract for NAPAP Peer-Review Meeting, Boulder, Colorado. September 1985.*
69. Asbury, C. E., F. A. Vertucci, M. D. Mattson, G. E. Likens and M. D. Best. 1986. Comparison of historic and modern data on alkalinity and pH to detect acidification in Adirondack lakes. *Abstract for IV International Congress of Ecology, State University of New York, Syracuse University. p. 80.*
70. Hedin, L. O., M. S. Mayer and G. E. Likens. 1986. The effect of deforestation on organic debris dams in streams. *Abstract of papers submitted for 49th Annual Meeting of the American Society of Limnology and Oceanography, University of Rhode Island, Kingston. p. 51.*
71. Mattson, M. D., F. A. Vertucci, C. E. Asbury and G. E. Likens. 1986. Factors affecting Adirondack lake acidification: A test of current hypotheses using measured changes in alkalinity. *Abstract for IV Internat. Congress of Ecology, State University of New York, Syracuse University. p. 230.*
72. Vertucci, F. A., C. E. Asbury, M. D. Mattson and G. E. Likens. 1986. The use of historic lake alkalinity data to evaluate Henriksen's models of lake acidification. *Abstract for IV Internat. Congress of Ecology, State University of New York, Syracuse University. p. 339.*

73. Caraco, N., J. Cole, G. E. Likens, M. Mattson and S. Nolan. 1987. A very unbalanced phosphorus budget for Mirror Lake, New Hampshire, USA. *Abstract for XXIII Societas Internationalis Limnologiae (SIL), Hamilton, New Zealand. February 1987.*
74. Hedin, L. O., M. S. Mayer and G. E. Likens. 1987. Temporal and spatial response of organic debris dams to deforestation. *Abstract for XXIII Societas Internationalis Limnologiae (SIL), Hamilton, New Zealand. February 1987.*
75. Likens, G. E. 1987. Acid rain and its influence on sediment-water exchange in lakes and streams. *Abstract for the Fourth Internat. Symp. on The Interactions Between Sediments and Water. Melbourne, Australia.*
76. Likens, G. E. 1987. An experimental approach--introduction. *Abstract of papers submitted for 50th Annual Meeting, American Society of Limnology and Oceanography, University of Wisconsin, Madison. p. 47.*
77. Mattson, M. D. and G. E. Likens. 1987. The effect of barometric pressure on methane ebullition rates. *EOS Trans. Amer. Geophys. Union 68(50):1691.*
78. Caraco, N., J. J. Cole, G. E. Likens and S. S. Nolan. 1988. Atmospheric inputs of phosphorus to Mirror Lake, an oligotrophic lake in New Hampshire. *Abstract for a Symposium at Lake Tahoe, "Sub-alpine watershed processes and water quality." Crystal Bay, Nevada. June 1988.*
79. Driscoll, C. T. and G. E. Likens. 1988. Long-term trends in the acid-base chemistry of streamwater at Hubbard Brook, NH. *Abstract for WPCP Specialty Conference on Acid Rain, Hartford, Connecticut. May 1988.*
80. Hedin, L. O., G. E. Likens and L. Granat. 1988. Seasonal chemistry of SO_4^{2-} , NO_3^- and NH_4^+ in wet deposition in the northeastern U.S. and central Scandinavia. *Abstracts of papers submitted for the American Society of Limnology and Oceanography, University of Colorado, Boulder. p. 33.*
81. Scott, N. A., G. E. Likens and J. S. Eaton. 1988. Loss of trace metals via stream water in a northern hardwoods watershed following a whole tree harvest. *Bull. Ecol. Soc. Amer. 69(2):289-290.*
82. Weathers, K. C., G. E. Likens, F. H. Bormann, S. H. Bicknell, B. T. Bormann, B. C. Daube, Jr., J. S. Eaton, J. N. Galloway, W. C. Keene, K. D. Kimball, W. H. McDowell, T. G. Siccama, D. Smiley and R. A. Tarrant. 1988. Chemical concentrations of cloud water from eight sites in North America. *Abstract for National Atmospheric Deposition Program (NADP) Technical Committee Meeting, Austin, Texas.*
83. Caraco, N. F., J. J. Cole and G. E. Likens. 1989. Phosphorus release from sediments and anoxia: which lakes violate the rules? *Abstract for XXIV Congress of the Internat. Assoc. of Theoretical and Applied Limnology, Societas Internationalis Limnologiae (SIL), Munich, Federal Republic of Germany. August 1989. p. 22.*

84. Likens, G. E. 1989. Linkages between hydrology and biogeochemistry in forested catchments. *Abstract for Chapman Conference on Hydrogeochemical Responses of Forested Catchments, American Geophysical Union. Bar Harbor, Maine. September 1989.*
85. Likens, G. E., L. O. Hedin and T. J. Butler. 1989. Some long-term precipitation chemistry patterns at Hubbard Brook: Extremes and averages. *Abstract, XXIV Congress of the Internat. Assoc. of Theoretical and Applied Limnology, Societas Internationalis Limnologiae (SIL), Munich, Federal Republic of Germany. August 1989. p. 89.*
86. Butler, T. J. and G. E. Likens. 1990. Impact of changing regional emissions on precipitation chemistry in the eastern U.S. *Bull. Ecol. Soc. Amer. 71(2):110.*
87. Hedin, L. O., G. E. Likens, K. M. Postek and C. T. Driscoll. 1990. Role of organic acids in surface water acidification: Experimental acidification of a brownwater stream. *Abstract of papers submitted for the American Society of Limnology and Oceanography, College of William & Mary, Williamsburg, Virginia. p. 40.*
88. Hedin, L. O., G. E. Likens, C. T. Driscoll and K. M. Postek. 1990. Role of organic acids in buffering inputs of mineral acidity to surface waters: A field experiment. *Abstract for International Conference on Acidic Deposition: Its Nature and Impacts. Glasgow, Scotland. September 1990. p. 343.*
89. Likens, G. E. 1990. Long-term consequences of human effects on ecosystems. p. 17. In: J. Armesto and S. T. A. Pickett (coordinators). *Abstract for International Workshop on Comparative Studies of North and South American Temperate Ecosystems: Theory, Approaches and Limitations. Termas de Chillan, Chile.*
90. Likens, G. E. 1990. Sustained ecological research and formulation of public policy. *Abstract for Fifth Annual Landscape Ecology Symposium, The Role of Landscape Ecology in Public-Policy Making and Land-Use Management. Miami University, Oxford, Ohio. p. 16.*
91. Likens, G. E., F. H. Bormann, L. O. Hedin, C. T. Driscoll and J. S. Eaton. 1990. Dry deposition of sulfur: A 23-yr record for the Hubbard Brook Forest Ecosystem. *Bull. Ecol. Soc. Amer. 71(2):231.*
92. Lovett, G. M., G. E. Likens and S. S. Nolan. 1990. A comparison of methods for estimating dry deposition of sulfur to a forested ecosystem. *Abstract for BATTELLE meeting, Fifth International Conference on Precipitation Scavenging and Atmosphere-Surface Exchange Processes.*
93. Weathers, K. C., G. M. Lovett and G. E. Likens. 1990. Cloud deposition to a forest edge. *Bull. Ecol. Soc. Amer. 71(2):363.*
94. Caraco, N. F., J. J. Cole and G. E. Likens. 1991. Iron: Phosphorus accumulation in hypolimnetic waters. *Abstract for Third International Workshop on Phosphorus in Sediments. Woudschoten/Utrecht, The Netherlands. Sept./Oct. 1991.*

95. Christ, M., Y. Zhang, C. T. Driscoll and G. E. Likens. 1991. Nitrogen immobilization capacity of a northern hardwood forest soil. *Bull. Ecol. Soc. Amer.* 72(2):88.
96. Hultberg, H. and G. E. Likens. 1991. Sulphur deposition to forested ecosystems in northern Europe and North America -- large-scale variations and long-term dynamics. *Abstract for Fifth International Conference on Precipitation Scavenging and Atmosphere-Surface Exchange Processes. Richland, Washington. July 1991.*
97. Lovett, G. M., J. J. Cole and G. E. Likens. 1991. A comparison of methods for estimating dry deposition of sulfur to a forested ecosystem. *Abstract for Fifth International Conference on Precipitation Scavenging and Atmosphere-Surface Exchange Processes. Richland, Washington. July 1991.*
98. Bukaveckas, P. A. and G. E. Likens. 1992. Long-term changes in nutrient inputs to Mirror Lake. *Abstract for 1992 ASLO Aquatic Sciences Meeting, Santa Fe, New Mexico. February 1992.*
99. Bukaveckas, P. A., G. E. Likens, D. C. Buso and T. C. Winter. 1992. Analysis of chemical fluxes within the Mirror Lake watershed. *Abstract No. 74, Societas Internationalis Limnologiae (SIL) XXV International Congress, Barcelona, Spain. August 1992.*
100. Caraco, N. F., J. J. Cole and G. E. Likens. 1992. Nutrient limitation in fresh and salt waters: Potential control by sulfur cycling in sediments. *Abstract for 1992 ASLO Aquatic Sciences Meeting, Santa Fe, New Mexico. February 1992.*
101. Christ, M., G. E. Likens and C. T. Driscoll. 1992. A lysimeter-plot test of the salt effect in a northern hardwood forest spodosol. *Agronomy Abstracts, Amer. Soc. of Agronomy, Minneapolis, Minnesota.*
102. Galloway, J. N., G. E. Likens and W. C. Keene. 1992. The composition of precipitation in Torres del Paine, Chile: Among the cleanest in the world? *Abstract for A Patagonia Gem--The Ecology and Natural History of a World Reserve: Torres del Paine National Park, Chile. Santiago, Chile. January 1992.*
103. Likens, G. E. 1992. Ecology, ecosystems and environmentalism. *Abstract No. 357, Societas Internationalis Limnologiae (SIL) XXV International Congress, Barcelona, Spain. August 1992.*
104. Likens, G. E. 1992. Insights from sustained ecological research. *Abstract for 1992 ASLO Aquatic Sciences Meeting [Plenary Session], Santa Fe, New Mexico. February 1992.*
105. Likens, G. E. and C. Eagar. 1992. The Hubbard Brook Ecosystem Study. *Abstract for National Colloquium on New Perspectives. Society for American Foresters, Lake Geneva, Wisconsin. Sept./Oct. 1992.*
106. Lovett, G. M., G. E. Likens and S. S. Nolan. 1992. Can dry deposition to a forest be measured? *Bull. Ecol. Soc. Amer.* 73(2):255.
107. Peierls, B. L., J. J. Cole, G. E. Likens and D. Ashizawa. 1992. Long-term stream and river

- temperature trends. *Abstract for 1992 ASLO Aquatic Sciences Meeting, Santa Fe, New Mexico. February 1992.*
108. Vertucci, F. A. and G. E. Likens. 1992. A comparison of regional estimates of lake acidification in the Adirondack Mountains, New York, USA. *Bull. Ecol. Soc. Amer.* 73(2):375.
 109. Weathers, K. C. and G. E. Likens. 1992. Cloud water chemistry at Mohonk Mountain, New York. *Abstract for Daniel Smiley Conference Research Association, Mohonk Mt., New York.*
 110. Weathers, K. C., G. M. Lovett and G. E. Likens. 1992. The effect of landscape features on rates of atmospheric deposition. *Bull. Ecol. Soc. Amer.* 73(2):381.
 111. Weathers, K. C., G. M. Lovett and G. E. Likens. 1992. The effects of landscape features on atmospheric deposition to the Catskill Mountains, New York. *Abstract for USDA Forest Service Symposium, 'The Effects of Air Pollution on Terrestrial and Aquatic Ecosystems in New England and New York.' Waterville Valley, New Hampshire. October 1992.*
 112. Bukaveckas, P. A., G. E. Likens and C. L. Schelske. 1993. Inter-annual variation and long-term trends in nutrient fluxes in the Mirror Lake watershed. *Bull. Ecol. Soc. Amer.* 74(2):179-180.
 113. Caraco, N. F., J. J. Cole and G. E. Likens. 1993. How can a lake with a net autotrophic organic carbon balance outgas carbon dioxide all year long? *Abstract of papers submitted for ASLO/SWS '93 [American Society of Limnology and Oceanography], Edmonton, Alberta, Canada.*
 114. Christ, M., Y. Zhang, G. E. Likens and C. T. Driscoll. 1993. Which horizon is the largest source of base cations to the soil solution? A lysimeter study at the Hubbard Brook Experimental Forest, New Hampshire. *Agronomy Abstracts.*
 115. Cole, J. J., N. F. Caraco, G. E. Likens and G. W. Kling. 1993. Measured and calculated pCO₂ indicate that lakes are a source, not a sink, for atmospheric CO₂. *Abstract of papers submitted for ASLO/SWS '93 [American Society of Limnology and Oceanography], Edmonton, Alberta, Canada.*
 116. Likens, G. E. 1993. Human-accelerated environmental change -- an ecologist's view. *Bull. Ecol. Soc. Amer.* 74(2):331.
 117. Galloway, J. N., W. C. Keene and G. E. Likens. 1994. Wet deposition in remote regions: Implications for environmental processes. *Abstract for International Global Atmospheric Chemistry (IGAC) Symposium, Fuji-Yoshida, Japan. September 1994.*
 118. Likens, G. E. 1994. Sustained ecological research and the protection of ecosystems. *Abstract for Second International Conference of Ecosystem Monitoring Protection Areas, Dalhousie University, Halifax, Nova Scotia, Canada. May 1994.*

119. Pardo, L. H., P. E. Murdoch, M. J. Mitchell, C. T. Driscoll and G. E. Likens. 1994. Growing season loss of nitrate at three northeastern hardwood forests: A regional indicator of nitrogen saturation? *Bull. Ecol. Soc. Amer.* 75(2):173.
120. Weathers, K. C., G. M. Lovett and G. E. Likens. 1994. How landscape "features" affect rates of atmospheric deposition to a high-elevation ecosystem. *Abstract for Acid Rain Specialty Conference, The Netherlands. October 1994.*
121. Likens, G. E., S. Tartowski, C. T. Driscoll, T. W. Berger and D. C. Buso. 1995. The fate of trifluoroacetate in a northern hardwood forest. *Suppl. Bull. Ecol. Soc. Amer.* 76(3):357.
122. Pardo, L. H., C. T. Driscoll and G. E. Likens. 1995. Acidification and nitrogen deposition effects on an experimentally generated chronosequence. *Abstract for Acid Rain Conference, Gothenborg, Sweden, June 1995.*
123. Galloway, J. N., W. C. Keene and G. E. Likens. 1995. Processes controlling the composition of precipitation at a remote Southern Hemispheric location: Torres del Paine National Park, Chile. *GAP Abstract, American Geophysical Union.*
124. Berger, T. W., S. Tartowski, G. E. Likens, D. G. Richey, C. T. Driscoll and H. Frank. 1996. The transport and transformation of trifluoroacetate in a northern hardwood forest. *Suppl. Bull. Ecol. Soc. Amer.* 77(3):33.
125. Likens, G. E., C. T. Driscoll and D. C. Buso. 1996. Long-term effects of acid rain on ecosystems of the Hubbard Brook Experimental Forest. *Suppl. Bull. Ecol. Soc. Amer.* 77(3):296.
126. Bukaveckas, P. A., G. E. Likens, D. Buso and T. C. Winter. 1997. Inter-annual variation and long-term trends in solute chemistry in the Mirror Lake watershed. *Abstract submitted for BIOGEOMON 3rd Internat. Symposium on Ecosystem Behavior, Villanova University, Philadelphia, Pennsylvania. June 1997.*
127. Lewis, G. P. and G. E. Likens. 1997. Relationships between stream acid anions and base cations in old-growth and second-growth Pennsylvania forests. *Abstract for Ancient Eastern U.S. Old-Growth Forests Conference, Clarion, Pennsylvania. June 1997.*
128. Lewis, G. P. and G. E. Likens. 1997. Forest insect outbreaks: Potential influence of insect litter on stream solute chemistry. *Suppl. Bull. Ecol. Soc. Amer.* 78(4):132.
129. Likens, G. E. 1997. Discovering long-term changes in ecosystem structure and function. *Abstracts for II Southern Connection Congress. Southern Temperate Biota and Ecosystems: Past, Present and Future. Valdivia, Chile. January 1997. Noticiario de Biologia* 5(1):45.
130. Tartowski, S. and G. E. Likens. 1997. The biogeochemistry of radioactively labeled trifluoroacetate in a northern hardwood forest wetland. *Suppl. Bull. Ecol. Soc. Amer.* 78(4):194.
131. Weathers, K. C. and G. E. Likens. 1997. Cloud water in southern Chile: Is it an important

- source of nutrients? *Abstracts for II Southern Connection Congress. Southern Temperate Biota and Ecosystems: Past, Present and Future. Valdivia, Chile. January 1997. Noticiero de Biologia 5(1):126.*
132. Bernhardt, E. S., R. O. Hall, K. H. Macneale and G. E. Likens. 1998. Algal assemblage response to a two-month, whole stream pH and calcium manipulation at the Hubbard Brook Experimental Forest. *Bull. N. Am. Benthol. Soc. 15(1):150.*
133. Driscoll, C. T., S. Gbondo-Tugbawa, J. Aber, G. E. Likens and D. C. Buso. 1998. The long-term changes in precipitation and stream chemistry at the Hubbard Brook Experimental Forest, NH: Measurements and model calculations. *Abstract for National Atmospheric Deposition Project (NADP) Meeting, St. Petersburg, Florida. October 1998.*
134. Hall, R. O. and G. E. Likens. 1998. Ecological implications of high discharge variability in streams of the Hubbard Brook Experimental Forest. *Abstract submitted for XXVII Congress of Societas Internationalis Limnologiae (SIL), Dublin, Ireland. August 1998.*
135. Hall, Jr. R. O., K. H. Macneale, E. S. Bernhardt and G. E. Likens. 1998. Calcium transport and storage during a two-month calcium addition to two forest streams. *ASLO/ESA Meeting, St. Louis, Missouri. June 1998.*
136. Likens, G. E. 1998. A long-term record of ice cover for Mirror Lake, New Hampshire: Effects of global warming? *Abstract submitted for XXVII Congress of Societas Internationalis Limnologiae (SIL), Dublin, Ireland. August 1998.*
137. Likens, G. E. 1998. The value of long-term data for understanding ecosystem structure and function: The Hubbard Brook example. pp. 2-4; p. 53. *Extended Abstract and Summary for A Symposium of 'Research in the Taieri Catchment'. Occasional Paper Number One. Univ. Otago, Dunedin, New Zealand.*
138. Macneale, K. H., R. O. Hall, Jr., E. S. Bernhardt and G. E. Likens. 1998. Reduction in emergence of an acid tolerant stonefly in response to elevated pH and calcium. *Bull. N. Am. Benthol. Soc. 15(1):115.*
139. Steinhart, G. S., G. E. Likens and P. M. Groffman. 1998. Denitrification in stream sediments in five northeastern (USA) streams. *Abstract submitted for XXVII Congress of Societas Internationalis Limnologiae (SIL), Dublin, Ireland. August 1998.*
140. Bernhardt, E. S., R. O. Hall, Jr. and G. E. Likens. 1999. Stream nutrient limitation across a range of forest age in the Hubbard Brook Experimental Forest (HBEF), New Hampshire. *Poster Abstract for Ecological Society of America, Spokane, WA.*
141. Hall, Jr. R. O., E. S. Bernhardt and G. E. Likens. 1999. Transient storage and nutrient transport in streams at the Hubbard Brook Experimental Forest. *Abstract for The North American Benthological Society, Duluth, MN.*
142. Hall, R. O., H. M. Malcom and G. E. Likens. 1999. Trophic basis of insect secondary production in two streams at Hubbard Brook Experimental Forest. *Abstract for*

Ecological Society of America, Spokane, WA.

143. Kobe, R. K., G. E. Likens and C. Eagar. 1999. Seedling growth and mortality responses to experimental additions of calcium and aluminum in a northern hardwood forest. *Abstract for Ecological Society of America.*
144. Likens, G. E. 1999. Biogeochemistry of calcium: long-term studies at Hubbard Brook. *Abstract for Frontiers of Catchment Biogeochemistry Conference, Canberra, Australia. November/December 1999.*
145. Likens, G. E. 1999. Limnology and freshwater ecosystems in the Twenty-First Century. *Abstract for Plenary Talk, American Society of Limnology and Oceanography, Santa Fe, NM. February 1999.*
146. Likens, G. E. 1999. The watershed approach: some uses and limitations. *Abstract for Frontiers of Catchment Biogeochemistry Conference, Canberra, Australia. November/December 1999.*
147. Macneale, K. H., B. L. Peckarsky and G. E. Likens. 1999. Stable isotopes help identify the direction and distance of adult stonefly (Plecoptera) flight. *Abstract for The North American Benthological Society.*
148. Bernhardt, E. S. and G. E. Likens. 2000. Effects of a two-month addition on stream nitrogen dynamics at the Hubbard Brook Experimental Forest (HBEF). *Abstract for Ecological Society of America, Snowbird, Utah. August 2000.*
149. Bernhardt, E. S. and G. E. Likens. 2000. Effects of a DOC addition on stream nitrogen dynamics at the Hubbard Brook Experimental Forest (HBEF). *Abstract for North American Benthological Society.*
150. Bernhardt, E. S., R. O. Hall, Jr. and G. E. Likens. 2000. Instream nitrification: Can it explain (NO₃) in stream of the Hubbard Brook Experimental Forest? *Abstract for Ecological Society of America, Snowbird, Utah. August 2000.*
151. Blum, J. D., S. C. Peters, C. T. Driscoll and G. E. Likens. 2000. A watershed-scale silicate weathering experiment. *Abstract for GSA Meeting. November 2000.*
152. Bowden, W. B., A. Pearce, J. Harding, P. Gillespie, A. Fenemor, T. Dunne and G. E. Likens. 2000. Integrating biophysical, ecological, and social research for catchment-scale management: The Motueka River initiative. *Abstract for Fresh Perspectives Conference for CRG/ICM, University of Canterbury, NZ. November 2000.*
153. Campbell, J., J. Hornbeck, W. McDowell, G. E. Likens, D. Buso and J. Shanley. 2000. Fluxes of dissolved organic carbon from 8 watersheds in New England. *Abstract for AGU Meeting. December 2000.*
154. Houlton, B. Z., C. T. Driscoll, T. J. Fahey and G. E. Likens. 2000. The effect of ice storm damage on drainage water chemistry at the Hubbard Brook Experimental Forest – Linking natural disturbance to nutrient loss and acidification of drainage water. *Abstract*

- for LTER All Scientists Meeting, Snowbird, Utah. August 2000.*
155. Kobe, R. K., G. E. Likens and C. Eagar. 2000. Seedling growth and mortality responses to experimental additions of calcium and aluminum in a northern hardwood forest. *Abstract for NADP Meeting, Saratoga Springs, FL. October 2000.*
 156. Macneale, K. H., B. L. Peckarsky and G. E. Likens. 2000. Evidence of dispersal in an acid-tolerant stonefly (Plecoptera) using stable isotopes. *Abstract for Ecological Society of America, Snowbird, Utah. August 2000.*
 157. Mitchell, M. J., B. Mayer, S. W. Bailey, J. W. Hornbeck, C. Alewell, C. T. Driscoll and G. E. Likens. 2000. Discrepancies in sulfur mass balances at the Hubbard Brook Experimental Forest: Use of stable isotopes for evaluating sulfur sources and sinks. *Acid Rain 2000 Meeting, Tokyo, Japan.*
 158. Pearce, A., W. B. Bowden, T. Dunne, A. Fenemor, J. Harding and G. E. Likens. 2000. Integrating hydrology, freshwater ecology and social process research for catchment-scale management. *Abstract for Fifth George Kovacs Colloquium, IAHS/UNESCO and Hydrology, Environment, Life and Policy.*
 159. Weathers, K. C., W. C. Keene, J. Moody, G. M. Lovett, G. E. Likens, N. Caraco, J. N. Galloway, L. O. Hedin, J. Armesto and A. Johnson. 2000. Atmospheric flux of organic and inorganic nitrogen to a remote, coastal forest in southern Chile. *Abstract for American Geophysical Union Meeting. December 2000.*
 160. Aber, J., S. Ollinger, C. Driscoll, G. E. Likens, R. T. Holmes, R. Freuder and C. Goodale. 2001. Temporal changes in nitrate loss from forested ecosystems in response to physical, chemical, biotic and climatic perturbations. *Abstract for N2001 - The Second International Nitrogen Conference, Potomac, Maryland.*
 161. Bailey, S. W., D. C. Buso and G. E. Likens. 2001. Ecosystem Ca:Na ratio – A potential indicator of recovery from acidification? *Abstract for Gordon Conference 2001.*
 162. Butler, T. J. and G. E. Likens. 2001. Pre and Post Phase I Clean Air Act Amendments Impacts on precipitation SO_4^- and H^+ , and dry deposition sulfur species and prospects for recovery of acid sensitive ecosystems. *Abstract for NADP Technical Committee Meeting Proceedings 2000. Saratoga Springs, NY. p. 86.*
 163. Gilliland, A., T. J. Butler and G. E. Likens. 2001. Seasonal and monthly bias in weekly (NADP/NTN) vs. Daily (AIRMoN) ammonium and nitrogen precipitation chemistry in the eastern U.S. *Abstract for N2001 Conference - The Second International Nitrogen Conference, Potomac, Maryland.*
 164. Kobe, R. K., G. E. Likens and C. Eagar. 2001. Seedling growth and mortality responses to experimental additions of calcium and aluminum in a northern hardwood forest. *Abstract for NADP Technical Committee Meeting Proceedings 2000. Saratoga Springs, NY. p. 36.*

165. Likens, G. E. 2001. Importance of long-term data sets for managing and sustaining Park areas. *Symposium Abstracts, Ecological Society of America 86th Annual Meeting, Madison, WI. p. 24.*
166. Likens, G. E., D. C. Buso and J. W. Hornbeck. 2001. Factors affecting spatial variation in streamwater chemistry across the Hubbard Brook Valley, USA. *Abstract for Societas Internationalis Limnologiae, 2001. Melbourne, Australia. p. 121.*
167. Macneale, K. H., G. E. Likens and B. L. Peckarsky. 2001. Feeding strategies of some adult stoneflies (Plecoptera) critical for egg production and dispersal. *Abstract for Societas Internationalis Limnologiae, 2001. Melbourne, Australia. p. 230.*
168. Macneale, K. H., B. L. Peckarsky and G. E. Likens. 2001. Adult feeding by some stoneflies (Plecoptera) critical for egg production and dispersal. *Bull. N. Am. Benthol. Soc. 18(1):153.*
169. McCutchan, J. H., Jr., G. E. Likens and A. M. Kelley. 2001. The effect of forest age on light availability in small streams. *Bull. N. Am. Benthol. Soc. 18(1):203-204.*
170. Stelzer, R. S., J. B. Heffernan and G. E. Likens. 2001. The influence of particulate organic matter quality and dissolved nutrients on microbial respiration rates in a forest stream. *Bull. N. Am. Benthol. Soc. 18(1):180.*
171. Stelzer, R. S., J. H. McCutchan and G. E. Likens. 2001. Modeling the effects of sampling frequency on estimates of solute export from streams: The role of concentration-discharge relationships and hydrological variability. *Abstract for 2001 Cary Conference.*
172. Stelzer, R. S., J. H. McCutchan, G. E. Likens and D. C. Buso. 2001. Seasonal and long-term variation of phosphorus in bulk precipitation and stream water at Hubbard Brook Experimental Forest, NH, USA. *Abstract for Societas Internationalis Limnologiae, 2001. Melbourne, Australia. pp. 195-196.*
173. Weathers, K. C., T. J. Butler, G. M. Lovett, G. E. Likens and V. R. Kelly. 2001. Emissions and deposition of acid rain precursors. *Abstract for NYSERDA Conference.*
174. Johnson, C. E., T. G. Siccamo and G. E. Likens. 2002. Long-term investigations of lead biogeochemistry in a northern hardwood forest. *In: Biogeomon 2002, 4th International Symposium on Ecosystem Behaviour, The University of Reading, UK. August 2002. p. 110.*
175. Likens, G. E. 2002. Biogeochemistry: Some opportunities and challenges for the future. *In: Biogeomon 2002, 4th International Symposium on Ecosystem Behaviour, The University of Reading, UK. August 2002. p. 136.*
176. Likens, G. E. 2002. Use of long-term data, mass balances and stable isotopes in watershed biogeochemistry: The Hubbard Brook model. *Millenium Workshop 'Biogeochemical Cycles in Temperate Forest Ecosystems', Universidad Austral de Chile, Valdivia. November 2002. p. 2.*

177. Macneale, K. H., B. L. Peckarsky and G. E. Likens. 2002. Dispersal of stream insects: Stonefly flight links populations across habitats. *Abstract for North American Benthological Society. Pittsburgh, PA. June 2002.*
178. Macneale, K. H., B. L. Peckarsky and G. E. Likens. 2002. Stream insect populations connected through cross-stream and upstream adult flight. *Abstract for Ecological Society of America. August 2002.*
179. McCutchan, J. H., Jr. and G. E. Likens. 2002. Relative importance of carbon sources for macroinvertebrates in three streams at the Hubbard Brook Experimental Forest. *Abstract for North American Benthological Society. Pittsburgh, PA, June 2002.*
180. Butler, T. J., G. E. Likens, F. M. Vermeylen and B.J.B. Stunder. 2003. The relation between NO_x emissions and precipitation NO₃⁻ in the eastern U.S.A. *Poster and Abstract, NADP 2003 Long-Term Monitoring: Supporting Science and Informing Policy Proceedings, p. 62. Washington, D.C. October 2003.*
181. Driscoll, C. T., G. E. Likens and T. Butler. 2003. Atmospheric deposition at the Hubbard Brook Experimental Forest, New Hampshire: Linkages among long-term measurements, experiments and modeling. *Abstract, NADP 2003 Long-Term Monitoring: Supporting Science and Informing Policy Proceedings, p. 45. Washington, D.C. October 2003.*
182. Kelly, V. R., G. M. Lovett, K. C. Weathers and G. E. Likens. 2003. Trends in ammonium concentrations in relation to local-scale agriculture and regional sulfur dioxide emissions. *Poster and Abstract, NADP 2003 Long-Term Monitoring: Supporting Science and Informing Policy Proceedings, p. 73. Washington, D.C. October 2003.*
183. Lowe, W. and G. E. Likens. 2003. Effects of habitat heterogeneity at multiple spatial scales on the distribution and abundance of a stream salamander. *ILTER All-Scientists Meeting, Seattle, WA. September 2003.*
184. Perron, R. L., G. E. Likens and D. C. Buso. 2003. Comparison of potassium in bulk precipitation and wet deposition for a twenty-three year period (1979-2001) at the Hubbard Brook Experimental Forest, Woodstock, New Hampshire (NADP Site NH02). *Poster and Abstract, NADP 2003 Long-Term Monitoring: Supporting Science and Informing Policy Proceedings, p. 82. Washington, D.C. October 2003.*
185. Stelzer, R. S., J. H. McCutchan, Jr. and G. E. Likens. 2003. The effects of sampling frequency on estimates of solute export from streams: The role of concentration-discharge relationships and hydrological variability. *Abstract for 2003 North American Benthological Society (NABS) Meeting, Athens, GA. May 2003.*
186. Weathers, K. C., T. J. Butler, G. E. Likens and G. M. Lovett. 2003. Emissions and deposition of atmospheric pollutants: An update. *NYSERDA Abstract. October 2003.*
187. Bernhardt, E. S., R. O. Hall, Jr., G. E. Likens and D. C. Buso. 2004. Can long-term change in stream N processing affect watershed N exports? *Abstract for 89th Annual Meeting of Ecological Society of America, Portland, OR.*

188. Butler, T. J., G. E. Likens, F. M. Vermeylen and B. J. B. Stunder. 2004. The impact of changing NO_x emissions on HNO₃ dry deposition for CASTNet sites in the northeastern, Mid-Atlantic and Midwestern USA. *Abstract for NADP Annual Meeting, Halifax, Nova Scotia. NADP Proceedings*, p. 45.
189. Lowe, W. H. and G. E. Likens. 2004. Multi-scale variation in salamander population attributes across headwater stream network in the Hubbard Brook Valley USA. *Abstract for Societas Internationalis Limnologiae (SIL) XXIX Congress, Lahti, Finland. p. 31.*
190. Tripler, C. E., S. S. Kaushal and G. E. Likens. 2004. Evaluating the evidence for potassium co-limitation in forested ecosystems. *Abstract and Poster for AGU Presentation, B41A-20, Montreal, Canada.*
191. Bade, D. L. and G. E. Likens. 2005. Declining sulfate burial in Mirror Lake. *Poster and Abstract for ASLO Summer Meeting, Santiago de Compostela, Spain. June 2005. Conference Abstracts, p. 12.*
192. Eviner, V. and G. E. Likens. 2005. Effects of disease on biogeochemical cycling. *Abstract, ESA/INTECOL Annual Meeting, Montreal, Quebec, Canada. August 2005.*
193. Likens, G. E. 2005. The watershed-ecosystem approach: Historical perspectives and future opportunities and challenges. *Abstract, 90th Annual Meeting of Ecological Society of America and IX INTECOL International Congress of Ecology, Montreal, Quebec, Canada. August 2005.*
194. Likens, G. E. and D. C. Buso. 2005. Long-term measurements of climate change in the Hubbard Brook Valley, New Hampshire, USA. *Abstract for ASLO Summer Meeting, Santiago de Compostela, Spain. June 2005. Conference Abstracts, p. 91.*
195. Lovett, G. M., G. E. Likens, D. C. Buso, C. T. Driscoll and S. W. Bailey. 2005. New perspectives on the chlorine cycle: Results from the Hubbard Brook Ecosystem Study. *Abstract and Poster for Gordon Conference on Forested Catchments. July 2005.*
196. Lowe, W., G. E. Likens, M. McPeck and D. C. Buso. 2005. Linking direct and indirect data on dispersal: Isolation by slope in a headwater stream salamander. *Abstract, 90th Annual Meeting of Ecological Society of America and IX INTECOL International Congress of Ecology, Montreal, Quebec, Canada. August 2005.*
197. Warren, D. R., E. S. Bernhardt, R. O. Hall, Jr. and G. E. Likens. 2005. Forest age, woody debris, and nutrient dynamics in headwater streams of the White Mountains, NH. *Abstract, 90th Annual Meeting of Ecological Society of America and IX INTECOL International Congress of Ecology, Montreal, Quebec, Canada. August 2005.*
198. Bade, D. L. and G. E. Likens. 2006. Sulfate dynamics in Mirror Lake: A 30-year mass balance. *Abstract Submitted to ESA Annual Meeting, Memphis, TN. August 2006.*
199. Butler, T., G. E. Likens, M. Cohen, F. Vermeylen, D. Schmeltz and R. Artz. 2006. Trends in mercury concentration and deposition at MDN sites in the eastern USA 1998-2005.

- Abstract and Poster for NADP meeting, Norfolk, VA. October 2006.*
200. Judd, K. E., G. E. Likens and P. M. Groffman. 2006. Nitrate retention in watershed-ecosystems during winter months at the Hubbard Brook Experimental Forest. *Abstract for American Society of Limnology and Oceanography Meeting, Santa Fe, New Mexico. February 2007.*
 201. Likens, G. E. 2006. Ecosystem Science, Environmental Change and Society: A Personal View. *Abstract for Neotropics Workshop, Valdivia, Chile. November 2007.*
 202. Lowe, W. H., G. E. Likens, M. A. McPeck, D. C. Buso, B. J. Cosentino and B. T. Greene. 2006. Controls and consequences of dispersal in streams. *Abstract for American Society of Limnology and Oceanography, Victoria, Canada. June 2006.*
 203. Bade, D. L., K. Bouchard and G. E. Likens. 2007. Algal co-limitation by nitrogen and phosphorus persists after 30 years in Mirror Lake (New Hampshire, USA). *Abstract for Societas Internationalis Limnologiae, Montreal, Canada. August 2007.*
 204. Cosentino, B., W. Lowe and G. E. Likens. 2007. Demography and movement of the northern spring salamander, *Gyrinophilus porphyriticus*, in four New Hampshire headwater streams. *Abstract for Societas Internationalis Limnologiae, Montreal, Canada. August 2007.*
 205. Judd, K. E., G. E. Likens and P.M. Groffman. 2007. Nitrate retention in watershed-ecosystems during winter months at the Hubbard Brook Experimental Forest. *Abstract for American Society of Limnology and Oceanography Meeting, Santa Fe, New Mexico. February 2007.*
 206. Likens, G. E. and D. C. Buso. 2007. Long-term changes in streamwater chemistry following disturbance in the Hubbard Brook Experimental Forest, USA. *Abstract for Societas Internationalis Limnologiae, Montreal, Canada. August 2007.*
 207. Warren, D. R., K. E. Judd, D. L. Bade, G. E. Likens and C. E. Kraft. 2007. Determining the influence of wood on stream nitrate dynamics in forested headwater streams. *Abstract for North American Benthological Society (NABS) 55th Annual Meeting, Columbia, SC. June 2007.*
 208. Warren, D. R., K. E. Judd, D. L. Bade, G. E. Likens and C. E. Kraft. 2007. Season influences of wood on stream nitrate dynamics in forested headwater streams in the northeast U.S. *Abstract for American Geophysical Union, Fall Meeting. Smithsonian/NASA Astrophysics Data System.*
 209. Daley, R. E., C. L. Goodale, D.C. Buso, C. T. Driscoll, C. Fuss and G. E. Likens. 2008. Hydrological control over stream nitrate loss in an aggrading New Hampshire forest. *Abstract for AGU Conference and CIES Undergraduate Research Symposium. 17 August 2008.*
 210. Lowe, W. H., M. A. McPeck, G. E. Likens and B. J. Cosentino. 2008. Dispersal and

- divergence in plethodontid salamanders. *Abstract for 93rd Annual Ecological Society of America Meeting (ESA), Milwaukee, WI. August 2008.*
211. Butler, T., F. Vermeylen, G. E. Likens, M. Rury and B. Lee. 2009. Regional impacts of reduced NO_x emissions on ozone concentrations in the eastern USA: Maximum O₃ levels reduced by 10%. *NADP Abstract and Poster, Saratoga Springs, NY. October 2009.*
212. Likens, G. E. 2009. Using watershed-scale, experimental manipulation to gain insights into coupled biogeochemical cycles. *Abstract for 94th Ecological Society of America Annual Meeting, Albuquerque, New Mexico. August 2009.*
213. Likens, G. E. 2009. Ecosystem science, environmental change and society. Abstract for Graduate School of Chinese Academy of Science, *Nanjing, China. 24 October 2009.*
214. Likens, G. E. 2009. Long-term, air-land-water interactions: Assessing human-accelerated environmental change. *Abstract for Einstein Lecture, Chinese Academy of Sciences, Nanjing, China. October 2009.*
215. Likens, G. E. 2009. Long-term nitrogen dynamics in a temperate forest ecosystem. *Abstract for Agouron Institute Nitrogen Symposium, Scottsdale, AR. October 2009.*
216. Likens, G. E. 2009. Water: A challenging interface between scientific understanding and policy. *SIL Abstract, SIL Symposium on Global Change and Freshwater Environments. Chinese Academy of Sciences and International Society of Limnology, Nanjing, China. October 2009.*
217. Mitchell, M. J., G. Lovett, S. Bailey, F. Beall, D. Burns, D. Buso, T. Clair, F. Courchesne, L. Duchesne, C. Eimers, I. Fernandez, D. Houle, D. Jeffries, G. E. Likens, D. Schwede, J. Shanley, K. Weathers and R. Vet. 2009. Comparisons of watershed sulfur budgets in southeast Canada and northeastern U.S.: New approaches and applications. *PowerPoint posted on website for NADP Annual Meeting and Scientific Symposium, Saratoga Springs, NY. October 2009.*
218. Mitchell, M. J., G. Lovett, S. Bailey, F. Beall, D. Burns, D. Buso, T. A. Clair, F. Courchesne, L. Duchesne, C. Eimers, D. Houle, D. Jeffries, G. Likens, S. Norton, D. Schwede, J. Shanley, K. Weathers and R. Vet. 2009. Discrepancies in Watershed S Budgets in Southeast Canada and Northeast U.S.: A Comparison of Mass-Balance Approach. *Abstract for American Geophysical Union (AGU) Meeting, San Francisco, CA. December 2008; and National Atmospheric Deposition Program (NADP), Saratoga Springs. October 2009.*
219. Butler, T., G. E. Likens, M. Rury, G. Lear and C. Lehmann. 2010. AMoN: An initial look at the first two years. *National Atmospheric Deposition Program (NADP) Abstract. Lake Tahoe, CA.*
220. Torgersen, C. E., G. E. Likens, D. C. Buso, K. J. McGuire and W. H. Lowe. 2010. Linking network patterns and processes of streamwater chemistry across scales in Hubbard Brook Valley. *Abstract for Joint Meeting of American Society of Limnology and Oceanography (ASLO) and North American Benthological Society (NABS), Aquatic*

- Sciences: Global Changes from the Center to the Edge*, p. 233. Santa Fe, NM. June 2010.
221. Yanai, R. D., C. R. Levine, M. Green, J. Campbell, T. Fahey, D. Buso and G. E. Likens. 2010. Uncertainty analysis of the phosphorus budget at the Hubbard Brook Experimental Forest, New Hampshire. *Abstract for Annual Meeting of Ecological Society of America, Pittsburgh, PA. August 2010.*
222. Argerich, A., S. L. Johnson, S. D. Sebestyen, C. C. Rhoades, J. D. Knoepp, E. A. Greathouse, M. B. Adams, J. Campbell, W. H. McDowell, G. E. Likens and G. Ice. 2011. Trends in stream nitrate concentration and responses to disturbances in human-impacted basins across U.S. *Abstract North American Benthological Society (NABS), Providence, RI. May 2011.*
223. Argerich, A., S. L. Johnson, S. D. Sebestyen, C. C. Rhoades, E. A. Greathouse, M. B. Adams, D. M. Amatya, J. L. Campbell, G. G. Ice, J. B. Jones, J. D. Knoepp, G. E. Likens, W. H. McDowell and P. M. Wohlgemuth. 2011. Temporal trends in stream N concentrations and biogeochemical responses to disturbances in long-term reference watersheds. *Abstract for Eighth National Water Quality Monitoring Conference (NWQMC), 'Water: One Resource – Shared Effort – Common Future.' Portland, OR. May 2012.*
224. Argerich, A., S. L. Johnson, S. D. Sebestyen, C. C. Rhoades, E. A. Greathouse, J. B. Jones, J. D. Knoepp, M. B. Adams, G. E. Likens, J. L. Campbell, W. H. McDowell, G. G. Ice, D. M. Amatya and P. M. Wohlgemuth. 2011. Temporal Trends in Stream N Concentrations and Responses to Disturbances in US Forested Reference Watersheds. *Abstract and Poster, AGU Meetings.*
225. Argerich, A., S. L. Johnson, S. D. Sebestyen, C. C. Rhoades, J. D. Knoepp, E. A. Greathouse, M. B. Adams, G. E. Likens, J. Campbell, W. H. McDowell, G. G. Ice, D. M. Amatya and P. M. Wohlgemuth. 2011. Trends in stream dissolved inorganic nitrogen in forested reference basins across U.S. *Abstract for 7th Symposium for Freshwater European Sciences, Girona, Catalonia, Spain. June 2011.*
226. Campbell, J. S., G. E. Likens, D. C. Buso and S. D. Sebestyen. 2011. Climate-induced changes in the timing of streamwater nutrient export at the Hubbard Brook Experimental Forest, New Hampshire, USA. *Abstract, 96th Annual Meeting of Ecological Society of America, Austin, TX. August 2011.*
227. Green, M., D. C. Buso, J. Campbell, C. R. Levine and R. D. Yanai. 2011. Long-term trends in uncertainty of element fluxes at the Hubbard Brook Experimental Forest. *Abstract, 96th Annual Meeting of Ecological Society of America, Austin, TX. August 2011.*
228. Sebestyen, S. D., S. L. Johnson, C. C. Rhoades, J. Knoepp, J. Vose, A. Argerich, E. Greathouse, G. Ice, D. Amatya, J. Campbell, P. Edwards, J. Jones, G. E. Likens, W. McDowell and P. Wohlgemuth. 2011. Synthesizing stream chemistry data. *XXV IUGG*

General Assembly: Earth on the Edge: Science for a Sustainable Planet Melbourne, Australia. Abstract and Poster.

229. Likens, G. E. and D. C. Buso. 2012. Determining the elusive baseline for surface water chemistry at the Hubbard Brook Experimental Forest. *Abstract for Ecological Society of America Meeting, Portland, OR. August 2012.*
230. Argerich, A., S. L. Johnson, S. D. Sebestyen, C. C. Rhoades, E. A. Greathouse, P. M. Wohlgemuth, F. N. Scatena, W. H. McDowell, G. E. Likens, J. D. Knoepp, J. B. Jones, G. G. Ice, J. L. Campbell, D. M. Amatya and M. B. Adams. 2012. Effects of forest disturbances on stream nitrate concentrations. *Abstract for Ecological Society of America Meeting, Portland, OR. August 2012.*
231. Campbell, J., R. Yanai, M. Green, G. E. Likens, D. Buso, C. See and B. Barr. 2013. Quantifying Uncertainty in the Net Hydrologic Flux of Calcium at the Hubbard Brook Experimental Forest, New Hampshire, USA. *Abstract and Poster for American Geophysical Union Meeting.*
232. Groffman, P., G. E. Likens, D. Buso, M. Fisk, M. Green and C. Beier. 2013. Bioenergy and resilience in the northern hardwood forest. *American Geophysical Union Poster.*
233. Likens, G. E. and D. C. Buso. 2013. Long-term chemical changes in Mirror Lake. *SIL Abstract, Budapest, Hungary. August 2013.*
234. Likens, G. E. 2014. The Hubbard Brook Ecosystem Study – Interactions among air, land and water. *Abstract for ASLO's Alfred C. Redfield Lifetime Achievement Award Acceptance Talk. 2014 Joint Aquatic Sciences Meeting, Portland, OR.*
235. Marinos, R., E. S. Bernhardt, E. Rosi-Marshall and G. E. Likens. 2014. Algae bloom where no algae grew before: Why Hubbard Brook streams are turning green. *Abstract for 2014 Joint Aquatic Sciences Meeting, Portland, OR.*
236. Butler, T., F. Vermeylen, G.E. Likens, and C.M. Lehman. Temporal and seasonal trends in gaseous NH₃ and precipitation NH₄⁺ concentrations in several regions of the USA. Submitted to International Acid Rain Conference in Rochester, NY. October 2015.
237. ESA 100th Annual Meeting. E.S. Bernhardt, E. Rosi-Marshall, G.E. Likens, and D Buso. The forest grows but the ecosystem leaks: Calcium enrichment increases both forest biomass and nitrogen export. August 9 – August 14 2015, Baltimore, MD.
238. ESA 100th Annual Meeting. C.T. Driscoll, C.E. Johnson, H Fakhraei, J.L. Campbell, J.J. Battles, J.D. Blum, T.J. Fahey, and G.E. Likens. Effects of changing atmospheric deposition on the structure and function of the Northern Forest: Long-term measurements, experiments and future model projections from the Hubbard Brook Experimental Forest, New Hampshire, USA. August 9 – August 14 2015, Baltimore, MD.
239. GEO BON Open Science Conference & All Hands Meeting. Biological Field Stations: a pivotal infrastructure for global environmental research. L. Tydecks, V. Bremerich, K.

- Tockner, I. Jentschke, and G.E. Likens. Leipzig, Germany, July 4th to 9th, 2016.
240. Likens, G.E. and D. Buso. 2016. Long-term chemical changes in Mirror Lake, New Hampshire, USA. SIL 2016 33 Congress, Torino, Italy.
 241. Marinos, R., et al. 2016. SOM Stability under Long-term Recovery from Acidic Deposition in a Northern Hardwood Forest. 2016 AGU Fall Meeting.
 242. Fakhraei, H., C. Driscoll, T. Fahey, J. Campbell, L. Rustad, P. Groffman, and G. Likens. 2018. Biogeochemical sensitivity of a northeast forest ecosystem to the natural and human land disturbance. 2018 AGU Spring Meeting.
 243. Likens, G. E. 2018. Insights into Water Quality from Long-Term Research and Monitoring: Lessons Learned and Implications for the Future. Plenary Address, 2018 UCOWR/NIWR Annual Water Resources Conference, 26 June 2018 (Pittsburgh, PA).
 244. Likens, G. E. 2018. Long-term monitoring: Environmental Insights from NADP and Hubbard Brook pertaining to acid rain. Keynote Address, 2018 Scientific Symposium and Fall Meeting of the National Atmospheric Deposition Program (Albany, NY).

RESEARCH GRANTS:

1. Project Associate – ‘Radioisotope exchange studies in lakes.’ AEC AT(1101)-1133: 1962.
2. Co-investigator – ‘Physical limnology of Antarctic lakes.’ NSF GB 24093: 1962-1963.
3. Co-principal investigator – ‘Hydrologic-mineral cycle interaction in a small watershed.’ NSF GB 1144: 1963-1966; GB 4169: 1965-1967.
4. Principal Investigator – ‘Primary succession in some Alaskan lakes.’ USA CRREL - DA-AMC-27-021-64-G9: 1964-1965.
5. Principal Investigator – ‘A limnological study of some Alaskan lakes.’ USA-CRREL - DA-AMC-27-021-65-G17: 1965-1966.
6. Principal Investigator – ‘Geothermal heat flow in lakes.’ NSF GB 3666: 1965-1966.
7. Principal Investigator – ‘Hydrologic-mineral cycle interaction in small undisturbed and man-manipulated ecosystems (watersheds).’ NSF GB 6757: 1967-1969; GB 14325: 1969-1971; GB 30967X: 1971-1973; GB 40716: 1973-1974; BMS 74-20561: 1975-1976; BSR-8341136: 1981-1984; BSR-8406632: 1984-1988; BSR-8807960: 1988-1993; 1993-1998.
8. Principal Investigator – ‘A study of the nutrient inputs into Cayuga Lake and Seneca Lake, New York.’ OWRR 14-31-0001-3232: 1970-1972; OWRR 14-31-0001-3832: 1972-1973.
9. Principal Investigator – ‘Calibration of collection procedures for determination of precipitation chemistry.’ NOAA 04-4-022-31: 1974-1975; 04-5-022-24: 1975-1980.
10. Principal Investigator – ‘Man’s influence on the deposition of toxic metals in Adirondack

- lake sediments.’ USDI 14-34-0001-6033: 1976.
11. Principal Investigator – ‘Collaborative Research: Hydrologic-nutrient cycle interactions, Part Two.’ NSF DEB 76-10542; BMS 74-20561; BMS 74-20572: 1976-1978.
 12. ‘Collaborative Research: Hydrologic-nutrient cycle interaction in small undisturbed and man-manipulated ecosystems.’ NSF DEB 78-10719; DEB 79-17236: 1978-1981.
 13. Co-principal Investigator – ‘The Acid Precipitation Experiment (APEX).’ NSF ATM 77-23757/NCAR S9010: 1979-1980.
 14. Principal Investigator – ‘Stream acidification.’ International Paper Company Foundation: 1979-1980.
 15. Principal Investigator – ‘Accelerated decomposition in the forest floor of northern hardwoods following clearcutting.’ McIntire-Stennis Project 183-6559: 1979-1983.
 16. Principal Investigator – ‘Experimental field studies to evaluate the effects of acidification of a stream ecosystem.’ EPA CR807104010: 1980-1981.
 17. Co-principal Investigator – ‘Exploratory studies of acid rain on the structure, function and biogeochemistry of the northern hardwood ecosystem at Hubbard Brook.’ The Andrew W. Mellon Foundation: 1980-1993.
 18. Principal Investigator – ‘Support of the Hubbard Brook Experimental Forest as a national field research facility.’ NSF DEB-8122050: 1982-1983; BSR-8307849: 1983-1987.
 19. Co-principal Investigator – ‘Global Trends Network: The Global Precipitation Chemistry Project.’ National Acid Precipitation Assessment, Program Code, NOAA: 1979-1991.
 20. Principal Investigator – ‘Operation and research at the Ithaca MAP3S regional precipitation chemistry site.’ U.S. Department of Energy DE-FG02-85ER60292: 1984-1991.
 21. Principal Investigator -- First Cary Conference on the ‘Status and future of ecosystem science.’ NSF BSR-8500442: 1985-1986.
 22. Principal Investigator – ‘Support of ad hoc committee on acid rain: Science and policy.’ Mary Flagler Cary Charitable Trust: 1984-1985.
 23. Principal Investigator – ‘Cloud water project.’ The Andrew W. Mellon Foundation: 1985-1988.
 24. Co-principal Investigator -- ‘Mountain cloud chemistry project.’ U.S. EPA/Sciences Research Center, SUNY Albany. EPA 685/60107: 1985-1987.
 25. Co-principal Investigator – ‘Evaluation and regulation of nutrient sources for Mirror Lake.’ NSF BSR-8516879: 1986-1989.
 26. Principal Investigator – ‘Response of tropical rain forest watersheds to harvesting.’ USDA Forest Service, Rio Piedras, Puerto Rico; Cooperative Agreement 19-86-074: 1986-

- 1990.
27. Principal Investigator -- Second Cary Conference on 'Long-term studies in ecology: Approaches and alternatives.' NSF BSR-8702772: 1987-1988.
 28. Principal Investigator – 'Air monitoring for dry deposition.' Environmental Science & Engineering, Inc., S86-612-10: 1987-1991.
 29. Principal Investigator – 'A study of cloud water chemistry at various North American sites.' The Andrew W. Mellon Foundation: 1984.
 30. Principal Investigator – 'Long-term Ecological Research [LTER] at the Hubbard Brook Experimental Forest.' Subcontract from Cornell University, NSF OSP4432: 1988-1992; 1992-1998; 1998-2016.
 31. Co-principal Investigator – 'Rehabilitation management and public access study of The New York Botanical Garden forest.' High Winds Fund: 1985-1989.
 32. Co-principal Investigator – 'The New York Botanical Forest project.' Lila Wallace Reader's Digest Fund: 1991-1993.
 33. Co-principal Investigator - Third Cary Conference on 'Comparative analyses of ecosystems: Patterns, mechanisms, and theories.' NSF BSR-8900400: 1989.
 34. Co-principal Investigator – 'Phosphorus release from sediments in aquatic ecosystems: A cross-system study.' NSF BSR: 1990-1992.
 35. Co-principal investigator - Fourth Cary Conference on 'Human versus natural influences on ecosystems: Implications for theory and practice.' NSF: 1991-1992.
 36. Principal Investigator – 'Antarctic dry valleys: Terrestrial and limnetic ecosystems conference.' NSF Subcontract from National Aeronautics and Space Administration: 1991.
 37. Principal Investigator – 'The role of atmospheric flux of chemicals to natural ecosystems in remote regions.' NOAA Subcontract from the University of Virginia, Charlottesville, Virginia: 1991-1992.
 38. Principal Investigator – 'Long-Term monitoring of critical environmental problems.' General Reinsurance Corporation: 1991-1999.
 39. Co-principal Investigator – 'Soil microbial ecology program at the Institute of Ecosystem Studies.' The Andrew W. Mellon Foundation: 1990-1998.
 40. Co-principal Investigator – 'Effects of watershed liming on lake productivity and trophic interactions.' USDI Fish and Wildlife Service: 1990-1992.
 41. Co-principal Investigator – 'Acid rain research in the Adirondacks.' Marjorie and Philip Litchfield: 1991-1992.
 42. Co-principal Investigator -- Fifth Cary Conference on 'Linking species and ecosystems.'

NSF: 1993-1994.

43. Co-principal Investigator – ‘Historical development of an old-growth stand in the White Mountain National Forest.’ USDA Forest Service: 1993.
44. Co-principal Investigator – ‘Mesocosm experiments at the Oneida Lake Research Station.’ Subcontract from Cornell University: 1991-1994.
45. Principal Investigator – ‘The Transport and Fate of Trifluoroacetate (TFA) in a forested watershed at the Hubbard Brook Experimental Forest, New Hampshire: A quantitative, mass-balanced approach.’ E.I. du Pont de Nemours & Co., Inc.: 1993-1995.
46. Principal Investigator – ‘Operation of the NDDN Site #110, Ithaca, New York.’ Environmental Protection Agency/QST: 1992-2017.
47. Principal Investigator – ‘Research in connection with CASTNet—Site #510.’ Environmental Protection Agency/QST: 1993-2017.
48. Principal Investigator – ‘Research on biogeochemical processes, effects of changing air and precipitation chemistry on ecosystems, processes underlying ecosystem structure and development such as nitrogen fixation, base cation loss and weathering, ecological processes governing aquatic and terrestrial ecosystems, the effects of land use on ecosystem structure, function and development, and on other related studies which are part of the Hubbard Brook Ecosystem Study.’ The Andrew W. Mellon Foundation: 1993-1999; 2000-2007.
49. Principal Investigator – ‘Hubbard Brook Research Foundation.’ Funding – Various: 1990-1999.
50. Principal Investigator – ‘Robert S. Pierce Fund.’ Funding – Various: 1990-1999.
51. Principal Investigator – ‘LTREB: Collaborative research: Hydrologic-nutrient cycle interaction in small, undisturbed and human-manipulated ecosystems.’ National Science Foundation: 1993-1998; 1998-2016.
52. Principal Investigator – ‘Monitoring precipitation chemistry at Ithaca site.’ National Oceanic and Atmospheric Administration: 1992-2017.
53. Principal Investigator – ‘General Operating Support.’ Merrill Lynch & Co. Foundation, Inc.: 1992-1998.
54. Principal Investigator – ‘Field research expenses for the graduate training program in human-accelerated environmental change.’ The Laurel Foundation: 1996-2007.
55. Principal Investigator – ‘Development program at the Institute of Ecosystem Studies.’ Mary Flagler Cary Charitable Trust: 1997-2003.
56. Principal Investigator – ‘Capital campaign for the construction of a new laboratory building and funding off the G.E. Hutchinson Chair.’ Mary Flagler Cary Charitable Trust: 1997-2003.
57. Co-Principal Investigator – ‘Atmospheric controls on nutrient cycles in remote, old-

- growth, temperate forests of Southern Chile.’ The Andrew W. Mellon Foundation: 1997-2005.
58. Principal Investigator – ‘Director’s program for Visiting Distinguished Scientists.’ Ullman: 1998-2008.
 59. Principal Investigator – ‘Ecosystem function in mosaic landscapes: Boundaries, fluxes, and transformations.’ The Andrew W. Mellon Foundation: 1998-2007.
 60. Principal Investigator – ‘The role of calcium supply in the structure and function of a Northern Hardwood Forest.’ NSF Subcontract through Syracuse University: 1998-2004.
 61. Principal Investigator – ‘Regional scale impacts of Phases I and II of the Clean Air Act Amendments of 1990: The relationship between wet and dry depositions of H⁺, sulfur and nitrogen compounds, and changes in emissions of SO₂ and NO_x.’ Environmental Protection Agency: 1998-2004.
 62. Co-Principal Investigator – ‘Feedbacks between calcium cycling and canopy tree dynamics in northern temperate forests.’ National Science Foundation, DEB-9815390: 1999-2004.
 63. Principal Investigator – ‘Metabolism transport of carbon and nutrients in the Hudson River Estuary.’ Hudson River Foundation. Subcontract through Cornell University: 1996-2001.
 64. Principal Investigator – ‘NDDN [National Dry Deposition Network] at Hubbard Brook: Monitoring Site #109.’ Environmental Protection Agency: 1998-2011.
 65. Principal Investigator – ‘FSML: Facilities improvement at the Institute of Ecosystem Studies.’ National Science Foundation, DBI-9978240: 1999-2001.
 66. Principal Investigator – ‘Colder soils in a warmer world: A snow manipulation in a Northern Hardwood Forest ecosystem.’ National Science Foundation: 2000-2004.
 67. Principal Investigator – ‘Synthesis of data concerning the ecosystem functioning of the North Caspian Sea.’ Subcontract through Cornell University, Tengichevroil: 2002-2003.
 68. Principal Investigator – ‘Hubbard Brook workshop on stream ecology.’ The Andrew W. Mellon Foundation: 2003-2004.
 69. Principal Investigator – ‘The role of hydrologic inputs in the balance of carbon dioxide in small lakes.’ National Science Foundation/CFDA, EAR-0309257: 2004.
 70. Principal Investigator – ‘Hubbard Brook National Dry Deposition Network.’ Monitoring Site #109, QST, EPA, Agreement S687D98112/68d-03-052: 1998-2016.
 71. Principal Investigator – ‘OPUS: A synthesis of five decades of biogeochemical research in a northern hardwood forest ecosystem.’ National Science Foundation: 2011-2013.
 72. Principal Investigator – ‘Long-Term Ecological Research at Hubbard Brook Experimental Forest.’ National Science Foundation: 2011-2017.
 73. Principal Investigator – ‘LTREB Renewal at Hubbard Brook: Hydrologic-nutrient cycle

interaction in small, undisturbed and man-manipulated ecosystems.’ National Science Foundation: 2013-2018.

74. Principal Investigator – ‘Monitoring Precip. Chem. VIII.’ NOAA: 2001-2018.