RESUME

PATRICK L. BREZONIK

Current Position and Contact Information

Professor of Environmental Engineering
Department of Civil Engineering,
500 Pillsbury Dr. SE
University of Minnesota
Minneapolis, MN 55455
(612) 625-0866; brezonik@umn.edu

PERSONAL RECORD

Date and place of Birth: July 17, 1941; Sheboygan, Wisconsin
Marital Status: Married, wife's first name, Carol; two adult sons

EDUCATION

1963 Marquette University, Milwaukee, Wisconsin, B.S., Chemistry and Mathematics
1965 University of Wisconsin, Madison, Wisconsin, M.S., Water Chemistry
1968 University of Wisconsin, Madison, Wisconsin, Ph.D., Water Chemistry

EMPLOYMENT

1966-1970	Assistant Professor, Department of Environmental Engineering Sciences, University of Florida, Gainesville
1970-1976	Associate Professor, Environmental Engineering Sciences, University of Florida
1971-1972	NSF Faculty Fellow and Guest Professor, EAWAG-ETH, Zurich, Switzerland
1976-1981	Professor, Environmental Engineering Sciences, University of Florida
1980	Guest Professor, summer quarter, EAWAG-ETH, Zurich, Switzerland
1981-	Professor, Department of Civil Engineering, University of Minnesota
1984-	Member of graduate faculty in Ecology
1985-2003	Director, Water Resources Center
1991-1995	Director of Graduate Studies, Water Resources Science graduate minor
1995-9; 2001-3	Founding Director of Graduate Studies, interdisciplinary Water Resources Science Graduate Program (M.S. and Ph.D.)
2004-2007	Program Director, Environmental Engineering, National Science Foundation
2005-2007	Program Manager, NSF Major Research Equipment and Facilities Program, WATERS Network Initiative

PROFESSIONAL SOCIETIES

American Chemical Society
American Society of Limnology and Oceanography
Association of Environmental Engineering Science Professors
International Humic Substances Society
North American Lake Management Society
International Society of Limnology

PROFESSIONAL ACTIVITIES

American Chemical Society: *Environmental Science and Technology*, member of editorial board, 1973-1978; assoc. editor for special issue in honor of Werner Stumm, 1998.
American Society of Civil Engineers: co-chair, second annual Environmental Engineering Division Conference; Gainesville, Florida, July 1975.
American Society of Limnology and Oceanography: *Limnology and Oceanography*, member of editorial board, 1975-1976; chair, organizing committee for 1985 annual meeting in Minneapolis.
National Academy of Sciences-National Research Council:
Chair of Panel on Nitrates in the Environment, 1975-1978
Member of Committee on Restoration of Aquatic Systems, 1989-1991

Member of Committee to review EPA's EMAP program, 1991-1994
Member of *Water Science and Technology Board*, 1993-96
Chair of Committee on the Future of the Science of Inland Aquatic Ecosystems, 1994-96
Member of Committee on Ecological Indicators for Terrestrial and Aquatic Environments, 1996-9
Member of Committee on Restoration of the Greater Everglades Ecosystem (CROGEE), 1999-2004
Member of Committee on Upper Mississippi River Navigation Study, 2003-5
Chair, Committee to Review the St. Johns River Cumulative Impact Study, 2009-

National Association of Water Institute Directors: member of Council of Representatives, 1986-1991; Chair, 1988-1990

National Association of State Universities and Land-Grant Colleges: member Board of Directors of Environmental Division, 1989-91

Universities Council on Water Resources: member of Board of Directors, 1988-1995; president, 1991-92

Water Pollution Control Federation: Research Committee, 1973-1977; Standard Methods Committee, 1974-1980; chair, Joint Task Groups on Nitrate and Nitrite, 1976-l980

Water Environment Research Foundation: Research Council, 1992-97

GRADUATE STUDENTS SUPERVISED

64 M.S. and 24 Ph.D. students at Universities of Florida and Minnesota.

Ph.D. or post-Ph.D. advisees: Lawrence Baker, Naomi Detenbeck, Andrew Fang, Brian Huser, Abdul Khwaja, Steven Kloiber, Carl Mach, Bruce Monson, Lorin Hatch, Keith Pilgrim, Carolyn Sampson, Noel Urban, Thomas Belanger, Eldon C. Blancher, Ralph Brooks, Francis X. Browne, Neil Carriker, Forest E. Dierberg, Charles W. Hendry, Jay J. Messer, Carl Miles, R. Walter Ogburn, III, James W. Patterson, Curtis Pollman, Earl E. Shannon, John R. Tuschall.

AWARDS

NSF Science Faculty Fellowship, 1971-72
Universities Council on Water Resources, *Friend of UCOWR*, 1996
University of Minnesota, *Fesler-Lampert Chair in Urban and Regional Affairs*, 2003-4
Association of Environmental Engineering and Science Professors, *Distinguished Service Award*, 2004
US Geological Survey, *Benchmark Award*, for distinguished service to WRRI program, 2005
Universities Council on Water Resources, *Warren Hall Medal*, 2007
University of Minnesota, *Dave Ford Water Resources Award*, 2007

RECENT UNIVERSITY SERVICE ACTIVITIES

Member, search committee for Dean of College of Continuing Education, 2000-1
Member, department head search committee for Dept. of Soil, Water, and Climate, 2000-2
Member, Dept. of Civil Engineering Planning Committee, 2001-2
Member, College of Natural Resources Administrative Council, 1998-2003
Member, Graduate School Constitution Committee, 2001-2
Member, Graduate School Ethics Advocates Committee, 1999-2001
Chair, Faculty Education Advisory Committee for Office of the Vice-President for Research, 2001-3
Member Senate Judicial Committee, 2000-2004

RESEARCH INTERESTS

Chemistry and quality of natural waters; eutrophication of lakes and rivers; nutrient cycling and chemistry; phosphorus dynamics in sediment-water systems; transport and retention processes for nitrogen in large river systems and impacts on hypoxia in coastal waters; sources and distribution of acid precipitation and its ecological effects on lakes; biogeochemical cycling of mercury and other metals; heavy metal reactivity and speciation; natural organic matter in water; aquatic photochemistry; kinetics of chemical processes in aquatic systems; application of GIS and satellite imagery to regional-scale modeling and analysis of lake and river water quality; scale issues in watershed science and management; development of indicators and sampling designs for ecological monitoring and assessment programs.

RESEARCH and WORKSHOP GRANTS

Major grants during last ten years; PI or Co-PI on ~50 grants before 1996

1. U.S. EPA/NSF, Integrating Modeling and Management of Agriculturally-Impacted Watersheds:

Issues of Spatial and Temporal Scale, 1996-2000; project manager and PI with three other co-PIs; $800K

2. MN Pollution Control Agency, Effectiveness and impacts of chemical treatment of stormwater inputs to lakes for phosphorus control, 1997-2000; $125K

3. U.S. EPA/NOAA. Effects of nutrient source reductions in the Mississippi-Atchafalaya Basin on water quality conditions in these waters and on hypoxia in the Gulf of Mexico, 1997-99; one of two co-PIs; $99K

4. Metropolitan Council, Development of GIS and satellite imagery tools for regional water quality assessment, 1998-2000, $100K; PI with two co-investigators

5. Sea Grant. Role of nitrate-induced photolysis of natural organic matter and organic contaminants in Lake Superior, 1998-2001, $160K

6. U.S. Geological Survey, WRRI Regional grant program. Role of NOM and humic substance in the chemical binding and photochemical reactivity of mercury and methylmercury, 1998-2000, co-PI; $55K

7. MN Pollution Control Agency. Bioavailability of phosphorus in soils of the Minnesota River Basin, 1998-99; one of two co-PIs; $20K

8.MN Pollution Control Agency. Effects of alum treatment on phosphorus availability to macrophyte communities in urban lakes, 1999-2002; co-PI; $75K

9. NASA. Regional center for application of satellite imagery to natural resources and environmental research, 1999-2002; co-investigator; $900K

10. NSF. Coupled biogeochemical cycles of carbon, nitrogen, phosphorus, water and salts in urban and agricultural systems; PI with four co-PIs, $99K, 2001-2

11. MN DNR. Advanced applications of satellite imagery for lake quality assessments., one of two co-PIs; $99K, 2001-3

12. NSF. CLEANER workshop planning grant; $45K, 2002

13. NSF. FAME Symposium; $80K, 2003

PUBLICATIONS

BOOKS

Brezonik, P.L. 1994. *Chemical Kinetics and Process Dynamics in Aquatic Systems*. Lewis Publ.-CRC Press, Boca Raton, FL, 754 p.

Brezonik, P.L. (chair) 1996. *Protecting Freshwater Ecosystems: Revitalizing Education in Limnology*. National Academy Press, Washington, D.C., 450 p.

MONOGRAPHS and JOURNAL ISSUES EDITED

Brezonik, P.L. and J.L. Fox (Eds.), 1975. *Water Quality Management Through Biological Control*. Proc. Symp. co-sponsored by U.S. EPA and Univ. Florida, Publ. 07-75-01, Dept. Environ. Eng. Sci., Univ. of Florida, Gainesville, 164 p.

Brezonik, P.L. (chair). 1978. *Nitrates in the Environment*. Panel Report for the National Research Council, Washington, D.C.

Brezonik, P.L. and J.E. Perry (Eds.). 1989. Minnesota's Water Resources. A special issue devoted to the status of water research and water management concerns in Minnesota. *J. Minnesota Acad. of Sci.* **55**: (No. 1), 160 p.

Brezonik, P.L. (Ed.) 1992. Issues of Human Diversity in Water Resources, *Water Resources Update*, Issue No. 89,

Brezonik, P.L. and D.H. Moreau (Eds.) 1994. The Clean Water Act Revisited. *Water Resources Update*, Issue No. 94, 90 p.

Brezonik, P.L. (Ed.) 1996. Prospects for Limnology in its Second Century. *Water Resources Update*, Issue No. 99, ~45 p.

JOURNAL ARTICLES

Brezonik, P.L. and G.F. Lee. 1966. Sources of elemental nitrogen in fermentation gases. *Internat. J. Air. Wat. Poll.* **10**: 145-160.

Brezonik, P.L. and G.F. Lee. 1968. Denitrification as a nitrogen sink in Lake Mendota, Wis. *Environ. Sci. Technol.* **2**: 120-125.

Brezonik, P.L., J. J. Delfino and G. F. Lee. 1969. Chemistry of N and Mn in Cox Hollow Lake, Wis., Following Destratification. J. Sanit. Eng. Div. ASCE 95: No. SA5,October.

Patterson, J.W. and P.L. Brezonik. 1969. Toxicity measurements in activated sludge-discussion. *J. Sanit. Eng. Div. Amer. Soc. Civil Eng.* **95**: 929-940.
Patterson, J.W., P.L. Brezonik and H.D. Putnam. 1970. Measurement of ATP and its application in biological waste treatment. *Environ. Sci. Technol.* **4**: 569-575.
Brooks, R.H., P.L. Brezonik, H.D. Putnam and M.A. Keirn. 1971. Nitrogen fixation in an estuarine environment: the Waccasassa on the Florida Gulf Coast. *Limnol. Oceanogr.* **16**: 701-710.
Keirn, M.A. and Brezonik, P.L. 1971. Nitrogen fixation in Lake Mize, Florida, and in some lacustrine sediments. *Limnol. Oceanogr.* **16**: 721-731.
Brezonik, P.L. and J.W. Patterson. 1971. Activated Sludge ATP: effects of environmental stress. *J. Sanit. Eng. Div. Amer. Soc. Civil Eng.* **97**: 813-824.
Shannon, E.E. and P.L. Brezonik. 1972. Limnological characteristics of north and central Florida lakes. *Limnol. Oceanogr.* **17**: 97-110.
Shannon, E.E. and P.L. Brezonik. 1972. Eutrophication analysis: a multi-variate approach. *J. Sanit. Eng. Div. Amer. Soc. Civil Eng.* **98**: 37-57.
Brezonik, P.L. and J.L. Fox. 1974. The limnology of selected Guatemala lakes. *Hydrobiologia* **45**: 467-487.
Brezonik, P.L. 1974. Continuous monitoring, automated analysis, and sampling procedures. (Ann. Rev.) *J. Water Poll. Contr. Fed.* **46**: 1100-1109.
Brezonik, P.L., F.X. Browne and J.L. Fox. 1975. Application of ATP to plankton biomass and bioassay studies. *Water Res.* **9**: 155-162.
Brezonik, P.L. 1975. Continuous monitoring, automated analysis, and sampling procedures. (Ann. Rev.) *J. Water Poll. Contr. Fed.* **47**: 1241-1249.
Brezonik, P.L., P.A. Brauner and W. Stumm. 1972. Trace metal analysis by anodic stripping voltammetry: effect of sorption by natural and model organic compounds. *Water Res.* **10**: 605-612.
Brezonik, P.L. and N.E. Carriker. 1976. Continuous monitoring, automated analysis, and sampling procedures. *J. Water Poll. Contr. Fed.* **48**: 1077-1086.
Brezonik, P.L. 1977. Denitrification in natural waters. *Prog. Water Technol.* **8**: 373-392.
Brezonik, P.L., C. Hendry, and H. Prentice. 1977. Continuous monitoring, automated analyses, and sampling procedures. (Ann. Rev.) *J. Water Poll. Contr. Fed.* **49**: 986-992.
Hansen, W.G., G. Bitton, J.L. Fox and P.L. Brezonik. 1977. Hydrocarbon status in Florida real estate canals. *Mar. Poll. Bull.* **8**: 57-62.
Brezonik, P.L. 1978. Effect of organic color and turbidity on Secchi disk transparency. *J. Fish. Res. Bd. Canada* **35**: 1410-1416.
Carriker, N.E. and P.L. Brezonik. 1978. Sources and levels of boron in Florida waters. *J. Environ. Qual.* **7**: 516-522.
Messer, J.J. and P.L. Brezonik. 1979. Denitrification in sediments of Lake Okeechobee, Florida. *Verh. Internat. Verein. Limnol.* **20**: 1410-1416.
Fellows. C.R. and P.L. Brezonik. 1980. Seepage flow into Florida lakes. *Water Resources Bull.* **16**: 635-641.
Brezonik, P.L., C.D. Hendry and E.S. Edgerton. 1980. Acid rainfall and sulfate deposition in Florida. *Science* **208**: 1027-1029.
Tuschall, J.R. and P.L. Brezonik. 1980. Characterization of organic nitrogen in natural waters: its molecular size, protein content, and interactions with heavy metals. *Limnol. Oceanogr.* **25**: 495-504.
Hendry, C.D. and P.L. Brezonik. 1980. Chemistry of precipitation at Gainesville, Florida. *Environ. Sci. Technol.* **14**: 843-849.
Fellows, C.R. and P.L. Brezonik. 1981. Fertilizer flux into two Florida lakes via seepage. *J. Environ. Qual.* **10**: 174-177.
Dierberg, F.E. and P.L. Brezonik. 1981. Nitrogen fixation (acetylene reduction) associated with decaying leaves of pond cypress (*Taxodium distichum* var. nutans) in a natural and a sewage-enriched cypress dome. *Appl. Environ. Microbiol.* **41**: 1413-1418.
Kratzer, C.R. and P.L. Brezonik. 1981. A Carlson-type trophic state index for nitrogen in Florida lakes. *Water Resources Bull.* **17**: 713-715.
Miles, C.J. and P.L. Brezonik. 1981. Oxygen consumption by a photochemical ferrous-ferric catalytic cycle. *Environ. Sci. Technol.* **15**: 1080-1095.
Tuschall, J.R. and P.L. Brezonik. 1981. Evaluation of the copper-ASV-complexometric titration for complexing capacities and conditional stability constants. *Anal. Chem.* **53**: 1986-1989. Exchanges of comments, Ibid. **54**, 1000-1001; 2116-2117.

Dierberg, F.E. and P.L. Brezonik. 1981. Acetylene reduction activity associated with tree roots in cypress wetlands. *Soil Biol. Biochem.* **13**: 555-557.
Dierberg, F.E. and P.L. Brezonik. 1981. Nitrifying population densities and inhibition of ammonium oxidation in natural and sewage-enriched cypress swamps. *Water Res.* **16**: 125-126.
Dierberg, F.E. and P.L. Brezonik. 1983. Tertiary treatment of municipal wastewater by cypress domes. *Water Resources Bull.* **17**: 1027-1040.
Dierberg, F.E. and P.L. Brezonik. 1983. Nitrogen and phosphorus mass balances in natural and sewage-enriched cypress domes. *J. Appl. Ecol.* **20**: 323-337.
Messer, J.J. and P.L. Brezonik. 1983. Agricultural nitrogen model: a tool for regional environmental management. *Environ. Manag.* **7**: 171-187.
Messer, J.J. and P.L. Brezonik. 1983. Comparison of denitrification rate estimation techniques in a large, shallow lake. *Water Res.* **17**: 631-640.
Messer, J.J. and P.L. Brezonik. 1983. Laboratory evaluation of kinetic parameters for lake sediment denitrification models. *Ecol. Modelling* **21**: 277-286.
Miles, C.J. and P.L. Brezonik. 1983. High-performance size exclusion chromatography of aquatic humic substances. *J. Chromatogr.* **259**: 499-503.
Miles, C.J., Jr., J.R. Tuschall, Jr., and P.L. Brezonik. 1983. Isolation of aquatic humus with diethylaminoethyl cellulose. *Anal. Chem.* **55**: 410-411.
Tuschall, J.R., Jr. and P.L. Brezonik. 1983. Application of continuous-flow ultrafiltration and competing ligand/differential spectrophotometry for measurement of heavy metal complexation by dissolved organic matter. *Anal. Chim. Acta* **149**: 47-58.
Brezonik, P.L., T.L. Crisman, and R.L. Schulze. 1984. Planktonic communities in Florida softwater lakes of varying pH. *Canad. J. Fish. Aquat. Sci.* **41**: 46-56.
Hendry, C.D. and P.L. Brezonik. 1984. Chemical composition of softwater Florida lakes and their sensitivity to acid precipitation. *Water Resources Bull.* **20**: 75-86.
Kratzer, C.R. and P.L. Brezonik. 1984. Application of nutrient loading models to the analysis of trophic conditions in Lake Okeechobee, Florida. *Environ. Manag.* **8**: 109-120.
Dierberg, F.E. and P.L. Brezonik. 1985. Nitrogen and phosphorus removal by cypress swamp sediments. *Water Air Soil Poll.* **24**: 207-213.
Baker, L.A., P.L. Brezonik, E.S. Edgerton, and R.W. Ogburn, III. 1985. Sediment acid neutralization in softwater lakes. *Water Air Soil Poll.* **25**: 215-230.
Baker, L.A., P.L. Brezonik, and C.D. Pollman. 1986. Model of internal alkalinity generation: sulfate retention component. *Water Air Soil Poll.* **31**: 89-94.
Ogburn, III, R.W. and P.L. Brezonik. 1986. Examination of the oligotrophication hypothesis: phosphorus cycling in an acidic Florida lake. *Water Air Soil Poll.* **30**: 1001-1006.
Brezonik, P.L., L.A. Baker, J.R. Eaton, T.M. Frost, P. Garrison, T.K. Kratz, J.J. Magnuson, J.E. Perry, W.J. Rose, B.K. Shephard, W.A. Swenson, C.J. Watras, and K.E. Webster. 1986. Experimental acidification of little Rock Lake, Wisconsin. *Water Air Soil Poll.* **31**: 115-121.
Rogalla, J.A., P.L. Brezonik, and G.E. Glass. 1986. Empirical models for lake acidification in the Upper Great Lakes Region. *Water Air Soil Poll.* **31**: 95-100.
Baker, L.W., P.L. Brezonik, and E.S. Edgerton. 1986. Sources and sinks of ions in a soft water, acidic lake in Florida. *Water Resources Res.* **22**: 715-722.
Ogburn, III, R.W., P.L. Brezonik and J.J. Delfino. 1987. Effect of pH on phosphorus release during macrophyte (*Eleocharis* sp.) decomposition. Water Resour. Bull. **23**: 829 – 831.
Kratz, T.K., R.B. Cook, C.J. Bowser, and P.L. Brezonik. 1987. Winter and spring in northern Wisconsin lakes caused by increases in P_{CO_2}. *Canad. J. Fish. Aquat. Sci.* **44**: 1082-1088.
Baker, L.A. and P.L. Brezonik. 1988. Dynamic model of internal alkalinity generation: calibration and application to precipitation-dominated lakes, *Water Resources Res.* **24**: 65-74.
Baker, L.A., J.E. Tacconi and P.L. Brezonik. 1988. Role of seston deposition in ion budgets of a softwater seepage lake. *Verh. Int. Verein. Limnol.* **23**:346-350.
Brezonik, P.L. 1989. WRRI program: 25 years of accomplishments. *Environ. Sci. Technol.* **23**: 1433 (editorial).
Mach, C.E. and P.L. Brezonik. 1989. Trace metal research at Little Rock Lake, Wisconsin: background data, enclosure experiments, and the first three years of acidification. *Sci. Total Environ.* **87/88**: 269-285.
Twaroski, C.J., D. Thorton, R.L. Strassman, and P.L. Brezonik. 1989. Susceptibility of northern Minnesota lakes to acid deposition impacts. *J. Minn. Acad. Sci.* **55**: 95-102.

Brezonik, P.L., C.E. Mach, G. Downing, N. Richardson, and M. Brigham. 1990. Effects of acidification on minor and trace metal chemistry in Little Rock Lake, Wisconsin. *Environ. Toxicol. Chem.* **9**: 871-885.

Brezonik, P.L., K.E. Webster, and J.E. Perry. 1990. Effects of acidification on benthic community structure and benthic processes in Little Rock Lake, Wisconsin. *Verh. Internat. Verein. Limnol.* **24**: .

Webster, K.E., A. Newell, L.A. Baker, and P.L. Brezonik. 1990. Climatically induced rapid acidification of a softwater seepage lake. *Nature* **347**: 374-376.

Detenbeck, N.E. and P.L. Brezonik. 1991. Phosphorus sorption by lake sediments. 1. Comparison of equilibrium models. *Environ. Sci. Technol.* **25**: 395-403.

Detenbeck, N.E. and P.L. Brezonik. 1991. Phosphorus sorption by lake sediments. 2. Effects of pH and other solution variables. *Environ. Sci. Technol.* **25**: 403-409.

Schindler, D.W., T.M. Frost, K.H. Mills, P.S.S. Chang, I.J. Davies, L. Findlay, D.F. Malley, J.A. Shearer, M.A. Turner, P.J. Garrison, C.J. Watras, K.E. Webster, J.M. Gunn, P.L. Brezonik, and W.A. Swenson. 1992. Comparisons between experimentally- and atmospherically-acidified lakes during stress and recovery. *Proc. Royal Soc. Edinburgh* **97B**: 193-226.

King, S.O., C.E. Mach, and P.L. Brezonik. 1992. Changes in trace metal concentrations in lakewater and biota during experimental acidification of Little Rock Lake, Wisconsin, U.S.A. *Environ. Poll.* **78**: 9-18.

Swain, E.B., D.R. Engstrom, M.E. Brigham, T.A. Henning, and P.L. Brezonik. 1992. Increasing rates of atmospheric mercury deposition in midcontinental North America. *Science* **257**: 784-787.

Baker, L.A., D.R. Engstrom, and P.L. Brezonik. 1992. Recent sulfur enrichment in the sediments of Little Rock Lake, Wisconsin. *Limnol. Oceanogr.* **37**: 689-702.

Brezonik, P.L., J.G. Eaton, T.M. Frost, P.J. Garrison, T.K. Kratz, C.E. Mach, J.H. McCormick, J.A. Perry, W.A. Rose, C.J. Sampson, B.C.L. Shelley, W.A. Swenson, and K.E. Webster. 1993. Experimental acidification of Little Rock Lake, Wisconsin: chemical and biological changes over the pH range 6.1 to 4.7. *Canad. J. Fish. Aquat. Sci.* **50**: 1101-1121.

Urban, N. and P.L. Brezonik. 1993. Transformations of sulfur in sediment microcosms. *Canad. J. Fish. Aquat. Sci.* **50**: 1946-1960.

Webster, K.E., P.L. Brezonik, and B.J. Holdhusen. 1994. Temporal trends in low-alkalinity lakes of the Upper Midwest (1983-1989). *Water, Air, Soil Pollut.* **67**: 397-414.

Urban, N., P.L. Brezonik, L.A. Baker, and L.A. Sherman. 1994. Rates of sulfate reduction and diffusion in sediments of Little Rock Lake, Wisconsin. *Limnol. Oceanogr.* **39**: 797-815.

Sherman, L.A., P.L. Brezonik, and L.A. Baker. 1994. Spatial and temporal variations in porewater chemistry in a small seepage lake: implications for estimating in-lake alkalinity generation. *Limnol. Oceanogr.* **39:** 1155-71.

Erdmann, J. B., H. G. Stefan, and P. L. Brezonik. 1994. Analysis of wind- and ship-induced sediment resuspension in Duluth-Superior harbor. *Water Resources Bull.* **30**: 1043-1053.

Sampson, C. J., P. L. Brezonik, T. M. Frost, K. E. Webster, and T. D. Simonson. 1996. Experimental acidification of Little Rock Lake, Wisconsin: the first four years of chemical and biological recovery, *Water, Air, Soil Pollut.* **72**: 1713-1719.

Brezonik, P. L. and D. R. Engstrom. 1998. Modern and historic accumulation rates of phosphorus in Lake Okeechobee, Florida. *J. Paleolimnol.* **20**: 31-46.

Brezonik, P. L. and J. Fulkerson-Brekken. 1998. Indirect photolysis of acetochlor: rate constant of a nitrate-mediated hydroxyl radical reaction. *Chemosphere* **36**: 2699-2704.

Monson, B. A. and P. L. Brezonik. 1998. Seasonal patterns of mercury species in water and plankton from softwater lakes in northeastern Minnesota. *Biogeochem.* **40**: 147-162.

Brezonik, P. L. and J. Fulkerson-Brekken. 1998. Nitrate-induced photolysis in natural waters: controls on concentrations of hydroxyl radical photo-intermediates by natural scavenging agents. *Environ. Sci. Technol.* **32**: 3004-3010.

Monson, B. A. and P. L. Brezonik. 1999. Influence of food, aquatic humus and alkalinity on methylmercury uptake by *Daphnia magna*. *Environ. Toxicol. & Chem.* **18**: 560-566.

Brezonik, P. L., K. W. Easter, L. Hatch, D. J. Mulla, and J. Perry. 1999. Management of diffuse pollution in agricultural watersheds: lessons from the Minnesota River. *Wat. Sci. Tech.* **39**: 323-340.

Frost, T. M., P. K. Montz, T. K. Kratz, T. Badillo, P. L. Brezonik, M. J. Gonzalez, R. G. Rada, C. J. Watras, K. E. Webster, J. G. Wiener, C. E. Williamson, and D. P. Morris. 1999. Multiple stresses from a single agent: Diverse responses to the experimental acidification of Little Rock Lake, Wisconsin. *Limnol. Oceanogr.* **44**: 784-794.

Kloiber, S. M., T. Anderle, P. L. Brezonik, L. Olmanson, M. E. Bauer, and D. A. Brown. 2000. Satellite imagery: an efficient methods for trophic state assessment. *Arch. Hydrobiol. Adv. Limnol.* **55**: 137–151.

Urban, N. R., C. J. Sampson, P. L. Brezonik, and L. A. Baker. 2001. Sulfur cycling in the water column of Little Rock Lake, Wisconsin. *Biogeochem.* **52**: 41-77.

Hatch, L. K., A. Mallawatantri, D. Wheeler, A. Gleason, D. Mulla, J. Perry, K. W. Easter, R. Smith, L. Gerlach, and P.L. Brezonik. 2001. Land management at the major watershed– agroecoregion intersection. *J. Soil Water Conserv.* **56**: 44-51.

Urban, N. R., C. J. Sampson, P. L. Brezonik, and L. A. Baker. 2001. Sulfur cycling in the water column of Little Rock Lake, Wisconsin. *Biogeochem.* **52**: 41-77.

Stadelmann, T. H. and P. L. Brezonik. 2001. Seasonal patterns of chlorophyll *a* and Secchi disk transparency in lakes of east-central Minnesota: implications for design of ground- and satellite-based monitoring programs. *Lake Reserv. Manage.* **17**: 299-314.

Fang, F., P. L. Brezonik, D. J. Mulla, and L. K. Hatch. 2002. Estimating runoff phosphorus loss in the Minnesota River Basin. *J. Env. Qual.* **31:** 1918-29.

Stadelmann, T. H. and P. L. Brezonik. 2002. Analysis and predictive models of stormwater runoff volumes, loads, and pollutant concentrations from watersheds in the Twin Cities (Minnesota, USA) metropolitan area. *Water Research* **36**: 1743-57.

Kloiber, S. M., P. L. Brezonik, L. G. Olmanson, and M. E. Bauer. 2002. A procedure for regional lake water clarity assessment using Landsat multispectral data. *Remote Sens. Environ.* **82**: 38-47.

Kloiber, S. M., P. L. Brezonik, and M. E. Bauer. 2002. Application of Landsat imagery to regional-scale assessments of lake clarity. *Water Research* **36**: 4330-40.

Sawaya, K., L. Olmanson, N. Heinert, P. L. Brezonik, and M. E. Bauer. 2003. Extending satellite remote sensing to local scales: Land and water resource monitoring using high-resolution imagery. *Remote Sens. Environ.* **88**: 144-156.

Sampson C. J. and P. L. Brezonik. 2003. Responses of nutrients to experimental acidification and recovery in Little Rock Lake, USA. *Water Air Soil Poll.* **142**: 39-57.

Sampson C. J. and P. L. Brezonik. 2003. Ion budgets and sediment-water interactions during the experimental acidification and recovery of Little Rock Lake, Wisconsin. *Environ. Sci. Technol.* 37: 5625-5635.

Brezonik, P. L., C. E. Mach, and C. J. Sampson. 2003. Geochemical controls for Al, Fe, Mn, Cd, Cu, Pb, and Zn during experimental acidification and recovery of Little Rock Lake, WI, USA. *Biogeochem.* **62**: 119-143.

Hines, N. A. and P. L. Brezonik. 2004. Mercury dynamics in a small northern Minnesota lake: water to air exchange and photoreactions of mercury. *Mar. Chem.* **90**:137-149.

Hines, N. A., P. L. Brezonik, and D. R. Engstrom. 2004. Sediment and porewater profiles and fluxes of mercury and methylmercury in a small seepage lake in northern Minnesota. *Environ. Sci. Technol.* **38**: 6610-6617.

Pilgrim, K. M. and P. L. Brezonik. 2005. Treatment of lake inflows with alum for phosphorus removal. *Lake Reserv. Manage.* **21**: 1-11.

Pilgrim, K. M. and P. L. Brezonik. 2005. Evaluation of the potential adverse effects of lake inflow treatment with alum. *Lake Reserv. Manage.* **21**: 78-88.

Fang, F., K. W. Easter, and P. L. Brezonik. 2005. Point-nonpoint source water quality trading: a case study in the Minnesota River basin. *J. Am. Wat. Resources Assoc.* **41**: 645-58.

Fang, F., P. L. Brezonik, D. J. Mulla, and L. K. Hatch. 2005. Characterization of soil algal bioavailable phosphorus in the Minnesota River Basin. *Soil Sci. Soc. Am. J.* 69:1016–1025.

Brezonik, P. L., K. Menken, and M. E. Bauer. 2005. Landsat-based remote sensing of lake water quality characteristics, including chlorophyll and colored dissolved organic matter (CDOM). *Lake Reserv. Manage.* 21: 373-382.

Menken, K., P. L. Brezonik, and M. E. Bauer. 2006. Influence of chlorophyll and humic color on reflectance spectra of lakes: implications for measurement of lake-water properties by remote sensing. *Lake Reserv. Manage.* 22: 179-190.

Khwaja, A. R., P. R. Bloom, and P. L. Brezonik. 2006. Binding constants of divalent mercury (Hg^{2+}) in soil humic acids and soil organic matter. *Environ. Sci. Technol.* 40: 844-49.

Dadaser-Celik, F., H. G. Stefan, and P. L. Brezonik. 2006. Dynamic hydrologic model of the Örtülüakar marsh in Turkey. *Wetlands* **26**: 1089-1102.

Rockne, K. J. and P. L. Brezonik. 2006. Nutrient removal in a cold-region wastewater stabilization pond: importance of ammonia volatilization. *J. Environ. Eng. (ASCE)* 132 (4): 451-459.

Hines, N. A. and P. L. Brezonik. 2007. Input-output analysis of mercury forms for a small lake in northern Minnesota. *Biogeochem.* **84**: 265-84.

Pilgrim, K. R., B. Huser, and P. L. Brezonik. 2007. A method for comparative evaluation of whole-lake and inflow alum treatment. *Water Research* **41**: 1215-24.

Olmanson, L. G., M. E. Bauer, and P. L. Brezonik. 2008. A 20-year Landsat record of water clarity in Minnesota's 10,000 lakes. *Remote sensing of Environment* **112**: 4086-97.

Dadaser-Celik, F., P. L. Brezonik, and H. G. Stefan. 2008. Agricultural and environmental changes after irrigation management transfer in the Develi Basin, Turkey. *Irrig. Drainage Syst.* **22**: 47-66.

Dadaser-Celik, F., P. L. Brezonik, and H. G. Stefan. 2008. Hydrologic sustainability of the Sultan Marshes in Turkey. *Water Internat.* (in press).

BOOK CHAPTERS and SYMPOSIA CONTRIBUTIONS

Brezonik, P.L. and H.D. Putnam. 1968. Eutrophication: small Florida lakes as models to study the process. Proc. 17th South. Water Poll. Contr. Conf., Chapel Hill, North Carolina, April, 1968, pp.315-333.

Brezonik, P.L. 1968. Application of mathematical models to the eutrophication process. Proc. 11th Conf. Great Lakes Res. Milwaukee, April, 1968, pp. 16-30.

Brezonik, P.L. 1972. Kinetics and dynamics in natural water systems, pp. 831-912 in *Water and Water Pollution Handbook*, Vol. 3, L.L. Ciaccio (Ed.), Marcel Dekker, New York.

Brezonik, P.L. 1972. Nitrogen sources and transformations in natural waters, pp.1-50 in *Nutrients in Natural Waters*, H.E. Allen, Jr. and J.R. Kramer (Eds.), J. Wiley, New York.

Brezonik, P.L. 1974. Analysis and speciation of trace metals in water supplies, pp. 167-191 in *Aqueous Environmental Chemistry of Metals*, A.J. Rubin (Ed.), Ann Arbor Science Publ., Ann Arbor, MI.

Brezonik, P.L., J.L. Fox, G. Bourne, R. Klein, D. Price and W. Mitsch. 1975. Cypress swamps as natural tertiary treatment systems. Proc. Assoc. Environ. Eng. Professors, Workshop, Charleston, SC, Environmental impact and linkages.

Brezonik, P.L. 1976. Nutrients and other biologically active substances in atmospheric precipitation. Proc. Symposium on Effects of atmospheric inputs to the chemistry and biology of lakes. Int. Assoc. Great Lakes. Research. Special Symp. 1: 166-186.

Messer, J.J. and P.L. Brezonik. 1980. Regional nitrogen mass balance model for the Florida peninsula, pp.311-318. In Fourth Internat. Symp. Environ. Biogeochemistry, Canberra, Australia, Australian Academy of Science, Canberra.

Hendry, C.D., P.L. Brezonik, and E.S. Edgerton. 1980. Acid precipitation in Florida (U.S.A.): results of a statewide monitoring network, pp.118-119. In Ecological impact of acid precipitation, D. Drablos and A. Tollan (Eds.). Proc. Int. Conf., Sandefjord, Norway. SNSF, Oslo-As, Norway.

Crisman, T.L., R.L. Schulze, P.L. Brezonik, and S.A. Bloom. 1980. Acid precipitation: the biotic response in Florida lakes, pp.296-297. In Ecological impact of acid precipitation, D. Drablos and A. Tollan (Eds.). Proc. Int. Conf., Sandefjord, Norway. SNSF, Oslo-As, Norway.

Hendry, C.D., E.S. Edgerton, and P.L. Brezonik. 1981. Atmospheric deposition of nitrogen and phosphorus in Florida, pp.199-206 in: *Atmospheric Pollutants in Natural Waters*, S.J. Eisenreich (Ed.), Ann Arbor Science Press, Ann Arbor, MI.

Messer, J.J. and P.L. Brezonik. 1981. Importance of atmospheric fluxes to the nitrogen balance of peninsular Florida, pp. 217-236 in: *Atmospheric Pollutants in Natural Waters*, S.J. Eisenreich (Ed.), Ann Arbor Science Press, Ann Arbor, MI.

Edgerton, E.S., C.D. Hendry, and P.L. Brezonik. 1981. Seasonal and spatial patterns of acid precipitation in Florida, pp. 237-259 in: *Atmospheric Pollutants in Natural Waters*, S.J. Eisenreich (Ed.), Ann Arbor Science Press, Ann Arbor, MI.

Tuschall, J.R., Jr. and P.L. Brezonik. 1982. Complexation of heavy metals by aquatic humus: a comparative study of five analytical methods, pp. 275-294 in: *Aquatic and Terrestial Humic Materials*, R.F. Christman and E. Gjessing (Eds.) Ann Arbor Science Publ., Ann arbor, MI.

Baker, L.A. and P.L. Brezonik. 1984. Fate of sulfate in a softwater acidic lake. Proc. 6th internat. symp. biogeochem., Santa Fe, NM, Oct., 1983.

Tuschall, J.R., Jr. and P.L. Brezonik. 1984. Analytical methods for measurement and interpretation of metal binding by aquatic humus and model compounds. Proc. Internat. Conf. heavy metals in aquatic systems, Texel, Netherlands.

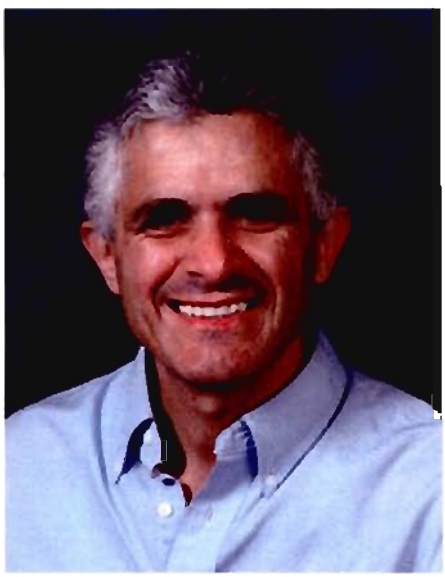
Brezonik, P.L. 1984. Trophic state indices: rationale for multivariate approaches. Lake and Reservoir

Management, Proc. 3rd Ann. Meeting, North Amer. Lake Manage. Soc., Knoxville, TN, 1983.
Baker, L.A., P.L. Brezonik, and C. Kratzer. I985. Nutrient loading models for Florida lakes, pp. 253-258. In Lake and Reservoir Management: Practical Applications, J. Taggart and L. Moore (Eds.), Proc. 4th Ann. Meeting, North Am. Lake Manag. Soc., I984, McAfee, NJ.
Baker, L.A., T.E. Perry, and P.L. Brezonik. I985. Internal neutralization mechanisms for softwater lakes, pp. 356-360. In Lake and Reservoir Management: Practical Applications, J. Taggart and L. Moore (Eds.), Proc. 4th Ann. Meeting, North Am. Lake Manag. Soc., I984, McAfee, NJ.
Ogburn, R.W., III, P.L. Brezonik, and B.W. Breedlove. I986. Simple trophic state models and their use in wasteload allocations in Florida, pp. 2I9-234. In Proceedings of Stormwater and Water Quality Model Users Group Meeting, T.D. Bainwell, Jr. and W.C. Huber (Eds.). EPA/600/9-86/023, U.S. EPA, Athens, GA.
Perry, T.E., L.A. Baker, and P.L. Brezonik. I986. Comparison of sulfate reduction rates in laboratory microcosms, field mesocosms, and in situ at Little Rock Lake, Wisconsin, pp. 303-3I2, in Lake and Reservoir Management, G. Redfield, J.F. Taggart, and L.M. Moore (Eds.). Proc. 5th Ann. Conf. Int. Symp. N. Am. Lake Manage. Soc., I985, Merryfield, VA.
Preston, S.D. and P.L. Brezonik. I986. Water quality in the Oklawaha chain of lakes: a case study on problems and limitations in compiling long-term data bases, pp. I0I-I07. In Lake and Reservoir Management, G. Redfield, J. Taggart, and L.M. Moore (Eds.). Proc. 5th Ann. Conf. N. Am. Lake Manag. Soc., I985, Merryfield, VA.
Perry, T.E., C.D. Pollman, and P.L. Brezonik. I986. Buffer capacity of softwater lake sediments in Florida, pp. 67-83. in: *Impact of Acid Rain and Deposition on Aquatic Biological Systems*, B.G. Isom, S.D. Dennis, and J.M. Bates, (Eds.), ASTM STP928, Am. Soc. Testing Matl., Philadelphia, PA.
Brezonik, P.L., L.A. Baker, and T.E. Perry. I987. Mechanisms of alkalinity generation in acid-sensitive softwater lakes, pp. 229-260 in: *Chemistry of Aquatic Pollutants*, R. Hites, and S.J. Eisenreich (Eds.), Adv. Chem. Ser. **216**, American Chemical Society, Washington, D.C.
Baker, L.A., P.L. Brezonik, and N. Urban. 1989. The biogeochemistry of sulfur in a dilute, acidic seepage lake, pp. 79-100 in: *Biogenic Sulfur in the Environment*, E.S. Saltzman and W.J. Cooper (Eds.), ACS Symp. Ser. **393**, Am. Chem. Soc., Washington, D.C.
Brezonik, P.L. 1990. Principles of linear free energy and structure-activity relationships and their applications to the fate of chemicals in aquatic systems, pp. 113-143 in: *Aquatic Chemical Kinetics*, W. Stumm (Ed.), Wiley-Interscience, New York.
Brezonik, P.L., C.E. Mach, and S. King. 1991. The influence of water chemistry on metal bioaccumulation and toxicity, pp. 1-29 in: *Ecotoxicology of Metals: Current Concepts and Applications*, M. Newman and A. McIntosh (Eds.) Lewis Publ., Chelsea, MI.
Brezonik, P.L. G.D. Cooke, S.R. Carpenter, and S.L. Schelske. Lakes, pp. 71-164 in: *Restoration of Aquatic Ecosystems*, Committee on Restoration of Aquatic Ecosystems, J. Cairns (Chair), Nat. Res. Council., Nat. Acad. Science. National Acad. Press, Washington, D.C. 552 p.
Sampson, C.E., P.L. Brezonik, and E. Weir. 1994. Effects of acidification on chemical composition and chemical cycles in a seepage lake: inferences from a whole-lake experiment, pp. 121-159 in *Environmental Chemistry of Lakes and Reservoirs*, L.A. Baker (Ed.), Am. Chem. Soc., Washington, D.C.
Engstrom, D.R., E.B. Swain, T.A. Henning, M.E. Brigham, and P.L. Brezonik. 1994. Atmospheric mercury deposition to lakes and watersheds: a quantitative reconstruction from multiple sediment cores, pp. 33-66 in *Environmental Chemistry of Lakes and Reservoirs*, L.A. Baker (Ed.), Am. Chem. Soc., Washington, D.C.
Wilson, G.J. and P.L. Brezonik. 1998. Analysis of urban stormwater quality from the Minneapolis Chain of Lakes watershed. Spec. Sess. Proc., 16th Ann. North Amer. Lake Manage. Soc. Internat. Symp., pp. 40-54.
Jensen, K.M. and P.L. Brezonik. 1998. Minneapolis Chain of Lakes current and historical water quality. Spec. Sess. Proc., 16th Ann. North Amer. Lake Manage. Soc. Internat. Symp., pp. 55-69.
Brezonik, P.L. and C.D. Pollman. 1999. Phosphorus chemistry and cycling in Florida lakes: global issues and local perspectives, pp. 69-109 in: *Phosphorus Biogeochemistry in Subtropical Ecosystems*, K. Reddy et al. (Eds.), Lewis Publ., Boca Raton, FL.

The Elimelech Lab

Menachem Elimelech

Chair, Department of Chemical Engineering
Director, Environmental Engineering Program
Roberto Goizueta Professor of Environmental and Chemical Engineering



Mason Lab, 313A
9 Hillhouse Avenue
Yale University
New Haven, CT 06520-8286
Phone: 203.432.2789
Fax: 203.432.2881
Email

Prof. Elimelech's **Brief Bio (100 words)**

Prof. Elimelech's **Biographical Sketch**

Prof. Elimelech's **Résumé**

Menachem Elimelech holds a B.S. in Soil and Water Sciences and an M.S. in Environmental Science and Technology from the Hebrew University in Jerusalem and a Ph.D. in Environmental Engineering from Johns Hopkins University. As his first appointment, Elimelech served as professor and vice chair of the Department of Civil and Environmental Engineering at UCLA. Upon coming to Yale in 1998, he founded Yale's Environmental Engineering Program, of which he continues to serve as director. Professor Elimelech was elected to the National Academy of Engineering in 2006 and was awarded the Athalie Richardson Irvine Clarke Prize in 2005.

His research focuses on problems involving physicochemical and biophysical processes in engineered and natural environmental systems, including: (i) membrane separations

for desalination and water quality control, (ii) transport and adhesion of microbial pathogens, (iii) processes involving nanoparticles and biomacromolecules, and (iv) water, sanitation, and public health in developing countries.

Professor Elimelech has authored more than 140 refereed journal publications and is a co-author of the book *Particle Deposition and Aggregation* (1995). He currently serves on the Editorial Advisory Boards of *Colloids and Surfaces A*, *Desalination*, *Environmental Science & Technology*, *Environmental Engineering Science*, and *Separation Science and Technology*.

Courses taught at Yale include:

- ENVE 372a: Environmental Transport Processes
- ENAS 642: Physical & Chemical Processes in Environmental Engineering
- CENG 411 : Separation Processes
- CENG/ENVE 315b : Transport Phenomena
- ENVE/CENG 377: Water Quality Control

He has received the W.M. Keck Foundation Engineering Teaching Excellence Award and the Yale University Graduate Mentor Award.

Last updated on 31-Dec-2008 8:45 PM

CURRICULUM VITAE

Menachem Elimelech

Menachem Elimelech
Roberto Goizueta Professor and Chair
Department of Chemical Engineering
Environmental Engineering Program
Yale University
P.O. Box 208286 (express mail: 9 Hillhouse Avenue)
New Haven, CT 06520-8286

E-mail: menachem.elimelech@yale.edu
Phone: (203) 432-2789 Fax: (203) 432-4387
http://www.yale.edu/env/elimelech/bio.html

Education

1989	Ph.D.	Environmental Engineering, The Johns Hopkins University; Dissertation: "The Effect of Particle Size on the Kinetics of Deposition of Brownian Particles in Porous Media"; Advisor: Professor Charles R. O'Melia
1985	M.Sc.	Environmental Science & Technology, The Hebrew University, Jerusalem, Israel (Summa Cum Laude)
1983	B.Sc.	Soil and Water Sciences, The Hebrew University, Jerusalem, Israel (Summa Cum Laude)

Awards

2008	The American Institute of Chemical Engineers Lawrence K. Cecil Award in Environmental Chemical Engineering
2007	Election to the Connecticut Academy of Science and Engineering
2006	Election to the National Academy of Engineering
2006	Association of Environmental Engineering and Science Professors (AEESP) Frontier of Research Award
2006	American Water Work Association (AWWA) First Place Best Doctoral Dissertation Award (Doctoral Student Nathalie Tufenkji)
2005	The Athalie Richardson Irvine Clarke Prize, National Water Research Institute
2005	Trendsetter, Public Work Magazine
2004	Excellence in Review Award, *Environmental Science & Technology*
2004	Yale University Graduate Mentor Award
2002	Association of Environmental Engineering and Science Professors (AEESP) Outstanding Paper Award
2002	Association of Environmental Engineering and Science Professors (AEESP) Doctoral Dissertation Award (Doctoral Student Eric M.V. Hoek)

1996 American Society of Civil Engineers, Walter L. Huber Civil Engineering Research Prize

1994 W.M. Keck Foundation, Engineering Teaching Excellence Award

1990 National Science Foundation, Research Initiation Award

1989 Environmental Engineering and Chemistry Graduate Student Award, American Chemical Society-Division of Environmental Chemistry

Honors and Recognitions

2008 Advisory Board of *Langmuir*

2004 Advisory Board of *Separation Science & Technology*

2004 Advisory Board of *Colloids and Surfaces A*

2003 Certificate of Merit Award for paper presentation (co-author with graduate student Sharon L. Walker) at the 226th American Chemical Society National Meeting, New Orleans, LA

2002 ExxonMobil Chair Professorship, National University of Singapore (summer 2002)

2002 Advisory Board of *Desalination*

2001 Certificate of Merit Award for paper presentation (co-author with graduate student J. Chen) at the 222nd American Chemical Society National Meeting, Chicago, IL.

2000 Certificate of Merit Award for paper presentation (co-author with graduate student E. Vrijenhoek) at the 220th American Chemical Society National Meeting, Washington, DC.

2000 Associate Editor, *Environmental Engineering Science*

1999 Certificate of Merit Award for paper presentation (co-author with graduate student C.-H. Ko) at the 217th American Chemical Society National Meeting, Anaheim, CA.

1998 Advisory Board of *Environmental Science & Technology*

1997 Advisory Board of the *Journal of Colloid and Interface Science* for the 1998-2000 period

1996 Certificate of Merit Award for paper presentation (co-author with graduate student S. Hong) at the 212th American Chemical Society National Meeting

1996 Certificate of Merit Award for paper presentation (co-author with graduate student A.E. Childress) at the 212th American Chemical Society National Meeting, Orlando, FL.

1996 Best poster presentation, American Desalting Association Biennial Conference, Monterey, California (with Graduate Student S. Hong)

1989 Best poster presentation in the international workshop on "*Aquatic Chemical Kinetics: Reaction Rates of Processes in Natural Waters*", March 19-23, 1989, Warth, Switzerland (with Prof. Charles R. O'Melia)

Professional Experience

2005-present	Chair, Chemical Engineering Department, Yale University
2005-present	Roberto C. Goizueta Professor, Department of Chemical Engineering, Environmental Engineering Program, Yale University
1998-2004	Llewellyn West Jones Professor, Department of Chemical Engineering, Environmental Engineering Program, Yale University

1998-present	Director, Environmental Engineering Program, Yale University
2003-present	Adjunct Professor, Kwangju Institute of Science and Technology (K-JIST), Korea
2002 (summer)	ExxonMobil Chair Professor, Department of Civil Engineering, National University of Singapore
2001 (summer)	Visiting Professor, Department of Civil Engineering, National University of Singapore
2000 (Fall)	Acting Chair, Dept. of Chemical Engineering, Yale University
1997 (Spring, Summer)	Guest Professor, Institute of Terrestrial Ecology, Soil Chemistry Group, Swiss Federal Institute of Technology (ETH-Zurich)
1997-1998	Professor, Dept. of Civil & Environmental Engineering, UCLA
1996 (Fall Quarter)	Visiting Associate, Environmental Engineering Science, California Institute of Technology
1994-1997	Associate Professor, Dept. of Civil & Environmental Engineering, UCLA
1989-1994	Assistant Professor, Dept. of Civil & Environmental Engineering, UCLA
1986-1989	Graduate Student Research Assistant, Department of Geography & Environmental Engineering, The Johns Hopkins University
1984 (summer)	Lab Research Assistant, Laboratory of Water Quality, Jerusalem Municipality, Israel
1983-1985	Graduate Student Research Assistant, Division of Environmental Sciences, The Hebrew University of Jerusalem, Israel
1982-1983	Research Assistant, Laboratory of Soil Physics, School of Agriculture, The Hebrew University of Jerusalem, Israel
1974-1980	Military Service, Israel

Professional Society Memberships

- American Chemical Society
- Association of Environmental Engineering Science Professors
- American Institute of Chemical Engineers
- American Society of Civil Engineers
- American Water Works Association

Research Interests and Activities

- Physicochemical processes for water quality control
- Membrane separation processes for desalination and water reuse
- Environmental implications and applications of nanomaterials
- Microbial adhesion to solid surfaces in aquatic systems
- Transport and fate of microbial pathogens in aquatic system
- Water and sanitation in developing countries

Past and Current Research Grants and Contracts

- American Chemical Society, The Petroleum Research Fund
- American Water Works Association Research Foundation
- Center for Clean Technology, UCLA,
- Fluid Systems Corporation
- Metropolitan Water District of Southern California
- Mitsubishi Heavy Industries, Ltd. (Japan)
- National Science Foundation
- National Water Research Institute
- Office of Naval Research
- State of California, Department of Water Resources
- The Camille and Henry Dreyfus Foundation
- Toyobo Company, Ltd.
- University of California, Water Resources Center
- U.S. Department of the Interior, Bureau of Reclamation
- W.M. Keck Foundation
- US Department of Agriculture
- U.S. Environmental Protection Agency

Graduate Student Supervision: Current Ph.D. Students at Yale

1. Anna Stirgwolt (NSF Graduate Fellowship)
   Research Area: Carbon nanotube based filters for water purification
2. Maggie Montgomery (NSF Graduate Fellowship)
   Research Area: Water, sanitation, and public health in the developing world
3. Robert McGinnis (NSF Graduate Fellowship)
   Research Area: Osmotic membrane processes for desalination and energy production
4. Meagan Mauter (NSF Graduate Fellowship)
   Research Area: Environmental applications of nanotechnology
5. Laura Sima (NSF Graduate Fellowship)
   Research Area: Water purification systems for developing countries
6. Alberto Tiraferri
   Research Area: Environmental nanotechnology

Current Post-doctoral Fellows

1. Dr. Seoktae (Steve) Kang (Ph.D., KAIST)
   Research Area: Microbial adhesion; Environmental nanotechnology
2. Dr. Debora F. Rodrigues (Ph.D., Michigan State University)
   Research Area: Environmental microbiology
3. Dr. Deb P. Jaisi (co-advised) (Ph.D., Miami University)
   Research Area: Biogeochemistry; Environmental nanotechnology

4. Dr. Chad Vecitis (Ph.D., Caltech)
   Research Area: Environmental nanochemistry/nanotechnology

Past Ph.D. Graduates

1. Lianfa Song (1993)
   Dissertation Title: Theoretical Aspects of Particle Deposition in Porous Media
   Title and Affiliation: Associate Professor, Dept. of Civil Engineering, National University of Singapore
2. Hsiao-Wei (David) Ching (1993)
   Dissertation Topic: Removal of Particles and THM Precursors from Surface Waters by Chemical Coagulation
   Title and Affiliation: Associate Professor, Department of Environmental Engineering, Tung-Nan Institute of Technology, Taipei, Taiwan
3. Daylin Liu (1994)
   Dissertation Title: Chemical Aspects of Particle Deposition Dynamics in Porous Media
   Title and Affiliation: Program Developer, Los Angeles, CA
4. Philip R. Johnson (1995)
   Dissertation Title: Modeling Colloidal Transport in Saturated Porous Media
   Title and Affiliation: *Previously* - Assistant Professor, Dept. of Civil Engineering and Geological Sciences, University of Notre Dame. *Currently* – unknown.
5. Xiaohua (Tracy) Zhu (1996)
   Dissertation Title: Chemical Aspects of Colloidal Fouling of Cellulose Acetate and Thin-Film Composite Reverse Osmosis Membranes
   Title and Affiliation: LEEI Consulting Engineers, Sunnyvale, California
6. Seungkwan Hong (1997)
   Dissertation Title: Natural Organic Matter and Colloidal Fouling in Crossflow Membrane Filtration
   Title and Affiliation: *Previously* – Associate Professor, Civil and Environmental Engineering Department, University of Central Florida. *Currently* – Korea University, Seoul, Korea.
7. Amy E. Childress (1997)
   Dissertation Title: Characterization and Performance of NF and RO Membranes
   Title and Affiliation: Associate Professor, Civil and Environmental Engineering Department, University of Nevada at Reno
8. Ning Sun (March, 1998)
   Dissertation Title: Colloid Transport in Physically and Geochemically Heterogeneous Porous Media: Modeling, Measurements, and parameter Identification
   Title and Affiliation: Research Scientist, School of Public Health, Yale University.
9. John J. Waypa (June, 1998)
   Dissertation Title: Separation of Ionic Species by Polymeric Nanofiltration Membranes in Crossflow Membrane Filtration: Implications for Arsenic Removal
   Title and Affiliation: Senior Member Technical Staff, TRW, One Space Park, Redondo Beach, CA 90278
10. Yann Le Gouellec (November, 1998)
    Dissertation Title: Calcium Sulfate Scale Formation and Control in Nanofiltration of Agricultural Drainage Water
    Title and Affiliation: Senior Engineer, Greater Cincinnati Water Works

11. Chun-Han Ko (July, 1999)
Dissertation Title: Particle Deposition in Heterogeneous Porous Media
Title and Affiliation: Assistant Professor, National Taiwan University

12. Albert (Sechurl) Kim (June, 2000) (co-adviser)
Dissertation Title: Dynamics of Particle Aggregation in Natural and Engineered Aquatic Systems
Title and Affiliation: Associate Professor, Civil and Environmental Engineering Department, University of Hawaii

13. Eric M.V. Hoek (formerly Vrijenhoek) (December 2001)
Dissertation Title: Mechanisms of Colloidal Fouling of RO and NF Membranes
Title and Affiliation: Associate Professor, Civil and Environmental Engineering Department, University of California, Los Angeles

14. Sharon L. Walker (November 2004)
Dissertation Title: Mechanisms of Bacterial Adhesion to Solid Surfaces in Aquatic Systems
Title and Affiliation: Assistant Professor, Department of Chemical and Environmental Engineering, University of California, Riverside

15. Nathalie Tufenkji (November 2004)
Dissertation Title: Spatial Distributions of Retained Colloidal and Microbial Particles in Porous Media: Measurements, Modeling, and Mechanisms
Title and Affiliation: Assistant Professor, Department of Chemical Engineering, McGill University, Canada

16. Jim C. Chen (July 2005)
Dissertation Title: Membrane Filtration of Interacting Colloidal Particles: Mechanisms, Modeling, and Applications
Title and Affiliation: Assistant Professor, Nanyang Technological University, Singapore

17. Zachary A. Kuznar (August 2005)
Dissertation Title: Adhesion Mechanisms of *Cryptosporidium parvum* Oocysts to Solid Surfaces in Aquatic Systems
Title and Affiliation Research scientist, GE Advanced Materials

18. Jane Hill (March 2006)
Dissertation Title: Organic Phosphorus Pollution: The Fate of Phytate in the Chesapeake Bay Watershed
Title and Affiliation: Assistant Professor, University of Vermont

19. Alexis de Kerchove (May 2007)
Dissertation Title: Deposition of Motile and Non-Motile Bacteria onto Conditioning Films: Measurements and Mechanisms
Title and Affiliation: R&D Engineer, DEGREMONT S.A.

20. Jeffrey R. McCutcheon (May 2007)
Dissertation Title: Osmotically Driven Membrane Processes: Characterization of Water Transport Phenomena through Asymmetric Polymeric Membranes
Title and Affiliation: Assistant Professor, Department of Chemical engineering, University of Connecticut.

21. Kai Loon Chen (January 2008)
Dissertation Title: Aggregation and Deposition of Nanoparticles in Aquatic Environments
Title and Affiliation: Assistant Professor, Johns Hopkins University.

22. Wui Seng Ang (July 2008)

Dissertation Title: Optimization of Chemical Cleaning of Organic-fouled Reverse Osmosis Membranes: Implications for Wastewater Reclamation
Title and Affiliation: Research Engineer, Singapore Public Utility Board.

23. Allegra da Silva (August 2008)
Dissertation Title: Norovirus Adsorption and Removal in Engineered and Natural Aquatic Environments
Title and Affiliation: Post-doctoral Reseacher, Unniversity of California, Berkeley.

Past Post-doctoral Researchers

1. Dr. Subir Bhattacharjee (2001)
Title and Affiliation: Professor, University of Alberta
2. Dr. Arza Seidel (2001)
Title and Affiliation: Technical Editor, John Wiley and Sons, New York
3. Dr. Steven Mylon (co-advised with Gaboury Benoit) (2002)
Title and Affiliation: Assistant Professor, Lafayette College
4. Dr. Pawel Weronski (co-advised with John Walz) (2003)
Title and Affiliation: Post-doctoral Research Associate, Los Alamos National Lab
5. Dr. How Ng (2003)
Title and Affiliation: Assistant Professor, National University of Singapore
6. Dr. Qilin Li (2003)
Title and Affiliation: Assistant Professor, Rice University (as of January 2006)
7. Dr. Jeremy Redman (2004)
Title and Affiliation: Assistant Professor, Californian State University, Long Beach
8. Dr. Sangyoup Lee (2005)
Title and Affiliation: Assistant Professor, Cheongju University, Korea
9. Dr. Thanh (Helen) Nguyen (2006)
Title and Affiliation: Assistant Professor, University of Illinois, UIUC
10. Dr. Moshe Herzberg (2007)
Title and Affiliation: Lecturer, Ben Gurion University, Israel
11. Dr. Baoxia Mi (2008)
Title and Affiliation: Assistant Professor, George Washington University
12. Dr. Navid Saleh (2008)
Title and Affiliation: Assistant Professor, University of South Carolina

Past Visiting Graduate Students

1. Dr. Long Nghiem (2002-2003)
   Title and Affiliation: Lecturer, University of Wollongong, Australia
2. Bart Postmus (2003)
   Title and Affiliation: Doctoral student, Wageningen University, The Netherlands
3. Ana Rita Costa (2005)
   Title and Affiliation: Doctoral Student, Instituto Superior Técnico, Lisboa, Portugal
4. Esther Huertas (2005)
   Title and Affiliation: Doctoral Student, Universitat de Barcelona, Spain
5. Alberto Tiraferri (2007)
   Title and Affiliation: Graduate Student, Politecnico di Torino, Italy

Courses Taught at UCLA

- Physical and Chemical Processes (**CEE 255A**)
- Membrane Separations in Aquatic Systems (**CEE 258**)
- Colloidal Phenomena in Aquatic Systems (**CEE 261**)
- Water Treatment Plant Design (**CEE 157B**)
- Selected Topics in Environmental Engineering (**CEE 259A**)

Courses Taught at Yale

- Environmental Transport Processeses (**ENVE 372a**)
- Transport Phenomena (**CENG/ENVE 315b**)
- Water Quality Control (**CENG/ENVE 377**)
- Physical and Chemical Processes in Environmental Engineering (**ENAS 642**)
- Separation Processes (**CENG 411**)

Short Courses Taught at International Institutions

- Membrane Technology in Water and Wastewater Treatment, National University of Singapore, 4-6 July, 2001
- Particles and Surfaces: Fundamental Aspects and Applications, Swiss federal Institute of Technology (ETH), 17- 18 July, 1997
- Colloidal Transport in Heterogeneous Porous Media, Swiss federal Institute of Technology (ETH), June 19-20, 1997
- Particle Deposition onto Model Collectors, Swiss federal Institute of Technology (ETH), June 17, 1997
- Physico-Chemical Processes for Water and Wastewater Treatment: International Course on Wastewater Reclamation and Reuse, Institute of Desert Research, Ben Gurion University, Israel, 10-12 August 1996

Service on University Wide Committees at Yale

- Yale College Course of Study Committee (1999 – 2001)
- Studies in the Environment Committee (2000 – present)
- Advisory Committee of the Division of Physical Sciences and Engineering (2001 – 2002; 2003-2005)
- Yale College Study Abroad Committee (2006-present)
- Standing Advisory and Appointments Committee for the School of Forestry and Environmental Studies (2000 – present)
- Advisory Committee on Environmental Management

Reviewer for Scholarly Journals

ACS Nano; Advances in Environmental Research; Advances in Water Resources; American Institute of Chemical Engineers Journal; Analytical Chemistry; Aqua; Biomacromolecules; Carbon; Chemical Engineering Communications; Chemical Engineering Science; Chemosphere; Colloids and Surfaces A and B; Desalination; Environmental Engineering Science; Environmental Science & Technology; Environmental Technology; Geophysical Research Letters; Industrial and Engineering Chemistry Research; Journal of Adhesion; Journal American Water Works Association; Journal of the American Chemical Society; Journal of Chemical Engineering of Japan; Journal of Chemical Physics; Journal of Colloid and Interface Science; Journal of Contaminant Hydrology; Journal of Environmental Engineering, ASCE; Journal of Hazardous Metrials; Journal of Hydrology; Journal of Membrane Science; Journal of Physical Chemistry; Langmuir; Macromolecules; Powder Technology; Reviews in Chemical Engineering; Science; Separations Technology; Separation Science and Technology; Small; Transport in Porous Media; Water Environment Research; Water Research; Water Resources Research

Reviewer for Agencies, Review Panels, and Review Teams (Selected)

American Chemical Society, The Petroleum Research Fund; Department of Energy; Department of Energy, Subsurface Science Program; Environmental Protection Agency; Israel Science Foundation; Lawrence Livermore National Laboratory; National Research Council (NRC), Water Science and Technology Board; National Science Foundation (US); National Science and Engineering Research Council of Canada (NSERC); National Science and Technology Board of Singapore; Netherlands Science Foundation; National University of Singapore; University of Arizona Water Resources Center; UC Water Resources Center; Swiss National Science Foundation; State of Louisiana, NSF EPSCoR (Tulane, LSU, and University of New Orleans)

Selected Advisory Committees and Committee Memberships

- Advisory Board of NanoH2O Inc., Oasys Water Inc.
- Advisory Committee for the international symposium "Interfaces Against Pollution" (IUPAC), to be held in Granada, Spain, June 2006
- International Scientific Committee, International Symposium on Wastewater Reclamation & Reuse for Sustainability, Jeju, Korea, November 2005
- Advisory Committee 3th International Association on Water Quality (IWA) Membrane Conference, Seoul, Korea, June 7-10, 2004
- Advisory Committee for the international symposium "Interfaces Against Pollution" (IUPAC), to be held in Julich, Germany, May 2004
- Advisory Committee for the 13th Annual Meeting of the North American Membrane Society (NAMS), May 2001, Long Beach, California

- Advisory Committee for the International Conference on Membrane Technology for Wastewater Reclamation and Reuse, September 2001, Tel Aviv, Israel
- Advisory Committee for the international symposium "Interfaces Against Pollution" (IUPAC), Wageningen, The Netherlands, August 1997
- American Water Works Association, Research Committee on Membrane Technology, 1998 – present
- Titular Member of the IUPAC "Fundamentals of Environmental Chemistry", 1997-2001
- Scientific Advisory Board, Institute for Water Science and Technology, Israel, 2003-present
- Scientific Advisory Committee, Center for Water Research, Department of Civil Engineering, National University of Singapore, 2002-present
- Scientific Advisory Committee, Department of Earth and Environmental Engineering, Columbia University, 2002-present

Selected Editorial Services

- Guest Editor (with W.P. Ball, J.E. Tobiason) for a Special Issue in *Environmental Science & Technology* in Honor of Charles R. O'Melia (Volume 31, September 2005)
- Guest Editor (with M.R. Wiesner) for a special issue on "Membrane Technology", *Environmental Engineering Science* (Volume 19 (6), 2002)
- Guest Editor (with A.K. SenGupta) for the special issue "Colloids and Interfaces in Environmental Processes", *Colloids and Surfaces A* (Vol. 191, October 2001)
- Guest Editor (with J.G. Hering) for the special issue "Colloidal and Interfacial Phenomena in Aquatic Environments", *Colloids and Surfaces A* (Vol. 107, February 1996)
- Advisory Board, *Journal of Colloid and Interface Science* (1998-2001)
- Advisory Board, *Colloids and Surfaces A*
- Advisory Board, *Desalination*
- Advisory Board, *Environmental Science & Technology*
- Advisory Board, *Environmental Engineering Science*
- Advisory Board, *Separation Science and Technology*

Session Chair and Symposia Organizer (Selected)

- Session Chair: *22nd Annual Meeting of the Fine Particle Society*, July 29-August 2, 1991, San Jose, California.
- Session Chair: International conference on *Interfacial Phenomena in the Environment*, October 6-11, 1991, Davos, Switzerland.
- Poster session co-chair: American Chemical Society Meeting-Division of Environmental Chemistry, November 1992, San Francisco, California.
- Co-organizer of a symposium (with J.G. Hering and T.C. Harmon): *Physical-Chemical Processes Controlling Contaminant Mobility in Aquatic Environments*, American Chemical Society-Division of Environmental Chemistry, March 13-18, 1994, San Diego, California.
- Organizer of a symposium (with J.G. Hering): *Colloidal and Interfacial Phenomena in Aquatic Environments*, American Chemical Society-Division of Environmental Chemistry, April 1995, Anaheim, California

- Organizer of a symposium (with G.L. Amy and M.M. Clark): *Fundamentals of Membrane Separation Processes in Aquatic Systems*, American Chemical Society-Division of Environmental Chemistry, August 1996, Orlando, Florida
- Session Chair: *9th International Conference on Surface and Colloid Science*, July 6-12, 1997, Sofia, Bulgaria.
- Organizer of a symposium (with M. Borkovec and J.G. Hering): *Interfacial and Colloidal Phenomena in Aquatic Environments*, American Chemical Society-Division of Environmental Chemistry, March 1999, Anaheim, California
- Session Chair: *Interfacial Aspects Of Remediation Technology*, AIChE Annual Meeting, Dallas, Texas October 31 - November 5, 1999
- Session Chair: *Particle Separation And Membrane Processes*, AIChE Annual Meeting, Dallas, Texas October 31 - November 5, 1999
- Organizer of a symposium (with A. SenGupta): *Interfacial and Colloidal Phenomena in Aquatic Environments*, 74th Colloid and Surface Science Symposium, American Chemical Society, Lehigh University, June 2000.
- Organizer of a symposium (with M. Clark and G. Amy): *Membrane Separation Processes in Aquatic Systems*, 220th American Chemical Society National Meeting -Division of Environmental Chemistry, August 2000, Washington, DC.
- Organizer of a symposium (with M. Borkovec): *Surfactants, Polymers, and Colloids in the Aquatic Environment*, 220th American Chemical Society National Meeting-Division of Colloid and Surface Chemistry, August 2000, Washington, DC.
- Session Chair: *Environmental Colloids and Surfaces*, AIChE Annual Meeting, Los Angeles, California, November 2000
- Session Chair: *Colloidal Interactions in Membrane Systems*, AIChE Annual Meeting, Reno, Nevada, 2001
- Session Chair, IWA International Conference on Membrane Technology for Wastewater Reclamation and Reuse, September 2001, Tel Aviv, Israel
- Session Chair (with H. Ridgway): Membrane Fouling, 13th Annual Meeting of the North American Membrane Society, May 2001, Long Beach, CA.
- Organizer of a symposium (with M. Borkovec): *Processes Involving Colloids and Polymers in the Aquatic Environment*, 224th American Chemical Society National Meeting-Division of Colloid and Surface Chemistry, August 2002, Boston, MA.
- Co-organizer of a symposium (with K.F Hayes and T.M. Olson): *Interfacial and Colloidal Phenomena in Aquatic Systems*, 76th Colloid and Surface Science Symposium, American Chemical Society, University of Michigan, June 2002.
- Session Chair: AWWA Membrane Technology Conference, March 2-5, 2003, Atlanta, Georgia
- Session Chair: *Colloidal and Interfacial Phenomena in the Environment*, ", 77th ACS Colloid and Surface Science Symposium, Atlanta, GA, June 15-18, 2003.
- Co-organizer, 78th ACS Colloid and Surface Science Symposium, June 20-13, 2004, Yale University
- Organizer (with W.P. Ball and J.E. Tobiason) of a Symposium in Honor of Professor Charles R. O'Melia: *Particles and Interfaces in Aquatic Systems*, 228th American Chemical Society National Meeting-Division of Colloid and Surface Chemistry, August 22-24, 2004, Philadelphia, PA
- Chair of the sessions on "Nanoparticles, Colloids and Interfaces in the Environment", 79th Colloid and Surface Science Symposium, June 2005, Clarkson University, Potsdam, NY.

Refereed Journal Publications

1. McGinnis, R.L., and Elimelech, M. "Global Challenges in Energy and Water Supply: The Promise of Engineered Osmosis", Environmental Science & Technology, Environmental Science & Technology, Volume 42, December 2008, pages 8625–8629.
2. da Silva, A.K., Le Guyader, F.S., Le Saux, J.C., Pommepuy, M., Montgomery, M.A., and Elimelech, M. "Norovirus Removal and Particle Association in a Waste Stabilization Pond", Environmental Science & Technology, Volume 42, December 2008, pages 9151-9157.
3. Saleh, N.B., Pfefferle, L.P., and Elimelech, M. "Aggregation Kinetics of Multiwalled Carbon Nanotubes in Aquatic Systems: Measurements and Environmental Implications", Environmental Science & Technology, Environmental Science & Technology, Volume 42, November 2008, pages 7963–7969.
4. Jaisi, D.P., Saleh, N.B., Blake, R.E., and Elimelech, M. "Transport of Single-Walled Carbon Nanotubes in Porous Media: Filtration Mechanisms and Reversibility", Environmental Science & Technology, Volume 42, November 2008, pages 8317–8323.
5. Ang, W.S., and Elimelech, M. "Fatty Acid Fouling of Reverse Osmosis Membranes: Implications for Wastewater Reclamation", Water Research, Volume 42, October 2008, pages 4393-4403.
6. Chen, K.L., and Elimelech, M. "Interaction of Fullerene (C60) Nanoparticles with Humic Acid and Alginate Coated Silica Surfaces: Measurements, Mechanisms, and Environmental Implications", Environmental Science & Technology, Environmental Science & Technology, Volume 42, October 2008, pages 7607–7614.
7. Kang, S., Mauter, M.S., and Elimelech, M. "Physicochemical Determinants of Multiwalled Carbon Nanotube Bacterial Cytotoxicity", Environmental Science & Technology, Environmental Science & Technology, Volume 42, August 2008, pages 5843-5859.
8. Mauter, M.S., and Elimelech, M. "Environmental Applications of Carbon-Based Nanomaterials", Environmental Science & Technology, Volume 42, August 2008, pages 5843-5859.
9. Tiraferri, A. Chen, K.L., Sethi, R., and Elimelech, M. "Reduced Aggregation and Sedimentation of Zero-Valent Iron Nanoparticles in the Presence of Guar Gum", Journal of Colloid and Interface Science, Volume 324, August 2008, pages 71-79.
10. Mi, B., and Elimelech, M. "Chemical and Physical Aspects of Organic Fouling of Forward Osmosis Membranes", Journal of Membrane Science, Volume 320, July 2008, pages 292-302.
11. Kang, S., Herzberg, M., Rodrigues, D. F., and Elimelech, M. "Antibacterial Effects of Carbon Nanotubes: Size Does Matter!", Langmuir, Volume 24, June 2008, pages 6409-6413.
12. McCutcheon, J.R., and Elimelech, M. "Influence of Membrane Support Layer Hydrophobicity on Water Flux in Osmotically Driven Membrane Processes", Journal of Membrane Science, Volume 318, June 2008, pages 458-466.
13. Huertas, H, Herzberg, M., Oron, G. Elimelech, M, "Influence of Biofouling on Boron Removal by Nanofiltration and Reverse Osmosis Membranes", Journal of Membrane Science, Volume 318, June 2008, pages 264-270.
14. de Kerchove, A.J., and Elimelech, M. "Bacterial Swimming Motility Enhances Cell Deposition and Surface Coverage", Environmental Science & Technology, Volume 42, June 2008, pages 4371-4377.
15. Shannon, M.A., Bohn, P.W., Elimelech, M., Georgiadis, J.G., Mariñas, B.J. and Mayes, A.M. "Science and Technology for Water Purification in the Coming Decades", Nature, Volume 452, March 2008, pages 301-310.
16. de Kerchove, A.J. and Elimelech, M. "Calcium and Magnesium Cations Enhance the Adhesion of Motile and Non-Motile Pseudomonas aeruginosa on Alginate Films", Langmuir, Volume 24, March 2008, pages 3392-3399.
17. Brady-Estévez, A.S., Kang, S., and Elimelech, M. "A Single-Walled Carbon Nanotube Filter for Removal of Viral and Bacterial Pathogens", Small, Volume 4, April 2008, pages 481-484.

18. Weronski, P., and Elimelech, M. "A Novel Numerical Method for Calculating Initial Flux of Colloid Particle Adsorption through an Energy Barrier", Journal of Colloid and Interface Science, Volume 319, March 2008, pages 406-415.

19. Herzberg, M. and Elimelech, M. "Physiology and Genetic Traits of Reverse Osmosis Membrane Biofilms: A Case Study with Pseudomonas aeruginosa", The ISME Journal, Volume 2, February 2008, pages 180-194.

20. da Silva, A.K, Le Saux, J.C., Parnaudeau, S. Pommepuy, M. Elimelech, M., and Le Guyader, F.S. "Evaluation of Removal of Noroviruses during Wastewater Treatment, Using Real-Time Reverse Transcription-PCR: Different Behaviors of Genogroups I and II", *Applied and Environmental Microbiology*, Volume 73, December 2007, pages 7891–7897.

21. Hill, J.E., Kysela, D.T., and Elimelech, M. "Isolation and Assessment of Phytate-Hydrolyzing Bacteria from the DelMarVa Peninsula", *Environmental Microbiology*, Volume 9, December 2007, pages 3100-3107.

22. de Kerchove, A.J. and Elimelech, M. "Adhesion of Non-Motile Pseudomonas aeruginosa on "Soft" Polyelectrolyte Layer in a Radial Stagnation Point Flow System: Measurements and Model Prediction", *Langmuir*, Volume 23, November 2007, pages 12301-12308.

23. McGinnis, R.L., McCutcheon, J.R., and Elimelech, M. "A Novel Ammonia - Carbon Dioxide Osmotic Heat Engine for Power Generation", *Journal of Membrane Science*, Volume 305, November 2007, pages 13-19.

24. Kang, S., Pinault, M., Pfefferle, L.D., and Elimelech, M. "Single-Walled Carbon Nanotubes Exhibit Strong Antimicrobial Activity", *Langmuir*, Volume 23, August 2007, pages 8670-8673.

25. de Kerchove, A.J. and Elimelech, M. "Impact of Alginate Conditioning Film on Deposition Kinetics of Motile and Nonmotile *Pseudomonas aeruginosa* Strains", *Applied and Environmental Microbiology*, Volume 73, August 2007, pages 5227-5234.

26. McCutcheon, J.R., and Elimelech, M. "Modeling Water Flux in Forward Osmosis: Implications for Improved Membrane Design", *AIChE Journal*, Volume 53, June 2007, pages 1736-1744.

27. Asatekin, A., Kang, S, Elimelech, M., and Mayes, A.M. "Anti-fouling Ultrafiltration Membranes Containing Polyacrylonitrile-Graft-Poly(Ethylene Oxide) Comb Copolymer Additives" , *Journal of Membrane Science,* Volume 298, June 2007, pages 136-146.

28. Chen, K. L., Mylon, S. E., and Elimelech, M. "Enhanced Aggregation of Alginate-Coated Iron Oxide (Hematite) Nanoparticles in the Presence of Calcium, Strontium, and Barium Cations", *Langmuir*, Volumes 23, May 2007, pages 5920-5928.

29. Kang, S., Asatekin, A., Mays, A.M., and Elimelech, M. "Protein antifouling mechanisms of PAN UF membranes incorporating PAN-g-PEO additive" *Journal of Membrane Science*, Volume 296, June 2007, pages 42-50.

30. Ang, W.S., and Elimelech, M. "Protein (BSA) Fouling of Reverse Osmosis Membranes: Implications for Wastewater Reclamation", *Journal of Membrane Science*, Volume 296, June 2007, pages 83-92.

31. Herzberg, M. and Elimelech, M. "Biofouling of Reverse Osmosis Membranes: Role of Biofilm-Enhanced Osmotic Pressure", *Journal of Membrane Science*, Volume 295, May 2007, Pages 11-20.

32. Chen, K.L., and Elimelech, M. "Influence of Humic Acid on the Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles in Monovalent and Divalent Electrolyte Solutions", *Journal of Colloid and Interface Science, Volume 309, May 2007, pages 126-134.*

33. Nguyen, T.H., and Elimelech, M. "Adsorption of Plasmid DNA to a Natural Organic Matter Coated Silica Surface: Kinetics, Conformation, and Reversibility" *Langmuir*, Volume 23, March 2007, pages 3273-3279.

34. Lee, S., and Elimelech, M. "Salt cleaning of Organic-Fouled Reverse Osmosis Membranes", *Water Research*, Volume 41, March 2007, pages 1134-1142.

35. Kuznar, Z.A. and Elimelech, M. "Direct Microscopic Observation of Particle Deposition in Porous Media: Role of the Secondary Energy Minimum", *Colloids and Surfaces A*, Vol. 294, February 2007, pages 156-162.

36. Montgomery, M.A., and Elimelech, M. "Water and Sanitation in Developing Countries: Including Health in the Equation", *Environmental Science and Technology*, Volume 41, January 2007, pages 17-24.

37. Nguyen, T.H., and Elimelech, M. "Plasmid DNA Adsorption on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts" *Biomacromolecules*, Volume 8, January 2007, pages 24-32.

38. de Kerchove, A.J. and Elimelech, M. "Formation of Polysaccharide Gel Layers in Presence of Ca^{2+} and K^{+} Ions: Measurements and Mechanisms", *Biomacromolecules*, Volume 8, January 2007, pages 113-121.

39. McGinnis, R.L., and Elimelech, M. "Energy Requirements of Ammonia–Carbon Dioxide Forward Osmosis Desalination", *Desalination*, Volume 207, 2007, pages 370-382.

40. McGinnis, R.L., and Elimelech, M. "Energy Requirements of Ammonia–Carbon Dioxide Forward Osmosis Desalination", *Desalination*, Volume 207, 2006, pages 370-382.

41. Nghiem, L.D., Schäfer, A.I, and Elimelech, M. "Role of Electrostatic Interactions in the Retention of Pharmaceutically Active Contaminants by a Loose Nanofiltration Membrane", *Journal of Membrane Science*, Volume 286, December 2006, pages 52-59.

42. Chen, K.L., and Elimelech, M. "Aggregation and Deposition Kinetics of Fullerene (C_{60}) Nanoparticles", *Langmuir*, Volume 22, November 2006, pages 10994-11001.

43. Asatekin, A., Menniti, A., Kang, S. Elimelech, M., Morgenroth, E., and Mayes, A.M. "Antifouling Nanofiltration Membranes for Membrane Bioreactors from Self-Assembling Graft Copolymers", *Journal of Membrane Science*, Volume 285, November 2006, pages 81–89.

44. McCutcheon, J.R., and Elimelech, M. "Influence of Concentrative and Dilutive Internal Concentration Polarization on Flux Behavior in Forward Osmosis", *Journal of Membrane Science*, Volume 284, October 2006, pages 237-247.

45. de Kerchove, A.J. and Elimelech, M. "Structural Growth and Viscoelastic Properties of Adsorbed Alginate Layers in Monovalent and Divalent Salts", *Macromolecules*, Volume 39, September 2006, pages 6558-6564.

46. Cath, T.Y., Childress, A.E., and Elimelech, M. "Forward osmosis: Principles, Applications, and Recent Developments", *Journal of Membrane Science*, Volume 281, September 2006, pages 70-87.

47. Costa, A.R., de Pinho, M.N., and Elimelech, M. "Mechanisms of Colloidal Natural Organic Matter Fouling in Ultrafiltration", *Journal of Membrane Science*, Volume 281, September 2006, pages 716-725.

48. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "Desalination by Ammonia-Carbon Dioxide Forward Osmosis: Influence of Draw and Feed Solution Concentrations on Process Performance", *Journal of Membrane Science*, Volume 278, July 2006, pages 114-123.

49. Gray, G.T., McCutcheon, J.R., and Elimelech, M. "Internal Concentration Polarization in Forward Osmosis: Role of Membrane Orientation", *Desalination*, Volume 197, June 2006, pages 1-8.

50. Li, Q., and Elimelech, M. "Synergistic Effects in Combined Fouling of a Loose Nanofiltration Membrane by Colloidal Materials and Natural Organic Matter", *Journal of Membrane Science*, Volume 278, July 2006, pages 72-82.

51. Kuznar, Z.A. and Elimelech, M. "*Cryptosporidium* Oocyst Surface Macromolecules Significantly Hinder Oocyst Attachment", *Environmental Science and Technology*, Volume 40, March 2006, pages 1837-1842.

52. Chen, K.L., Mylon, S.E., and Elimelech, M. "Aggregation Kinetics of Alginate-Coated Hematite Nanoparticles in Monovalent and Divalent Electrolytes", *Environmental Science and Technology*, Volume 40, March 2006, pages 1516-1523.

53. Lee, S., and Elimelech, M. "Relating Organic Fouling of Reverse Osmosis Membranes to Intermolecular Adhesion Forces", *Environmental Science and Technology*, Volume 40, February 2006, pages 980-987.

54. Ang, W.S., Lee, S., and Elimelech M., "Chemical and Physical Aspects of Cleaning of Organic-Fouled Reverse Osmosis Membranes", *Journal of Membrane Science*, Volume 272, March 2006, Pages 198-210.

55. Elimelech, M. "The Global Challenge for Adequate and Safe Water", *Journal of Water Supply: Research and Technology – AQUA*, Volume 55, February 2006, pages 3-10.

56. Lee, S., Ang, W.S., and Elimelech M., "Fouling of Reverse Osmosis Membranes by Hydrophilic Organic Matter: Implications for Water Reuse", *Desalination*, Volume 187, February 2006, pages 313-321.

57. Nghiem, L.D., Schäfer, A.I., and Elimelech, M. "Pharmaceutical Retention Mechanisms by Nanofiltration Membranes", *Environmental Science and Technology*, Volume 39, October 2005, pages 7698 – 7705.

58. Nghiem, L.D., Schäfer, A.I., and Elimelech, M. "Nanofiltration of Hormone Mimicking Trace Organic Contaminants", *Separation Science and Technology*, Volume 40, November 2005, pages 2633-2649.

59. Lee, S., Cho, J. and Elimelech M., "Combined Influence of Natural Organic Matter (NOM) and Colloidal Particles on Nanofiltration Membrane Fouling", *Journal of Membrane Science*, Volume 262, October 2005, pages 27-41.

60. Abudalo, R.A., Bogatsu, Y.G., Ryan, J.N., Harvey, R.W. Metge, D.W., and Elimelech, M. "The Effect of Ferric Oxyhydroxide Grain Coatings on the Transport of Bacteriophage PRD1 and *Cryptosporidium parvum* Oocysts in Saturated Porous Media." *Environmental Science and Technology*, Volume 39, September 2005, pages 6412 - 6419.

61. Walker, S.L., Redman, J.A., and Elimelech M. "Influence of Growth Phase on Bacterial Deposition: Interaction Mechanisms in Packed-Bed Column and Radial Stagnation Point Flow Systems", *Environmental Science and Technology*, Volume 39, September 2005, pages 6405 - 6411.

62. Lee, S., Cho, J. and Elimelech M., "A Novel Method for Investigating the Influence of Feed Water Recovery on Colloidal and NOM Fouling of RO and NF Membranes", *Environmental Engineering Science*, Volume 22, July 2005, pages 496-509.

63. de Kerchove, A.J. and Elimelech, M. "Relevance of Electrokinetic Theory for 'Soft' Particles to Bacterial Cells: Implications for Bacterial Adhesion", *Langmuir*, Volume 21, July 2005, pages 6462-6472.

64. Walker, S.L., Hill, J.E., Redman, J.A., and Elimelech M. "Influence of Growth Phase on the Adhesion Kinetics of *Escherichia coli* D21g", *Applied and Environmental Microbiology*, Volume 71, June 2005, pages 3093-3099.

65. Chen, J.C., Elimelech, M., and Kim, A.S., "Monte Carlo Simulation of Colloidal Membrane Filtration: Model Development with Application to Characterization of Phase Transition Phenomenon", *Journal of Membrane Science*, Volume 255, June 2005, Pages 291-305.

66. Tufenkji, N., and Elimelech M. "Spatial Distributions of *Cryptosporidium* Oocysts in Porous Media: Evidence for Dual Mode Deposition", *Environmental Science and Technology*, Volume 39, May 2005, pages 3620 - 3629.

67. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "A Novel Ammonia-Carbon Dioxide Forward (Direct) Osmosis Desalination Process", *Desalination*, Volume 174, 2005, pages 1-11.

68. Tufenkji, N., and Elimelech M. "Breakdown of Colloid Filtration Theory: Role of the Secondary Energy Minimum and Surface Charge Heterogeneities", *Langmuir*, Volume 21, January 2005, pages 841-852.

69. Kuznar, Z.A. and Elimelech, M. "Role of Surface Proteins in the Deposition Kinetics of *Cryptosporidium parvum* Oocysts", *Langmuir*, Volume 21, January 2005, pages 710-716.

70. Kuznar, Z.A. and Elimelech, M. "Adhesion Kinetics of Viable *Cryptosporidium parvum* Oocysts to Quartz Surfaces", *Environmental Science and Technology*, Volume 38, December 2004, pages 6839-6845.

71. Tufenkji, N., and Elimelech M. "Deviation from Classical Colloid Filtration Theory in the Presence of Repulsive DLVO Interactions", *Langmuir*, Volume 20, December 2004, pages 10818-10828.

72. Tufenkji, N., Miller, G.F., Ryan, J.N., Harvey, R.W., and Elimelech M. "Transport of *Cryptosporidium* Oocysts in Porous Media: Role of Straining and Physico-Chemical Filtration", *Environmental Science and Technology*, Volume 38, November 2004, pages 5932-5938.

73. Ng, H.Y., and Elimelech, M. "Influence of Colloidal Fouling on Rejection of Trace Organics by Reverse Osmosis", *Journal of Membrane Science*, Volume 244, November 2004, pages 215-226.

74. Mylon, S.E., Chen, K.L., and Elimelech, M. "Influence of Natural Organic Matter and Ionic Composition on the Kinetics and Structure of Hematite Colloid Aggregation: Implications to Iron Depletion in Estuaries", *Langmuir*, Volume 20, October 2004, pages 9000-9006.

75. Li, Q. and Elimelech, M. "Organic Fouling and Chemical Cleaning of Nanofiltration Membranes: Measurements and Mechanisms", *Environmental Science and Technology*, Volume 38, September 2004, pages 4683-4693.

76. Walker, S.L., Redman, J.A., and Elimelech M. "Role of Cell Surface Lipopolysaccharides (LPS) in *Escherichia coli* K12 Adhesion and Transport", *Langmuir*, Volume 20, August 2004, pages 7736-7746.

77. Nghiêm, D.L., McCutcheon, J., Schäfer, A.I., and Elimelech, M. "The Role of Endocrine Disrupters in Water Recycling: Risk or Mania?", *Water Science and Technology*, Volume 50, 2004, pages 215-220.

78. Redman, J.A., Walker, S.L., and Elimelech, M., "Bacterial Adhesion and Transport in Porous Media: Role of the Secondary Energy Minimum", *Environmental Science and Technology*, Volume 38, March 2004, pages 1777-1785.

79. Nghiem, L.D., Schaefer, A.I., and Elimelech, M. "Removal of Natural Hormones by Nanofiltration Membranes: Measurement, Modeling, and Mechanisms", *Environmental Science and Technology*, Volume 38, March 2004, pages 1888-1896.

80. Chen, J.C., Li, Q., and Elimelech, M. "In-situ Monitoring Techniques for Concentration Polarization and Fouling in Membrane Filtration", *Advances in Colloid and Interface Science*, Volume 107, March 2004, pages 83-104.

81. Tufenkji, N. and Elimelech M. "Correlation Equation for Predicting Single-Collector Efficiency in Physicochemical Filtration in Saturated Porous Media", *Environmental Science and Technology*, Volume 38, January 2004, pages 529-536.

82. Lee, S., Cho, J. and Elimelech M., "Influence of Colloidal Fouling and Feed Water Recovery on Salt Rejection in RO and NF Membrane Separations", *Desalination*, Volume 160, January 2004, pages 1-12.

83. Hoek E.M.V., and Elimelech, M. "Cake-Enhanced Concentration Polarization: A New Fouling Mechanism for Salt Rejecting Membranes", *Environmental Science and Technology*, Volume 37, December 2003, pages 5581 - 5588

84. Loveland, J.P., Bhattacharjee, S., Ryan, J.N. Elimelech, M. "Colloid Transport in a Geochemically Heterogeneous Porous Medium: Aquifer Tank Experiment and Modeling", *Journal Contaminant Hydrology*, Volume 65, September 2003. pages 161-182.

85. Elimelech, M., Chen, J.Y., and Kuznar, Z. "Particle Deposition on Surfaces with Micropatterned Charge Heterogeneity: The Hydrodynamic Bump Effect, *Langmuir*, Volume 19, August 2003, pages 6594-6597.

86. Song, L., Hu, J. Y, Ong, S.L., Ng, W.J., Elimelech, M., and Wilf, M. "Emergence of Thermodynamic Restriction and its Implications for the Full-Scale Reverse Osmosis Process", *Desalination*, Vol. 155, July 2003, Pages 213-228

87. Weronski, P.; Walz, J.Y.; Elimelech, M. "Effect of Depletion Interaction on Transport of Colloidal Particles in Porous Media" *J. Colloid Interface Sci.*, Volume 262, June 2003, pages 372-383.

88. Hoek E.M.V., Bhattacharjee, S., and Elimelech, M. "Effect of Membrane Surface Roughness of Colloid-Membrane DLVO Interactions", *Langmuir*, Vol. 19, May 2003, pages 4836-4847.

89. Song, L., Hu, J. Y, Ong, S.L., Ng, W.J., Elimelech, M., and Wilf, M. "Performance Limitation in the Full-Scale Reverse Osmosis Process", *Journal of Membrane Science*, Vol. 214, April 2003, 239-244.

90. Tufenkji, N., Redman, J.A., and Elimelech, M. "Interpreting Deposition Patterns of Microbial Particles in Laboratory-Scale Column Experiments" *Environmental Science & Technology*, Volume 37, February 2003, pages 616-623.

91. Hoek, E.M.V., Kim, A.S., and Elimelech, M., "Influence of Crossflow Membrane Filter Geometry and Shear Rate on Colloidal Fouling in reverse Osmosis and Nanofiltration Separations", *Environmental Engineering Science*, Volume 19, December 2002, pages 357-372.

92. Le Gouellec, Y.A., and Elimelech, M. "Control of Calcium Sulfate (Gypsum) Scale in Nanofiltration of Saline Agricultural Drainage Water", *Environmental Engineering Science*, Volume 19, December 2002, pages 387-398.

93. Tufenkji, N., Ryan, J.N., and Elimelech M. "The Promise of Bank Filtration", *Environmental Science & Technology*, Volume 36, November 2002, pages 422A-428A.

94. Ryan, J.N., Harvey, R.H., Metge, D., Elimelech, M., Navigato, T., and Piper A.P. "Field and Laboratory Investigations of Inactivation of viruses (PRD1 and MS2) Attached to Iron Oxide-Coated Quartz Sand", *Environmental Science and Technology*, Volume 36, August 2002, pages 2403-2413.

95. LeGouellec, Y. and Elimelech, M. "Gypsum Scaling in Nanofiltration of Agricultural Drainage Water", *Journal of Membrane Science*, Volume 205, August 2002, 279-291.

96. Bhattacharjee, S., Ryan, J.N., and Elimelech, M. "Virus Transport in Physically and Geochemically Heterogeneous Subsurface Porous Media", *Journal of Contaminant Hydrology*, Volume 57, August 2002, 161-187.

97. Chen, J.Y., Klemic, J.F., Elimelech, M. "Micropatterning Microscopic Chemical Heterogeneity on Flat Surfaces for Studying the Interaction between Colloidal Particles and Heterogeneously Charged Surfaces", *Nano* Letters, Volume 2, April 2002, pages 393-396.

98. Seidel, A., and Elimelech, M. "Coupling between Chemical and Physical Interactions in NF Membrane Fouling by Natural Organic Matter: Implications for Fouling Control", *Journal of Membrane Science*, Volume 203, March 2002, pages 245-255.

99. Walker, S.L., Bhattacharjee, S., Hoek. E.M.V., and Elimelech, M. "A Novel Asymmetric Clamping Cell for Measuring Streaming Potential of Flat Surfaces", *Langmuir*, Volume 18, March 2002, pages 2193-2198.

100. Bunn, R.A., Ryan, J.N., and Elimelech, M. "Mobilization of Natural Colloids from an Iron Oxide Coated Sand Aquifer: Effect of pH and Ionic Strength", *Environmental Science and Technology*, Volume 36, February 2002, pages 314-322.

101. Bhattacharjee, S., Chen, J.C., and Elimelech, M. "Coupled Model of Concentration Polarization and Pore Transport in Crossflow Nanofiltration of Multi-Component Electrolytes", *AIChE Journal*, December 2001, Vol. 47, pages 2733-2745.

102. Chen, J.Y., Ko, C.-H., Bhattacharjee, S., and Elimelech, M. "Role of Spatial Distribution of Porous Medium Geochemical Heterogeneity in Colloid Transport", *Colloids and Surfaces A*, Volume 191, October 2001, pages 3-16

103. Grolimund, D., Elimelech, M., and Borkovec, M. "Aggregation and Deposition Kinetics of Mobile Colloidal Particles in Natural Porous Media", *Colloids and Surfaces A*, Volume 191, October 2001, pages 179-188.

104. Vrijenhoek, E.M., Hong, S., and Elimelech, M. "Influence of Membrane Surface Properties on Initial Rate of Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes", *Journal of Membrane Science*, Volume 188, June 2001, pages 115-128.

105. Sun, N., Elimelech, M., Sun, N.-Z., and Ryan, J.N. "A Novel Two-Dimensional Model for Colloid Transport in Physically and Geochemically Heterogeneous Porous Media", *Journal of Contaminant Hydrology*, Volume 49, June 2001, pages 173-199.

106. Seidel, A., Waypa, J.J. and Elimelech, M. "Role of Charge (Donnan) Exclusion in Removal of Arsenic from Water by a Negatively Charged Porous Nanofiltration Membrane", *Environmental Engineering Science*, Volume 18, May 2001, pages 105-113..

107. Sun, N., Sun, N.-Z ., Elimelech, M., and Ryan, J.N. "Sensitivity Analysis and Parameter Identifiability in Colloid Transport in Geochemically Heterogeneous Porous Media", *Water Resources Research*, Volume 37, February 2001, pages 209-222.

108. Kim, S., Bhattacharjee, S. and Elimelech, M. "Shear Induced Reorganization of Deformable Molecular Assemblages: Monte Carlo Studies, *Langmuir*, Vol. 17, January 2001, pages 552-561.

109. Kuhnen, F., Bhattacharjee, S., Elimelech, M, and Kretzschmar, R. "Transport and Deposition Dynamics of Iron Oxide Colloids in Packed Quartz Media: Monolayer and Multilayer Deposition" *Journal of Colloid and Interface Science*, Vol. 231, November 2000, pages 32-41.

110. Ko, C.-H., and Elimelech, M. "The Shadow Effect in Colloid Transport and Deposition Dynamics in Granular Porous Media: Measurements and Mechanisms", *Environmental Science and Technology*, Volume 34, September 2000, pages 3681-3689.

111. Ko, C.-H., Bhattacharjee, S., and Elimelech, M. "The Coupled Influence of Ionic Strength, Particle Size, and Flow Velocity on the RSA Dynamic Blocking Function during Colloid Deposition in a Packed Bed of Spherical Collectors", *Journal of Colloid and Interfoce Science*, Volume 229, September 2000, pages 554-567.

112. Childress, A.E., and Elimelech, M. "Relating Nanofiltration Membrane Performance to Membrane Charge (Electrokinetic) Characteristics", *Environmental Science and Technology*, Volume 34, September 2000, pages 3710-3716.

113. Ryan, J.N., Elimelech, M., Magelky, R.D., and Baseman, J.L., "Silica-Coated Titania and Zirconia Colloids for Subsurface Transport Field Experiments", *Environmental Science and Technology*, Volume 34, May 2000, pages 2000-2005.

114. Elimelech, M., Nagai, M., Ko, C.-H., and Ryan, J.N. " Relative Insignificance of Mineral Grain Zeta Potential to Colloid Transport in Geochemically Heterogeneous Porous Media", *Environmental Science and Technology*, Volume 34, June 2000, pages 2143-2148.

115. Bhattacharjee, S., Chen, J.Y., and Elimelech M. "DLVO Interaction between Spheroidal Particles and a Flat Surface", *Colloids and Surfaces A*, Volume 165, May 2000, pages 143-156.

116. Childress, A.E., Vrijenhoek, E.M., Elimelech, M. "Particulate and THM Precursor Removal with Ferric Chloride", *Journal of Environmental Engineering. ASCE.* Volume 125 (11), November 1999, pages 1054-1061.

117. Bhattacharjee, S., Kim, A.S., and Elimelech, M., "Concentration Polarization of Interacting Solute particles in Crossflow membrane Filtration", *Journal of Colloid and Interface Science*, Volume 212, April 1999, pages 81-99.

118. Kretzschmar, R., Borkovec, M., Grolimund, D., and Elimelech, "Mobile Subsurface Colloids and their Role in Contaminant Transport" (Review Paper), *Advances in Agronomy*, Volume 66, January 1999, pages 121-194.

119. Ryan J.N., Elimelech M., Ard R.A., Harvey R.W., and Johnson P.R., "Bacteriophage PRD1 and Silica Colloid Transport and Recovery in an Iron Oxide-Coated Sand Aquifer", *Environmental Science & Technology*, Volume 33, January 1999, pages 63-73.

120. Bhattacharjee, S., Elimelech, M., and Borkovec, M., "DLVO Interaction between Colloidal Particles: Beyond Derjaguin's Approximation", (Invited Paper for a Special Issue in Honor of Professor Egon Matijevic) *Croatica Chemica Acta*, Volume 71, December 1998, pages 883-903.

121. Grolimund, D., Elimelech, M., Borkovec, M., Barmettler, K., Kretzschmar, R., and Sticher, H., "Transport of *in-situ* Mobilized Colloidal Particles in Packed Soil Columns", *Environmental Science & Technology*, Volume 32, November 1998, pages 3562-3569.

122. Clark, M.M. *et al.* AWWA "Committee Report: Membrane Processes", *Journal American Water Works Association*, Volume 90, June 1998, pages 91-105.

123. Faibish, R.S., Elimelech, M., and Cohen, Y., "Effect of Interparticle Electrostatic Double Layer Interactions on Permeate Flux Decline in Crossflow Membrane Filtration of Colloidal Suspensions: An Experimental Investigation", *Journal of Colloid and Interface Science*, Volume 204, August 1998, pages 77-86.

124. Elimelech, M, and Bhattacharjee, S. "A Novel Approach for Modeling Concentration Polarization in Crossflow Membrane Filtration Based on the Equivalence of Osmotic Pressure Model and Filtration Theory", *Journal of Membrane Science*, Volume 145, July 1998, pages 223-241.

125. Bhattacharjee, S., Ko, C.-H., and Elimelech, M., "DLVO Interaction between Rough Surfaces, *Langmuir*, Volume 14, June 1998, pages 3365-3375.

126. Vrijenhoek, E., Childress, A.E., Elimelech, M, Tanaka, T.S., and Beuhler, M.D., "Removal of Particles and THM Precursors by Enhanced Coagulation", *Journal American Water Works Association*, Volume 90, April 1998, pages 139-150.

127. Mazzolani, G., Stolzenbach, K.D., and Elimelech, M. "Coagulation of Settling Aggregates of Different Size and Density", *Journal of Colloid and Interface Science*, Vol. 197, January 1998, pages 334-347.

128. Hong, S., Faibish, R.S., and Elimelech, M. "Kinetics of Permeate Flux Decline in Crossflow Membrane Filtration of Colloidal Suspensions", *Journal of Colloid and Interface Science*, Volume 196, December 1997, pages 267-277.

129. Zhu, X., and Elimelech M. "Colloidal Fouling of Reverse Osmosis Membranes: Measurements and Fouling Mechanisms", *Environmental Science & Technology*, Volume 31, December 1997, pages 3654-3662.

130. Bhattacharjee, S., and Elimelech, M., "Surface Element Integration: A Novel Technique for Evaluation of DLVO Interaction between a Particle and an Infinite Flat Plate", *Journal of Colloid and Interface Science*, Volume 193, October 1997, pages 273-285.

131. Waypa, J.J., Hering, J.G., and Elimelech, M. "Arsenic Removal from Water by Reverse Osmosis and Nanofiltration Membrane Processes", *Journal American Water Works Association*, Volume 89(10), October 1997, pages 102-114..

132. Hong, S., and Elimelech, M. "Chemical and Physical Aspects of Natural Organic Matter (NOM) Fouling of Nanofiltration Membranes", *Journal of Membrane Science*, Volume 132, September 1997, pages 159 - 181.

133. Hering, J.G., Chen P-Y., Wilkie, J.A., and Elimelech, M. "Arsenic Removal from Drinking Water During Coagulation", *Journal of Environmental Engineering, ASCE.*, Volume 123(8), August 1997, pages 800-807.

134. Elimelech, M., Zhu, X., and Childress, A.E. "Role of Surface Morphology in Colloidal Fouling of Polymeric Membranes", *Journal of Membrane Science*, Volume 127, April 1997, pages 101-109.

135. Johnson, P.R., Sun, N., and Elimelech, M. "Colloid Transport in Geochemically Heterogeneous Porous Media: Modeling and Measurements", *Environmental Science & Technology*, Volume 30, November 1996, pages 3284-3293.

136. Childress, A.E., and Elimelech, M. "Effect of Solution Chemistry on the Surface Charge of Polymeric Reverse Osmosis and Nanofiltration Membranes", *Journal of Membrane Science*, Volume 119(2), October 1996, pages 253-268.

137. Hering, J.G., Chen, P.-Y., Wilkie, J.A., Elimelech, M., and Liang, S. "Arsenic Removal by Ferric Chloride", Journal American Water Works Association, Volume 88, April 1996, pages 155-167.

138. Ryan, J.N., and Elimelech, M. "Colloid Mobilization and Transport in Groundwater", *Colloids and Surfaces A*, Volume 107, February 1996, pages 1-56.

139. Liu, D., Johnson, P.R., and Elimelech, M. "Colloid Deposition Dynamics in Flow Through Porous Media: Role of Electrolyte Concentration", *Environmental Science & Technology*, Volume 29, December 1995, pages 3021-3031.

140. Zhu, X., and Elimelech, M. "Fouling of Reverse Osmosis Membranes by Aluminum Oxide Colloids", *Journal of Environmental Engineering, ASCE.*, Volume 121, December 1995, pages 884-892..

141. Song, L. and Elimelech M. "Theory of Concentration Polarization in Crossflow Filtration", *Journal of the Chemical Society, Faraday Transactions* , Volume 91, October 1995; pages 3389-3398.

142. Song, L. and Elimelech M. "Particle Deposition onto a Permeable Surface in Laminar Flow" *Journal of Colloid and Interface Science* Vol. 173, July 1995, pages 165-180

143. Johnson, P.R., and Elimelech, M. "Dynamics of Colloid Deposition in Porous Media: Blocking Based on Random Sequential Adsorption", *Langmuir* Vol. 11, March 1995, pages 801-812.

144. Elimelech, M., "Particle Deposition on Ideal Collectors from Dilute Flowing Suspensions: Mathematical Formulation, Numerical Solution, and Simulations", *Separations Technology*, Vol. 4, October 1994, pages 186-212.

145. Song, L., and Elimelech, M., "Transient Deposition of Colloidal Particles in Heterogeneous Porous Media", *Journal of Colloid and Interface Science,* Vol. 167 October 1994, pages 222-234

146. Elimelech, M., Chen, W. H., and Waypa, J. J. "Measuring the Zeta (Electrokinetic) Potential of Reverse Osmosis Membranes by a Streaming Potential Analyzer", *Desalination.*, Vol. 95(3), July 1994, pages 269-286.

147. Glater J., Hong, S-K., and Elimelech, M. "The Search for a Chlorine Resistant Reverse Osmosis Membrane", *Desalination.*, Vol. 95(3), July 1994, pages 325-345.

148. Song, L., Johnson, P. R., and Elimelech, M. "Kinetics of Colloid Deposition onto Heterogeneously Charged Surfaces in Porous Media", *Environmental Science & Technology,*. Vol. 28(6), June 1994, pages 1164-1171.

149. Elimelech, M. "Effect of Particle Size on the Kinetics of Particle Deposition under Attractive Double Layer Interactions", *Journal of Colloid and Interface Science.*, Vol. 164, April 1994, pages 190-199.

150. Stolzenbach, K. D., and Elimelech, M., "The Effect of Particle Density on Collisions Between Sinking Particles: Implications for Particle Aggregation in the Ocean", *Deep-Sea Research*, Vol. 41(3), March 1994, pages 469-483.

151. Ching, H-W., and Elimelech, M., "Dynamics of Coagulation of Kaolin Particles with Ferric Chloride", *Water Research*, Vol. 28, March 1994, pages 559-569.

152. Ching, H-W., Elimelech, M., and Hering J. G., "Dynamics of Coagulation of Clay Particles with Aluminum Sulfate", *Journal of Environmental Engineering, ASCE.*, Vol. 120, January/February 1994, pages 169-189.

153. Song, L., and Elimelech, M., "Calculation of Particle Deposition Rate under Unfavorable Particle-Surface Interactions", *Journal of the Chemical Society, Faraday Transactions*, Vol. 89, September 1993, pages 3443-3452.

154. Song, L., and Elimelech, M., "Dynamics of Colloid Deposition in Porous Media: Modeling the Role of Retained Particles", *Colloids and Surfaces A*, Vol. 73, June 1993, pages 49-63.

155. van Zanten, J. H., and Elimelech, M., "Determination of Absolute Coagulation Rate Constants by Multiangle Light Scattering", *Journal of Colloid and Interface Science*, Vol. 154, November 1992, pages 1-7.

156. Song, L., and Elimelech, M., "Deposition of Brownian Particles in Porous Media: Modified Boundary Conditions for the Sphere-in-Cell Model", *Journal of Colloid and Interface Science*, Vol. 153, October 1992, pages 294-297.

157. Elimelech, M., and Song L., "Theoretical Investigation of Colloid Separation from Dilute Aqueous Suspensions by Oppositely Charged Granular Media", *Separations Technology*, Vol. 2, January 1992, pages 2-12.

158. Elimelech, M., "Predicting Collision Efficiencies of Colloidal Particles in Porous Media", *Water Research*, Vol. 26, January 1992, pages 1-8.

159. Elimelech, M., "Kinetics of Capture of Colloidal Particles in Packed Beds Under Attractive Colloidal Interactions", *Journal of Colloid and Interface Science*, Vol. 146, October 1991, pages 337-352.

160. Elimelech, M., and O'Melia C.R., "Kinetics of Deposition of Colloidal Particles in Porous Media", *Environmental Science & Technology*, Vol. 24, October 1990, pages 1528-1536.

161. Elimelech, M., "Indirect Evidence for Hydration Forces in the Deposition of Polystyrene Latex Colloids on Glass Surfaces", *Journal of the Chemical Society, Faraday Transactions*, Vol. 86(9), May 1990, pages 1623-1624.

162. Elimelech, M., and O'Melia C.R., "Effect of Particle Size on Collision Efficiency in the Deposition of Brownian Particles with Electrostatic Energy Barriers", *Langmuir*, Vol. 6(6), June 1990, pages 1153-1163.

163. Elimelech, M., and C.R., O'Melia, "Effect of Electrolyte Type on the Electrophoretic Mobility of Polystyrene Latex Colloids", *Colloids and Surfaces*, Vol. 44, March 1990, pages 165-177.

164. Adin, A., and Elimelech, M., "Particle Filtration for Wastewater Irrigation", *Journal of Irrigation and Drainage Engineering, ASCE*, Vol. 115, No. 3, June 1989, pages 474-487.

Discussions

Elimelech, M. Discussion of "Colloid Filtration in Fluidized Beds" by G. Sprouse and B. E. Rittmann, *Journal of Environmental Engineering, ASCE*, Vol. 117, No. 5., September/October 1991, pages 706-708.

Books

Elimelech, M., J. Gregory, X. Jia, and R. A. Williams (1995). "*Particle Deposition and Aggregation: Measurement, Modeling, and Simulation*", **Butterworth-Heinemann**, Oxford.

Book Chapters

1. Elimelech, M., and Song L., "Deposition of Colloids in Porous Media: Theory and Numerical Solution", In: *Transport and Remediation of Subsurface Environments: Colloidal, Interfacial, and Surfactant Phenomena*, Sabatini, D. A. and Knox, R. C. Editors, **ACS Symposium Series 491**, 1992, pages 26-39
2. Elimelech, M. "Deposition of Colloidal Particles in Porous Media in the Presence of Attractive Double Layer Interactions", In: *Manipulation of Groundwater Colloids for Environmental Restoration*, McCarthy, J. F. and Wobber, F. J. Editors, **Lewis Publishers**, 1993, pages 219-224.
3. Song, L., and Elimelech, M., "Dynamics of Colloid Deposition in Porous Media: Modeling the Role of Retained Particles", In: *Colloids in the Aquatic Environment* , Tadros, Th. F. and Gregory, J. Editors, Elsevier Science Publishers, 1993, pages 49-63
4. Elimelech M. and Ryan, J.N., "The Role of Mineral Colloids in the Facilitated Transport of Contaminants in Saturated Porous Media", Wiley Interscience, in press.

Papers in Conference Proceedings (not updated)

1. Elimelech, M., "The Role of Colloidal Interactions in the Filtration of Submicron Particles", *Proceedings of the Annual American Water Works Association Conference* , June 18-21, 1990, pages 1831-1840.
2. Elimelech, M., "Particle Filtration in the Presence of Attractive Double Layer Interactions", *Proceedings of the National Meeting of the American Filtration Society*, October 20-23, 1991, Volume 5, pages 13-16.
3. Elimelech, M., Liu, D., and Song, L., "Role of Retained Particles in Particle Deposition: Measurements and Modeling", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, pages 39-40.
4. Elimelech, M., and Ching, H-W., "Monitoring the Dynamics of Coagulation with Metal Salts by a Flow-Through Optical Technique", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, pages 576-580.
5. Elimelech, M., and Song, L., "A Model for the Dynamics of Particle Deposition in Packed Bed Filters", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, pages 208-211.
6. Elimelech, M., Chen, W. H. and Fairhurst, D. "Measuring the Electrokinetic (Zeta) Potential of Reverse Osmosis Membranes by a Streaming Potential Analyzer", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, page 382.
7. Ching, H-W., Elimelech, M., and Tanaka, T. S., "Use of Scattered Light Fluctuations to Monitor Coagulation Dynamics with Aluminum Sulfate", *Proceedings of the 1993 Annual American Water Works Association Conference*, June 1993, pages 373-380.
8. Elimelech, M., and Zhu, X., "Colloidal Fouling of Reverse Osmosis Membranes", *Proceedings of the ASCE-1994 National Conference on Environmental Engineering*, July 11-13, 1994, pages 329-335.
9. Glater, J., Hong, S., and Elimelech, M. "Reverse Osmosis Membrane Chlorine Sensitivity", *Proceedings of the 7th International Symposium on Synthetic Membranes in Science and Industry*, August 29-September 1, 1994, Tubingen, Germany, pages 238-241.
10. Waypa, J.J., Wilkie, J.A., and Elimelech, M. "Removal of Arsenic from Water by Membrane Processes" *Proceedings of the 1995 Annual American Water Works Association Conference*, June 1995.

11. Hering, J.G., and Elimelech, M. "International Perspectives on Arsenic in Groundwater: Problems and Treatment Strategies" *Proceedings of the 1995 Annual American Water Works Association Conference*, June 1995.

12. Zhu, X., Hong, S., Childress, A.E., and Elimelech, M. "Colloidal Fouling of Reverse Osmosis Membranes: Experimental Results, Fouling Mechanisms, and Implications for Water Treatment", *Proceedings of the 1995 AWWA Membrane Technology Conference*, August 1995, Reno, Nevada, pages 251-262.

13. Childress, A.E., Deshmukh, S.S., and Elimelech, M., "Zeta Potential Measurements of Reverse Osmosis and Nanofiltration Membranes", *American Desalination Association Biennial Conference and Exposition*, August 4-8, 1996, Monterey, California, pages 700-716.

14. Hong, S. and Elimelech, M. "Fouling of Nanofiltration Membranes by Natural Organic Matter", Proceedings of *American Desalting Association 1996 Biennial Conference and Exposition*, August 4-8, 1996, Monterey, California, pages 717-727.

15. Childress, A.E. and Elimelech, M., "Effects of Humics and Surfactants on the Zeta Potential of Polymeric Reverse Osmosis and Nanofiltration Membranes", *American Chemical Society 212th National Meeting*, August 25-29, 1996, Orlando, Florida, pages 106-108.

16. Hong, S. and Elimelech, M. "Chemical and Physical Aspects of Natural Organic Matter Fouling of Nanofiltration Membranes", *American Chemical Society 212th National Meeting*, August 25-29, 1996, Orlando, Florida, pages 89-81.

17. Hong, S., Elimelech, M, and Song, L. "Crossflow Membrane Filtration of Colloidal Suspensions", *American Chemical Society 212th National Meeting*, August 25-29, 1996, Orlando, Florida, pages 121-122.

18. Le Goullec, Y., Elimelech, M., and Glater, J. "High Performance Nanofiltration Membranes for Agricultural Wastewater reclamation", Proceedings of the *IDA World Congress ion Desalination and Reuse*, October 6-9, 1997, Madrid, Spain, pages 97-111.

19. **LeGouellec**, Y., Nagai M., and Elimelech M., "Calcium Sulfate Scale Formation and Control in Nanofiltration of Agricultural Drainage Water", *Proceedings of the American Water Works Association 1998 Annual Conference, Dallas, TX*, June 1998.

20. Elimelech, M., LeGouellec, Y., Nagai, M., and Glater, J. "Fouling of Nanofiltration Membranes due to Calcium Sulfate in Treatment of Agricultural Drainage", Proceedings of the *National Conference on Environmental Engineering, ASCE*, July 25-28, 1999, Norfolk, Virginia, pages 538-542.

21. Vrijenhoek, E.M., M. Elimelech, and S. Hong, "Influence of Membrane Properties, Solution Chemistry, and Hydrodynamics on Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *in Preprints of Extended Abstracts of the 220th American Chemical Society National Meeting*, Washington, DC, August 20-24, 40(2) (2000) 281-283.

22. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Influence of Membrane Surface Morphology on Colloidal Interactions in Membrane Systems" in *Proceedings of the American Institute of Chemical Engineers Annual Meeting –Colloidal Interactions in Membrane Systems Session*, Reno, NV, November 4-9, 2001.

23. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Effect of Crossflow Shear Rate on Initial Rate of Colloidal Fouling in Crossflow Membrane Filtration Processes" in *Proceedings of the Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

24. Seidel, A., and M. Elimelech, "Coupled Influence of Chemical and Physical Interactions in Natural Organic Matter (NOM) Fouling of NF Membranes" in *Proceedings of the Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

25. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Geometry for Control of Colloidal Fouling in Crossflow Membrane Filtration Processes" in *Proceedings of the AWWA Annual Conference*, Washington, DC, June 17-20, 2001.
26. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Height to Control Colloidal Fouling in Crossflow Membrane Filtration Processes" in *Proceedings of the AWWA Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001.
27. Ryan J.N., Elimelech M., and Harvey R.W., "Attachment and inactivation during virus transport in groundwater", In 2001 STAR Drinking Water Progress Review Workshop, February 22-23, 2001, Silver Spring, Maryland, Report EPA/6/R-01/027, National Center for Environmental Research, U.S. Environmental Protection Agency, Washington, DC.
28. Ryan J.N., Elimelech M., Harvey R.W., Aronheim J.S., Bhattacharjee S., Bogatsu Y., Loveland J.P., Metge D.W., Navigato T., and Pieper A.P. (2002) "Transport of Viruses in Porous Media. In Colloids and Colloid-Facilitated Transport of Contaminants in Soils and Sediments, de Jonge L.W., Moldrup P., and Jacobsen O.H., eds., Danish Institute of Agricultural Sciences Plant Production Report No. 80, Tjele, Denmark, 93-99.
29. Nghiem, L.D.; Schäfer, A.I.; Elimelech, M., Mechanisms of steroid hormones and hormone mimicking compounds removal in nanofiltration, Environmental Engineering Research event 2003, Melbourne, Australia.
30. Nghiem, L.D.; Schäfer, A.I.; Elimelech, M., *Retention of emerging water and wastewater pollutants in nanofiltration, IMSTEC, November 11-13, 2003, Australia, Sydney.*
31. Nghiem, L.D.; McCutcheon, J.; Schäfer, A.I. ; Elimelech, M. The role of endocrine disrupters in water recycling – risk or mania?, IWA 4th International Symposium on Wastewater Reclamation and Reuse, November 12-14, 2003, Mexico, City.

Seminar, Conference, and Symposium Presentations

1. Elimelech, M., and C.R., O'Melia, "Kinetics of Deposition of Colloidal Particles in Porous Media", presented in: *Workshop on "Aquatic Chemical Kinetics: Reaction Rates of Processes in Natural Water"*, March 19-23, 1989, Kartause Ittingen, Warth, Switzerland.
2. Elimelech, M., and C.R., O'Melia, "The Effect of Particle Size on the Capture Efficiency of Colloids by Surfaces in the Presence of DLVO Energy Barriers", presented at: *ACS - 63rd Annual Colloid and Surface Science Symposium*, June 18-21, 1989, Seattle, Washington.
3. Elimelech, M., and C.R., O'Melia, "Electrokinetic Studies of Hydrophobic Latex Particles", presented at: *ACS - 63rd Annual Colloid and Surface Science Symposium*, June 18-21, 1989, Seattle, Washington.
4. Elimelech, M. (invited) "Kinetics of Deposition of Colloidal Particles in Porous Media", *Environmental Engineering Science, California Institute of Technology*, March 1990.
5. Elimelech, M., "The Role of Colloidal Interactions in the Filtration of Submicron Particles", presented at: *Annual American Water Works Association Conference* , June 18-21, 1990, Cincinnati, Ohio.
6. Elimelech, M., "Role of Particle Size in Liquid Filtration of Submicron Particles", presented at: *21st Annual Meeting of the Fine Particle Society*, August 19-25, 1990, San Diego, California.
7. Elimelech, M., "Deposition of Colloidal Particles in Porous Media in the Presence of Attractive Double Layer Interactions." presented in Department of Energy Workshop on: *Concepts in Manipulation of Ground Water Colloids for Environmental Restoration*, October 15-18, 1990, Manteo, North Carolina.

8. Elimelech, M., (invited) "Physicochemical Aspects of Colloid Deposition in Porous Media", *Department of Civil and Environmental Engineering, University of California, Irvine*, November, 1990.

9. Elimelech, M., (invited) "Chemical Aspects of Depth Filtration in Water Treatment", *Department of Civil and Environmental Engineering, University of Southern California* November, 1990.

10. Elimelech, M., (invited) "Kinetics of Particle Deposition in Porous Media under Attractive Double Layer Interactions", *Department of Civil and Environmental Engineering, University of California, Berkeley*, March, 1991.

11. Elimelech, M., and Song L., "Capture of Colloids in Porous Media: Theory, Numerical Solution, and Implications to the Transport of Colloidal Contaminants in Groundwaters", presented at: *ACS - 65th Annual Colloid and Surface Science Symposium;*, in the session of: **Colloid and Interfacial Aspects of Groundwater and Soil Cleanup**, June 17-19, 1991, Norman, Oklahoma.

12. Elimelech, M., "Kinetics of Colloid Deposition Under Attractive Double Layers", presented at: *22nd Annual Meeting of the Fine Particle Society*, July 29 - August 2, 1991, San Jose, California.

13. Elimelech, M., and H. Ching, "Effects of Organic Molecules on Electrokinetic Properties and Colloidal Stability of Aluminum Oxide Colloids", presented at: *22nd Annual Meeting of the Fine Particle Society*, July 29 - August 2, 1991, San Jose, California.

14. Elimelech, M., "Kinetics of Particle Deposition in Porous Media under Attractive Double Layer Interactions", presented in the international conference: *Interfacial Phenomena in the Environment*, October 6-11, 1991, Davos, Switzerland.

15. Elimelech, M., "Particle Filtration in the Presence of Attractive Double Layer Interactions", presented at: *1991 National Meeting of the American Filtration Society*, October 20-23, Atlanta, Georgia.

16. Ching, H.-W., and Elimelech, M., "Chemical Aspects of Coagulation in Natural Waters", presented at: *American Geophysical Union 1991 Fall Meeting*, December 9-13, 1991, San Francisco, California.

17. Song, L., and Elimelech, M., "Modeling of Particle Deposition in Porous Media", presented at: *American Geophysical Union 1991 Fall Meeting*, December 9-13, 1991, San Francisco, California.

18. Liu, D., and Elimelech, M., "Dynamics of Colloid Transport in Porous Media: Chemical-Colloidal Aspects", presented at: *American Geophysical Union 1991 Fall Meeting*, December 9-13, 1991, San Francisco, California.

19. Song, L., and Elimelech, M., "Deposition of Brownian Particles in Porous Media: Modified Boundary Conditions for the Sphere-in-Cell Model", presented at: *ACS - 66th Annual Colloid and Surface Science Symposium*, June 17-21, 1992, Morgantown, West Virginia.

20. Song, L., and Elimelech, M., "Dynamics of Particle Deposition in Porous Media: Role of Retained Particles", *presented at: ACS - 66th Annual Colloid and Surface Science Symposium*, June 17-21, 1992, Morgantown, West Virginia.

21. Elimelech, M., and Song L., "Dynamics of Colloid deposition in Porous Media", presented at: *Colloids in the Aquatic Environment: An International symposium*, September 7-9, 1992, London, United Kingdom.

22. Elimelech, M., (invited) "Dynamics of Colloid deposition in Porous Media", *Department of Chemical Engineering, University of Manchester Institute of Science and technology (UMIST), United Kingdom*, September 1992.

23. Elimelech, M. "Transport and Deposition of Colloids in Porous Media: Chemical Aspects", presented at: *Second Forum on NSF Research Activities in Subsurface Systems*, October 7-9, 1992, University of Michigan, Ann Arbor.

24. Elimelech, M., Liu, D., and Song, L., "Role of Retained Particles in Particle Deposition: Measurements and Modeling", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

25. Elimelech, M., and Ching, H-W., "Monitoring the Dynamics of Coagulation with Metal Salts by a Flow-Through Optical Technique", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

26. Elimelech, M., and Song, L., "A Model for the Dynamics of Particle Deposition in Packed Bed Filters", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

27. Elimelech, M., Chen, W. H. and Fairhurst, D. "Measuring the Electrokinetic (Zeta) Potential of Reverse Osmosis Membranes by a Streaming Potential Analyzer", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

28. Elimelech, M., Liu, D., and Song, L., "Role of Retained Particles in the Dynamics of Particle Deposition in Porous Media: Modeling and Measurements", presented at the *ACS-67th Annual Colloid and Surface Science Symposium*, June, 1993, Toronto, Canada.

29. Elimelech, M., and Song, L., "Role of Particle Size in the Kinetics of Particle Deposition under Attractive Electric Double Layer Interactions", presented at the *ACS-67th Annual Colloid and Surface Science Symposium*, June, 1993, Toronto, Canada.

30. Song, L., and Elimelech, M., "Deposition of Colloidal Particles from Flowing Suspensions onto Heterogeneous Solid Surfaces", presented at the *ACS-67th Annual Colloid and Surface Science Symposium*, June, 1993, Toronto, Canada.

31. Ching, H-W., Elimelech, M., and Tanaka, T. S., "Use of Scattered Light Fluctuations to Monitor Coagulation Dynamics with Aluminum Sulfate", presented at the *AWWA 1993 Annual Conference*, June 1993, San Antonio, Texas.

32. Elimelech, M., "Arsenic Removal by Membrane Processes", presented at the *1993 Arsenic Workshop of the Association of California Water Agencies*, May 1993, Diamond Bar, California.

33. Fairhurst, D., and Elimelech, M. "Use of Streaming Potential for the Determination of Zeta Potentials of Polymeric Membranes", presented at the *24th Annual Meeting of the Fine Particle Society*, August 1993, Chicago, Illinois.

34. Elimelech, M., "Particles in Water Treatment: Analysis, Removal, and Challenges", presented at *ALEX 93: The Analytical Laboratory and Exposition Conference*, October 4-8, 1993, San Francisco, California.

35. Stolzenbach, K. D., and Elimelech, M. "The Effect of Particle Density and Porosity on Particle Deposition by Differential Sedimentation" presented at the *Sixth International Symposium: Interactions Between Sediments and Water*, December 1993, Santa Barbara, California..

36. Liu, D. and Elimelech, "Effect of Retained Colloids on Particle Deposition Dynamics", presented at the *American Chemical Society Annual Meeting*, March 1994, San Diego, California.

37. Song, L., and Elimelech, M. "Colloid Deposition onto Heterogeneously Charged Surfaces in Porous " presented at the *American Chemical Society Annual Meeting*, March 1994, San Diego, California.

38. Stolzenbach, K. D., and Elimelech, M. "The Effect of Particle Density on Collisions Between Sinking Particles: Implications for particle Aggregation in the Ocean" presented at the *AGU, Ocean Sciences Meeting*, February 1992, San Diego, California..

39. Song, L., Hong, S., and Elimelech, M., "Particle Transport and Deposition in Porous Membrane Channels", presented at the *ACS-68th Annual Colloid and Surface Science Symposium*, June 12-15, 1994, Stanford, California.

40. Elimelech, M., and Song, L., "Transient Deposition of Colloidal Particles in Heterogeneous Porous Media", presented at the *ACS-68th Annual Colloid and Surface Science Symposium*, June 20-23, 1994, Stanford, California.

41. van Zanten, J. H., and Elimelech, M., "Determination of Absolute Coagulation Rate Constants by Multiangle Static Light Scattering ", presented at the *ACS-68th Annual Colloid and Surface Science Symposium*, June 12-15, 1994, Stanford, California.

42. Elimelech, M., and Zhu, X., "Colloidal Fouling of Reverse Osmosis Membranes", presented at the *ASCE-1994 National Conference on Environmental Engineering*, July 11-13, 1994, Boulder, Colorado.

43. Elimelech, M. "Transport and Deposition of Colloids in Groundwater: Theory and Applications", presented at the *ACS National Meeting*, August 21-25, 1994, Washington, D.C.

44. Glater, J., Hong, S., and Elimelech, M. "Reverse Osmosis Membrane Chlorine Sensitivity", presented at the *7th International Symposium on Synthetic Membranes in Science and Industry*, August 29-September 1, 1994, Tubingen, Germany.

45. Johnson, P.R., and Elimelech, M. "Colloid Deposition in Granular Porous Media Based on Random Sequential Adsorption " presented at the *American Chemical Society Annual Meeting*, March 2-7, 1995, Anaheim, California.

46. Johnson, P.R., Liu, D., and Elimelech, M. "Transient Deposition of Colloidal Particles onto Oppositely Charged Porous Media Surfaces: Experimental Investigation on the Role of lateral Double Layer Repulsion" presented at the *American Chemical Society Annual Meeting*, March 2-7, 1995, Anaheim, California.

47. Waypa, J.J., and Elimelech, M. "Removal of Arsenic from Water by Reverse Osmosis and Nanofiltration Membranes", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

48. Hong, S. and Elimelech M. "Particle Transport and Deposition in a Semi-Permeable Membrane Channel", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

49. Zhu, X. and Elimelech M. "Fouling of Reverse Osmosis Membranes by Colloidal Silica", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

50. Childress, A.E. and Elimelech M. "Zeta Potential Characterization of Reverse Osmosis and Nanofiltration Membranes", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

51. Waypa, J.J., Wilkie, J.A., and Elimelech, M. "Removal of Arsenic from Water by Membrane Processes" presented at the *1995 Annual American Water Works Association Conference*, June 18-22, 1995, Anaheim, California.

52. Hering, J.G., and Elimelech, M. "International Perspectives on Arsenic in Groundwater: Problems and Treatment Strategies" presented at the *1995 Annual American Water Works Association Conference*, June 18-22, 1995, Anaheim, California.

53. Hering, J.G., Elimelech, M., and Chen, P.-Y. "Arsenic Removal by Enhanced Coagulation and Membrane Processes" presented at the *1995 Annual American Water Works Association Conference*. June 18-22, 1995, Anaheim, California.

54. Elimelech, M. "Colloidal Fouling of Reverse Osmosis Membranes: Experimental Results and Fouling Mechanisms", presented at the: *1995 AWWA Membrane Technology Conference*, August 1995, Reno, Nevada.

55. Elimelech, M. (invited) "Colloidal Transport in Chemically Heterogeneous Porous Media", *Department of Chemical Engineering, University of Southern California*, November 1995.

56. Elimelech, M. (invited) "Colloid Mobilization and Transport in the Subsurface Aquatic Environment" presented at the *International Chemical Congress of Pacific Rim Societies (Pacifichem 95)*, December 17-22, 1996, Honolulu, Hawaii.

57. Elimelech, M. (invited) "Colloidal Transport in Geochemically Heterogeneous Porous Media", *Environmental Engineering Science, California Institute of Technology*, April 3, 1996.

58. Elimelech, M. "Colloidal Fouling of Reverse Osmosis Membranes: Experimental Results and Fouling Mechanisms", presented at: *Workshop on Colloid Science in Membrane Engineering*, May 13-15, 1996, Toulouse, France.

59. Elimelech, M. "Theory of Concentration Polarization of Non-interacting Particles in Crossflow Membrane Filtration", presented at: *Workshop on Colloid Science in Membrane Engineering*, May 13-15, 1996, Toulouse, France.

60. Hong, S., Song, L., and Elimelech, M. "Crossflow Membrane Filtration of Particle Suspensions: Theory and Experiments", *Annual Meeting of the North American Membrane Society*, May 19-23.

61. Hong, S., Tanaka, S., and Elimelech, M. "Role of Multivalent Cations in Natural Organic Matter Fouling of Nanofiltration Membranes", *Annual Meeting of the North American Membrane Society*, May 19-23.

62. Elimelech, M. and Hong, S. "On the 'Flux Paradox' and Particle Back-transport Mechanisms in Crossflow membrane Filtration", *ACS - 70th Colloid and Surface Science Symposium*, June 16-19, Potsdam, New York.

63. Johnson, P.R., Sun, N., and Elimelech, M. "Colloid Transport in Chemically Heterogeneous Porous Media", *ACS - 70th Colloid and Surface Science Symposium*, June 16-19, Potsdam, New York.

64. Waypa, J.J. and Elimelech, M. "Removal of Arsenic from Water Using Reverse osmosis and Nanofiltration Membranes", *1996 Biennial Conference of the American Desalting Association*, August 4-8, 1996, Monterey, California.

65. Childress, A.E. and Elimelech, M. "Zeta Potential Measurements of Reverse Osmosis and Nanofiltration Membranes", *1996 Biennial Conference of the American Desalting Association*, August 4-8, 1996, Monterey, California.

66. Hong, S. and Elimelech, M. "Fouling of Nanofiltration Membranes by Natural Organic Matter", *1996 Biennial Conference of the American Desalting Association*, August 4-8, 1996, Monterey, California.

67. Hong S. and Elimelech, M. "Chemical and Physical Aspects of Natural Organic Matter Fouling of Nanofiltration Membranes", *212th American Chemical Society National Meeting*, August 25-29, 1996, Orlando, Florida.

68. Childress, A.E. and Elimelech, M. "Effect of Humics and Surfactants on the Zeta Potential of Polymeric Reverse Osmosis and Nanofiltration Membranes", *212th American Chemical Society National Meeting*, August 25-29, 1996, Orlando, Florida.

69. Elimelech, M. and Song, S. "Crossflow Membrane Filtration of Colloidal Suspensions", *212th American Chemical Society National Meeting*, August 25-29, 1996, Orlando, Florida.

70. Elimelech, M. (invited) "Colloid Transport in Chemically Heterogeneous Porous Media", *Department of Geography and Environmental Engineering, Johns Hopkins University*, October 1996

71. Elimelech, M. (invited) "Interactions of Natural Organic Matter with Nanofiltration Membranes", *Environmental Engineering Science, California Institute of Technology*, November 1996

72. Long, J., Sun, N-Z., and Elimelech, M. "Colloidal Transport in Physically and Chemically Heterogeneous Porous Media", *American Geophysical Union Fall Meeting*, December 16-19, 1996, San Francisco, California.

73. Johnson, P.R. and Elimelech, M. "Modeling Colloid Transport in Geochemically Heterogeneous Porous Media", *American Geophysical Union Fall Meeting*, December 16-19, 1996, San Francisco, California.

74. Elimelech M. (invited) "Colloidal Fouling of Reverse Osmosis Membranes", March 1197, Montgomery-Watson Consulting Engineers, Pasadena, California.

75. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Porous Media", May 1997, ETH/EAWAG, Swiss Federal Institute of Environmental Science and Technology , Duebendorf, Switzerland

76. Elimelech, M. (invited), "Colloid Transport in the Subsurface Aquatic Environment", May 1997, Department of Inorganic, Analytical, and Environmental Chemistry, University of Geneva, Geneva, Switzerland

77. Elimelech, M. and Bhattacharjee, S. "Calculation of DLVO Interactions between Small Colloidal Particles", *9th International Conference on Surface and Colloid Science*, July 6-12, 1997, Sofia, Bulgaria.

78. Elimelech, M. and Hong, S., "NOM Fouling of NF Membranes", *9th International Conference on Surface and Colloid Science*, July 6-12, 1997, Sofia, Bulgaria.

79. Bhattacharjee, S., and Elimelech, M., "A Novel Technique for Evaluation of DLVO Interactions between a Small Colloidal Particle and a Planar Surface", *71st Colloid and Surface Science Symposium*, July 29-July 2, 1997, University of Delaware, Newark, Delaware.

80. Bhattacharjee, S., and Elimelech, M., "Determination of DLVO Interaction between Rough Surfaces", *71st Colloid and Surface Science Symposium*, July 29-July 2, 1997, University of Delaware, Newark, Delaware.

81. Ko, C-H., and Elimelech, M., "Colloid Transport and Mobilization in Heterogeneous Porous Media", *71st Colloid and Surface Science Symposium*, July 29-July 2, 1997, University of Delaware, Newark, Delaware.

82. Elimelech, M. "Colloid Transport in the Subsurface Aquatic Environment", IAP 97: International Symposium on Interfaces Against Pollution, August 10-13, 1997, Wageningen, the Netherlands.

83. Elimelech, M. (invited) "Colloid Transport in Heterogeneous Porous Media", September 1997, Polish Academy of Sciences, Institute of Catalysis and Surface Chemistry, Krakow, Poland

84. Elimelech, M. (invited) "Colloid Transport in Heterogeneous Porous Media", September 4, 1997, Polish Academy of Sciences, Institute of Catalysis and Surface Chemistry, Krakow, Poland

85. Bhattacharjee, S. and Elimelech M. "Accurate Evaluation of DLVO Interactions between Small Colloidal Particles", *214th American Chemical Society National Meeting*, September 7, 1997, Las Vegas, Nevada.

86, Bhattacharjee, S. and Elimelech M. "Prediction of DLVO Interaction Energy and Particle Deposition Rates for Rough Surfaces", *214th American Chemical Society National Meeting*, September 7, 1997, Las Vegas, Nevada.

87. Elimelech, M. (invited) "Physical and Chemical Aspects of NOM Fouling of NF Membranes", September 9, 1997, Institute of Water Research (IWW), University of Duisburg, Muelheim, Germany.

88. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", September 22, 1997, Department of Environmental Sciences, Weizmann Institute of Science, Rehovot, Israel.

89. Elimelech, M. (invited) "Colloid Transport in the Subsurface Aquatic Environment", September 22, 1997, Institute of Soils and Water, ARO, The Volcani Center for Agricultural Research, Bet Dagan, Israel.

90. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", October 1997, Environmental and Water Resources Engineering Program, University of Michigan, Ann Arbor.

91. Waypa, J.J., and Elimelech M. "Modeling the Transport and Separation of Ionic Species in Membrane Filtration", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

92. Faibish, R.S., Elimelech, M., and Cohen, Y., "Role of Interparticle Colloidal Interactions on Permeate Flux Decline in Crossflow Membrane Filtration of Colloidal Suspensions", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

93. Bhattacharjee, S., and Elimelech, M., "Solute Rejection by Membrane Pores in Presence of Attractive Interactions Between the Solute and the Membrane", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

94. Bhattacharjee, S., and Elimelech, M., "Surface Element Integration: A Novel Technique for Evaluation of DLVO Interaction between a Particle and a Flat Plate", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

95. Mazzolani, G., Stolzenbach, K.D., and Elimelech, M., "Gravity-Induced Coagulation of Spherical Particles of Different Size and Density", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

96. Bhattacharjee, S., Kim, A.S., and Elimelech, M., "Concentration Polarization of Protein Solutions in Crossflow Ultrafiltration: Effects of Intermolecular Interactions", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

97. Elimelech, M. (invited plenary lecture) "Interaction of Colloidal Particles with Surfaces: Concepts and Applications", presented at the Annual Meeting of the Swiss Group of Colloid and Interface Scientists", November 21, Lausanne, Switzerland.

98. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", January 30, 1998, Department of Chemical Engineering, Yale University.

99. Elimelech, M. (invited) "Colloid Transport in Subsurface Porous Media", March 6, 1998, Department of Chemical Engineering, Tulane University.

100. Le Gouellec Y., Nagai, M., Glater, J., and Elimelech, M. "Gypsum Scale Prevention in Agricultural Drainage Water Reclamation by Nanofiltration Membranes", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

101. Bhattacharjee, S. and Elimelech, M., "Influence of Intermolecular Interactions on Concentration Polarization during Crossflow Membrane Filtration", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

102. Bhattacharjee, S. and Elimelech, M., "A Novel Approach for Modeling Concentration Polarization in Crossflow Membrane Filtration Based on the Equivalence of Osmotic Pressure Model and Filtration Theory", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

103. Kim, S., Bhattacharjee, S. and Elimelech, M., "M Shear Induced Reorganization of Deformable Molecular Assemblages: Monte Carlo Studies", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

104. Sun, N., Sun, N.-Z., and Elimelech, M. "Colloid Transport in Physically and Geochemically Heterogeneous Porous Media: Sensitivity Analysis and Parameter Identifiability", *American Geophysical Union Spring Meeting*, May 26-29, 1998, Boston, Massachusetts

105. Leslie, G.L., Childress, A.E., and Elimelech, M., "Colloidal Fouling of Synthetic Membranes in Indirect Reuse Applications", presented at: *University of California Annual Water Reuse Research Conference*, June 4-5, 1998, Monterey, California.

106. Elimelech, M., and Ko, C.-H. "Colloid Transport Dynamics in Flow through Granular Porous Media", *72nd ACS Colloid and Surface Science Symposium*, June 21-24, 1998, University Park, Pennsylvania.

107. Elimelech, M., and Hong, S. "Natural Organic Matter of Nanofiltration Membranes", *72nd ACS Colloid and Surface Science Symposium*, June 21-24, 1998, University Park, Pennsylvania.

108. Le Gouellec, Y., Nagai, M., and Elimelech, M. "Gypsum Scale Formation and Control in Nanofiltration of Agricultural Drainage Water" Membranes", *Annual American Water Works Association meeting*, June 21-25, 1998, Dallas, Texas.

109. Childress, A.E., Deshmukh, S.S., and Elimelech, M., "Surface Characterization and Performance of Polymeric Reverse Osmosis and Nanofiltration Membranes", presented at: *International Water Services Association 1998 Conference on Membranes in Drinking and Industrial Water Production*, September 21-24, 1998, Amsterdam, The Netherlands.

110. Elimelech, M. (invited) "Natural Organic Matter Fouling of nanofiltration Membranes", October 23, 1998, Department of Civil and Environmental Engineering, University of Massachusetts, Amherst, MA.

111. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", October 30, 1998, Environmental Engineering Program, University of Connecticut, Storrs, CT.

112. Kim, A.S., Bhattacharjee, S., and Elimelech M. "Shear Induced Reorganization of Deformable Molecular Assemblages: Monte Carlo Studies", presented at the: *1998 AIChE Annual Meeting*, November 15-20, Miami Beach, Florida.

113. Ko, C.-H., and Elimelech M. "Dynamics of Colloid Deposition in Granular Porous Media: Effect of Solution Chemistry and Flow Intensity on Deposited Layer Structure", presented at the: *1998 AIChE Annual Meeting*, November 15-20, Miami Beach, Florida.

114. Elimelech, M., Ko, C.-H., and Nagai, M. "Colloidal Transport in Geochemically Heterogeneous Subsurface Porous Media: Implications for Colloid Facilitated Transport", presented at the: *1998 AIChE Annual Meeting*, November 15-20, Miami Beach, Florida.

115. Elimelech, M. (invited) "Fouling of Pressure-Driven Membranes: Measurements, Modeling, and Fouling Mechanisms", to be presented at the international workshop *"Fouling Mitigation in Membrane Processes"*, January 27-28, Haifa, Israel.

116. Waypa,J.J., Bhattacharjee, S., and Elimelech, M. "Separation of Ionic Species by Polymeric Nanofiltration Membranes during Crossflow Membrane Filtration", presented at: *American Water Works Association 1999 Membrane Technology Conference*, February 28-March 3, 1999, Long Beach, California.

117. Elimelech M. (invited keynote) "Particle Deposition and Release Processes in Environmental Engineering Science", presented at the *International Workshop Particles and Surfaces: Fundamentals, Techniques, and Applications*, March 13-16, 1999, Oud Poelgeest, The Netherlands.

118. Ko, C.-H., Bhattacharjee, S., and. Elimelech, M. "The 'Shadow Effect' in Colloid Transport and Deposition Dynamics in Granular Porous Media: Measurements and Mechanisms", presented at the: *217th American Chemical Society (ACS) National Meeting*, Anaheim, California, March 21-25, 1999.

119. Elimelech, M., and Bhattacharjee , S. "Effect Of Interparticle Interactions on Concentration Polarization during Crossflow Membrane Filtration", presented at the *International Congress on Membranes and Membrane Processes*, June 13-16, 1999, Toronto, Canada.

120. Elimelech, M., LeGouellec, Y., Nagai, M., "Nanofiltration Membrane Fouling By Calcium Sulfate Precipitation In Treatment Of Agricultural Drainage Water", ", presented at the *International Congress on Membranes and Membrane Processes*, June 1999, Toronto, Canada.

121. Elimelech, M. (invited) "Crossflow Membrane Filtration of Suspended Colloidal Particles: Mechanisms, Modeling, and Measurements", presented at: *American Water Works Association Annual Meeting*, June 21, 1999, Chicago, IL.

122. Bhattacharjee, S. and Elimelech, M. "A model of Virus Transport in Heterogeneous Porous Media", *31st Mid-Atlantic Industrial and Hazardous Waste Conference*, University of Connecticut, Storrs, CT, June 20-23,1999.

123. Bhattacharjee, S. and Elimelech, M., "Structure and Properties of Concentrated Colloidal Dispersions: Sedimentation and Mutual Diffusion, *ACS 73rd Colloid and Surface Science Symposium*, Cambridge, MA, June 13 – 16, 1999.

124. S. Bhattacharjee, S. and Elimelech, M., Concentration Polarization of Interacting Colloidal Particles in Crossflow Membrane Filtration", *ACS 73rd Colloid and Surface Science Symposium*, Cambridge, MA, June 13 – 16, 1999.

125. Bhattacharjee, S. and Elimelech, M., "Deformation of Molecular Assemblages in Presence of Hydrodynamic Shear", *ACS 73rd Colloid and Surface Science Symposium*, Cambridge, MA, June 13 – 16, 1999.

126. Elimelech, M., LeGouellec, Y., Nagai, M., and Glater J., "Fouling of Nanofiltration Membranes due to Calcium Sulfate Precipitation in Treatment of Agricultural Drainage Water", presented at the *American Society of Civil Engineers Conference on Environmental Engineering*, July 25-28, 1999, Norfolk, Virginia.

127. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", Department of Chemical Engineering, University of Alberta, October, 1999.

128. Bhattacharjee, S., and Elimelech, M., Structure and Properties of Colloidal Dispersions in a Concentration Polarization Layer: Influence on Permeate Flux Behavior during Crossflow Membrane Filtration, presented at the *AIChE Annual Meeting*, October 31 - November 5, 1999, Dallas, Texas.

129. Bhattacharjee, S., and Elimelech, M., A Model of Virus Transport in Heterogeneous Subsurface Porous Media, presented at the *AIChE Annual Meeting*, October 31 - November 5, 1999, Dallas, Texas.

130. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Porous Media", Department of Chemistry, Clarkson University, November 1999.

131. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Porous Media", Department of Chemical Engineering, Technion, Israel Institute of Technology, December 1999.

132. Elimelech, M. (invited), "Fouling Mechanisms of Nanofiltration Membranes", Institute of Applied Research, Ben Gurion University, Israel, December 1999.

133. Elimelech, M. (invited), "Colloid Transport and Mobilization in Subsurface Aquatic Environments", Graduate School of Applies Science, Environmental Science and technology Division, Hebrew University, December 1999.

134. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media: Measurements, Mechanisms, and Modeling", Division of Engineering and Applied Science, Harvard University, February 18, 2000.

135. Vrijenhoek, E.M., Elimelech, M., and Hong, S. "Interplay between Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *North American Membrane Society (NAMS2000) Meeting*, Boulder, CO, May 23-28, 2000.

136. Bhattacharjee, S., Ko, C.-H., and Elimelech, M. "Dynamics of Colloid Deposition based on Random Sequential Adsorption: Influence of Electrostatic and Hydrodynamic Interactions on Maximum Surface Coverage", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

137. Bhattacharjee, S., Elimelech, M., and Ryan, J.N. "Virus Transport in Heterogeneous Subsurface Porous Media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

138. Loveland J.P., Ryan J.N., and Elimelech M., "Anionic surfactant adsorption and silica-coated colloid release in a geochemically heterogeneous porous media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

139. Chen, J.Y., Bhattacharjee, S. and Elimelech, M. "DLVO Interaction Energy between Spheroidal Particles and a Flat Surface", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

140. Ko, C.-H and Elimelech, M. "The "Shadow Effect" in Colloid Transport in Granular Porous Media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

141. Ko, C.-H and Elimelech, M., and Ryan, J.N. "The Role Of Mineral Grain Zeta Potential In Colloid Transport Through Geochemically Heterogeneous Porous Media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

142. Vrijenhoek, E.M. and M. Elimelech, "Role of Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

143. Bhattacharjee, S. and Elimelech, M. Particle deposition dynamics in a bed of spherical collectors: Beyond random sequential adsorption, *220th American Chemical Society National Meeting*, Washington, DC, August 19-24, 2000.

144. Elimelech, M., and Ko, C.-H. The Relative Insignificance of Zeta Potential of Mineral Grains to Colloid Transport in Geochemically Heterogeneous Porous Media, *220th American Chemical Society National Meeting*, Washington, DC, August 19-24, 2000.

145. Vrijenhoek, E.M., M. Elimelech, and S. Hong, "Influence of Membrane Properties, Solution Chemistry, and Hydrodynamics on Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *220th American Chemical Society National Meeting*, Washington, DC, August 20-24, 2000.

146. Seidel A. and M. Elimelech, "Effect of Operational Parameters on NOM Fouling of a Negatively Charged NF Membrane", *220th American Chemical Society National Meeting*, Washington DC, August 20-24, 2000.

147. Bhattacharjee, S. and Elimelech, M. "Concentration polarization of interacting colloidal particles: Influence of interparticle and hydrodynamic interactions on permeate flux", *220th American Chemical Society National Meeting*, Washington, DC, August 19-24, 2000.

148. Vrijenhoek, E.M., M. Elimelech, and S. Hong, "Importance of Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *Bi-annual Meeting of the European Membrane Society, EUROMEMBRANE 2000*, Jerusalem, Israel, September 24-27, 2000.

149. Chen, J.Y., Ko, C.-H., and Elimelech, M. "Effect of Spatial Distribution of Porous Media Geochemical Heterogeneity on Colloid Transport", *American Institute of Chemical Engineers Annual Meeting*, Los Angeles, CA, November 2000.

150. Elimelech, M. and Vrijenhoek, E. "Role of Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes", *The International Chemical Congress of Pacific Basin Societies, Pacifichem 2000*, Honolulu, Hawaii, December 14-19, 2000.

151. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Height to Control Colloidal Fouling in Crossflow Membrane Filtration Processes" *American Water Works Association Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001.

152. Elimelech, M. and Seidel, A. "Coupling between Chemical and Physical Interactions in NOM Fouling of NF Membranes: Implications for Fouling Control" *American Water Works Association Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001.

153. Elimelech M. (invited) "Colloidal Fouling of Crossflow Pressure-Driven Membranes", Department of Environmental Science and Engineering, Rice University, March 20, 2001.

154. Elimelech M. (invited) "Colloidal Fouling of Pressure-Driven Membranes: Role of Membrane Surface Morphology", Department Civil Engineering, National University of Singapore, May 2001.

155. Elimelech M. (invited) "Nanofiltration Membrane Fouling by Calcium Sulfate Precipitation in Treatment of Agricultural Drainage Water", Department Civil Engineering, National University of Singapore, June 2001.

156. Elimelech M. (invited) "Natural Organic Matter (NOM) Fouling of NF Membranes", Department Civil Engineering, National University of Singapore, June 2001.

157. Vrijenhoek, E.M., S. Bhattacharjee and M. Elimelech, "Role of Morphological Surface Heterogeneity in Deposition of Colloidal Particles onto Semi-Permeable Polymeric Membrane Surfaces" *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

158. Vrijenhoek, E.M. and M. Elimelech, "Role of Membrane Surface Roughness in Colloidal Fouling of Nanofiltration Membranes" *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

159. Bunn, R., Magelky, R.D., Ryan, J.N., and Elimelech, M. "Effect of Chemical Perturbations on the Mobilization of Colloids in a Ferric Oxyhydroxide-Coated Sand Aquifer: Field Experiments", *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

160. Chen, J.Y., Bhattacharjee, S., and Elimelech, M. "Influence of Surface Charge Nanoheterogeneity on the Attachment of Colloidal Particles to Solid Surfaces in a Stagnation Point Flow System", *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

161. Chen, J.C., Bhattacharjee, S., and Elimelech, M. "A Coupled Model for Transport of Multi-component Ionic Species through Nanofiltration Membranes: Implications for Arsenic Removal", *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

162. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Geometry for Control of Colloidal Fouling in Crossflow Membrane Filtration Processes" *American Water Works Association Annual Conference*, Washington, DC, June 17-21, 2001.

163. Chen, J.Y., Walker, S.L., and Elimelech, M. "A Novel Technique for Studying the Role of Microscopic Chemical Heterogeneity on Colloid and Bacterial Adhesion", *222nd American Chemical Society National Meeting*, Chicago, IL, August, 2001.

164. Logan, B.E., Chorover, J.D., Velegol, D., Kubicki, J., and Elimelech, M. "Molecular Level Analysis of Macromolecule-Surface Interactions in Bacterial Adhesion", *222nd American Chemical Society National Meeting*, Chicago, IL, August, 2001.

165. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Effect of Crossflow Shear Rate on Initial Rate of Colloidal Fouling in Crossflow Membrane Filtration Processes" *Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

166. Elimelech M., (invited keynote) "Colloidal Phenomena in Membrane Systems" *Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

167. Elimelech, M. and Seidel, A., "Coupled Influence of Chemical and Physical Interactions in Natural Organic Matter (NOM) Fouling of NF Membranes" *Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

168. Elimelech, M. (invited) "Transport of Colloidal Particles in Heterogeneous Subsurface Porous Media", Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, October 18, 2001.Elimelech, M. (invited) "Colloid Deposition and Aggregation", Cabot Corporation, Billerica, MA., October 23, 2001.

170. Vrijenhoek, E.M., S. Bhattacharjee, and M. Elimelech, "Influence of Membrane Surface Morphology on Colloidal Interactions in Membrane Systems" *American Institute of Chemical Engineers Annual Meeting*, Reno, NV, November 4-9, 2001.

171. Chen J.Y., and M. Elimelech, "Influence of Microscopic Surface Charge Heterogeneity on Colloid Deposition Kinetics in a Stagnation Point Flow System" *American Institute of Chemical Engineers Annual Meeting*, Reno, NV, November 4-9, 2001.

172. Elimelech M. (invited) "Transport of Colloidal Particles in Heterogeneous Subsurface Porous Media", Department of Civil and Environmental Engineering, University of Nevada, Reno, November 8, 2001

173. Walker, S.L., Chen, J.C.; Elimelech, M, "A Novel Technique for Synthesizing Microscopic Chemical Heterogeneity for Studying Colloidal and Bacterial Adhesion" Poster at the 5th Annual Environmental Chemistry Symposium, Pennsylvania State University, March 22-23, 2002, State College, PA

174. Hoek, E.M.V., and M. Elimelech, "DLVO Interactions between Colloidal Particles and Rough Membrane Surfaces," presented at the *13th Annual Meeting of the North American Membrane Society*, Long Beach, CA, May 11-15, 2002.

175. Hoek, E.M.V., and M. Elimelech, "Role of Cake-Enhanced Osmotic Pressure in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes," presented at *13th Annual Meeting of the North American Membrane Society*, Long Beach, CA, May 11-15, 2002.

176. Walker, S.L., Bhattacharjee, S..; Elimelech, M, "Measuring the Streaming Potential of Flat Surfaces Using a Novel Asymmetric Clamping Cell" Presentation at the American Chemical Society 76th Colloid and Surface Science Symposium, June 20, 2002, Ann Arbor, MI.

177. Tufenkji, N; Redman, J. A.; Elimelech, M. "Interpreting biocolloid deposition patterns in laboratory-scale column experiments" presented at the American Chemical Society 76th Colloid and Surface Science Symposium, University of Michigan, Ann Arbor, Michigan, June 23, 2002.

178. Chen, J.C., Walker, S.L., Elimelech, M, "A Novel Technique for Investigation the Influence of Microscopic Surface Chemical Heterogeneity on the Kinetics Of Colloid and Bacterial Deposition" Presentation at the American Chemical Society 76th Colloid and Surface Science Symposium, June 20, 2002, Ann Arbor, MI.

179. Redman, J. A.; Walker, S.; Elimelech, M. "Tailing in particle and bacterial breakthrough curves in porous flow-through media" presented at the American Chemical Society 76th Colloid and Surface Science Symposium, University of Michigan, Ann Arbor, Michigan, June 23, 2002.

180. Weronski, P.; Walz, J.Y.; Elimelech, M. "Effect of Depletion Interaction on Transport of Colloidal Particles in Porous Media", *ACS 76th Annual Colloid and Surface Science Symposium*, June 23-26 , 2002, Ann Arbor, Michigan.

181. Elimelech, M. (invited) "Role of Geochemical Heterogeneity in the Transport of Colloids and Microbial Particles in Subsurface Environments", Gordon Research Conference on Environmental Sciences: Water, June 2002, Holderness School, Plymouth, New Hampshire.

182. Hoek, E.M.V., and M. Elimelech, "Cake-Enhanced Osmotic Pressure in Reverse Osmosis and Nanofiltration Separations," *76th ACS Colloid and Surface Science Symposium*, Ann Arbor, MI, June 23-26, 2002.

183. Lee, S. and Elimelech, M. "A novel method for investigating the influence of recovery on colloidal and NOM fouling of RO and NF membranes", 76th ACS Colloids & Surface Science Symposium, University of Michigan, Ann Arbor, Michigan, June 23-26, 2002

184. Elimelech, M. (invited) "Cake-Enhanced Osmotic Pressure: A Major Fouling Mechanism for Reverse Osmosis & Nanofiltration Membranes", Department of Civil Engineering, National University of Singapore, July 26, 2002

185. Elimelech, M. (invited) "A Novel Method for Investigating the Influence of Feed Water Recovery on Colloidal and NOM Fouling of RO and NF Membranes", Department of Civil Engineering, National University of Singapore, July 31, 2002

186. Elimelech, M. (invited) "Role of Chemical Heterogeneity in the Transport of Colloids & Microbial Particles in Subsurface Environments", Department of Civil Engineering, National University of Singapore, August 7, 2002

187. Weronski, P.; Walz, J.Y.; Elimelech, M. "Effect of Depletion Interaction on Transport of Colloidal Particles in Porous Media", presented at: *International Symposium on Electrokinetic Phenomena*, August 18-22, 2002, Krakow, Poland.

188. Elimelech, M. (keynote lecture) "Interactions and Transport of Colloidal Particles in Porous Media", Symposium in Honor of Professor Egon Matijevic, 224th ACS National Meeting, Boston, MA, August 18-22, 2002

189. Redman, J. A.; Walker, S.; Elimelech, M. "Observations of Tailing in particle breakthrough curves in porous media" presented at the 224th American Chemical Society National Meeting, Boston, Massachusetts, August 18, 2002.

190. Tufenkji, N; Redman, J. A.; Elimelech, M. "Interpreting biocolloid deposition patterns in laboratory-scale column experiments" presented at the 224th American Chemical Society National Meeting, Boston, Massachusetts, August 18, 2002.

191. Walker, S.L., Chen, J.C.; Elimelech, M, "Colloid and Bacterial Deposition Kinetics onto Chemically Micropatterned Surfaces in a Stagnation Point Flow System" Presentation at the 224th American Chemical Society National Meeting, August 18, 2002, Boston, MA

192. Ryan, J.N., Elimelech, M. and Harvey, R., "Virus Transport in Porous Media" International Workshop on Colloids and Colloid-Facilitated Transport of Contaminants in Soils and Sediments, Research Center Foulom, Tjele, Denmark, September 2002.

193. Tufenkji, N.; Redman, J. A.; Elimelech, M. (invited) "Microbial Deposition Patterns in Laboratory-Scale Column Experiments" presented at the National Institute of Public Health and the Environment, Bilthoven, The Netherlands, September 27, 2002.

194. Lee, S. Cho, J.. and Elimelech, M. "Simulation of feed water recovery and concentration factor and their influence on colloid and NOM fouling of NF membranes", AWWA Membrane Technology Conference, March 2-5, 2003, Atlanta, Georgia.

195. Walker, S.L., Redman, J.A., and Elimelech, M, The Role of LPS Composition on Bacterial Adhesion and Detachment under Flow Conditions, *225th American Chemical Society National Meeting*, March 24, 2003, New Orleans, LA.

196. Elimelech, M. (invited) "Transport of Colloidal Particles over Heterogeneously Charged Collector Surfaces: Coupling between Hydrodynamic and Colloidal Interactions", 3rd Chemical Engineering Conference for Collaborative Research in Easter Mediterranean, Thessaloniki, Greece, May 13-15, 2003

197. Li, Q., and Elimelech, M. "Chemical Cleaning of Organic-fouled Nanofiltration Membranes: Measurements and Mechanisms", *14th Annual Meeting of the North American Membrane Society*. Jackson Hole, Wyoming, May 17-21, 2003.

198. Nghiem, L.D.; Schäfer, A.I.; and Elimelech, M. "Removal Mechanisms of Steroid Hormones and Alkyl Phenols in Nanofiltration, Annual Meeting of the North American Membrane Society, May 17-21, 2003, Jackson Hole, WY.

199. Li, Q., and Elimelech, M. "Chemical Cleaning of Fouled Nanofiltration and Reverse Osmosis Membranes: Measurements and Mechanisms", *77th ACS Colloid and Surface Science Symposium*, Atlanta, GA, June 15-18, 2003.

200. Walker, S.L., Redman, J.A., Elimelech, M, "Measuring Effect of Bacterial Lipopolysaccharides on Adhesion and Detachment Under Flow Conditions", *American Chemical Society 77th Colloid and Surface Science Symposium*, June 16, 2003, Atlanta, GA.

201. Kuznar, Z.A.; Chen, J.Y.; Elimelech, M. "Transport of Colloidal Particles over Heterogeneously Charged Collector Surfaces", *American Chemical Society 77th Colloid and Surface Science Symposium*, June 16, 2003, Atlanta, GA.

202. Miller, G. and Elimelech, M. " Transport of *Cryptosporidium* in Saturated Porous Media", *American Chemical Society 77th Colloid and Surface Science Symposium*, June 16, 2003, Atlanta, GA.

203. Tufenkji, N and Elimelech, M. "A New Correlation Equation for Predicting Single-Collector Efficiency in Physicochemical Filtration in Saturated Porous Media" *American Chemical Society 77th Colloid and Surface Science Symposium*, Georgia Tech, Atlanta, Georgia, June 16, 2003.

204. .Nghiem, L.D. ; Schäfer, A.I.; and Elimelech, M. "Rejection of trace organic contaminants by nanofiltration membranes: role of membrane surface properties and contaminant chemical structure", *American Chemical Society 77th Colloid and Surface Science Symposium*, Georgia Tech, Atlanta, Georgia, June 16, 2003.

205. Elimelech, M., Chen, J.Y., and Kuznar, Z.A. (invited) "Particle Deposition onto Solid Surfaces with Microscopic Charge Heterogeneity: The 'Hydrodynamic Bump' Effect", *International Conference on MEMS, NANO and Smart Systems (ICMENS 2003)*, July 20 - 23, Banff, AB, Canada.

206. Walker, S.L, and Elimelech, M. "The Role of LPS in Bacterial Adhesion and Transport in Aquatic Systems", presented at the Gordon Research Conference, Molecular Mechanisms of Microbial Adhesion, Salve Regina University, July 27-August 1, 2003, Newport, RI.

207. Walker, S.L., Redman, J.A., Elimelech, M. "Role of Secondary Minimum on bacterial Adhesion and Transport", *226th American Chemical Society National Meeting*, Symposium in Honor of Professor Walter J. Weber Jr. , September 10, 2003, New York, NY

208. Elimelech, M., Chen, J.Y., and Kuznar, Z.A. "Deposition of Colloidal Particles on Chemically Heterogeneous Surfaces: Role of Microscopic Surface Charge Heterogeneity", *226th American Chemical Society National Meeting*, Symposium in Honor of Professor Walter J. Weber Jr. , September 10, 2003, New York, NY.

209. Tufenkji, N and Elimelech, M. "Relating Heterogeneities in Molecular-Scale Properties to Distributions in the Microbial Deposition Rate", *226th American Chemical Society Annual Meeting*, New York, New York, September 10, 2003.

210. Nghiem, L.D. ; Schäfer, A.I.; and Elimelech, M, "Removal of Natural Hormones by Nanofiltration Membranes: Measurement, Modeling, and Mechanisms," *226th American Chemical Society Annual Meeting*, New York, New York, September 10, 2003..

211. Li, Q. and Elimelech, M. "Revealing the Mechanisms of Organic Fouling and Chemical Cleaning of Nanofiltration Membranes", *226th ACS National Meeting*, New York, NY, September 7-11, 2003

212. Elimelech, M., Miller, G., and Kuznar, Z.A., "Transport and Removal of Cryptosporidium Oocysts in Subsurface Porous Media", National Water Research Institute, The Second International Riverbank Filtration Conference, Cincinnati, OH, September 16, 2003

213. Tufenkji, N and Elimelech, M. "Relating Physical and Chemical Heterogeneities of Microbial Particles to Distributions in the Deposition Rate" *11th International Conference on Surface and Colloid Science*, Iguassu Falls, Brazil, September 18, 2003.

214. Elimelech, M. and Lee, S. (invited) "Colloidal/NOM Fouling of Salt Rejecting Membranes: Measurements and Mechanisms", IWA International Conference on Nano and Microparticles in Water and Wastewater Treatment, Zurich, Switzerland, 22 - 24 September, 2003

215. Elimelech, M. (invited) "Chemical and Physical Aspects of Bacterial Adhesion in Aquatic Systems", Department of Chemistry, University of Geneva, September 25, 2003

216. Elimelech, M. (invited) "Chemical and physical Aspects of Bacterial Adhesion" , Department of Chemical Engineering, University of Virginia, October 16, 2003

217. Elimelech, M. (invited) "Physical and Chemical Aspects of Bacterial Transport and Adhesion", Department of Civil and Environmental Engineering, University of Delaware, October 17, 2003

218. Elimelech, M. (invited, CH2M Hill Distinguished Lecture) "Physical and Chemical Aspects of Microbial Transport and Adhesion", Department of Civil and Environmental Engineering, Auburn University, October 29, 2003

219. Elimelech, M. (invited) "Organic fouling and chemical cleaning of NF Membrane : Measurements and mechanisms", Department of Environmental Science and Engineering, Kwangju Institute of Science and Technology (K-JIST), Gwangju, Korea, December 3, 2003

220. Elimelech, M. (invited) "Chemical and Chemical Aspects of Bacterial Adhesion and Transport", Department of Environmental Science and Engineering, Kwangju Institute of Science and Technology (K-JIST), Gwangju, Korea, December 3, 2003

221. Elimelech, M. (invited) "Organic fouling and chemical cleaning of NF Membrane: Measurements and mechanisms", Department of Civil Engineering, Korea University, Seoul, Korea, December 6, 2003.

222. Sangyoup Lee, Boksoon Kwon, Menachem Elimelech, and Jaeweon Cho, "Characterization of NOM in NF and tight-UF permeates" Natural Organic Material Research: Innovations and Applications for Drinking Water, March 2-5, 2004, Victor Harbor, South Australia.

223. Elimelech, M. (invited) "Chemical and Physical Aspects of Bacterial Transport and Adhesion", Department of Civil and Environmental Engineering, Johns Hopkins University, March 9, 2004.

224. Abu-Dalo R.A., Bogatsu Y.G., Ryan J.N., Metge D.W., Elimelech M., and Harvey R.W. "Transport of bacteriophage PRD1 and Cryptosporidium parvum oocysts in saturated porous media: The importance of surface ferric oxyhydroxides", presented at the 1st Water Environment Federation/American Water Works Association Student Conference, Rocky Mountain Region, Golden, Colorado, May 2004

225. Abu-Dalo R.A., Bogatsu Y.G., Ryan J.N., Metge D.W., Harvey R.W., and Elimelech M., "The effect of ferric oxyhydroxide surface coatings on the transport of bacteriophage PRD1 and Cryptosporidium parvum oocysts in saturated porous media", presented at the 78th American Chemical Society Colloids and Surfaces Symposium, Yale University, New Haven, CT, June 2004.

226. H. Y. Ng, Q. Li and M. Elimelech, 2004. "Organic Fouling of RO Membranes for Water Reuse: Role of Proteins and Polysaccharides", IWA Specialty Conference: Water Environment-Membrane Technology, WEMT2004, June 7-10, 2004, Seoul, Korea.

227. Elimelech, M. (invited keynote) "Role of Electrostatic Interactions in Bacterial Adhesion and Transport in Aquatic Environments" presented at the International Electrokinetics Conference, ELKIN 2004, Pittsburgh, PA, June 13-17, 2004.

228. Walker, S.L., Redman, J.A., Elimelech, M, "Influence of Lipopolysaccharides on Bacterial Adhesion and Transport in Aquatic Systems" Presented at the American Chemical Society 78th Colloid and Surface Science Symposium, June 22, 2004, New Haven, CT.

229. Redman, J.A., Walker, S.L., Hill, J.E., Elimelech, M, "Influence of Growth Phase on Bacterial Adhesion and Transport" Presented at the American Chemical Society 78th Colloid and Surface Science Symposium, June 22, 2004, New Haven, CT.

230. Mylon, S.E. and Chen K.L., and M. Elimelech, "Influence of natural organic matter and ionic composition on the kinetics and structure of hematite colloid aggregation: Implications to iron depletion in estuaries" presented at the 78th ACS Colloid and Surface Science Symposium, Yale University, New Haven, CT, Jun 20-23, 2004

231. Li, Q. and Elimelech, M. Combined Colloidal and Organic Fouling and Chemical Cleaning of Nanofiltration Membranes. The 15th North America Membrane Society Annual Meeting. Honolulu, Hawaii, June 26-30, 2004.

232. Li, Q. and Elimelech, M. Combined Fouling of Nanofiltration Membranes by Colloidal Material and Natural Organic Matter and Chemical Cleaning of the Fouled Membranes. The 78th ACS Colloid and Surface Science Symposium. New Haven, Connecticut, June 20-23, 2004.

233. Kuznar, Z.A.; Elimelech, M. "Adhesion of Viable *Cryptosporidium* oocysts to Quartz Surfaces" presented at the 78th Colloid and Surface Science Symposium, Yale University, New Haven, CT, June 20 – 24, 2004.

234. Sangyoup Lee, Jaeweon Cho, and Menachem Elimelech, "Combined influence of natural organic matter and colloidal particles on nanofiltration membrane fouling" 78th ACS Colloids and Surface Science Symposium, June 20-23, 2004, New Haven, CT

235. de Kerchove, A. J. and Elimelech, M. "Application of Electrokinetic Theory for Soft Particles to Bacterial Cells" presented at the American Chemical Society 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 2004

236. de Kerchove, A. J. and Elimelech, M. "Relevance of the Soft Particle Outer-Surface Potential to Bacterial-Surface Interactions in Aquatic Systems" presented at the American Chemical Society 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 2004

237. Tufenkji, N. and Elimelech, M. "Deposition Patterns of Colloidal Particles in Saturated Porous Media – Deviation from Colloid Filtration Theory" presented at the American Chemical Society 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 22, 2004.

238. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination", presented at the 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 20th-23rd, 2004

239. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination", presented at the 15th annual meeting of the North American Membrane Society, Honolulu, Hawaii, June 26th-30th, 2004.

240. H. Y.Ng and M. Elimelech, 2004. "Effect of Colloidal Fouling on Removal of Trace Organics by RO", North American Membrane Society 15th Annual Meeting, June 26-30, 2004, Honolulu, Hawaii, USA.

241. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

242. Elimelech, M. (invited) "Organic Fouling and Chemical Cleaning of Polymeric Membranes: Measurements and Mechanisms", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

243. Sangyoup Lee and Menachem Elimelech, "Salt cleaning of organic fouled reverse osmosis membranes" ", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

244. Nghiem, L.D., Schäfer, A.I., *and* Elimelech, M., "Solute-membrane affinity in nanofiltration: natural hormones vs pharmaceuticals", ", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

245. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination using polymeric membranes", presented at the 228th American Chemical Society National Meeting, Philadelphia, Pennsylvania, August 22nd – August 26th, 2004

246. de Kerchove, A. J. and Elimelech, M. "Relevance of the Soft Particle Outer-Surface Potential to Bacterial-Surface Interactions in Aquatic Systems" presented at the 227th American Chemical Society National Meeting, Philadelphia, Pennsylvania, August 2004

247. Mylon, S.E. and Chen K.L., and M. Elimelech "Influence of natural organic matter and ionic composition on the kinetics and structure of hematite colloid aggregation: Implications for iron depletion in estuaries" presented at the 228th ACS National Meeting, Philadelphia, PA, Aug 22-26, 2004

248. Kuznar, Z.A.; Elimelech, M. "Deposition Kinetics of *Cryptosporidium parvum* oocysts" presented at the 228th American Chemical Society National Meeting, Philadelphia, PA, August 22 – 26, 2004.

249. Walker, S.L., Redman, J.A., Elimelech, M, "Bacterial Transport and Deposition in Porous Media: Role of Cell Surface Lipopolysaccharides (LPS)" Presented at the 228th American Chemical Society National Meeting, Symposium in Honor of Professor Charles O'Melia, August 2004, Philadelphia, PA.

250. Tufenkji, N.; Redman, J. A.; Elimelech, M. "Deviation from Colloid Filtration Theory in the Presence of Repulsive DLVO Interactions – Implications to Microbial Transport" presented at the 227th American Chemical Society National Meeting, Philadelphia, Pennsylvania, August 23, 2004.

251. Sangyoup Lee, Wui Seng Ang, and Menachem Elimelech, "Role of divalent cations in organic fouling of reverse osmosis membranes" 228th ACS National Meeting, August 22-26, 2004, Philadelphia, PA.

252. Elimelech, M., and Li, Q. "Natural Organic Matter (NOM) Fouling and Chemical Cleaning of Nanofiltration Membranes", presented at the International Water Association 4th World Water Congress, September 19-24, Marrakech, Morocco.

253. Nghiem, L.D., Schäfer, A.I., and Elimelech, M. "Mechanisms of steroid hormones and hormone mimicking compounds removal in nanofiltration", presented at the International Water Association 4th World Water Congress, September 19-24, Marrakech, Morocco.

254. Elimelech, M., and Ng, H.Y. "Influence of Colloidal Fouling on removal of Trace Organics by RO Membranes", presented at the International Water Association 4th World Water Congress, September 19-24, Marrakech, Morocco.

255. Nghiem, L.D., Khan, S, Schäfer, A.I., and Elimelech, M. "Membrane-Organic solute affinity and its role in NF/RO separation, Euromembrane 2004, September 29- October 1, 2004, Hamburg, Germany.

256. M. Elimelech (invited) "A Novel Forward Osmosis Desalination Process", presented at the International Water Desalination and Purification Workshop, Office of Naval Research Global, October 14-15, 2004, London.

257. Elimelech, M. (invited) "Chemical and Physical Aspects of Bacterial Transport and Adhesion", Department of Civil and Environmental Engineering, Duke University, November 17, 2004.

258. Elimelech, M., (invited) "Chemical and Physical Interactions in Bacterial Adhesion and Transport", department of Earth and Environmental Engineering, Columbia University, NY, January 28, 2005.

259. Elimelech, M., (keynote) "Membrane Technology in Water Recycling Principles and Challenge", Symposium on Integrated Concepts in Water Recycling Wollongong, NSW, Australia, 13-17 February, 2005

260. Hill, J. and Elimelech, M. "Sulfur and Organic Phosphorus Cycling by Thiobacillus", The American Society of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, February 20-25, 2005, Salt Lake City, UT.

261. Chen, K.L. Mylon, S.E., and Elimelech, M., "Influence of Solution Chemistry on the Aggregation Kinetics of Alginate-Coated Hematite Colloids", American Chemical Society 229th National Meeting, March 13-17, 2005, San Diego, CA.

262. Ang, W.S., Lee, S., and Elimelech, M., "Chemical and Physical Aspects of Cleaning of Organic-fouled Reverse Osmosis Membranes", 2005 ACS Annual Meeting, March 13, San Diego, CA.

263. Chen, J.C., Kim, A.S, and Elimelech, M. "Monte Carlo Simulation of Colloidal Membrane Filtration: Model Development with Application to Characterization of Phase Transition Phenomenon", the 229th American Chemical Society National Meeting, San Diego, CA, March 13–17, 2005.

264. Kuznar, Z.A. and Elimelech, M., "Role of surface proteins in the deposition kinetics of *Cryptosporidium* parvum oocysts", American Chemical Society 229th National Meeting, March 13-17, 2005, San Diego, CA.

265. Lee, S. Ang, W.S., and Elimelech, M., "Novel salt cleaning of organic fouled reverse osmosis membranes", American Chemical Society 229th National Meeting, March 13-17, 2005, San Diego, CA.

266. Elimelech, M., (keynote) "Organic Fouling and Chemical Cleaning of RO Membranes: Role of Chemical and Physical Interactions", Symposium on Advanced Materials for Purification of Water with Systems, Atlanta, GA, April 13-15, 2005.

267. Kuznar, Z.A., and Elimelech, M. "Role of Surface Polymers in the Deposition Kinetics of *Cryptosporidium parvum* oocysts onto Quartz Surfaces", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

268. de Kerchove, A. J. and Elimelech, M. "Effect of Monovalent and Divalent Electrolytes on the Adsorption of Polysaccharides on Solid Surfaces in Aquatic Systems" Presented at the American Chemical Society 79th Colloid and Surface Science Symposium, June 2005, Clarkson University, Potsdam, NY.

269. de Kerchove, A. J. and Elimelech, M. "Multi-Layer Adsorption of Sodium Alginate on Quartz Surfaces: A QCM-D Study of Adsorbed Layer Properties" Presented at the American Chemical Society 79th Colloid and Surface Science Symposium, June 2005, Clarkson University, Potsdam, NY.

270. Li, Y., Chen, J.C., Elimelech, M., and Kim, A.S., "Monte Carlo Simulation of Colloidal Membrane Filtration: Principal Issues for Modeling", American Chemical Society, the 79th Colloid and Surface Science Symposium, Potsdam, NY, June 12–15, 2005.

271. Ang, W.S., Lee, S., and Elimelech, M., "Mechanisms of Chemical Cleaning of Organic-fouled Reverse Osmosis Membranes", 2005 Annual North American Membrane Society (NAMS) Meeting, June 11-15, Providence, RI.

272. Chen, K.L. Mylon, S.E., and Elimelech, M., "Influence of Alginate and Ionic Composition on the Stability of Hematite Colloids", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

273. Chen, K.L. Mylon, S.E., and Elimelech, M., "Aggregation Kinetics of Alginate-Coated Hematite Colloids in Divalent Electrolytes", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

274. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "Desalination by a Novel Ammonia-Carbon Dioxide Forward Osmosis Process: Influence of Draw and Feed Solution Concentrations on Process Performance", 2005 Annual North American Membrane Society (NAMS) Meeting, June 11-15, Providence, RI.

275. Lee, S., and Elimelech, M. "AFM as a Tool to Characterize the Organic Fouling Potential of RO and NF Membranes", 2005 Annual North American Membrane Society (NAMS) Meeting, June 11-15, Providence, RI.

276. Elimelech, M., Walker, S.L. and de Kerchove, A.J. (Keynote), "Role of Electrostatic Interactions in Bacterial Deposition", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

277. Elimelech, M., "The Global Challenge for Adequate and Safe Water", The 2005 Clarke Prize Lecture, July 7, 2005, Danna Point, CA.

278. Elimelech, M., (invited) "Membrane Technology for Wastewater Reuse and Desalination", presented at the Israel Electric Company, Haifa, Israel, 7 August, 2005.

279. Chen, K.L. Mylon, S.E., and Elimelech, M., "Aggregation of Alginate-Coated Hematite Nanoparticles in Monovalent and Divalent Electrolytes", American Chemical Society 230th National Meeting, August 28 – September 1, 2005, Washington, DC.

280. Chen, K.L. Mylon, S.E., and Elimelech, M., "Influence of Alginate and Ionic Composition on Aggregate Structure of Hematite Colloids", American Chemical Society 230th National Meeting, August 28 – September 1, 2005, Washington, DC.

281. Da Siva, A.K., and Elimelech, M., "Adsorption kinetics of recombinant Norovirus nanoparticles to a quartz surface", American Chemical Society 230th National Meeting, August 28 – September 1, 2005, Washington, DC.

282. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "Desalination Using a Novel Ammonia-Carbon Dioxide Forward Osmosis Process: Evaluation of Process Performance", 2005 Annual AIChE Meeting, November 2005, Cincinnati, OH.

283. Lee, S., and Elimelech, M. "Role of Foulant-Foulant Adhesion in Organic Fouling of Reverse Osmosis Membranes", 2005 Annual AIChE Meeting, November 2005, Cincinnati, OH.

284. Chen, K.L. Mylon, S.E., and Elimelech, M., "Enhanced Aggregation of Alginate-Coated Hematite Nanoparticles", The American Institute of Chemical Engineers (AIChE) 2005 Annual Meeting, October 30 – November 4, 2005, Cincinnati, Ohio.

285. Ang, W.S., Lee, S., and Elimelech, M., "Cleaning Mechanisms of Organic-fouled Reverse Osmosis Membranes", 2005 Annual AIChE Meeting, November 2, Cincinnati, OH.

286. de Kerchove, A. J. and Elimelech, M. "Structural Growth and Viscoelastic Properties of Polysaccharide Layers in Mono- and Divalent Salts" Presented at the 2005 AIChE Annual Meeting, Nov. 2005, Cincinnati, OH.

287. Elimelech, M., (plenary lecture) "Membrane Fouling and Cleaning: Role of Chemical and Physical Interactions", International Symposium on Wastewater Reclamation & Reuse for Sustainability, Jeju, Korea, November 8-11, 2005

288. Elimelech, M. "Transport of Biological Agents in the Subsurface Environment", Presentation at the International Conference on Hazardous Waste Management for a Sustainable Future, 10-12 January 2006, Bangkok, Thailand.

289. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Pilot Scale Demonstration of Ammonia Carbon Dioxide Forward Osmosis Desalination Process", Presented at EUWP Program Funding Review Conference, January 17th - 18th, 2006, Long Beach, CA.

290. Nguyen, T.H. and Elimelech M. "Plasmid DNA Adhesion on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts". Poster presentation at Gordon Research Conference on Bioanalytical Sensors, CA, USA, Feb. 2006.

291. Elimelech, M. "Transport and Adhesion of Microbes in Subsurface Aquatic Environments: Viruses, Bacteria, and *Cryptosporidium*", CESEP Distinguished Lecture, Colorado School of Mines, March 9, 2006.

292. Chen, K-L., and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene Nanoparticles in Aquatic Environments, 26th New England Workshop on Complex Fluids, March 10, 2006, Yale University, New Haven, Connecticut.

293. Elimelech, M. "Relating Organic Fouling of Reverse Osmosis Membranes to Intermolecular Adhesion Forces", Presentation at the U.S. – Israeli Workshop on Nanotechnology for Water Purification, Arlington, VA, March 13-15, 2006

294. Elimelech, M. "Physical and Chemical Interactions in Adhesion and Transport of Microbes in Subsurface Aquatic Environments", Presentation at the Workshop on "Subsurface Transport of Microorganisms and other Colloids", RIVM, Bilthoven, The Netherlands, March 16, 2006.

295. Elimelech, M. "Aggregation of Alginate-Coated Hematite Nanoparticles in Aquatic Systems", Seminar, Department of Chemistry, University of South Carolina, March 31, 2006

296. Elimelech, M. "Mechanisms of Organic Fouling and Subsequent Cleaning of Fouled Membranes", Presentation at Procter and Gamble, Cincinnati, OH, April 17, 2006.

297. Elimelech, M. "Filtration Mechanisms of Microbial Pathogens in Flow through Porous Media", Presentation at Procter and Gamble, Cincinnati, OH, April 17, 2006.

298. Herzberg, M. and Elimelech, M.; "Influence of Biofouling on Reverse Osmosis Membrane Performance", *WATERCAMPWS 3rd Annual symposium*, April 17, 2006, San Francisco, CA.

299. McCutcheon, J.R.; Elimelech, M. "Modeling flux in forward osmosis: Influence of feed and draw solution concentration and membrane structural properties on performance.", poster presented at the 17th annual meeting of the North American Membrane Society, Chicago, IL, May 12-17, 2006.

300. McCutcheon, J.R.; Elimelech, M. "Influence of concentrative and dilutive internal concentration polarization on flux behavior in forward osmosis", Keynote lecture at the 17th annual meeting of the North American Membrane Society, Chicago, IL, May 12-17, 2006.

301. Ang W-S., and Elimelech, M. Protein Fouling of Reverse Osmosis Membranes, Annual NAMS Meeting, May 16, 2006, Chicago, Illinois.

302. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Energy Requirements of Forward Osmosis Desalination", Poster Presented at 2006 National Meeting of the North American Membrane Society, May 16th, 2006, Chicago, IL.

303. Elimelech, M. (plenary) "Microbial Adhesion and Transport in Aquatic Environments", Presentation at the 4th International Conference: *Interfaces Against Pollution*, June 4-7, 2006, Granada, Spain.

304. Chen, K-L., and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene Nanoparticles in Aquatic Environments, Interfaces Against Pollution 4th International Conference, June 4–7, 2006, Granada, Spain.

305. Nguyen, T.H. and Elimelech, M. "Plasmid DNA Adhesion on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts", presented at the 80th Colloid and Surface Science Symposium, University of Colorado, Boulder, June 17-21, 2006.

306. Chen, K-L. and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene Nanoparticles in Monovalent and Divalent Electrolytes, 80th American Chemical Society Colloid and Surface Science Symposium, June 18–21, 2006, Colorado University, Boulder, Colorado.

307. Chen, K-L., Mylon, S.E., and Elimelech, M., Enhanced Aggregation of Alginate-Coated Hematite Nanoparticles: Influence of Divalent Cations on Gel-Network Formation, 80th American Chemical Society Colloid and Surface Science Symposium, June 18–21, 2006, Colorado University, Boulder, Colorado.

308. Elimelech, M. "Water, Sanitation, and Health in Developing Countries", Presentation at the Gordon Research Conference, Environmental Sciences: Water, June 25-30, 2006, Holderness School, Plymouth, NH.

309. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Pilot Scale Demonstration of Ammonia Carbon Dioxide Forward Osmosis Desalination Process", Presented at EUWP Program Funding Review Conference, June 27th - 29th, 2006, Washington, D.C.

310. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Pilot Scale Demonstration of Ammonia Carbon Dioxide Forward Osmosis Desalination Process", Presented at EUWP Industry-Academia Workshop, June 28th, 2006, Washington, D.C.

311. McCutcheon, J.R.; Elimelech, M. "Modeling flux in forward osmosis: Influence of feed and draw solution concentration and membrane structural properties on performance.", poster presented at the Gordon Research Conference, Colby Sawyer College, New London, NH, August 6 - 10, 2006.

312. Elimelech, M. "Mechanisms of Organic Fouling and Chemical Cleaning of RO/NF Membranes", Presentation at Sandia National Lab, Albuquerque, NM, August 17, 2006.

313. de Kerchove, A. J. and Elimelech, M. "Role of Alginate Conditioning Film in the Deposition Kinetics of *Pseudomonas aeruginosa* in a Radial Stagnation Point Flow Chamber" Presented at the American Chemical Society 232th National Meeting, San Francisco, CA, September 10-14, 2006.

314. de Kerchove, A. J. and Elimelech, M. "Role of Divalent Cations in the Deposition Kinetics of *Pseudomonas aeruginosa* on Quartz Surfaces" Presented at the American Chemical Society 232th National Meeting, San Francisco, CA, September 10-14, 2006.

315. Herzberg, M. and Elimelech, M.; "Biofouling of reverse osmosis membrane: Mechanisms and performance", *232nd American Chemical Society National Meeting*, September 10-14, 2006, San Francisco, CA.

316. Herzberg, M. and Elimelech, M.; "Dynamics of biofilm growth on reverse osmosis membranes", *232nd American Chemical Society National Meeting*, September 10-14, 2006, San Francisco, CA.

317. Elimelech, M. "Microbial Adhesion and Transport in Aquatic Environments", Presentation at the University of Minnesota, Civil Engineering Department, October 27, 2006.

318. Elimelech, M. "Aggregation Kinetics of Hematite Nanoparticles in Aquatic Systems", Seminar, Department of Civil and Environmental Engineering, Virginia Tech, Nov. 3, 2006.

319. Nguyen, T.H., Chen, K-L., and Elimelech, M., Adhesion of Plasmid DNA to Natural Organic Matter Coated Mineral Surfaces, The American Institute of Chemical Engineers 2006 Annual Meeting, November 12–17, 2006, San Francisco, California.

320. Chen, K-L. and Elimelech, M. Aggregation and Deposition Kinetics of Fullerene Nanoparticles onto Quartz Surface, The American Institute of Chemical Engineers 2006 Annual Meeting, November 12–17, 2006, San Francisco, California.

321. Chen, K-L., Mylon, S.E., and Elimelech, M., Mechanism of Enhanced Aggregation of Alginate-Coated Hematite Nanoparticles in the Presence of Calcium, Strontium, and Barium Cations, The American Institute of Chemical Engineers 2006 Annual Meeting, November 12–17, 2006, San Francisco, California.

322. McCutcheon, J.R.; Elimelech, M. "Influence of concentrative and dilutive internal concentration polarization on flux behavior in forward osmosis", oral presentation at the American Institute of Chemical Engineers national meeting, San Francisco, CA. November 12-17, 2006.

323. McCutcheon, J.R.; Elimelech, M. "The ammonia-carbon dioxide forward osmosis desalination process: A high recovery alternative to reverse osmosis", oral presentation at the American Institute of Chemical Engineers national meeting, San Francisco, CA. November 12-17, 2006.

324. McCutcheon, J.R.; Elimelech, M. "The ammonia-carbon dioxide forward osmosis desalination process: Performance and modeling", poster presented at the American Institute of Chemical Engineers national meeting, San Francisco, CA. November 12-17, 2006.

325. Nguyen, T.H., Chen K.L. and Elimelech, M. "Adhesion of Plasmid DNA to Natural Organic Matter Coated Mineral Surfaces", presented at the 2006 AIChE Annual Meeting, San Francisco, California, November 12-17, 2006.

326. Nguyen, T.H., and Elimelech, M. "Plasmid DNA Adhesion on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts", presented at the 2006 AIChE Annual Meeting, San Francisco, California, November 12-17, 2006.

327. Ang W-S. and Elimelech, M., Effect of Ca^{2+} on Fouling of RO Membranes by Combined Organic Foulants in Wastewater Reclamation, AIChE Annual Meeting, November 14, 2006, San Francisco, California.

328. Elimelech, M. (plenary) "The Global Challenge for Adequate and Clean Water", AIChE Annual Meeting, San Francisco, California, November 15, 2006.

329. Elimelech, M. "Mechanisms of Organic Fouling and Chemical Cleaning of RO/NF Membranes", Presentation at the Department of Civil and Environmental Engineering, Arizona State University, December 7, 2006.

330. Elimelech, M. "Aggregation and Deposition Behavior of Carbon-Based Nanomaterials in Aquatic Environments", 2007 NSF Nanoscale Science and Engineering Grantees Conference, Arlington, VA, December 3-6, 2007

331. Elimelech, M. "Carbon-Based Nanomaterials in Aquatic Environments: Aggregation, Deposition, and Cytotoxicity", Rice University, Department of Civil and Environmental Engineering, November 30, 2007.

332. Elimelech, M. Kang, S., Asatekin, A., Mayes, A.M. "AFM as a Tool to Characterize Membrane Fouling Mechanisms by Biomacromolecules", Presentation at the MRS Fall Meeting, Boston, MA, November 27, 2007.

333. Elimelech, M. (keynote) "Water, Sanitation, and Health in Developing Countries", Department of Geography and environmental Engineering Alumni Day, Johns Hopkins University, Baltimore, MD, September 29, 2007.

334. Elimelech, M. (invited/keynote) "Interaction of Carbon Nanotubes with Bacterial Cells", UCLA/CNSI workshop *"Bio-physicochemical Interactions of Engineered Nanomaterials"*, September 10, 2007

335. Elimelech, M. (keynote) "Nanoparticles and Biomacromolecules in Natural and Engineered Aquatic Environments", AEESP Education and Research Conference, Virginia Tech, Blacksburg, VA, July 31, 2007.

336. Elimelech, M. "Nanoparticles and Nanomaterials in Aquatic Environments", Presentation at Ben Gurion University, Beer Sheva, Israel, July 5, 2007.

337. Elimelech, M. (Distinguished Lecture)"Nanoparticles and Nanomaterials in Aquatic Environments: Transport, Aggregation, and Environmental Implications", MWH Distinguished Lecture, Department of Civil & Environmental Engineering, UCLA, May 29, 2007.

338. Elimelech, M. "Aggregation Kinetics of Nanoparticles in Aquatic Systems ", Lindsay Lecture Series, Department of Chemical Engineering, Texas A&M University, April 20, 2007

339. Elimelech, M. "Aggregation Kinetics of Nanoparticles in Aquatic Systems", Department of Civil and Environmental Engineering, University of Connecticut, April 13, 2007.

340. Elimelech, M. "Aggregation Kinetics of Nanoparticles in Aquatic Systems", Department of Civil and Environmental Engineering, University of Michigan, March 22, 2007.

341. Elimelech, M. (invited) "Environment – Water: The Water and Sanitation Challenge", BioVision 2007, 11-14 March, 2007, Lyon, France.

342. Elimelech, M. "Mechanisms of Organic Fouling and Chemical Cleaning of Reverse Osmosis and Nanofiltration Membranes", Presentation at the Department of Chemistry, Stony Brook University, February 23, 2007.

343. Elimelech, M. (keynote) "Environmental Engineering in the New Millennium Opportunities and Challenges", International Conference on "Civil Engineering in the New Millennium: Opportunities and Challenges (CENeM-2007)", Bengal Engineering and Science University, January 11-14, 2007, Kolkata, India

344. McCutcheon, J.R.; Elimelech, M. "Wetting phenomenon and internal concentration polarization in pressure retarded osmosis", oral presentation at the 18thth annual meeting of the North American Membrane Society, Orlando, FL, May 12-16, 2007.

345. McCutcheon, J.R.; McGinnis, R.L., Elimelech, M. "The ammonia-carbon dioxide forward osmosis desalination process: A high recovery, sustainable desalination alternative" oral presentation at the American Water Works Association: Membrane Technology Conference & Exposition, March 18-21, 2007.

346. McCutcheon, J.R.; Elimelech, M. "Wetting phenomenon in engineered osmosis", poster presented at the Engineering Conference International Water Treatment and Reuse II, Tomar, Portugal, February 11-17, 2007. "Honorable Mention" in poster competition.

347. McCutcheon, J.R.; Elimelech, M. "Modeling of membrane performance in forward osmosis desalination: Implications for improved membrane design", oral presentation at the Engineering Conference International Water Treatment and Reuse II, Tomar, Portugal, February 11-17, 2007.

348. Mi, B. and Elimelech, M. "Organic fouling of forward osmosis membranes" Presented at the North American Membrane Society Annual Meeting, April 14-17, 2007, Orlando, FL.

349. Mi, B. and Elimelech, M. "Mechanisms of organic fouling of forward osmosis (FO)membranes" Presented at the Materials Research Society Fall Meeting, November 26-30, 2007, Boston, MA.

350. Tiraferri, A., Chen, K.L., Sethi, R., Elimelech, M., "Reduced Aggregation and Sedimentation of Zerovalent Iron Nanoparticles in the Presence of Guar Gum" Presented at the 3rd International Symposium on Permeable Reactive Barriers and Reactive Zones, November 8-9, 2007, Rimini, Italy

351. Kang, S., Asatekin, A., Mayes, A.M., and Elimelech, M. "Protein Antifouling Mechanisms of PAN UF Membranes Incorporating PAN-g-PEO Additive" Presented at the American Chemical Society 233rd National Meeting, March 27th, Chicago, IL, 2007

352. Kang, S., Asatekin, A., Mayes, A.M., and Elimelech, M. "Application of AFM Force Measurements for the Selection of Antifouling UF Membranes Containing Polyacrylonitrile-graft-Poly(ethylene oxide) Comb Copolymer Additives" Presented at the North American Membrane Society 2007 Meeting, May 14th, Orlando, FL, 2007

353. Kang, S., Pinault, M., Pfefferle, L. D., and Elimelech, M. "Single-walled Carbon Nanotubes Exhibit Strong Antimicrobial Activity" Presented at the American Chemical Society 234th National Meeting, August 20th, Boston, MA, 2007

354. Montgomery, M.A., Elimelech, M. "Enhancing Trachoma Elimination with Environmental Prevention Measures." In Collaboration with the World Health Organization (WHO), Geneva Switzerland. Presented at Unite for Sight 2007 International Health Conference, April 2007, Stanford University, CA.

355. Herzberg, M. and Elimelech, M. "The role of EPS in biofouling of reverse osmosis membranes" Presented at the American Chemical Society 233rd National Meeting, Chicago, IL, 2007

356. Herzberg, M. and Elimelech, M. "Gene expression in reverse osmosis membrane biofilms" Presented at the American Chemical Society 233rd National Meeting, Chicago, IL, 2007.

357. Herzberg, M. and Elimelech, M. "Gene expression in reverse osmosis membrane biofilms" Presented at the 4th American Society for Microbiology Conference on Biofilms, Quebec, Canada, 2007.

358. Chen, K. L. and Elimelech, M., Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles in the Presence of Humic Acid, The American Institute of Chemical Engineers 2007 Annual Meeting, November 4–9, 2007, Salt Lake City, Utah.

359. Chen, K. L. and Elimelech, M., Electrokinetic Properties and Stability of Engineered Fullerene (C_{60}) Nanoparticles in Aqueous Solutions, The American Institute of Chemical Engineers 2007 Annual Meeting, November 4–9, 2007, Salt Lake City, Utah.

360. Chen, K. L. and Elimelech, M., Influence of Humic Acid on the Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles in Monovalent and Divalent Electrolyte Solutions, American Chemical Society 234th National Meeting, August 19–23, 2007, Boston, Massachusetts *(Invited Talk)*.

361. Chen, K. L. and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene (C_{60}) Nanoparticles in Aquatic Environments, Association of Environmental Engineering and Science Professors Conference, July 28–August 1, 2007, Virginia Tech, Blacksburg, Virginia.

362. Chen, K. L. and Elimelech, M., Influence of Humic Acid on the Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles, 81st American Chemical Society Colloid and Surface Science Symposium, June 24–27, 2007, University of Delaware, Newark, Delaware.

363. Chen, K. L. and Elimelech, M., Influence of Synthesis Technique on Electrokinetic Properties of Fullerene (C_{60}) Nanoparticles in Aqueous Solutions, 81st American Chemical Society Colloid and Surface Science Symposium, June 24–27, 2007, University of Delaware, Newark, Delaware.

364. da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F. "Annual gastroenteritis outbreak in France: tracking norovirus GI and GII through sewage treatment," Presented at the 7th National Congress of the French Society of Microbiology, Nantes, France, May 30 – June 1, 2007.

365. da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F. "Removal of norovirus in wastewater treatment using real-time RT-PCR: different behavior of genogroup I (GI) and genogroup II (GII)," Presented at the International Water Association 14th

Int'l Symposium on Health-related Water Microbiology ("WaterMicro 2007"), Tokyo, Japan, September 9-15, 2007.

366. da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F. "Removal of norovirus genogroup I (GI) and genogroup II (GII) in wastewater treatment using real-time RT-PCR," Presented at the 3rd International Calicivirus Conference, Cancun, México, November 10-13, 2007.

367. Brady-Estevez, A. S., Kang, S., Elimelech, M. "A Single-Walled Carbon Nanotube Hybrid Filter for Removal of Microbial Contaminants" Presented at the 2007 Fall Meeting of the Materials Research Society, Boston, MA, 2007.

368. Brady-Estevez, A. S., Kang, S., Elimelech, M. "A Single-Walled Carbon Nanotube Hybrid Filter for Removal of Microbial and Viral Contaminants" Poster Presented at NT '07 The Eighth International Conference on the Science and Application of Nanotubes, Ouro Preto, Brazil, 2007.

369. Asatekin, A., S. Kang, M. Elimelech, M.F. Rubner, A.M. Mayes, "Anti-fouling ultrafiltration membranes containing polyacrylonitrile-graft-poly(ethylene oxide) comb copolymer additives", North American Membrane Society (NAMS) 2007 Annual Meeting, Orlando, FL, May 14, 2007.

370. Asatekin, A., S. Kang, E. Olivetti, M. Elimelech, M.F. Rubner, A.M. Mayes, "Amphiphilic comb copolymers for better water purification membranes", Millipore Research & Development Center, Bedford, MA, July 26th, 2007.

371. Asatekin, A., S. Kang, M. Elimelech, M.F. Rubner, A.M. Mayes, "Anti-fouling ultrafiltration membranes containing polyacrylonitrile-graft-poly(ethylene oxide) comb copolymer additives", MRS 2007 Fall Meeting, Boston, MA, November 27, 2007.

372. Asatekin, A., S. Kang, M. Elimelech, M.F. Rubner, A.M. Mayes "Amphiphilic comb copolymers for fouling resistant ultrafiltration (UF) membranes", MIT Materials Day 2007, Cambridge, MA, October 16, 2007.

373. McGinnis, R., McCutcheon, J., Elimelech, M. "Pilot Scale Demonstration of Ammonia / Carbon Dioxide Forward Osmosis Desalination Process", oral presentation to the EUWP Desalination Program, Las Cruces, NM, September 2007.

374. McGinnis, R., McCutcheon, J., Elimelech, M. "Forward Osmosis Desalination", oral presentation to the employees of Membrane Technology & Research, Menlo Park, CA. August 2007.

375. McGinnis, R., McCutcheon, J., Elimelech, M. "Forward Osmosis Desalination: Current Research and Future Prospects", oral presentation at the American Membrane Technology Association conference, Las Vegas, NV. July 2007.

376. McGinnis, R., Elimelech, M. "Osmotic Heat Engine (Closed Cycle NH3/CO2 PRO)", oral presentation at the ACS Green Chemistry and Engineering conference, Washington, D.C. June, 2007.

377. McGinnis, R., McCutcheon, J., Elimelech, M. "Forward Osmosis Energy Use: Comparisons to RO, MSF, and MED", oral presentation at the North American Membrane Society conference, Orlando, Fl. May, 2007.

378. McCutcheon, J.R., McGinnis, R.L., Elimelech, M. "Influence of membrane support layer hydrophilicity on water flux in pressure retarded osmosis applications", Presented at the International Congress on Membranes and Membrane Processes, Honolulu, HI, June 12-18, 2008.

379. Rodrigues, D. F., Elimelech, M. Influence of D-mannose on Biofilm Formation. Presented at the Gordon Research Conference on Environmental Sciences: Water, Holderness, NH, 2008.

380. Rodrigues, D.F., Elimelech, M. Influence of Carbon Source on Biofilm Formation. Presented at the 235th ACS meeting, New Orleans, LA, 2008.

381. McGinnis, R., Elimelech, M. "Osmotically Driven Membrane Processes" Presented at the 1st annual Osmosis Membrane Summit, October 27-28, 2008, Amsterdam, Netherlands.

382. Adout, A. Kang, S. Mayes,A. M. and Elimelech M. Antibiofouling Ultrafiltration Membranes Incorporating PAN-g-PEO Comb Copolymer Additives. Presented at the 235th American Chemical Society National meeting & exposition, New Orleans, LA, 2008

383. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Aggregation Kinetics of Carbon Nanotubes in the Presence of Biomacromolecules" Presented at the American Institute of Chemical Engineers 100th Annual Meeting, November 16-21, 2008, Philadelphia, PA.

384. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Aggregation Kinetics of Multi-walled Carbon Nanotubes in Aquatic Systems" Presented at the American Institute of Chemical Engineers 100th Annual Meeting, November 16-21, 2008, Philadelphia, PA.

385. Jaisi, P. D., Saleh, N. B., Blake, R. E., Elimelech, M. "Filtration Mechanisms of Single-walled Carbon Nanotubes in Porous Media" Presented at the American Institute of Chemical Engineers 100th Annual Meeting, November 16-21, 2008, Philadelphia, PA.

386. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Effect of Biomacromolecules on Aggregation Kinetics of Carbon Nanotubes" Presented for the Best Poster Award at the Gordon Research Conference, Environmental Sciences: Water, June 22-27, Holderness School, Holderness, NH.

387. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Aggregation Kinetics of Multi-walled Carbon Nanotubes in Aquatic Systems." Presented at the American Chemical Society 235th National Meeting, April 6-10, New Orleans, LA.

388. Tiraferri, A., Chen, K.L., Sethi, R. and Elimelech, M., "Guar gum reduces aggregation of zerovalent iron nanoparticles and enhances their mobility in porous media", Poster presented at 2008 nanoECO "Nanoparticles in the environment - Implications and Applications", March 2nd-7th, 2008, Monte Verità, Switzerland

389. Kang, S., Herzberg, M., Rodrigues, D. F., and Elimelech, M. "Carbon Nanotube Bacterial Cytotoxicity: Does the Type of Carbon Nanotubes Matter?" Presented at the 2008 AIChE Annual Meeting, Philadelphia, PA, 2008

390. Kang, S., Asatekin, A., Mayes, A. M., and Elimelech, M. "Atomic Force Microscopy as a Tool to Characterize the Antifouling Properties of Polymer-Grafted membranes" Presented at the Gordon Research Conference on Membranes: Materials and Processes, New London, NH, 2008

391. Kang, S. and Elimelech, M. "Bacterial Toxicity of Multi-Walled Carbon Nanotubes" Presented at the American Chemical Society 235th National Meeting, New Orleans, LA, 2008

392. Kang, S. and Elimelech, M. "Cellular Toxicity of Single-Walled Carbon Nanotubes (SWNT) Deposited Surfaces" Presented at the American Chemical Society 235th National Meeting, New Orleans, LA, 2008

393. Kang, S., Asatekin, A., Mayes, A.M., Elimelech, M. "Implication of AFM force measurements for the various blends of antifouling UF membranes containing polyacrylonitrile-graft-poly(ethylene oxide) comb copolymer additives" Presented at the American Chemical Society 235th National Meeting, New Orleans, LA, 2008

394. Kang, S., Mauter, M.S., Elimelech, M., "Physiochemical Determinants of CNT toxicity. Gordon Research Conference", Poster Presented at 2008 Gordon Research Conference, Environmental Sciences: Water, June 23rd 2008, Holderness, NH.

395. Kang, S., Mauter, M.S., Elimelech, M., Carbon-based Nanotechnologies in River Water and Wastewater. Poster Presented at Chemodynamics of Ecosystems Conference, October 28th 2008, Ascona, Switzerland

396. Jaisi, D.P., Saleh, N.B., Blake, R.B., Elimelech, M. "Transport and filtration of carbon nanotubes in porous media" Poster presented at *Goldschmidt 2008* Vancouver, Canada, 2008.

397. Chen, K. L. and Elimelech, M., Aggregation of Fullerene (C60) Nanoparticles in Monovalent and Divalent Electrolytes: Implications for Fate, Transport, and Bioavailability, The American Institute of Chemical Engineers 2008 Annual Meeting, November 16–21, 2008, Philadelphia, Pennsylvania.

398. Chen, K. L. and Elimelech, M., Interaction of Fullerene (C60) Nanoparticles with Humic Acid and Alginate Coated Silica Surfaces: Implications for Fate and Transport, The American Institute of Chemical Engineers 2008 Annual Meeting, November 16–21, 2008, Philadelphia, Pennsylvania.

399. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene (C60) Nanoparticles on Silica Surfaces: Influence of Surface Modification with Humic Acid and Alginate, Chemodynamics of Ecosystems, October 26–31, 2008, Monte Verità, Ascona, Switzerland.

400. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene Nanoparticles on Silica Surfaces Coated with Humic Acid and Alginate, 82nd American Chemical Society Colloid and Surface Science Symposium, June 15–18, 2008, North Carolina State University, Raleigh, North Carolina.

401. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene (C60) Nanoparticles on Silica Surfaces: Influence of Surface Modification with Humic Acid and Alginate, Poster Presented at Chemodynamics of Ecosystems, October 26–31, 2008, Monte Verità, Ascona, Switzerland.

402. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene Nanoparticles on Silica Surfaces Coated With Humic Acid and Alginate, Poster Presented at Gordon Research Conference 2008 – Environmental Sciences: Water, June 22–27, 2008, Holderness, New Hampshire.

403. Rodrigues, D. F., Elimelech, M. Influence of D-mannose on Biofilm Formation. Presented at the Gordon Research Conference on Environmental Sciences: Water, Holderness, NH, 2008.

404. Rodrigues, D.F., Elimelech, M. Influence of Carbon Source on Biofilm Formation. Presented at the 235th ACS meeting, New Orleans, LA, 2008.

405. McCutcheon, J.R., McGinnis, R.L., Elimelech, M. "Influence of membrane support layer hydrophilicity on water flux in pressure retarded osmosis applications", Presented at the International Congress on Membranes and Membrane Processes, Honolulu, HI, June 12-18, 2008.

406. Montgomery, M., Desai, M., Elimelech, M. "Relationship between use and quality of latrines and risk of trachoma among children in rural Tanzania." Presentation given at Sustainable and Safe Drinking Water, UNC-Chapel Hill, November 5-6, 2008, Chapel Hill, North Carolina.

407. Montgomery, M., Elimelech, M. "Three Pillars of Sustainability: A framework for provision of water and sanitation in rural Africa." Presentation given at Sanitation Challenge. Wageningen University, May 19-21, 2008, Wageningen, Netherlands.

408. Montgomery, M., Desai, M., Elimelech, M. "Associations between latrines, hygiene, and trachoma". Presentation given at Stanford Water and Development Conference. Stanford University, April 29-30, 2008, Stanford, California.

409. Montgomery, M., Desai, M., Elimelech, M. "Preliminary results of environment and trachoma research in rural Tanzania." Presentation given at World Health Organization Expert Meeting of Global Alliance for Elimination of Blinding Trachoma, April 16-19th, 2008, Geneva, Switzerland.

410. Elimelech, M. (invited) "Aggregation and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments" Department of Chemical and Environmental Engineering, University of California, Riverside, December 5, 2008.

411. Elimelech, M. (invited) "Aggregation and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Sigma Xi Seminar, NIST, December 11, 2008

412. Elimelech, M. (invited) "Mechanisms of Organic Fouling and Subsequent Cleaning of Fouled Membranes", Doosan Desalination R&D Center, Dubai, UAE, November 24, 2008.

413. Elimelech, M. (invited) "Advanced Membrane Technologies for Desalination and Water Reuse", Doosan Desalination R&D Center, Dubai, UAE, November 24, 2008.

414. M. Elimelech, "Aggregation and Deposition Behavior of Carbon Nanotubes (CNTs) in Aquatic Systems", Interagency Environmental Nanotechnology Grantees Workshop, Tampa, Florida, November 19-21, 2008.

415. Elimelech, M. (invited) "Science and Technology for Sustainable Water Supply", Lawrence K. Cecil Award Lecture, AIChE Environmental Division, AIChE Annual Meeting, November 19, 2008, Philadelphia, PA.

416. Elimelech, M. "Membrane Technologies for Sustainable Wastewater Reuse", BSF Workshop: Ensuring the Sustainable Reuse of Wastewater for Agricultural Irrigation in Semi-Arid/Arid Regions, November 8-13, 2008, Haifa University (Israel).

417. Elimelech, M., Chen, K. L., Saleh, N., and Kang, S., (invited) "Aggregation Kinetics of Carbon-Based Nanomaterials in Aquatic Systems: Measurements and Environmental Implications", Chemodynamics of Ecosystems, October 26–31, 2008, Monte Verità, Ascona, Switzerland.

418. Elimelech, M. (invited), "Energy Demand of Seawater Desalination: Implications for the Middle East", Princeton University, Oil, Energy, and the Middle East Program, October 22, 2008.

419. Elimelech, M. (keynote) "Advances in Water Treatment Technologies", Seoul International Symposium on Waterworks Technology, Korea Chamber of Commerce & Industry, Seoul, Korea, September 1-3, 2008.

420. Elimelech, M. (keynote) "Forward Osmosis Desalination", IWA North American Membrane Conference, University of Massachusetts, Amherst, August 10-13, 2008.

421. Elimelech, M. "Water, Nanotechnology, and Health", PepsiCo Leading with Purpose Program, Yale University, July 29, 2008.

422. Elimelech, M. (invited), "Forward Osmosis Desalination: Progress and Challenges", Seminar at Nanyang Technological University, Singapore, June 30, 2008.

423. Elimelech, M. (keynote) "What the Future Needs to Bring for Water Treatment Technologies", Singapore International Water Week (SIWW), Singapore, June 24, 2008.

424. Elimelech, M. (invited), "Deposition of Motile and Non-Motile Bacteria onto Conditioning Films", Nagoya Institute of Technology, Japan, June 6, 2008.

425. Elimelech, M. (invited), "Aggregation Kinetics of Carbon-Based Nanomaterials in Aquatic Systems", Kyoto University, June 5, 2008.

426. Elimelech, M. (keynote) "Antibacterial Effects of Carbon Nanotubes", Iterfaces Against Pollution (IAP) 2008, Kyoto, Japan, June 2008.

427. Elimelech, M. "Forward Osmosis Desalination", EMCC5, Cetraro, Italy, May 29, 2008.

428. Elimelech, M. (invited) "Aggregation Kinetics and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Chemical Engineering Department, UMASS, April 29, 2008.

429. Elimelech, M. (invited), "Aggregation Behavior and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Department of Civil and Environmental Engineering, Michigan State University, March 13, 2008.

430. Elimelech, M. (invited), "Aggregation Behavior and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Department of Civil and Environmental Engineering, Stevens Institute of Technology, March 5, 2008.

THOMAS M. HOLSEN

Professor
Department of Civil and Environmental Engineering
Clarkson University
Potsdam, NY 13699

PN: 315-268-6542
FN: 315-268-7985
holsen@clarkson.edu

Education

University of California at Berkeley	B.S.	1983	Environmental Sciences
University of California at Berkeley	M.S.	1985	Civil Engineering
University of California at Berkeley	Ph.D.	1988	Civil Engineering

Appointments

Professor: Department of Civil and Environmental Engineering, Clarkson University, Potsdam, NY. Actively involved in teaching and research (Starting 8/98).

Associate Chairman Environmental Engineering Division: Department of Chemical and Environmental Engineering. Responsible for administration of the environmental engineering division (5/95 to 8/98).

Associate Professor of Environmental Engineering: Department of Chemical and Environmental Engineering (until 7/95 Pritzker Department of Environmental Engineering), Illinois Institute of Technology, Chicago, IL.. (3/88-5/93 Assistant Professor).

Staff Engineer: East Bay Municipal Utility District (EBMUD). Research on THM control. (part-time 10/87 - 3/88).

Environmental Scientist: Kennedy/Jenks Engineers, San Francisco, CA (5/83-8/84).

Representative Publications (> 100 total)

Selvendiran,P., Driscoll, C.T., Montesdeoca, M.R., Choi, H.D., Holsen, T.M. Mercury dynamics and transport in two Adirondack lakes *Limnol. Oceanogr.*, 54(2), 2009, 413–427

Choi H.-D. and Holsen.T.M., Gaseous Mercury Emissions from the Forest Floor of the Adirondacks. (Accepted for publication in *Environmental Pollution*, August 2008)

Choi H.-D., Holsen.T.M., and Sharac T.J., Mercury Deposition in the Adirondacks: A Comparison between Precipitation and Throughfall. (2008) *Atmos Environ* 42 1818–1827

Choi H.-D., Holsen.T.M., and Hopke, P.K., Atmospheric Mercury (Hg) in the Adirondacks: Concentrations and Sources. (2008) *Environ Sci Technol, 42*, 5644–5653

Lee, Sang-Rin, Holsen, T.M., Dhaniyala, S. *Design and Development of Novel Large Particle Inlet for PM larger than 10μm (PM>10)* (2008) Aerosol Sci Tech 42:2 140-151

Lai, S.O., Holsen, T.M., Hopke, P.K *Wet Deposition of Mercury at a New York State Rural Site: Concentrations, Fluxes, and Possible Source Areas* (2007) Atmos Env 41:4227-4348

Han, Y-J, Holsen, T.M., Hopke, P.K *Estimation of Source Locations of Total Gaseous Mercury Measured in New York State Using Trajectory Based Models* Atmos Env (2007) 41:6033-6047

Evers, D.C., Han, Y.J., Driscoll, C.T., Kamman, N.C., Goodale, M.W., Fallon Lambert, K., Holsen, T.M., Chen, C.Y., Clair, T.A., Butler, T. *Biological Mercury Hotspots in the Northeastern United States and Southeastern Canada*, (2007) BioScience, Vol. 57 No. 1

Lai, S.O., Holsen, T.M., Han, Y.J., Hopke, P.K., Yi, S.M., Blanchard, P., Pagano, J.J., Milligan, M.S. *Estimation of Mercury Loadings to Lake Ontario: Results from the Lake Ontario Atmospheric Deposition Study (LOADS),* (2007) Atmos Environ 41, 8205-8218

Driscoll, C.T., Han, Y.J., Chen, C.Y., Evers, D.C., Fallon Lambert, K., Holsen, T.M., Kamman, N.C., Munson, R.K., *Mercury Contamination in Forest and Freshwater Ecosystems in the Northeastern United States: Sources, Transformations and Management Options* (2007) BioScience, Vol. 57 No. 1

Yi, S.M., Totten, L.A., Thota, S, Tan, S., Offenberg, J.H., Eisenreich, S.J., Graney, J., Holsen, T.M. *Atmospheric dry deposition of trace elements measured around the urban and industrially impacted NY–NJ harbor* (2006) Atmos. Environ. 40, 6626–6637

Han, Y.J., Holsen, T.M., Hopke, P.K., Yi, S.M. *Comparison between Back-trajectory Based Modeling and Lagrangian Backward Dispersion Modeling For Locating Sources of Reactive Gaseous Mercury* (2005) Environ. Sci. Tech. 39, 1715-1723

Gao, N., Armatas, N.G., Shanley, J.B., Kamman, N.C., Miller, E.K., Keeler, G. J., Scherbatskoy, T., Holsen, T.M., Young, T., McIlroy, L., Drake, S., Olsen, B., Cady, C., *Mass Balance Assessment for Mercury in Lake Champlain*, Environ. Sci. Technol.; 2006; 40(1) 82-89.

Yi, S.M., Shahin, U., Sivadechathep, J., Sofuoglu, S.C., Holsen, T.M. *Overall Elemental Deposition Velocities Measured Around Lake Michigan* (2001) Atmos. Environ. 35,1133-1140.

Odabasi, M., Sofuoglu,A., Holsen, T.M. *Mass Transfer Coefficients for Polycyclic Aromatic Hydrocarbons (PAHs) to the Water Surface Sampler: Comparison to Modeled Results* (2001) Atmos. Environ. 35,9 1655-1662

Shahin, U, Yi, S.M., Paode, R.D., Holsen, T.M. *Long Term Elemental Dry Deposition Fluxes Measured Around Lake Michigan with an Automated Dry Deposition* (2000) Environ. Sci. Technol. 34,10,1887-1892

Synergistic Activities

Co-Director, Dr. Holsen is past co-director of Clarkson's Center for the Environment. The mission of the Clarkson Center for the Environment is to facilitate the development, promotion and operation of environmental activities within the University and among its partners. The Center fosters links and collaboration among faculty, students and partners who will actively participate in the activities required to meet its vision of excellence.

Advisor of WERC teams: Dr. Holsen has taught an innovative senior capstone design course that has included student participation in the Waste-management Education and Research Consortium Environmental Design Competition (WERC) in New Mexico. This course incorporates real-world problem solving with a special emphasis on project-based learning. Student teams received awards for their design each year..

Awards received: Dr. Holsen was recipient of the BFGoodrich Collegiate Inventors Award with J. R. Selman and S. L. Guddati for *The Chromyl Chloride Process -- A Novel Technique for Chromium Recovery from Aqueous Solutions* (1995). He has also received the AEESP Distinguished Service Award; and the Albert D. Merrill Award, from the Dept. Civil & Environ. Engineering, Clarkson University.

Professional activities: Critical reviewer of a U.S. EPA technical document on sources of pollutants in the Great Lakes region prepared for Congress. Data reviewer for the Integrated Atmospheric Deposition Network. Steering Committee for the Lake Michigan Mass Balance Study. Technical Advisory Committee for the International Association of Great Lakes Research (95-96). Best PhD Thesis Review Committee AEEP (98,99,00).

Courses Taught (2000-2009): Chemodynamics, Earth Systems Science; Chemical Fate and Transport in the Environment, Senior Design, Environmental Physico-Chemical Processes, Engineering for Non-Engineers

Associate Editor (2005-) Water Environment Research

Vita
William M. Lewis, Jr.

Personal:

Birth: Lexington, Kentucky; May 31, 1945 (U.S. Citizen)

Education:

Bachelor of Science with Honors in Zoology
University of North Carolina at Chapel Hill, 1967
Doctor of Philosophy, Zoology
Indiana University at Bloomington, 1973

Honors:

Phi Beta Kappa (UNC)
Phi Eta Sigma (UNC)
Delta Phi Alpha (Germanics, UNC)
Hamilton Award (Soc. Sci. and Humanities, UNC)
Senior Honors (UNC)
Woodrow Wilson Fellow (IU, 1967-68)
University Fellow (CU, 1980-81)
Guggenheim Fellow (1980-81)
Fellow, Cooperative Institute for Research in Environmental Sciences (1988-present)
Sustained Achievement Award, Renewable Natural Resources Foundation, Washington, DC (1996)
Naumann-Thienemann Medal, International Society for Theoretical and Applied Limnology (1998)
Certificate of Appreciation for Outstanding Service, National Research Council, Water Science and Technology Board (1999)
Lifetime National Associate, U.S. National Academy of Sciences, Washington, DC (2002)
NAS Sackler Symposium Speaker (2004)
Certificate of Appreciation for Outstanding Service, Board on Environmental Science and Technology, The National Academies (2004)

Employment:

Instructor, Indiana University (Summer, 1970)
Research Associate, University of Georgia, Savannah River Ecology Laboratory (1972-1974)
Adjunct Assistant Professor of Zoology, University of Georgia, Savannah River Ecology Laboratory (1974)
Assistant Professor of Biology, University of Colorado (1974-1978)
Associate Professor of Biology, University of Colorado (1978-1982)
Professor of Biology, University of Colorado (1982-present)
Director, University of Colorado Center for Limnology (1986-present)
Chair, Department of Environmental, Population, and Organismic Biology (1990-1995)

Associate Director, University of Colorado Cooperative Institute for Research in Environmental Sciences (2005-present)

Professional Affiliations:

International Society for Theoretical and Applied Limnology
Ecological Society of America
American Society of Limnology and Oceanography
American Association for the Advancement of Science
North American Benthological Society

Professional Service (Selected):

National Academy/National Research Council, Committee on Priorities in Tropical Research (1977-1979)
National Science Foundation, Advisory Panel for Ecological Sciences (1979-1981)
Board of Directors, American Society of Limnology and Oceanography (1981-1983)
Public Policy Committee, Ecological Society of America (1982-1983)
National Science Foundation, Ecology Advisory Panel (1983)
National Academy/National Research Council, Committee on Conservation of Biological Diversity in Developing Countries (1985)
State of Colorado, Governor's Acid Deposition Task Force (1985-1986)
National Academy/National Research Council, Committee on Glen Canyon Environmental Studies (1986-1989)
National Academy/National Research Council, Glen Canyon Environmental Studies Oversight Committee (1988-1990)
National Academy/National Research Council, Committee on Irrigation-induced Water Quality Problems (1988-1990)
Board of Directors, Organization for Tropical Studies (1987-1990)
Organizing Committee, American Society of Limnology and Oceanography (1988)
State of Colorado, Governor's Colorado Environment 2000 Task Force (1988-1989)
Board of Directors, American Society of Limnology and Oceanography (1990-1993)
Challenges Committee (Chair), American Society of Limnology and Oceanography (1991-1995)
Editorial Board, Biotropica (1992-1995)
Board of Directors, Rocky Mountain Hydrologic Research Center (1992-present)
National Academy/National Research Council, Committee to Review the Glen Canyon Environmental Studies (Chair; 1991-1995)
National Academy/National Research Council, Wetlands Committee (Chair, 1993-1995)
National Academy/National Research Council, Water Science and Technology Board (1993-1999)
National Academy/National Research Council, Ecosystem Panel (1994-1996)
U.S. Representative, International Society for Limnology (2004-2007)
International Scope Nitrogen Project, Working Group I (1998-2000)
President, American Society of Limnology and Oceanography (2000-2002)
Board of Directors, Council of Aquatic Sciences (2000-2002)
Advisory Panel, Max Planck Institute for Limnology (1999-present)
Advisory Panel, Swiss Federal Institute for Aquatic Science and Technology (2000-

Present; Chair 2005)
President, Rocky Mountain Hydrologic Research Center (2000-present)
Chair, National Academy/National Research Council, Committee on Endangered and Threatened Fishes in the Klamath River Basin (2001-2003)
Editorial Board, *Limnology and Oceanography Methods* (2003-present)
General Secretary-Treasurer, International Society of Limnology (2005-present; interim)
Associate Editor, Encyclopedia of Inland Waters (2005-present)
Member, NRC/NAS Board on Environmental Sciences and Technology, Washington, DC (2006-present)

Service to the University (Selected):
Ramaley Building Committee (Chair) (1976-1986)
Committee on University Scholarly Publications (1979)
Faculty Council (1981-1983)
University Committee on Privilege and Tenure (1981-1983)
Vice Chancellor's Advisory Committee (1983-1986, 1988-1990)
Internal Review Committee for University Museum (Chair) (1984-1985)
Science and Technology Center Proposal Development Committee (1987-1988)
Dean's Advisory Committee (1988-1990)
Chancellor Search Committee (1988-1989)
President's Committee on Environmental Studies and Global Change (Chair) (1990-1992)
Advisory Board, Natural Resources Law Center, CU Law School (1992-1995)
Co-chair, Council of Chairs, College of Arts and Sciences (1991-1992)
Chair, Council of Chairs, College of Arts and Sciences (1992-1995)
Member, Environmental Sciences Advisory Board (1997-2000)
Acting or Interim Director, Cooperative Institute for Research in Environmental Sciences (intermittent, 2003-present)

Member, Quigg Newton Chair Selection Committee, Office of the Vice Chancellor for Research (2006-present)

Publications:

Lewis, W.M. Jr. 1970. **Morphological adaptations of cyprinodontoids for inhabiting oxygen deficient waters.** *Copeia* 1970: 319-326.

Lewis, W.M. Jr. 1973. **The thermal regime of Lake Lanao (Philippines) and its theoretical implications for tropical lakes.** *Limnology and Oceanography* 18: 200-217.

Lewis, W.M. Jr. 1973. **A limnological survey of Lake Mainit, Philippines.** *Internationale Revue der gesamten Hydrobiologie* 58: 801-818.

Lewis, W.M. Jr. 1974. **Evaluation of heat distribution in a South Carolina reservoir receiving heated water.** Pp. 1-27 *In:* J.W. Gibbons and R.R. Sharitz (eds.). Thermal Ecology. TIS, Washington, D.C.

Lewis, W.M. Jr. 1974. **Running waters of the tropics.** Pp. 90-92 *In*: E. Farnworth and F.B. Golley (eds.) Fragile Ecosystems. Springer-Verlag.

Lewis, W.M. Jr. 1974. **Primary production in the plankton community of a tropical lake.** *Ecological Monographs* 44: 377-409.

Lewis, W.M. Jr. 1974. **Effects of fire on nutrient movement in a South Carolina pine forest.** *Ecology* 55: 1120-1127.

Lewis, W.M. Jr. 1974. **An analysis of surface slicks in a reservoir receiving heated effluent.** *Archiv fur Hydrobiologie* 74: 304-315.

Lewis, W.M. Jr. and J.A. Tyburczy. 1974. **Amounts and spectral properties of dissolved organic compounds from some freshwaters of the southeastern U.S.** *Archiv fur Hydrobiologie* 74: 8-17.

Lewis, W.M. Jr. 1975. **Distribution and feeding habits of a tropical *Chaoborus* population.** *Verh. Int. Ver. Limnol.* 19: 3106-3119.

Lewis, W.M. Jr. 1975. **A theoretical comparison of the attenuation of light energy and quanta in waters of divergent optical properties.** *Archiv fur Hydrobiologie* 75:235-296.

Lewis, W.M. Jr. 1975. **Effects of forest fires on atmospheric loads of soluble nutrients.** Pp. 833-845 *In*: F.G. Howell, J.B. Gentry and M.H. Smith (eds.). Mineral Cycling in Southeastern Ecosystems. Tech. Info. Center, USERDA, Washington, D.C.

Lewis, W.M. Jr. 1975. **Observations on the superficial sediment temperatures of some lakes in the southeastern United States.** *Freshwater Biology* 6: 49-57.

Lewis, W.M. Jr. and F.H. Weibezahn. 1976. **Chemistry, energy flow, and community structure in some Venezuelan fresh waters.** *Archiv fur Hydrobiologie Supplement* 50:145-207.

Lewis, W.M. Jr. and D. Canfield. 1977. **Dissolved organic carbon in some dark Venezuelan waters and a revised equation for spectrophotometric determination of dissolved organic carbon.** *Archiv fur Hydrobiologie* 79: 441-45.

Lewis, W.M. Jr. 1976. **Surface/volume ratio: Implications for phytoplankton morphology.** *Science* 192: 885-887.

Lewis, W.M. Jr. 1977. **Net growth rate through time as an indicator of ecological similarity among phytoplankton species.** *Ecology* 58:149-157.

Lewis, W.M. Jr. 1978. **Analysis of succession in a tropical phytoplankton community and a new measure of succession rate.** *The American Naturalist* 112(984): 401-414.

Lewis, W.M. Jr. 1978. **A compositional, phytogeographical and elementary structural analysis of the phytoplankton in a tropical lake.** *Journal of Ecology* 66: 213-226.

Lewis, W.M. Jr. 1977. **Feeding selectivity of a tropical Chaoborus population.** *Freshwater Biology* 7: 311-325.

Lewis, W.M. Jr. 1977. **Comments on zooplankton grazing in Lake Erken.** *Limnology and Oceanography* 22: 966-967.

Lewis, W.M. Jr. 1977. **Ecological significance of the shapes of abundance-frequency distributions for coexisting phytoplankton species.** *Ecology* 58: 850-859.

Lewis, W.M. Jr. and M.C. Grant. 1978. **Sampling and chemical interpretation of precipitation for mass balance studies.** *Water Resources Research* 14:1098-1104.

Lewis, W.M. Jr. and J.F. Saunders, III. 1979. **Two new integrating samplers for zooplankton, phytoplankton, and water chemistry.** *Archiv fur Hydrobiologie* 75: 244-249.

Lewis, W.M. Jr. 1978. **Comparison of temporal and spatial variation in the zooplankton of a lake by means of variance components.** *Ecology* 59: 666-671.

Lewis, W.M. Jr. 1980. **Evidence for stable zooplankton community structure gradients maintained by predation.** Pp. 625-634 *In:* American Society of Limnology and Oceanography, Special Symposium #3. "The Evolution and Ecology of Zooplankton Communities," C. Kerfoot (ed.), The University Press of New England, Hanover.

Lewis, W.M. Jr. 1979. **Spatial distribution of the phytoplankton in a tropical lake (Lake Lanao, Philippines).** *Internationale Revue der gesamten Hydrobiologie* 63: 619-635.

Lewis, W.M. Jr. 1978. **Dynamics and succession of the phytoplankton in a tropical lake: Lake Lanao, Philippines.** *Journal of Ecology* 66: 849-880.

Lewis, W.M. Jr. 1979. **Zooplankton Community Analysis.** Springer-Verlag, New York. 163 p.

Infante, O., A. Infante, M. Marquez, W.M. Lewis, Jr., and F.H. Weibezahn. 1979. **Conditions leading to mass mortality of fish and zooplankton in Lake Valencia, Venezuela.** *Acta Cientifica* 30: 67-73.

Lewis, W.M. Jr. and M.C. Grant. 1980. **Acid precipitation in the Western United States.** *Science* 206: 176-177.

Epp, R.W. and W.M. Lewis, Jr. 1979. **Metabolic responses to temperature change in the tropical freshwater copepod (*Mesocyclops brasilianus*) and their adaptive significance.** *Oecologia* 43: 123-128.

Epp, R.W. and W.M. Lewis, Jr. 1979. **Sexual dimorphism in *Brachionus plicatilis* (Rotifera): evolutionary and adaptive significance.** *Evolution* 33: 919-928.

Grant, M.C. and W.M. Lewis, Jr. 1982. **Chemical loading rates from the precipitation in the Colorado Rockies.** *Tellus* 34: 74-88.

Lewis, W.M. Jr. and M.C. Grant. 1980. **Changes in the output of ions from a watershed as a result of the acidification of precipitation.** *Ecology* 60: 1093-1097.

Lewis, W.M. Jr. and M.C. Grant. 1980. **Relationships between stream discharge and yield of dissolved substances from a mountain watershed.** *Soil Science* 128: 353-363.

Lewis, W.M. Jr. and M.C. Grant. 1980. **Relationship between snow cover and winter losses of dissolved substances from a mountain watershed.** *Arctic and Alpine Research* 12: 11-17.

Lewis, W.M. Jr. and F.H. Weibezahn. 1982. **Acid rain and major seasonal variation of hydrogen ion loading in a tropical watershed.** *Acta Cientifica* 32: 236-238.

Lewis, W.M. Jr. 1981. **Precipitation chemistry and nutrient loading by precipitation in a tropical watershed.** *Water Resources Research* 17: 169-181.

Lewis, W.M. Jr. and F.H. Weibezahn. 1981. **Chemistry of a 7.5-meter sediment core from Lake Valencia, Venezuela.** *Limnology and Oceanography* 26: 907-924.

Lewis, W.M. Jr. and W. Riehl. 1982. **Phytoplankton composition and morphology in Lake Valencia, Venezuela.** *Internationale Revue der gesamten Hydrobiologie* 67: 297-322.

Epp, R.W. and W.M. Lewis, Jr. 1980. **The nature and ecological significance of metabolic changes during the life history of copepods.** *Ecology* 61: 259-264.

Epp, R.W. and W.M. Lewis, Jr. 1980. **Metabolic uniformity over the environmental temperature range in *Brachionus plicatilis* (Rotifera).** P. 145-147 *In*: H.J. Dumont and J. Green, (eds.). Proceedings of the Second International Rotifer Symposium. Dr. W. Junk, The Hague.

Lewis, W.M. Jr. and F.H. Weibezahn. 1981. **The chemistry and phytoplankton of the Orinoco and Caroni rivers, Venezuela.** *Archiv fur Hydrobiologie* 91: 521-528.

Lewis, W.M. Jr. and M.C. Grant. 1981. **Effect of the May-June Mount St. Helens eruptions on precipitation chemistry in central Colorado.** *Atmospheric Environment* 15: 1539-1542.

Lewis, W.M. Jr. 1982. **Changes in pH and buffering capacity of lakes in the Colorado Rockies.** *Limnology and Oceanography* 27: 167-172.

Lewis, W.M. Jr. 1983. **Temperature, heat, and mixing in Lake Valencia, Venezuela.** *Limnology and Oceanography* 28: 273-286.

Lewis, W.M. Jr. and M.C. Grant. 1980. **Effect of urban sources on acid precipitation in the western United States.** *Science* 210: 1043.

Epp, R.W. and W.M. Lewis, Jr. 1981. **Photosynthesis in copepods.** *Science* 214: 1349-1350.

Lewis, W.M. Jr. 1982. **Vertical eddy diffusivities in a large tropical lake.** *Limnology and Oceanography* 27: 161-163.

Bradbury, J.P., B. Leyden, M. Salgado-Labouriau, W.M. Lewis, Jr., C. Schubert, M.W. Binford, D.G. Frey, and D.R. Whitehead. 1981. **Late quaternary environmental history of Lake Valencia, Venezuela.** *Science* 214: 1299-1305.

Lewis, W.M. Jr. 1983. **Interception of atmospheric fixed nitrogen as an adaptive advantage of scum formation in blue-green algae.** *Journal of Phycology* 19: 534-536.

Lewis, W.M. Jr. 1983. **Water budget of Lake Valencia, Venezuela.** *Acta Cientifica* 34: 248-251.

Lewis, W.M. Jr. and F.H. Weibezahn. 1983. **Phosphorus and nitrogen loading of Lake Valencia.** *Acta Cientifica* 34: 345-349.

Epp, R.W. and W.M. Lewis, Jr. 1984. **Cost and speed of locomotion for rotifers.** *Oecologia* 61: 289-292.

Lewis, W.M. Jr. 1983. **Interruption of synthesis as a cost of sex in small organisms.** *The American Naturalist* 121: 825-833.

Lewis, W.M. Jr. 1983. **Collection of airborne materials by a water surface.** *Limnology and Oceanography* 28: 1242-1246.

Lewis, W.M. Jr. 1983. **A revised classification of lakes based on mixing.** *Canadian Journal of Fisheries and Aquatic Science* 40: 1779-1787.

Lewis, W.M. Jr. 1984. **The diatom sex clock and its evolutionary significance.** *The American Naturalist* 123: 73-80.

Lewis, W.M. Jr. 1984. **A five-year record of the thermal and mixing properties of a tropical lake (Lake Valencia, Venezuela).** *Archiv fur Hydrobiologie* 99: 340-346.

Unger, P.A. and W.M. Lewis, Jr. 1983. **Selective predation in a population of the planktivorous fish, *Xenomelaniris venezuelae* (Atherinidae).** *Ecology* 64: 1136-1144.

Cressa, C. and W.M. Lewis, Jr. 1984. **Growth and development patterns in a tropical Chaoborus species and their ecological significance.** *Archiv fur Hydrobiologie* 100: 21-28.

Levine, S.N. and W.M. Lewis, Jr. 1984. **Diel variation of nitrogen fixation in Lake Valencia, Venezuela.** *Limnology and Oceanography* 29: 887-893.

Lewis, W.M. Jr. and S.N. Levine. 1984. **The light response of nitrogen fixation in Lake Valencia, Venezuela.** *Limnology and Oceanography* 29: 894-900.

Lewis, W.M. Jr., M.C. Grant, and J.F. Saunders, III. 1984. **Chemical patterns of bulk atmospheric deposition in the State of Colorado.** *Water Resources Research* 20: 1691-1704.

Lewis, W.M. Jr., J.F. Saunders, III. 1984. **Cross-sectional variation in the chemistry and suspended sediment load of the Orinoco River at Ciudad Bolivar.** *Acta Cientifica* 35: 382-385.

Lewis, W.M. Jr., J.F. Saunders, III, D.W. Crumpacker, Sr., and C. Brendecke. 1984. **Eutrophication and Land Use: Lake Dillon, Colorado.** Springer-Verlag, New York. 202 p.

Lewis, W.M. Jr. 1986. **Phytoplankton succession in Lake Valencia, Venezuela.** *Hydrobiologia* 138: 189-203.

Unger, P.A., W.M. Lewis, Jr., and D.H. McClearn. 1984. **Nonvisual feeding in a visual planktivore, *Xenomelaniris venezuelae*.** *Oecologia* 64: 280-283.

Lewis, W.M. Jr., M.C. Grant, and S.K. Hamilton. 1985. **Evidence that filterable phosphorus is a significant atmospheric link in the phosphorus cycle.** *Oikos* 45: 428-432.

Lewis, W.M. Jr. 1985. **Nutrient scarcity as an evolutionary cause of haploidy.** *The American Naturalist* 125: 692-701.

Lewis, W.M. Jr. 1985. **Protozoan abundances in the plankton of two tropical lakes.** *Archiv fur Hydrobiologie* 104: 337-343.

Levine, S.N. and W.M. Lewis, Jr. 1985. **The horizontal heterogeneity of nitrogen fixation in Lake Valencia, Venezuela.** *Limnology and Oceanography* 30: 1240-1245.

Lewis, W.M. Jr., T. Frost, and D. Morris. 1986. **Studies of planktonic bacteria in Lake Valencia, Venezuela.** *Archiv fur Hydrobiologie* 106: 289-305.

Lewis, W.M. Jr. 1986. **Evolutionary interpretations of allelochemical interactions in phytoplankton algae.** *The American Naturalist* 127: 184-194.

Levine, S.N. and W.M. Lewis, Jr. 1986. **A numerical model of nitrogen fixation and its application to Lake Valencia, Venezuela.** *Freshwater Biology* 17: 265-274.

Lewis, W.M. Jr., J.F. Saunders, III, F.H. Weibezahn, and S.N. Levine. 1986. **Organic carbon in the Caura River, Venezuela.** *Limnology and Oceanography* 31: 653-656.

Lewis, W.M. Jr. and D.P. Morris. 1986. **Toxicity of nitrite to fish: a review.** *Transactions of the American Fisheries Society* 115: 183-195.

Lewis, W.M. Jr. and J.F. Saunders, III. 1985. **Ammonia dynamics in two Colorado streams.** *Water Research* (Submitted).

Saunders, J.F. III and W.M. Lewis, Jr. 1986. **A perspective on the use of cohort analysis to obtain demographic data for copepods.** *Limnology and Oceanography* 32: 511-513.

Cressa, C. and W.M. Lewis, Jr. 1986. **Ecological energetics of *Chaoborus* in a tropical lake.** *Oecologia* 70: 326-331.

Lundberg, J.G., W.M. Lewis, Jr., J.F. Saunders, III, and F. Mago-Leccia. 1987. **A major food web component in the Orinoco River channel: Evidence from planktivorous electric fishes.** *Science* 237: 81-83.

Lewis, W.M. Jr., S.K. Hamilton, S. L. Jones, and D.D. Runnels. 1987. **Major element chemistry, weathering and element yields for the Caura River drainage, Venezuela.** *Biogeochemistry* 4: 159-181.

Saunders, J.F. III and W.M. Lewis, Jr. 1988. **Zooplankton abundance in the Caura River, Venezuela.** *Biotropica* 20: 206-214.

Hamilton, S.K. and W.M. Lewis, Jr. 1987. **Causes of seasonality in the chemistry of a lake on the Orinoco River floodplain, Venezuela.** *Limnology and Oceanography* 32: 1277-1290.

Saunders, J.F. III and W.M. Lewis, Jr. 1988. **Dynamics and control mechanisms in a tropical zooplankton community (Lake Valencia, Venezuela).** *Ecological Monographs* 48: 337-353.

Saunders, J.F. III and W.M. Lewis, Jr. 1988. **Zooplankton abundance and transport in a tropical white-water river.** *Hydrobiologia* 162: 147-155.

Twombly, S. and W.M. Lewis, Jr. 1987. **Zooplankton abundance and species composition in Laguna la Orsinera, a Venezuelan floodplain lake.** *Archiv fur Hydrobiologie Supplement* 79: 87-107.

Lewis, W.M. Jr. 1988. **Primary production in the Orinoco River.** *Ecology* 69: 679-692.

Lewis, W. M. Jr. 1987. **The cost of sex.** P. 33-57 *In*: S. Stearns (ed.) The Evolution of Sex and its Consequences. Birkhauser Verlag.

Morris, D.P. and W.M. Lewis, Jr. 1988. **Phytoplankton nutrient limitation in Colorado mountain lakes.** *Freshwater Biology* 20: 315-327.

Lewis, W.M. Jr., J.F. Saunders, III and R. Dufford. 1990. **Suspended organisms and biological carbon flux along the lower Orinoco River.** Pp. 269-300 *In*: F. Weibezahn, H. Alvarez, and W.M. Lewis, Jr. (eds). The Orinoco River as an Ecosystem. Impresos Rubel, Caracas. 430 p.

Lewis, W.M. Jr. and J.F. Saunders III. 1990. **Chemistry and element transport of the Orinoco main stem and lower tributaries.** Pp. 211-240 *In*: F. Weibezahn, H. Alvarez, and W.M. Lewis, Jr. (eds). The Orinoco River as an Ecosystem. Impresos Rubel, Caracas. 430 p.

Saunders, J.F. III and W.M. Lewis, Jr. 1988. **Transport of phosphorus, nitrogen, and carbon by the Apure River, Venezuela.** *Biogeochemistry* 5: 323-342.

Mitton, J.B. and W.M. Lewis, Jr. 1989. **Relationships between genetic variability and life-history features of bony fishes.** *Evolution* 47: 1712-1723.

Mitton, J.B. and W. M. Lewis, Jr. 1992. **Response to Waples's comment on heterozygosity and life-history variation in bony fishes.** *Evolution* 46: 576-577.

Twombly, S. and W.M. Lewis, Jr. 1989. **Factors regulating cladoceran dynamics in a Venezuelan floodplain lake.** *Journal of Plankton Research* 11: 317-333.

Lewis, W.M. Jr. 1987. **Tropical limnology.** *Annual Review of Ecology and Systematics* 18: 159-184.

Saunders, J.F. III and W.M. Lewis, Jr. 1988. **Composition and seasonality of the zooplankton community of Lake Valencia, Venezuela.** *Journal of Plankton Research* 10: 957-985.

Saunders, J.F. III and W.M. Lewis, Jr. 1989. **Zooplankton abundance in the lower Orinoco River, Venezuela.** *Limnology and Oceanography* 34: 397-409.

Rodríguez, M.A., S.E. Richardson, and W.M. Lewis, Jr. 1990. **Nocturnal behavior and aspects of the ecology of a driftwood catfish, *Entomocorus gameroi* (Auchenipteridae).** *Biotropica* 22: 435-438.

Lewis, W.M. Jr. and J.F. Saunders, III. 1989. **Concentration and transport of dissolved and suspended substances in the Orinoco River.** *Biogeochemistry* 7: 203-240.

Unger, P.A. and W.M. Lewis, Jr. 1990. **Population ecology of the pelagic fish, *Xenomelaniris venezuelae* (Atherinidae), in Lake Valencia.** *Ecology* 72: 440-456.

Meade, R.H., F.H. Weibezahn, W.M. Lewis, Jr., and D.P. Hernandez. 1990. **Suspended-sediment budget for the Orinoco River.** Pp. 55-80 *In:* F. Weibezahn, H. Alvarez, and

W.M. Lewis, Jr. (eds.). The Orinoco River as an Ecosystem. Impresos Rubel, Caracas. 430 p.

Lewis, W.M. Jr. 1989. **Further evidence for anomalous size scaling of respiration in phytoplankton.** *Journal of Phycology* 25: 395-397.

Saunders, J.F. III and W.M. Lewis, Jr. 1989. **Transport of major solutes and the relationship between solute concentrations and discharge in the Apure River, Venezuela.** *Biogeochemistry* 8: 101-113.

Weibezahn, F., H. Alvarez, and W.M. Lewis, Jr. (eds.). 1990. **The Orinoco River as an Ecosystem.** Impresos Rubel, Caracas. 430 p.

Lewis, W.M. Jr. 1988. **Uncertainty in pH and temperature corrections for ammonia toxicity.** *Journal of Water Pollution Control Federation* 60: 1922-1929.

Hamilton, S.K., S.J. Sippel, W.M. Lewis, Jr., and J.F. Saunders, III. 1990. **Zooplankton abundance and evidence for its reduction by macrophyte mats in two Orinoco floodplain lakes.** *Journal of Plankton Research* 12: 345-363.

Hamilton, S.K. and W.M. Lewis, Jr. 1990. **Physical characteristics of the fringing floodplain of the Orinoco River, Venezuela.** *Interciencia* 15: 491-500.

Rodríguez, M.A. and W.M. Lewis, Jr. 1990. **Diversity and species composition of fish communities of Orinoco floodplain lakes.** *National Geographic Research* 6: 319-328.

Lewis, W.M. Jr. 1991. **Comparisons of phytoplankton biomass in temperate and tropical lakes.** *Limnology and Oceanography* 35: 1838-1845.

Hamilton, S.K. and W.M. Lewis, Jr. 1990. **Basin morphology in relation to chemical and ecological characteristics of lakes on the Orinoco River floodplain, Venezuela.** *Archiv fur Hydrobiologie* 119: 393-425.

Lewis, W.M. Jr., F.H. Weibezahn, J.F. Saunders, III, and S.K. Hamilton. 1990. **The Orinoco River as an ecological system.** *Interciencia* 15: 346-357.

Lewis, W.M. Jr., S.K. Hamilton, and J.F. Saunders, III. 1995. **Rivers of Northern South America.** Pp. 219-256 *In:* C. Cushings and K. Cummins (eds.) Ecosystems of the World: Rivers. Elsevier, NY.

Hamilton, S.K., J.M. Melack, M.F. Goodchild, and W.M. Lewis, Jr. 1991. **Estimation of the fractal dimension of terrain from lake size distributions.** Pp. 145-163 *In*: P.A. Carling and G.E. Petts (eds.). Lowland Floodplain Rivers: Geomorphological Perspectives. Wiley & Sons, Ltd.

Rodríguez, M.A. and W.M. Lewis, Jr. 1994. **Regulation and stability in of fish assemblages of neotropical floodplain lakes.** *Oecologia* 99: 166-180.

Hamilton, S.K., W.M. Lewis, Jr., and S. Sippel. 1992. **Energy sources for aquatic animals in the Orinoco River floodplain: Evidence from stable isotopes.** *Oecologia* 89: 324-330.

Morris, D.P. and W.M. Lewis, Jr. 1992. **Nutrient limitation of bacterioplankton growth in Lake Dillon, Colorado.** *Limnology and Oceanography* 37: 1179-1192.

Smith, L.K. and W.M. Lewis, Jr. 1992. **Seasonality of methane emissions from five lakes and associated wetlands of the Colorado Rockies.** *Global Biogeochemistry Cycles* 6: 323-358.

Hamilton, S.K. and W.M. Lewis, Jr. 1992. **Stable carbon and nitrogen isotopes in algae and detritus from the Orinoco River floodplain, Venezuela.** *Geochimica et Cosmochimica Acta* 56: 4237-4246.

Lewis, W.M. Jr. 1996. **Defining the riparian zone: Lessons from the regulation of wetlands.** Pp. 6-14 *In*: S.B. Laursen (ed.). At the Water=s Edge: The Science of Riparian Forestry. Proceedings from a conference held in Duluth, MN, June 19-20, 1995. U. of Minnesota Distribution Center, Duluth, MN.

Lewis, W.M. et al. (9 authors). 1995. **Challenges for limnology in North America: an assessment of the discipline in the 1990's.** *Bulletin of the American Society of Limnology and Oceanography* 4:1-20.

Friedman, J.M., M.L. Scott, and W.M. Lewis, Jr. 1995. **Restoration of riparian forest using irrigation, artificial disturbance, and natural seedfall.** *Environmental Management* 19: 547-557.

Lewis, W.M. Jr. 1994. **The ecological sciences and the public domain.** *University of Colorado Law Review* 65: 279-292.

Lewis, W.M. Jr. 1996. **Tropical lakes: how latitude makes a difference.** Pp. 43-64 *In*: F. Schiemer and K.T. Boland (eds.). Perspectives in Tropical Limnology. SPB Academic Publishers, Amsterdam, the Netherlands.

Lewis, W.M. Jr. and J.F. Saunders, III. 1995. **Improvements in stream ammonia models by simultaneous computation of extremes in flow and water chemistry.** *Environmental Science and Technology* 29: 1796-1801.

Friedman, J.M., W.R. Osterkamp, and W.M. Lewis, Jr. 1996. **The role of vegetation and bedlevel fluctuations in the process of channel narrowing.** *Geomorphology* 14: 341-351.

Friedman, J.M., W.R. Osterkamp, and W.M. Lewis, Jr. 1996. **Channel narrowing and vegetation development following a Great Plains flood.** *Ecology* 77: 2167-2181.

Arenz, R.F. Jr., W.M. Lewis, Jr., and J.F. Saunders, III. 1996. **Determination of chlorophyll and dissolved organic carbon from reflectance data for Colorado reservoirs.** *International Journal of Remote Sensing* 17: 1547-1566.

Lewis, W.M. Jr. 1995. **Limnology, as seen by limnologists.** *Water Resources Update* 98: 4-8.

Rodríguez, M.A. and W.M. Lewis, Jr. 1997. **Structure of fish assemblages along environmental gradients in floodplain lakes of the Orinoco River.** *Ecological Monographs* 67: 109-128.

Smith, L.K., W.M. Lewis, Jr., J.P. Chanton, G. Cronin, and S.K. Hamilton. 2000. **Methane emissions from the Orinoco River floodplain, Venezuela.** *Biogeochemistry* 51: 113-140.

Lewis, W.M. Jr. et al. (12 authors; National Research Council). 1995. **Wetlands: Characteristics and Boundaries.** National Academy Press, Washington, DC. 306 p.

Lewis, W.M. Jr. et al (8 authors; National Research Council). 1996. **River Resource Management in the Grand Canyon.** National Academy Press, Washington, DC. 226 p.

Sjodin, A., W.M. Lewis, Jr., and J.F. Saunders, III. 2001. **Analysis of groundwater exchange for a large plains river in Colorado (USA).** *Hydrological Processes* 15: 609-620.

Sjodin, A., W.M. Lewis, Jr., and J.F. Saunders, III. 1997. **Denitrification as a component of the nitrogen budget for a large plains river.** *Biogeochemistry* 39: 327-342.

Vavilova, V.V. and W.M. Lewis, Jr. 1999. **Temporal and altitudinal variations in the attached algae of mountain streams in Colorado.** *Hydrobiologia* 390: 99-106.

McCutchan, J.H. Jr. and W.M. Lewis, Jr. 2001. **Seasonal variation in stable isotope ratios of stream algae.** *Verh. Internat. Verein. Limnol.* 27: 3304-3307.

McCutchan, J.H. Jr., W.M. Lewis, Jr., and J.F. Saunders, III. 1998. **Uncertainty in the estimation of stream metabolism from open-channel oxygen concentrations.** *Journal North American Benthological Soc.* 17: 155-164.

Lewis, W.M. Jr. 1998. **Aquatic environments of the Americas: basis for rational use and management.** *Proceedings of the 4th International Congress on Environmental Issues* 4: 250-257.

Lewis, W.M. Jr., J.M. Melack, W.H. McDowell, M. McClain, and J.E. Richey. 1999. **Nitrogen yields from undisturbed watersheds in the Americas.** *Biogeochemistry* 46: 149-162.

Skaggs, R.L., M.L. Aquin, W.M. Lewis, Jr. and J.W. Birks. 1998. **Detection of argon by penning ionization and competitive absorption using a sensitized photoionization detector.** *Analytical Chemistry* 70: 3493-3497.

Niyogi, D.K., D.M. McKnight, and W.M. Lewis, Jr. 1999. **Influences of water and substrate quality for periphyton in a montane stream affected by acid mine drainage.** *Limnology and Oceanography* 44: 804-809.

Downing, J.A., M. McClain, R. Twilley, J.M. Melack, J. Elser, N.N. Rabalais, W.M. Lewis, Jr., R.E. Turner, J. Corredor, D. Soto, A. Yanez-Arancibia, R.W. Howarth. 1999. **The impact of accelerating land-use change on the N-cycle of tropical aquatic ecosystems: current conditions and projected changes.** *Biogeochemistry* 47: 109-148.

McCutchan, J.H. Jr., J.F. Saunders, III, W.M. Lewis, Jr. and Matthew C. Hayden. 2002. **Effects of groundwater flux on open-channel estimates of stream metabolism.** *Limnology and Oceanography* 47: 321-324.

Lewis, W.M. Jr., S.K. Hamilton, M.A. Lasi, M. Rodriguez, and J.F. Saunders, III. 2000. **Ecological determinism on the Orinoco floodplain.** *Bioscience* 50: 681-692.

Lewis, W.M. Jr. 2000. **Basis for the protection and management of tropical lakes.** *Lakes and Reservoirs: Research and Management* 5: 35-48.

McCutchan, J.H. Jr., W.M. Lewis, Jr., and C. Kendall. 2003. **Variation in trophic shift for stable isotope ratios of carbon, sulfur, and nitrogen.** *Oikos* 102: 348-390.

Lewis, W.M., Jr., S.K. Hamilton, M.A. Lasi, M. Rodriguez, and J.F. Saunders, III. 2001. **A foodweb analysis of the Orinoco floodplain based on production estimates and stable isotope data.** *Journal of the North American Benthological Society* 20: 241-254.

Niyogi, D.K., W.M. Lewis, Jr., and D.M. McKnight. 2001. **Litter breakdown in mountain streams affected by mine drainage: biotic mediation of abiotic controls.** *Ecological Applications* 11: 506-516.

Lewis, W.M., Jr. 2002. **Yield of nitrogen from minimally disturbed watersheds of the United States.** *Biogeochemistry* 57/58: 375-385.

Niyogi, D.K., W.M. Lewis, Jr., and D.M. McKnight. 2002. **Effects of stress from mine drainage on diversity, biomass, and function of primary producers in mountain streams.** *Ecosystems* 5: 554-567.

Lewis, W. M. Jr. 2001. **Wetlands Explained. Wetland Science, Policy, and Politics in America.** Oxford University Press, New York, NY.

Niyogi, D.K., D. McKnight, and W.M. Lewis, Jr. 2002. **Effects of mine drainage on breakdown of aspen litter in mountain streams.** *Water, Air, and Soil Pollution: Focus* 2: 329-341.

Niyogi, D.K., W.M. Lewis, Jr., and D.M. McKnight. 2003. **Direct and indirect effects of mine drainage on bacterial processes in mountain streams.** *Journal of the North American Benthological Society* 22: 276-291.

Vavilova, V.V., W.M. Lewis, Jr., and R.G. Dufford. 2002. **Coupling of attached and suspended algae in a mountain stream** (In review).

Saunders, J. F. III and W. M. Lewis, Jr. 2003. **Implications of climate variability for regulatory low flows in the South Platte Basin, Colorado.** *Journal of the American Water Resources Association* 39: 33-45.

McCutchan, J.H. Jr. and W.M. Lewis, Jr. 2002. **Relative importance of carbon sources for macroinvertebrates in a Rocky Mountain stream.** *Limnology and Oceanography* 47: 742-752.

Kaushal, S. and W.M. Lewis, Jr. 2003. **Patterns in the chemical fractionation of organic nitrogen in Rocky Mountain streams.** *Ecosystems* 6: 483-492.

Lewis, W. M. Jr. 2002. **Causes for the high frequency of nitrogen limitation in tropical lakes.** *Verh. Internat. Verein. Limnol.* 28: 210-213.

McCutchan, J.H. Jr., J.F. Saunders, III, A. Pribyl, and W.M. Lewis, Jr. 2003. **Open-channel estimation of denitrification.** *Limnology and Oceanography Methods* 1: 74-81.

Niyogi, D.K., D. M. McKnight, and W. M. Lewis, Jr. 2002. **Fungal communities and biomass in mountain streams affected by mine drainage.** *Archiv fur Hydrobiologie* 155: 255-271.

Lewis, W.M. Jr. 2002. **Biology and water science.** Pp. 127-146. *In:* Carl Kisslinger (ed.) CIRES, 1967-2002: Pioneering a Successful Partnership. Cooperative Institute for Research in Environmental Sciences. University of Colorado. Boulder, CO. 183 pp.

Pribyl, A.L., J.H. McCutchan, Jr., W.M. Lewis, Jr., and J.F. Saunders, III. 2005. **Whole-system estimation of denitrification in a plains river: a comparison of two methods.** *Biogeochemistry* 73: 439-455.

Lewis, W.M. Jr. 2003. **Klamath basin fishes: argument is no substitute for evidence.** *Fisheries* 28: 20-25.

Lewis, W.M. Jr. (ed.) 2003. **Water and Climate in the Western United States.** University Press of Colorado. Boulder, CO. 286 p.

Ortiz-Zayas, J.R., W.M. Lewis, Jr., J.F. Saunders, III, and F. N. Scatena. 2005. **Metabolism of a tropical rainforest stream.** *Journal of the North American Benthological Society* 24(4): 769-783.

Lewis, W.M. Jr. 2007. **Analysis of relationships between runoff and mass transport in watersheds** (in progress).

Saunders, J.F. III, M.S. Murphy, M.P. Clark, and W.M. Lewis, Jr. 2004. **The influence of climate variation on the estimation of low flows used to protect water quality: a nationwide assessment.** *Journal of the American Water Resources Association* 45: 1339-1349.

Kaushal, S.S. and W.M. Lewis, Jr. 2005. **Fate and transport of organic nitrogen in minimally disturbed montane streams of Colorado, USA.** *Biogeochemistry* 74: 303-321.

Lewis, W.M. Jr. et al. 2004. NRC. **Endangered and Threatened Fishes in the Klamath River Basin: Causes of Decline and Strategies for Recovery.** National Academies Press, Washington, D.C.

Kaushal, S.S., W.M. Lewis, Jr., and J.F. McCutchan, Jr. 2006. **Land Use Change and Nitrogen Enrichment of a Rocky Mountain Watershed.** *Ecological Applications 16(1): 299-312.*

Lewis, W.M. Jr. 2007. **American Wetlands: Protecting and Restoring a Disappearing Resource.** ABC-CLIO (in review).

Lewis, W.M. Jr., J. S. Saunders, III, and J.H. McCutchan, Jr. 2007. **Application of a nutrient saturation concept to the control of algal growth in lakes.** (in review)

Lewis, W.M. Jr. 2007. **The Klamath Basin as a Proving Ground for the Endangered Species Act.** In S. Collinge (editor) Healing the West (in press).

Cronin, G., W.M. Lewis, Jr., and M.A. Schiehser. 2006. **The influence of freshwater macrophytes on the littoral ecosystem structure and function of a young Colorado reservoir.** *Aquatic Botany* 85: 37-43.

Rodriguez, M.A., Lewis, W. M. Jr., Winemiller, K.O. Taphorn, D. 2007. **The freshwater habitats, fishes, and fisheries of the Orinoco River basin.** *In: Aquatic Ecosystem Health and Management Society,* Canada. (in press).

Lewis, W.M. Jr. 2004. **Evaluating the importance of aquatic ecosystems.** Arthur M. Sackler Colloquia of the National Academy of Sciences. Washington, DC. http://progressive.playstream.com/nakfi/progressive/Sackler/Water/lewis/HTML/index.htm

Lewis, W.M. Jr. 2007. **Physical and Chemical Features of Tropical Flowing Waters.** *In*: D. Dudgeon (ed.). Tropical Stream Ecology. Elsevier-Academic Press, New York (in press).

Lewis, W.M. Jr. 2005. **Publishing Limnology, Now and Then.** *Limnology and Oceanography Bulletin* 14: 25-30.

Lewis, W.M. Jr. 2005. Water-quality bugs and water-management buffalos. Colorado Water: 2005 (8): 11-12.

Cronin, G., J.H. McCutchan, Jr., W.M. Lewis, Jr., J. Pitlick. 2007. **Use of Shields Stress to Reconstruct and Forecast Ecological Effects of Water Management and Climate Change on Streams and Rivers.** (in review).

McCutchan, J.H. Jr., and W.M. Lewis, Jr. 2006. **Groundwater flux and open channel estimation of stream metabolism: response to Hall and Tank.** *L&O* 4: 213-215.

Lewis, W.M. Jr. 2007. **Lakes as Ecosystems.** Encyclopdedia of Inland Waters. (in press).

01/19/07

CURRICULUM VITAE

JOHN M. MELACK

Bren School of Environmental Science and Management, and
Department of Ecology, Evolution and Marine Biology
University of California
Santa Barbara, CA 93106
805-893-3879 (805-893-4724, fax)
melack@lifesci.ucsb.edu

Education:

A.B.	Cornell University, Ithaca, NY	1969	Biological Sciences
Ph.D.	Duke University, Durham, NC	1976	Zoology (Limnology)

Professional Employment:

1987 - present	Professor, University of California, Santa Barbara
1982 - 1987	Associate Professor, University of California, Santa Barbara
1977 - 1982	Assistant Professor, University of California, Santa Barbara
1977	NSF Postdoctoral Fellow, University of Michigan

Fellowships Awarded:

Gleddon Fellowship, Univ. of Western Australia (2001)
Junior Faculty Fellowship, UCSB (1978)
NSF Energy-related Postdoctoral Fellowship (1976)
James B. Duke Fellowship, Duke University (1970-72)
NSF Predoctoral Award, Duke University Marine Laboratory (1970)
Dean's Scholarship, Cornell University (1965-69)

Editorial Service:

Editorial Board, Biogeochemistry (2003 – present)
Editorial Board, Hydrobiologia (1985-present)
Advisory Board, Internationale Revue der gesamten Hydrobiologie (1995 - present)
Editor, International Society for Salt Lake Research (2002 - 2005)
Editorial Board, Ecological Applications (1999 - 2002)
Deputy Editor, Water Resources Research (2000-2002)
Special Topics Editor, Limnology and Oceanography (1995-1998)
Editorial Board, Limnologica (1997- 2001)
Editor, Saline Lakes. Developments in Hydrobiology 44 and 162
(1985-1988 and 1999-2001)
Co-Editor, Special Issue of Limnology and Oceanography dedicated to Peter Kilham (1990-1993)

Reviewer of manuscripts for:
Science, Nature, Ecology, Ecological Monographs, Limnology and Oceanography, Quarternary Research, Ecological Applications, Ecosystems, Aquatic Sciences, Transactions of American Fisheries Society, PNAS, Tellus, American Midland Naturalist, Hydrobiologia, Journal of Phycology, Canadian Journal of Fisheries and Aquatic Sciences, Journal of Geology, American Naturalist, Water Resources Research, Biogeochemistry, Biotropica, Journal of Geophysical

Research, Journal of Paleolimnology, Lake and Reservoir Management, Water, Air and Soil Pollution, Environmental Science and Technology, Archiv fur Hydrobiologie, Lakes and Reservoirs , Journal of the North American Benthological Society, Global Biogeochemical Cycles, Climate Change, Estuaries, Conservation Ecology, International Journal of Remote Sensing, Internationale Revue der gesamten Hydrobiologiie, Amazaniana, Remote Sensing of Environment, IEEE Transactions, Hydrological Processes, Marine Chemistry, Environmental Biology of Fishes, Australian Journal of Ecology, Australian Journal of Marine and Freshwater Research, Revista Ciencias Marinas, California Fish and Game, Nauplius, Boreal Environment Research, Estuarine, Coastal and Shelf Science, Restoration Ecology, Global Change Biology

Service to Professional Societies

U.S. National Representative (elected), Societas Internationalis Limnologiae (1992 - present)
Chair and Member, Conservation Committee. Societas Internationale Limnologiae (1987-present)
Member, Water Quality Committee of Hydrology Section, American Geophysical Union (1996 - present)
Editor and Member of Board, International Society of Salt Lake Research (2003- 2006)
President (elected), International Society of Salt Lake Research (1999 - 2002)
Board of Directors (elected), American Society of Limnology and Oceanography (1999 - 2002)
Member, Electronic Publication Committee, American Society of Limnology and Oceanography (1997 –1999)
Member, California Climate Change Analysis Group for Ecological Society of America (1998 – 2000)
Member, Steering Committee. ASLO-NABS Symposium on Freshwater Ecosystems and Climate Change (1993 – 1996)

Memberships in Professional Societies

American Society of Limnology and Oceanography
Ecological Society of America
American Geophysical Union
American Association for the Advancement of Science
Societas Internationalis Limnologiae
International Association of Hydrological Sciences
Sigma Xi

PUBLICATIONS

Reviewed Publications:

1972 Kilham, P. and J.M. Melack. Primary northupite deposition in Lake Mahega, Uganda. Nature 238: 123.

Melack, J.M. and P. Kilham. Lake Mahega: a mesothermic sulphatochloride lake in western Uganda. Afr. J. Hydrobiol. Fish. 2: 141-150.

1974 Melack, J.M. and P. Kilham. Photosynthetic rates of phytoplankton in East African alkaline, saline lakes. Limnol. Oceanogr. 19: 743-755.

1976 Melack, J.M. Primary production and fish yields in tropical lakes. Trans. Amer. Fish. Soc. 105: 575-580.

1978 Melack, J.M. Morphometric, physical and chemical features of the volcanic crater lakes of western Uganda. Arch. Hydrobiol. 84: 430-453.

1979 Melack, J.M. Photosynthesis and growth of *Spirulina platensis* (Cyanophyta) in an equatorial lake (Lake Simbi, Kenya). Limnol. Oceanogr. 24: 753-760.

Melack, J.M. Temporal variability of phytoplankton in tropical lakes. Oecologia 44: 1-7.

Melack, J.M. Photosynthetic rates in four tropical African fresh waters. Freshwat. Biol. 9:555-571.

1980 Melack, J.M. An initial measurement of photosynthetic productivity in Lake Tanganyika. Hydrobiologia 72:243-247.

Simpson, H.J., R.M. Trier, C.R. Olson, D.E. Hammond, E. Ege, L. Miller and J.M. Melack. Fallout plutonium mobility in an alkaline, saline lake. Science 207: 1071-1072.

1981 Melack, J.M. Photosynthetic activity of phytoplankton in tropical African soda lakes. Pages 71-85 In: W.D. Williams, (ed.), Salt Lakes: Developments in Hydrobiology 5. Dr. W. Junk, Publ. The Hague. (Also appeared in Hydrobiologia 81: 71-85)

Liang, Y., J.M. Melack and J. Wang. Primary production and fish yields in Chinese ponds and lakes. Trans. Amer. Fish. Soc. 110: 346-350.

Schlesinger, W.H. and J.M. Melack. Transport of organic carbon in the world's rivers. Tellus 33: 172-187.

Gaudet, J.J. and J.M. Melack. Major ion chemistry in a tropical African lake basin. Freshwat. Biol. 11: 309-333.

Vareschi, E., J.M. Melack and P. Kilham. Saline waters. Pages 93-102 In: J.J. Symoens, M. Burgis and J.J. Gaudet, (eds.), The Ecology and Utilization of African Inland Waters. United Nations Environmental Programme, Nairobi.

Lemoalle, J.A., A. Adeniji, P. Compere, G.G. Ganf, J.M. Melack and J.F. Talling. Phytoplankton. Pages 37-50 In: J.J. Symoens, M. Burgis and J.J. Gaudet, (eds.), The Ecology and Utilization of African Inland Waters. United Nations Environment Programme, Nairobi.

Melack, J.M., P. Kilham and T.R. Fisher. Responses of phytoplankton to experimental fertilization with ammonium and phosphate in an African soda lake. Oecologia 52: 321-326.

1982 MacIntyre, S. and J.M. Melack. Meromixis in an equatorial African soda lake. Limnol. Oceanogr. 27: 595-609.

Melack, J.M. Photosynthetic activity and respiration in an equatorial African soda lake. Freshwat. Biol. 12: 381- 400.

Melack, J.M., J.L. Stoddard and D.R. Dawson. Acid precipitation and buffer capacity of lakes in the Sierra Nevada, California. Pages 465-471 In: A.J. Johnson and R.A. Clark, (eds.), Proc. Internat. Symp. on Hydrometeorology. Amer. Water Res. Assoc., Bethesda, MD.

1983 Melack, J.M. Large, deep salt lakes: a comparative limnological analysis. Pages 223-230 In: U.T. Hammer, (ed.), Saline Lakes. Developments in Hydrobiology 16. Dr. W. Junk Publ., The Hague (also appeared in Hydrobiologia 105: 223-230).

Melack, J.M. and T.R. Fisher. Diel oxygen variations and their ecological implication in Amazon floodplain lakes. Arch. Hydrobiol. 98: 422-442.

Fisher, T.R., J.M. Melack, B. Robertson, E. Hardy and L. Fernando. Vertical distribution of zooplankton and physico-chemical conditions during a 24-hour period in an Amazon floodplain lake (Lago Calado, Brazil). Acta Amazonica 13: 475-487.

1984 Livingstone, D.A. and J.M. Melack. Some lakes of subsaharan Africa. Chap. 19, pages 467-497 In: F.B. Taub, (ed.), Lake and Reservoir Ecosystems. Ecosystems of the World. v. 23, Elsevier Science Publ.

Lesack, L.F.W., R.E. Hecky and J.M. Melack. Transport of carbon, nitrogen, phosphorus and major solutes in the Gambia River, West Africa. Limnol. Oceanogr. 28: 816-830.

Talbot, M.R., D.A. Livingstone, P.C. Palmer, J. Maley, J.M. Melack, G. Delibrias and S. Gulliksin. Preliminary results from sediment cores from Lake Bosumtwi, Ghana. Paleoecology of Africa 16: 173-192.

Setaro, F.V. and J.M. Melack. Responses of phytoplankton to experimental nutrient enrichment in an Amazon lake. Limnol. Oceanogr. 28: 972-984.

Melack, J.M. Inland aquatic resources and biogeochemical cycles. Pages A15-A17 In: Science and Mission Requirements Working Group Report. Earth Observing System. NASA Tech. Memorandum 86129.

Melack, J.M. Amazon floodplain lakes: Shape, fetch and stratification. Verh. Internat. Verein. Limnol. 22: 1278-1282.

MacIntyre, S. and J.M. Melack. Vertical mixing in Amazon floodplain lakes. Verh. Internat. Verein. Limnol. 22: 1283-1287.

1985 Melack, J.M., J.L. Stoddard and C.A. Ochs. Major ion chemistry and sensitivity to acid precipitation of Sierra Nevada lakes. Water Resourc. Res. 21: 27-32.

Almanza, E. and J.M. Melack. Chlorophyll differences in Mono Lake (California) observable on Landsat imagery. Hydrobiologia 122:13-17.

Melack, J.M., P.H. Lenz and S.D. Cooper. The ecology of Mono Lake. Nat. Geogr. Soc. Research Reports 20: 461-470.

Melack, J.M. Interactions of detrital particulates and plankton. Pages 209-220 In: B. Davies and D. Walmsley, (eds.), Perspectives in Southern Hemisphere

Limnology. Developments in Hydrobiology. 28. Dr. W. Junk Publ., The Hague. (Also appeared in Hydrobiologia 125: 209-220)

Lesack, L.F.W., J.M. Melack and R.E. Hecky. Transport of organic carbon in the Gambia River, West Africa. Pages 431-434 In: E.T. Degens and M. Kempe, (eds.), Transport of Carbon and Minerals in Major World Rivers. Part 3. Mitt. Geol.-Palaont. Inst. Univ. Hamburg. v. 58.

1986 Melack, J.M. and J.O. Sickman. Major solute chemistry of stream water and rain in a southern California chaparral watershed. Proc. Chaparral Conference, California Water Resources Center Report 62: 81-87.

Walsh, J., J.M. Melack, E. Fee, L. Slobodkin and J. Estes. Aquatic ecosystems and the biosphere. Pages 80-92 In: Space Science Board, Committee on Planetary Biology (D. Botkin, Chair), Remote Sensing of the Biosphere. National Academy Press, Washington, D.C.

Lenz, P.H., J.M. Melack, B. Robertson and E.A. Hardy. Ammonium and phosphate regeneration by the zooplankton of an Amazon floodplain lake. Freshwat. Biol. 16: 821-830.

Lenz, P.H., S.D. Cooper, J.M. Melack and D.W. Winkler. Spatial and temporal distribution patterns of three trophic levels in a saline lake. J. Plankt. Res. 8: 1051-1064.

1987 Melack, J.M. Inland aquatic environments. Chapter 4.5 In: Eos Science Steering Committee, From Pattern to Process: The Strategy of the Earth Observing System. NASA Headquarters, Washington, D.C.

Carder, K., J.M. Melack and M. Abbott. High-resolution Spaceborne Imaging Spectrometry: Science Opportunities for the 1990s -- Oceans and Inland Waters. Chapters 2.B2, 2.C2, 2.E3, 4B In: Imaging Spectrometry Science Advisory Group's Science Plan. NASA-JPL.

Patten, D.T., F.P. Conte, W.E. Cooper, J. Dracup, S. Dreiss, K. Harper, G.L. Hunt, P. Kilham, H.E. Klieforth, J.M. Melack and S.A. Temple (Mono Basic Ecosystem Study Committee, list alphabetically after chair). The Mono Basin Ecosystem - Effects of Changing Lake Level. National Academy Press, Washington, D.C. 272 p.

1988 Melack, J.M. Aquatic plants in extreme environments. Chap. 14, Pages 341-378, In: J.J. Symoens, (ed.), Aquatic Vegetation. Handbook of Vegetation Science. v. 15. Dr. W. Junk Publ.

Melack, J.M. Primary producer dynamics associated with evaporative concentration in a shallow, equatorial soda lake (Lake Elmenteita, Kenya). Pages 1-14 In: J.M. Melack, (ed.), Saline Lakes. Developments in Hydrobiology, Dr. W. Junk Publ., The Hague. (also appeared in Hydrobiologia 158: 1-14)

Jellison, R. and J.M. Melack. Photosynthetic activity of phytoplankton and its relation to environmental factors in hypersaline Mono Lake, Pages 69-88. In: J.M. Melack, (ed.), Saline Lakes. Developments in Hydrobiology. Dr. W. Junk Publ., The Hague. (also appeared in Hydrobiologia 158: 69-88).

Dana, G.L., C. Foley, G. Starrett, W. Perry and J.M. Melack. In situ hatching of *Artemia monica* cysts in hypersaline Mono Lake, Pages 183-190. In: J.M. Melack, ed., Saline Lakes. Developments in Hydrobiology. Dr. W. Junk Publ., The Hague (also appeared in Hydrobiologia 158: 183-190.)

MacIntyre, S. and J.M. Melack. Frequency and depth of vertical mixing in an Amazon floodplain lake (L. Calado, Brazil). Verh. Limnol. Verein. Limnol. 23: 80-85.

Melack, J.M. and T.R. Fisher. Denitrification and nitrogen fixation in an Amazon floodplain Lake. Verh. Internat. Verein. Limnol. 23: 2232-2236.

Fisher, T.R., K.M. Morrissey, P.R. Carlson, L.F. Alves and J.M. Melack. Nitrate and ammonium uptake by plankton in an Amazon River floodplain lake. J. Plankt. Res. 10: 7-29.

Crill, P.M., K.B. Bartlett, J. Wilson, D.I. Sebacher, R.C. Harriss, J.M. Melack, S. MacIntyre, L. Lesack and L. Smith Morrill. Tropospheric methane from an Amazon floodplain lake. J. Geophys. Res. 93: 1564-1570.

Bartlett, K.B., P.M. Crill, D.I. Sebacher, R.C. Harriss, J.O. Wilson and J.M. Melack. Methane flux from the central Amazonian floodplain. J. Geophys. Res. 93: 1574-1582.

Lodge, D.M., J.W. Barko, D. Strayer, J.M. Melack, G.G. Mittelbach, R.W. Howarth, B. Menge and J.E. Titus: 1988. Spatial heterogeneity and habitat interactions in lake communities. Pages 181-208. In: S.R. Carpenter (ed.) Complex Interactions in Lake Communities. Springer-Verlag, New York.

Meyer, J.L., W.H. McDowell, T.L. Bott, J.W. Elwood, C. Ishizaki, J.M. Melack, B. Peckarsky, B. Peterson and P. Rublee. Elemental dynamics in streams. J.N. Am. Benthol. Soc. 7: 410-432.

Melack, J.M., M. Williams and J.O. Sickman. Episodic acidification during snowmelt in waters of the Sierra Nevada, California. Pages 426-436 In: Poppoff, L., C. Goldman, S. Loeb and L. Leopold (eds.) International Mountain Watershed Symp. Tahoe Resource Conservation District, South Lake Tahoe, California.

1989 McGurk, B.J., N.H. Berg, D. Marks, J.M. Melack and F. Setaro. Monitoring atmospheric deposition in California's Sierra Nevada: a comparison of methods. Pages 71-79. In: J.W. Delleur (ed.) Atmospheric Deposition. IAHS Publ. No. 179.

Williams, M. and J.M. Melack. Effects of spatial and temporal variation in snowmelt on nitrate and sulfate pulses in an alpine watershed. Ann. Glaciol. 13: 285-288.

Barthelmes, D., J.M. Melack, R.T. Oglesby, D.W. Smith and D. Uhlmann. The possibilities for reuse of nutrients. Pages 213-230. In: S.-O. Ryding and W. Rast (eds.). The Control of Eutrophication of Lakes and Reservoirs. UNESCO, Paris.

1990 Engle, D.L. and J.M. Melack. Floating meadow epiphyton: biological and chemical features of epiphytic material in an Amazon floodplain lake. Freshwat. Biol. 23: 479-494.

Dana, G.L., R.S. Jellison and J.M. Melack. *Artemia monica* egg production and recruitment in Mono Lake, California. Pages 233-243. In: F. A. Comin and T.G. Northcote (eds.) Saline Lakes. Developments in Hydrobiology. Dr. W. Junk, Publ., The Hague. (also appeared in Hydrobiologia 197: 233-243.)

Melack, J.M. and T.R. Fisher. Comparative limnology of tropical floodplain lakes with an emphasis on the central Amazon. Acta Limnologia Brasiliensia 3: 1-48.

Barmuta, L.A., S.D. Cooper, S.K. Hamilton, K.W. Kratz and J.M. Melack. Responses of zooplankton and zoobenthos to experimental acidification in a high-elevation lake (Sierra Nevada, California, U.S.A.). Freshwat. Biol. 23: 571-586.

Hess, L.L., J.M. Melack and D. Simonett. Radar detection of flooding beneath the forest canopy: a review. Int. J. Remote Sensing 11: 1313-1325.

Melack, J.M. and S.A. Pilorz. Reflectance spectra from eutrophic Mono Lake, California, measured with the Airborne Visible and Infrared Imaging Spectrometer (AVIRIS). SPIE (International Society for Optical Engineering) - Imaging Spectroscopy of the Terrestrial Environment. 1298: 202-212. (also appearded on Pages 232-242 R.O. Green (ed.). Proc. Second Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) Workshop.
JPL Publ. 90-54, Pasadena, California.)

Williams, M., R. Kattelmann and J. Melack. Groundwater contributions to the hydrochemistry of an alpine basin. Pages 741-748. In: H. Lang and A. Musy (eds.) Hydrology in Mountainous Regions I. Hydrological Measurements: Water Cycle. IAHS-AIHS Publ. 193.

1991 Melack, J.M. and J.L. Stoddard. Sierra Nevada. Pages 503-530. In: D.F. Charles (ed.) Acidic Deposition and Aquatic Ecosystems: Regional Case Studies. Springer-Verlag, New York.

Melack, J.M. West overview. Pages 467-470. In: D.F. Charles (ed.). Acidic Deposition and Aquatic Ecosystems: Regional Case Studies. Springer-Verlag, New York.

Melack, J.M., S.K. Hamilton, K.W. Kratz and M.W. Williams. Ecological consequences of acidic deposition in the Sierra Nevada. Pages 47-53 In: Proceedings of Third Biennial Watershed Management Conference - California Watersheds at the Urban Interface. California Water Resources Center Report No. 75.

Williams, M. and J.M. Melack. Precipitation chemistry and ionic loading to an alpine basin, Sierra Nevada. Water Resourc. Res. 27: 1563-1574.

Williams, M. and J.M. Melack. Solute chemistry of snowmelt and runoff in an alpine basin, Sierra Nevada. Water Resourc. Res. 27: 1578-1588.

Stohlgren, T.J., J.M. Melack, A.L. Esperanza and D.J. Parsons. Atmospheric deposition and solute export in Giant Sequoia-mixed conifer watersheds in the Sierra Nevada, Califorina. Biogeochemistry 12: 207-230.

Williams, M., A. Brown and J.M. Melack. Biochemical modifications of

snowpack runoff in an alpine basin. Pages 457-465 In: G. Kienitz and E. Klaghofer (eds.) Hydrological Interactions between Atmosphere, Soil and Vegetation. IAHS Publ. 204 .

Lesack, L.F. and J.M. Melack. The deposition, composition, and potential sources of major ionic solutes in rain of the central Amazon basin. Water Resourc. Res. 27: 2953-2977.

Melack, J.M. Reciprocal interactions among lakes, large rivers and climate. Pages 68-87 In: P. Firth and S. Fisher (eds.). Global Change and Freshwater Ecosystems. Springer-Verlag, New York.

Hamilton, S.K., J.M. Melack, M.F. Goodchild and W.M. Lewis, Jr. Estimation of the fractual dimension of terrain from lake size distributions. Pages 145-163 In: P.A. Carling and G.E. Petts (eds). Lowland Floodplain Rivers: Geomorphological Perspectives. John Wiley & Sons, New York.

Sickman, J.O. and J.M. Melack. Photosynthetic activity of phytoplankton in a high altitude lake (Emerald Lake, Sierra Nevada, California). Hydrobiologia 230: 37-48.

Sippel, S.J., S.K. Hamilton and J.M. Melack. Inundation area and morphometry of lakes on the Amazon River floodplain, Brazil. Arch. Hydrobiol. 123: 385-400.

1992 Melack, J.M., S.J. Sippel, D.M. Valeriano and T.R. Fisher. Environmental conditions and change on the Amazon floodplain: analysis with remotely sensed imagery. Pages 377-387. 24th Internat. Symp. on Remote Sensing of the Environment. ERIM, Ann Arbor, Michigan.

Melack, J.M. and S. MacIntyre. Phosphorus concentrations, supply and limitation in tropical African lakes and rivers. Pages 1-18, In: H. Tiessen and E. Frossard (eds.) Phosphorus Cycles in Terrestrial and Aquatic Ecosystems: Africa SCOPE. Saskatchewan Inst. of Pedology, Canada.

Melack, J.M. Eutrophication and water quality in tropical floodplain lakes. (In Spanish.) Ingenieria Hidraulica en México 7: 142-147.

Jellison, R., G.L. Dana and J.M. Melack. Ecosystem responses to changes in freshwater inflow to Mono Lake, California. Pages 107-118. In: C.A. Hall, V. Doyle-Jones and B. Widawski (eds.) The History of Water: Eastern Sierra Nevada, Owens Valley, White-Inyo Mountains. White Mountain Research Station Symposium Vol. 4. Univ. of California, Los Angeles.

Melack, J.M. Wetland ecosystems monitoring - introduction. Pages 535-536. In: D.H. McKenzie, D.E. Hyatt, and V.J. McDonald (eds.) Ecological Indicators. Elsevier Applied Science, New York.

Williams, M.W., K.A. Tonnessen, J.M. Melack and Y. Daqing. Sources and spatial variation of the chemical composition of snow in the Tien Shan, PRC. Ann. Glaciol. 16: 25-32.

Wang, Y., F.W. Davis and J.M. Melack. Modeled response of L-band radar backscatter from conifer woodland to changes in their canopy volume. Int. GeoSci. Remote Sensing Symp. 1992: 776-778

1993 Sippel, S.J., J.M. Melack and B. Choudhury. Use of passive microwave satellite observations to study seasonal inundation patterns in the Pantanal wetland of Brazil. Proc. VII Simposio Brasileiro de Sensoriamento Remoto 3: 479-485.

Jellison, R.S. and J.M. Melack. Algal photosynthetic activity and its response to meromixis in hypersaline Mono Lake, California. Limnol. Oceanogr. 38: 818-837.

Williams, M.W., A.D. Brown and J.M. Melack. Geochemical and hydrological controls on the composition of surface water in a high-elevation basin, Sierra Nevada, California. Limnol. Oceanogr. 38: 775-797.

Jellison, R.S. and J.M. Melack. Meromixis in hypersaline Mono Lake, California. I. Vertical mixing and density stratification during the onset, persistence and breakdown of meromixis. Limnol. Oceanogr. 38: 1008-1019.

Jellison, R.S., L. Miller, J.M. Melack and G. Dana. Meromixis in hypersaline Mono Lake, California. II. Nitrogen fluxes. Limnol. Oceanogr. 38: 1020-1039.

Dana, G.L., R. Jellison, J.M. Melack and G.L. Starrett. Relationships between *Artemia monica* life history characteristics and salinity. Hydrobiologia 263: 129-143.

Melack, J.M., S.K. Hamilton and J.O. Sickman. Interannual solute variations in a high elevation lake of the Sierra Nevada, California. Verh. Internat. Verein. Limnol. 25: 374-377

Wang, Y., F.W. Davis and J.M. Melack. Simulated and observed backscatter at P-, L- and C-bands for ponderosa pine stands. IEEE Trans. Geosci. Remote Sens. 31: 871-879

Engle, D. and J.M. Melack. Consequences of riverine flooding for seston and the periphyton of floating meadows in an Amazon floodplain lake. Limnol. Oceanogr. 38: 1500-1520.

Wang, Y., J.L. Day, F.W. Davis and J.M. Melack. Modeling L-band radar backscatter of Alaskan boreal forest. IEEE Trans. Geosci. Remote Sensing. 31: 1146-1154

Davis, R.E., K. Elder, W. Rosenthal, J. Melack and J. Sickman. Estimating total snow volume in a small alpine watershed using remote sensing data and ground-based surveys. Proc. 50th Eastern and 61st Western Snow Conf. 197-203

1994 Sippel, S.K., S.K. Hamilton, J.M. Melack and B. Choudhury. Determination of inundation area in the Amazon River floodplain using the SMMR 37 GHz polarization difference. Remote Sensing Environ. 4 8: 70-76.

Kratz, K., S.D. Cooper and J.M. Melack. Effects of single and repeated experimental acid pulses on invertebrates in a high altitude Sierra Nevada stream. Freshwat. Biol. 32: 161-183

Melack, J.M., L.L. Hess and S. Sippel. Remote sensing of lakes and floodplains in the Amazon basin. Remote Sensing Reviews 10: 127-142.

Hess, L. and J. M. Melack. Mapping wetland hydrology and vegetation with synthetic aperture radar. Internt. J. Ecol. Environ. Sci. (special issue-Recent Studies on Ecology and Management of Wetlands) 20: 197-205

Melack, J.M. and M. Gastil. Comparison of spectral feature algorithms for remote sensing of chlorophyll in eutrophic lakes. Proc. of Intern. Geosci. Remote Sens. Sympos. vol. IV, pages 2363-2365

Wang, Y. L. Hess, S. Filoso and J.M. Melack. Canopy penetration study for tropical rainforests: modeled radar backscatter from Amazon floodplain forests at C-, L- and P- band. Proc. of Intern. Geosci. Remote Sens. Sympos. vol. II, pages 1060-1062

Hess, L., J.M. Melack and F. Davis. Mapping floodplain inundation with multifrequency polarimetric SAR: use of tree-based model. Proc. of Intern. Geocsci. Remote Sens. Sympos. vol. II, pages 1072-1073

Melack, J.M. and M. Gastil. Airborne visible imaging spectrometry applied to limnology: chlorophyll variation in Mono Lake. Pages 691-695. Proc. of International Symposium on Spectral Sensing Research.

Wang, Y., E.S. Kasischke, J.M. Melack, F.W. Davis and N.L. Christensen. The effects of changes in loblolly pine biomass and soil moisture on ERS-1 SAR backscatter. Remote Sensing Environ. 49: 25-31

1995 Sellers, P.J., B.W. Meeson, F.G. Hall, G. Asrar, R.E. Murphy, R.A. Schiffer, F.P. Bretherton, R.E. Dickenson, R.G. Ellingson, C.B. Field, K.F. Huemmrich, C.O. Justice, J.M. Melack. N.T. Roulet, D.S. Schimel and P.D. Try. Remote sensing of the land surface for studies of global change: models-algorithms-experiments. Remote Sensing Environ. 51: 3-26.

Lesack, L.F.W. and J.M. Melack. Flooding hydrology and mixture dynamics of lake water derived from multiple sources in an Amazon floodplain lake. Water Resourc. Res.31: 329-345

Williams, M.W., R. Bales, A.D. Brown, and J.M. Melack. Fluxes and transformations of nitrogen in a high-elevation catchment, Sierra Nevada. Biogeochemistry 28: 1-31.

Engle, D. and J.M. Melack. Zooplankton of high elevation lakes of the Sierra Nevada, California: potential effects of chronic and episodic acidification. Arch. Hydrobiol. 133: 1-21.

Wang,Y., F.W Davis, J.M. Melack, E.S. Kasischke and N.L. Christensen Jr. The effects of changes in forest biomass on radar backscatter from tree canopies. Int. J. Remote Sens. 16: 503-513.

Aizen, V.B., E.M. Aizen and J.M. Melack. Characteristics of runoff formation in the Kirgizsky Alatoo, Tien Shan. IAHS Publ. no. 228: 413-430.

Liu, F., M.W. Williams, Y. Daqing and J.M. Melack. Snow and water chemistry of a headwater alpine basin, Urumqi River, Tian Shan, China. IAHS Publ: no. 228: 207-219.

Kattelmann, R., K. Elder, J.M. Melack, E. Aizen and V. Aizen. Some surveys

of snow chemistry in the Tien Shan of Kirghizstan and Kazakhstan. IAHS Publ. no. 228: 185-190.

Melack, J.M. and J. Sickman. Snowmelt induced changes in the chemistry of seven high-elevation streams, Sierra Nevada, California. IAHS Publ. no. 228: 221-234.

Melack, J.M. Transport and transformations of phosphorus in fluvial and lacustrine ecosystems. Pages 245-254 In H. Tiessen (ed.) Phosphorus Cycling in Terrestrial and Freshwater Ecosystems. SCOPE, John Wiley & Sons, New York

Fisher, T.R., J.M. Melack, J. Grobbelaar and R. Howarth. Nutrient limitation of phytoplankton and eutrophication of inland, estuarine and marine waters. Pages 301-322 In H. Tiessen (ed.) Phosphorus Cycling in Terrestrial and Freshwater Ecosystems. SCOPE, John Wiley & Sons, New York

Hess, L.L., J.M. Melack, S. Filoso and Y. Wang. Delineation of inundated area and vegetation along the Amazon floodplain with the SIR-C synthetic aperture radar. IEEE Trans. Geosci. Remote Sens. 33: 896-904

Hamilton, S., S. Sippel and J.M. Melack. Oxygen depletion and carbon dioxide production in waters of the Pantanal wetland of Brazil. Biogeochemistry 30: 115-141

Mertes, A.K.L., D.L. Daniel, J.M. Melack, B. Nelson, L.A. Martinelli and B.R. Forsberg. Spatial patterns of hydrology, geomorphology and vegetation on the floodplain of the Amazon River in Brazil from a remote sensing perspective. Geomorphology 13: 215-232

Williams, M.W., D. Yang, F. Liu, J. Turk and J. Melack. Major ion chemistry and susceptibility of surface water to atmospheric deposition, Urumqi River, Tian Shan, PR China. J.Hydrology 172: 209-229.

Jellison, R.S., G.L. Dana and J.M. Melack. Zooplankton cohort analysis using systems identification techniques. J. Plankton. Res. 17: 2093-2116.

Dana, D.L., R. Jellison and J.M. Melack. Effects of different natural regimes of temperature and food on survival, growth and development of *Artemia*. J. Plankt. Res. 17: 2117-2131.

MacIntyre, S. and J.M. Melack. Vertical and horizontal mixing in lakes: linking littoral, benthic and pelagic habitats. J. N. Am. Benth. Soc. 14: 599-615.

Aizen, V. B., E. M. Aizen and J.M. Melack. Climate, snow cover, glaciers and runoff in the Tien Shan, central Asia. Wat. Resourc. Bull. 31: 1113-1129.

Wang,Y., S. Filoso, L. Hess and J.M. Melack. Understanding the radar backscattering from flooded and nonflooded Amazonian forests: Results from canopy modeling. Remote Sensing Environ. 54: 324-332.

Hess, L.L. and J.M. Melack. Delineation of inundated area and vegetation in wetlands with synthetic aperture radar. Pages 95-103. In C.M. Finlayson (ed.) Wetland Research in the Wet-Dry Tropics of Australia, Office of the Supervising Scientist, Australia.

1996 LaCapra V., Melack, J.M., M. Gastil, and D. Valeriano. Remote sensing of foliar chemistry of inundated rice with imaging spectrometry. Remote Sensing Environ. 55: 50-58.

Hamilton, S.K., S.J. Sippel and J.M. Melack. Inundation patterns in the Pantanal wetland of South America determined from passive microwave remote sensing. Arch. Hydrobiol. 137: 1-23.

Lesack, L.F.W. and J.M. Melack. Elemental balance of a rainforest catchment in the central Amazon basin: Implications for elemental budgets in tropical rainforests. Biogeochemistry 32: 115-142.

Romero, J.R. and J.M. Melack. Sensitivity of vertical mixing in a large saline lake to variations in runoff. Limnol. Oceanogr. 41: 955-965.

Melack, J.M. Saline and freshwater lakes of the Kenyan rift valley. Chapter 7, pages 171-190: In T.R. McClanahan and T.P. Young (eds.) East African Ecosystems and their Conservation. Oxford University Press, New York

Aizen, V., E. Aizen, J.M. Melack and T. Martma. Isotopic measurements of precipitation on central Asian glaciers. J. Geophys. Res. 101: 9185-9196

Romero, J., J. Patterson and J.M Melack. Simulation of vertical mixing via methane ebullition in saline Mono Lake. Aquatic Sciences 58: 210-223.

Melack, J.M. Recent developments in tropical limnology. Verh. Limnol. Verein. Limnol . 26: 211-217

Jellison, R., R.F. Anderson, J.M. Melack and D. Heil. Organic matter accumulation in sediments of hypersaline Mono Lake during a period of changing salinity. Limnol. Oceanogr. 41: 1539-1544

Aizen, V.B., E.M. Aizen and J.M. Melack. Precipitation, melt and runoff in the northern Tien Shan. J. Hydrology 186: 229-251

Melack, J.M., M. Gastil, Y. Azuma, A. Harahima and R. Tsuda. Remote sensing of chlorophyll, suspended solids and transparency in Lake Biwa. Jap. J. Limnol. 57: 367-375

1997 Williams, M.R., T.R. Fisher and J.M. Melack. Chemical composition and deposition of rain in central Amazonas, Brazil. Atmosph. Environ. 31: 207-217

Williams, M.R. and J.M. Melack. Atmospheric deposition, mass balances, and processes regulating streamwater solute concentrations in mixed conifer catchments of the Sierrra Nevada, California. Biogeochemistry 37: 111-144

Hamilton, S.K., S. Sippel, D.F. Calheiros and J.M. Melack. An anoxic event and other biogeochemical effects of the Pantanal wetland on the Paraguay River. Limnol. Oceanogr. 42: 257-272

Aizen, V., E. Aizen, J.M. Melack and J. Dozier. Climatic and hydrologic changes in the Tien Shan, central Asia. J. Climate 10: 1393-1404

Kasischke, E.S., J.M. Melack and M.C. Dodson. The use of imaging radar for ecological applications-a review. Remote Sensing Environ. 59: 141-156

Williams, M.R.and J.M. Melack. Solute export from forested and partially deforested catchments in the central Amazon. Biogeochemistry 38: 67-102

Melack, J.M., J. Dozier, C.R. Goldman, D. Greenland, A. Milner and R.J. Naiman. Effects of climate change on inland waters of the Pacific coastal mountains and western Great Basin of North America. Hydrological Processes 11: 971-992

Melack, J.M. Ecological consequences of the Parguay-Parana Hidrovia: Are assessments of impacts on the Pantanal adequate? Pages 139-149 In Hidrovia Paraguay-Parana Navigation Project: Report of an independent review by T. Dunne, J. Melack, B. Melia, J. and S. Paggi, T. Panayotou, H. Rattner, E. Salati and I. Klabin, T. Scudder and M. Clemens. Environmental Defense Fund, Washington, D.C.

Williams, M.R., T.R. Fisher and J.M. Melack. Solute dynamics in soil water and groundwater in a central Amazon catchment undergoing deforestation. Biogeochemistry 38: 303-335

Richey, J.E., S.R. Wilhelm, M.E. McClain, R.L. Victoria, J.M.Melack and C. Araujo-Lima. Organic matter and nutrient dynamics in river corriders of the Amazon basin and their response to anthropogenic change. Ciencia e Cultura 49: 98-110

Novo, E.M.L.M., F.A. Leite, J. Avila, V. Ballester and J.M. Melack. Assessment of Amazon floodplain habitats using TM/Landsat data. Ciencia e Cultura 49: 280-284.

Aizen, V.B., E.M.Aizen, J. Dozier, J.M. Melack, D.D. Sexton and V.N. Nesterov. Glacial regime of the highest Tien Shan mountain, Phobeda-Khan Tengry massif. J. Glaciology 43:503-512

Aizen, V., E. Aizen and J.M. Melack. Statistical models in simulation of snow and glacier runoff in central Asian alpine watersheds. Pages 19 - 38. In Northern Research Basins. Water and Environmental Research Center, Univ. of Alaska, Fairbanks

1998 Melack, J.M. and L.L. Hess. Recent advances in remote sensing of wetlands. Pages 155 -170 In R.S. Ambasht (ed.) Modern Trends in Ecology and Environment. Backhuys Publisher, The Netherlands

Filoso, S., J.M. Melack and M. R. Williams. Spatial and temporal variation among lakes of the Anavilhanas Archipelago (Negro River, Brazil). Verh. Internat. Verein. Limnol. 26:309-312

Melack, J.M. and Y. Wang. Delineation of flooded area and flooded vegetation in Balbina Reservoir (Amazonas, Brazil) with synthetic aperture radar. Verh. Internat. Verein. Limnol. 26:2374-2377.

Sickman, J.O. and J.M. Melack. Nitrate and sulfate export from high elevation catchments of the Sierra Nevada, California. Water, Air and Soil Pollution 105:217-226.

Jellison, R.S., J. Romero and J.M. Melack. The onset of meromixis during

restoration of Mono Lake, California: unintended consequences of reducing water diversions. Limnol. Oceanogr. 43:706-711.

Melack, J.M. and R. Jellison. Limnological conditions in Mono Lake: Contrasting monomixis and meromixis in the 1990s. Hydrobiologia 384:21-39.

Romero, J., R. Jellison and J.M. Melack. Stratification, vertical mixing and upward ammonium flux in hypersaline Mono Lake, California. Arch. Hydrobiol. 142:283-315.

Sippel, S.J., S.K. Hamilton, J.M. Melack and E.M.M. Novo. Passive microwave observations of inundation area and the area/stage relation in the Amazon River floodplain. Int. J. Remote Sens. 19: 3055-3074

1999 Filoso, S., M.R. Williams and J.M. Melack. Composition and deposition of throughfall in a flooded forest archipeligo (Anavilhanas, Negro River, Brazil). Biogeochemistry 45:169-195

Leydecker, A. and J.M. Melack. Evaporation from snow in the central Sierra Nevada of California. Nordic Hydrology 30: 81-108

Lewis, W.M., J.M. Melack, W.H. McDowell, M. McClain and J.E. Richey. Nitrogen yields from undisturbed watersheds. Biogeochemistry 46: 149-162

Downing, J.A., M.McClain, R. Twilley, J.M. Melack, J. Elser, N.N. Rabalais, W.M. Lewis, R.E. Turner, J. Corredor, D. Soto, A. Yanez-Arancibia and R.W. Howarth. The impact of accelerating land-use change on the N-cycle of tropical aquatic ecosystems: current conditions and projected changes. Biogeochemistry 46: 109-148

Leydecker, A., J.O. Sickman and J.M. Melack. Episodic lake acidification in the Sierra Nevada, California. Water Resources Research 35: 2793-2804

Melack, J.M. and J. Barica. Environmental aspects of eutrophication. Pages 13 - 50. In A. Mudroch (ed.) Planning and Management of Lakes and Reservoirs, An Integrated Approach to Eutrophication. Tech. Publ. Ser. 11. UNEP International Environmnental Technology Centre, Shiga, Japan

Field, C., Y. Baskin, G. Daily, F. Davis, S. Gaines, P. Matson, N. Miller, J.M. Melack. Climate Change and California Ecosystems. Union of Concerned Scientists.

Hamilton, S.K., S.J. Sippel, D.F. Calheiros and J.M. Melack. Chemical characteristics of surface waters of the southern Pantana. Pages 89-100. Natural and Socioeconomic Resources of the Pantanal: Management and Conversation. Brazilian Corporation for Agricultural Research, Brasilia, Brazil

2000 Alsdorf, D.E., J.M. Melack, T. Dunne, L.A.K. Mertes, L.L. Hess and L.C. Smith. Interferometric radar measurements of water level change: Amazon floodplain response to river stage. Nature 404: 174-177

Chambers, J.Q., N. Higuchi, L.V. Ferreira, J.M. Melack and J.P. Schimel. Decomposition and carbon cycling of dead trees in tropical evergreen forests of the central Amazon. Oecologia 122: 380-388

Engle, D. and J.M Melack. Methane emissions from the Amazon floodplain: enhanced release during episodic mixing of lakes. Biogeochemistry 51: 71-90

Aizen, E.M., V.B. Aizen and J.M. Melack. Heat exchange during snow ablation in plains and mountains of Eurasia. J. Geophysical Res. 105:27,013-27,022.

Leydecker, A. and J.M. Melack. Estimating evaporation in seasonally snow-covered catchments in the Sierra Nevada. J. Hydrology 236:15-34.

Melack, J.M. (ed.). Planning and management of lakes and reservoirs: an integrated approach to eutrophication – Abridged version – Student guide. UNEP International Technology Centre, Shiga, Japan

2001 Sickman, J.O., A. Leydecker and J.M. Melack. Nitrogen mass balances and abiotic controls on N retention and yield in high-elevation catchments of the Sierra Nevada, California, USA. Water Resources Research 37:1445-1461.

Alsldorf, D.E., L.C. Smith, and J.M. Melack. Amazon water level changes measured with interferometric SIR-C radar. IEEE Transactions on Geoscience and Remote Sensing 39: 423-431.

Williams, M.R., A. Leydecker. A.D. Brown and J.M. Melack. Processes regulating the solute concentrations of snowmelt runoff in two subalpine catchments of the Sierra Nevada, California. Water Resources Research 37: 1993-2008.

Aizen, E.M., V.B. Aizen, J.M. Melack, T. Nakamura and T. Ohta. Precipitation and atmospheric circulation at mid-latitudes of Asia. Internat. Int. J. Climatology 21: 535-556

Turk, J.T., H.E. Taylor, G.P. Ingersoll, K.A. Tonnessen, D.W. Clow, M.A. Mast, D.H. Campbell and J.M. Melack. Major-ion chemistry of the Rocky Mountain snowpack, USA. Atmospheric Environ. 35: 3957-3966

Alsdorf, D., T. Dunne, L. Hess, J.M. Melack and C. Birkett. Water level changes in a large Amazon lake measured with spaceborne radar interferometry and altimetry. Geophys. Res. Let. 28: 2671-2674.

Engle, D. and J.M. Melack. Ecological consequences of infrequent events in high-elevation lakes and streams of the Sierra Nevada, California. Verh. Internat. Verein. Limnol. 27: 3761-3765.

Melack, J.M. and B. Forsberg. Biogeochemistry of Amazon floodplain lakes and associated wetlands. Pages 235-276. In M.E. McClain, R.L. Victoria and J.E. Richey (eds.) The Biogeochemistry of the Amazon Basin and its Role in a Changing World. Oxford University Press

Leydecker, A., J.O. Sickman and J.M. Melack. Spatial scaling of hydrological and biogeochemical aspects of high-altitude catchments in the Sierra Nevada, California, U.S.A. Arctic, Antarctic and Alpine Research 33: 391-396

Melack, J.M. and M. Gastil. Airborne remote sensing of chlorophyll distributions in Mono Lake, California. Hydrobiologia 466: 31-38.

Jellison, R. and J.M. Melack. Nitrogen limitation and particulate elemental ratios of seston in hypersaline Mono Lake, California, U.S.A. Hydrobiologia 466: 1-12.

Jellison, R., H. Adams and J.M. Melack. Re-appearance of rotifers in hypersaline Mono Lake, California, during a period of rising lake levels and decreasing salinity. Hydrobiologia 466: 39-43.

Melack, J.M., R. Jellison and D. Herbst (eds.). Saline lakes. Developments in Hydrobiology 162. Kluwer, Netherlands. 347 p.

2002 Richey, J.E., J.M. Melack, A.K. Aufdenkampe, V.M. Ballester and L. Hess. Outgassing from Amazonian rivers and wetlands as a large tropical source of atmospheric carbon dioxide. Nature 416: 617-620.

Gergel, S.E., J.R. Miller, E.H. Stanley, J.M. Melack and M.G. Turner. Indicators of human impacts to river-floodplain systems: the importance of landscape context. Aquatic Sciences 64: 118-128.

Minster, J.B., F. Bretherton, D.H. Bromwich, J. Dozier, D. Glover, G.H. Leavesley, M.J. McCabe, J.M. Melack, W.F. Ruddiman, R.T. Serafin and C. Wunsch (Committee on Geophysical and Environmental Data, National Research Council). Resolving conflicts arising from privitization of environmental data. National Academy Press, Washington, D.C.

Hess, L.L., E.M.L.M. Novo, D.M. Slaymaker, J. Holt, C. Steffen, D.M. Valeriano, L.A.K. Mertes, T. Krug, J.M. Melack, M. Gastil, C. Holmes and C. Hayward. Geocoded digital videography for validation of land cover mapping in the Amazon basin. Int. J. Remote Sens. 7: 1527-1556.

De Souza, O.C., M.R. Aruajo, L.A.K. Mertes and J.M. Melack. Form and process along the Taquari River alluvial fan, Pantanal, Brazil. Zeitschrift fur Geomorphologie 129: 73-107.

Melack, J.M. Ecological dynamics in saline lakes. Verh. Internat. Verein. Limnol. 28: 29-40.

Sickman, J.O., J.M. Melack and J.L. Stoddard. Regional analysis of inorganic nitrogen yield and retention in high-elevation ecosystems of the Sierra Nevada and Rocky Mountains. Biogeochemistry 57/58: 341-374.

Hamilton, S.K., S.J. Sippel and J.M. Melack. Comparison of inundation patterns among major South American floodplains. J. Geophys. Res. 107, No. D20 1029/2000JD000306

Robinson, T.H., A. Leydecker, J. M. Melack and A. A. Keller. Nutrient concentrations in southern California streams related to land use. Pages 339-343. Coastal Water Resources, AWRA 2002 Spring Specialty Conference Proceedings, J.R. Lesnick (ed.). American Water Resources Association, Middleburg, Virginia.

2003 Hess, L.L. and J.M. Melack. Remote sensing of vegetation and flooding on Magela Creek floodplain (Northern Territory, Australia) with SIR-C synthetic aperture radar. Hydrobiologia (Celebratory volume in honour of Henri Dumont) 500: 65-82

Pezeshki, S.R., R.D. DeLaune, W.J. Catallo, J.A. Nyman, S.A. Milburn, K.B. Overstreet, C.A. Ochs, J.M. Melack, L. Mertes, L. Hess and B. Forsberg. Biogeochemistry of wetlands. Pages 125-156. In M.M. Holland, E. Blood and L.R. Shaffer (eds.) Sustainability of Wetlands and Water Resources. Island Press.

Hess, L.L.. and J.M. Melack. Contribution of remote sensing to international conventions regarding wetlands: Examples from the Large-Scale Biosphere-Atmosphere Experiment in Amazonia. Int. GeoSci. Remote Sensing Symp. 2003: no page numbers

Sickman, J.O., J.M. Melack and D. Clow. Evidence for nutrient enrichment of high-elevation lakes in the Sierra Nevada, California. Limnol. Oceanogr. 48: 1885-1892

Smith, L.K., J.M. Melack and D.E. Hammond. Carbon, nitrogen and phosphorus content and ^{210}Pb-derived burial rates in sediments of an Amazon floodplain lake. Amazoniana (Festschrift for W. Junk) 17: 413-436

Beighley, E., J.M. Melack and T. Dunne. Impacts of California's climatic regimes and coastal development patterns on streamflow characteristics, J. Amer. Water Resources Assoc. 29:1419-1433

Sickman, J.O., A. Leydecker, C.Y. Chang, C. Kendall, J.M. Melack, D.M. Lucero and J. Schimel. Mechanisms underlying export of N from high-elevation catchments during seasonal transitions. Biogeochemistry 64: 1-24

Hess, L.L., J.M. Melack, E.M.L.M. Novo, C.C.F. Barbosa and M. Gastil. Dual-season mapping of wetland inundation and vegetation for the central Amazon basin. Remote Sens. Environ. 87: 404-428

Robinson, T.H., A. Leydecker, A.A. Keller and J.M. Melack. Nutrient export coefficient modeling in Mediterranean coastal streams. D-191. Proc. VI Inter-regional Conference on Environment-Water, Land and Water Use Planning and Management. Centro Regional de Estudios de Agua, Universidad de Castilla-La Mancha, Albacete, Spain

2004 Meixner, T., C. Gutmann, R. Bales, A. Leydecker, J. Sickman, J. Melack and J. McConnel. Multidecadal hydrochemical response of a Sierra Nevada watershed: Sensitivity to weathering rate and changes in deposition. J. Hydrology 285: 272-285

Aizen, V.B., E.M. Aizen , J.M. Melack, K.J. Kreutz, L.D. Cecil. Association between atmospheric circulation patterns and firn-ice core records from the Inilchek glacierized area, central Tien Shan, Asia. J. Geophys. Res. 109: D08304 (doi:10.1029/2003JD003894)

Melack, J.M., L.L. Hess, M. Gastil, B.R. Forsberg, S.K. Hamilton, I.B.T. Lima and E.M.L.M. Novo. Regionalization of methane emissions in the Amazon basin with microwave remote sensing. Global Change Biol. 10: 530-544

Melack, J. M. Remote sensing of tropical wetlands. Pages 319-343. In S. Ustin (ed.) Manual of Remote Sensing, 3 edition. Vol 4. Remote Sensing for Natural Resources Management and Environmental Monitoring. John Wiley & Sons, New York.

Hamilton, S.K., S.J. Sippel and J.M. Melack. Seasonal inundation patterns in two large savanna floodplains of South America: the Llanos de Moxos (Bolivia) and the Llanos del Orinoco (Venezuela and Colombia). Hydrological Processes 18: 2103-2116.

Melack, J.M. and L.L. Hess. Remote sensing of wetlands on a global scale. SIL News 42: 1-5

Novo, E.M.L.M., W. Pereira Filho and J.M. Melack. Assessing the utility of spectral band operators to reduce the impact of total suspended solids on the relationship between chlorophyll concentration and the bidirectional reflectance factor of Amazon waters. Int. J. Remote Sens. 25:5105-5115

2005 Melack, J.M. Floodplain lakes and reservoirs in tropical and subtropical South America: Limnology and human impacts. Pages 241-257. In P. O'Sullivan and C. Reynolds (eds.) Lakes Handbook vol. 2

Melack, J.M. and A. Leydecker. Episodic variations in nutrient concentrations in coastal California streams. Verh. Internat. Verein. Limnol. 29: 1049-1053.

Robinson, T.H., A. Leydecker, A.A. Keller and J.M. Melack. Steps towards modeling nutrient export in coastal California streams with a Mediterranean climate. Agricultural Water Management 77: 144-158.

Robinson, T.H., A. Leydecker, J.M. Melack and A.A. Keller. Nutrient concentrations in coastal streams and variations with land use in the Carpinteria Valley, California. Pages 811-823. In O. Magoon, H. Converse, B. Baird, B. Jines, and M. Miller-Hessen (eds), Conference Proceedings - California and the World Ocean 2002. American Society of Civil Engineers.

Beighley, E., T. Dunne and J.M. Melack. Understanding and modeling basin hydrology: Interpreting the hydrogeological signature. Hydrological Processes 19: 1333-

Miller A.E., J.P. Schimel, T. Meixner, J.O. Sickman and J.M. Melack. Episodic rewetting enhances carbon and nitrogen release from chaparral soils. Soil Biology and Biogeochemistry 37: 2195-2204.

Novo, E.L.M.N., L.G. Guimaraes, C. Barbosa, C. Carvalho, E.E. Sano, Y. Shimabukuro, A. Huete, C. Potter, D.A. Roberts, L.L. Hess, J.M. Melack, H. Yoshioka, S. Klooster, V. Kumar, R. Myneni, P. Ratana, K. Didan and T. Miura. Téchnicas avançadas de sensoriamento remoto aplicadas ao estudo de mudanças climáticas e ao funcionamento dos ecossistemas amazônicos. Acta Amazonica 35: 259-272.

Alsdorf, D., T. Dunne, J.M. Melack, L. Smith and L. Hess. Diffusion modeling of recessional flow on central Amazonian floodplains. Geophysical Research Letters 32: L21405, doi:10.1029/2005GL024412

Taulbee, W.K., S.D. Cooper and J.M. Melack. Effects of nutrient enrichment on algal biomass across a natural light gradient. Arch. Hydrobiol. 164: 449-464.

2006 X, T. Meixner, J.O. Sickman, A.E. Miller, J.P. Schimel and J.M.

Melack. Decadal-scale dynamics of water, carbon and nitrogen in a California chaparral ecosystem: DAYCENT modeling results. Biogeochemistry 77:217-245.

Novo, E.M.L.M. C.C.F. Barbosa, R.M. Freitas, Y.E. Shimabukuro, J.M. Melack and W. P. Filho. Seasonal changes in chlorophyll distributions in Amazon floodplain lakes derived from MODIS images. Limnology doi 10.1007/s10201-006-0179-8

Melack, J.M. 2006. Biodiversity in inland aquatic ecosystems: natural gradients and human-caused impoverishment. Chapter 14, pages 182-190. M. Leybourne and A. Gaynor (eds.) *Water: histories, cultures, ecologies*, University of Western Australia Press.

Downing, J.A., Y.T. Praire, J.J. Cole, C.M. Duante, L.J. Tranvik, R.G. Stiegl, W.H. McDowell, P. Kortelainen, N.F. Caraco, J.M. Melack and J. Middleburg. The global abundance and size distribution of lakes, ponds, and impoundments. Limnol. Oceanogr. 51: 2388-2397.

Manuscripts in Press:

Cole, J.J., Y.T. Praire, N.F. Caraco, W.H. McDowell, L.J. Tranvik, R.R. Striegl, C.M. Duarte, P. Kortelainen, J.A. Downing, J. Middleburg and J.M. Melack. Plumbing the global carbon cycle: Integrating inland waters into the terrestrial carbon budget. Ecosystems

Manuscripts Submitted

Li, X, A.E. Miller, A.E., T. Meixner, J.P. Schimel, J.M. Melack, and J.O. Sickman. Incorporating the mechanism of the rewetting pulse into a biogeochemical model. J. Soil Society of America

Engle, D.L., J.O. Sickman, C.M. Moore, A.M.Esperanza, J.M. Melack and J.E. Keeley. The biogeochemistry legacy of prescribed fire in a mixed conifer forest of Sequoia National Park: A 16-year record of watershed balance. JGR Biogeosciences

Kemenes, A., B.R. Forsberg and J.M. Melack. Gas release below a hydroelectric dam: Implications for global warming and energy policy. Geophys. Res. Let.

Bruce, L.C., R. Jellison, J. Imberger and J. Melack. Effect of benthic boundary layre transport on the productivity of Mono Lake, California, during a period of monomixis. Saline Systems

McPhee-Shaw, E., D.A. Siegel, L. Washburn, M.A. Brzezinski, J.L. Jones, A.

Leydecker and John Melack. Mechanisms for nutrient delivery to the inner shelf:

Observations from the Santa Barbara Channel. Limnol. Oceanogr.

Hess,L., J.M. Melack and L. Mertes. Mapping floodplain habitats of the Amazon River: An approach based on synthetic aperture radar remote sensing. Int. J. Remote Sensing

Sadro, S., M. Gastil-Buhl and J.M. Melack. Characterizing patterns of plant distribution in a southern California salt marsh using topographic and hyperspectral data and local tidal hydrodynamics. Remote Sensing Environ.

Bonnet, M.P., G. Barroux, J.M. Martinez, F. Seyler, P. Moreira-Turcq, G. Cochonneau, J.M. Melack, G. Boaventura, L. Maurice-Bourgoin, J.G. Leon, E. Roux, S. Calmant, P. Kosuth, J.L. Guyot and P. Seyler. Floodplain hydrology in an Amazon floodplain lake (Lago Grande de Curuai).
J. Hydrology

Novo, E.M.L.M., A.G. Affonso and J.M. Melack. Multi-sensor approaches to access the relationship between wetland deforestation and Amazon floodplain lake eutrophication. Proceedings of the Brazilian Society of Remote Sensing

Affonso, A.G., E.M.L.M Novo, J.M. Melack and L.L. Hess. Identificação e quantificação do desflorestamento nas áreas alagáveis nos municipios á margem do Rio Solimões/Amazonas nos estados do Pará e Amazonas.
Proceedings of the Brazilian Society of Remote Sensing

Supervised Research (published by students):

1980 Lenz, P.H. Ecology of an alkali-adapted variety of *Artemia* from Mono Lake, California. USA. Pages 79-96. In C. Persone, P. Sargeloos, O. Roels and E. Jaspers (Eds.). The Brine Shrimp *Artemia*. Vol. 3. Ecology, Culturing, Use in Aquaculture. Universa Press, Wetteren, Belgium.

1984 Lenz, P.H. Life history analysis of an *Artemia* population in a changing environment. J. Plankt. Res. 6: 967-983.

1987 Stoddard, J.L. Alkalinity dynamics in an unacidified alpine lake, Sierra Nevada, California. Limnol. Oceanogr. 32: 825-839.

Stoddard, J.L. Microcrustacean communities of high elevation lakes in the Sierra Nevada, California. J. Plankt. Res. 9: 631-650.

Stoddard, J.L. Micronutrient and phosphorus limitation of phytoplankton abundances in Gem Lake, Sierra Nevada, California. Hydrobiologia 154: 103-111.

1988 Conte, F.P., R.S. Jellison, and G.L. Starrett. Nearshore and pelagic abundances of *Artemia monica* in Mono Lake, California. Hydrobiologia 158: 173-181.

1989 Engle, D.L. and O. Sarnelle. Algal use of sediment phosphorus from an Amazon floodplain lake--implications for total phosphorus analyses in turbid waters. Limnol. Oceanogr. 35: 483-490.

Murphy, A.M. Effects of insoluble particulates on meltwater in the snowpack at Mammoth Mountain, California. Discovery 12: 1-17.

1990 Hamilton, S.K. and W.M. Lewis. Basin morphology in relation to chemical and ecological characteristics of lakes in the Orinoco River floodplain, Venezuela. Arch. Hydrobiol. 119: 393-425.

Williams, M.W. and D. Clow. Hydrologic and biological consequences of an

avalanche striking an ice-covered lake. Proc. West. Snow Conf. 58: 51-60.

1991 Kattelmann, R. and K. Elder. Hydrologic characteristics and water balance of an alpine basin in the Sierra Nevada. Water Resourc. Res. 27: 1553-1562.

1993 Lesack, L.F.W. Water balance and hydrologic characteristics of a rainforest catchment in the central Amazon basin. Water Resourc. Res. 29:759-773.

Lesack, L.F.W. Export of nutrients and major ionic solutes from a rainforest catchment in the central Amazon basin. Water Resourc. Res. 29:743-758.

Miller, L.G., R. Jellison, R.S. Oremland and C.W. Culberson. Meromixis in hypersaline Mono Lake, California. 3. Biogeochemical response to stratification and overturn. Limnol. Oceanogr. 38:1040-1051.

1995 Lesack, L.F.W. Seepage exchange through the lakebed in an Amazon floodplain lake. Limnol. Oceanogr. 40:598-609.

Hamilton, S.K., O. de Souza and M.E. Coutinho. Dynamicis of floodplain inundation in the alluvial fan of the Taquari River (Pantanal, Brazil). Proc. Internat. Assoc. appl. theoret. Limnol. in press

Calheiros, D.F. and S.K. Hamilton. Limnological conditions associated with natural fish kills in the Pantanal wetland (Baia do Castelo, Paraguay River, Brazil). Proc. Internat. Assoc. appl. theoret. Limnol. in press

Book Reviews:

1975 Review of T.T. Macan, 1973. Ponds and lakes. Crane, Russak and Co., New York. 148p. Quart. Rev. Biol. 50:495-496.

1978 Review of L.C. Beadle. 1974. The inland waters of tropical Africa. Longman Group, London. 365p. Trans. Amer. Fish Soc. 197:642-644.

1981 Lakes, rivers and catchments. Review of B. Moss, 1980. Ecology of Fresh Waters. John Wiley and Sons Inc., New York. 332p. Ecology 62:504-505.

A guide to limnological methods. Review of R.G. Wetzel and G.E. Likens, 1979. Limnological Analyses. W.B. Saunders Co., Philadelphia. 357p. Ecology 62:505.

1982 Phytoplankton ecology. Review of I. Morris (ed.), 1980. The physiological ecology of phytoplankton. Univ. of California Press, Berkeley, California. 625p. Ecology 63:1189-1190.

1984 Limnology in the tropics. Review of C. Serruga and U. Pollinger, 1983. Lakes of the warm belt. Cambridge Univ. Press, New York. 569p. and J.P. Carmouse, J.R. Durand and C. Leveque, 1983. Lake Chad, ecology and productivity of a shallow tropical ecosystem. Junk, The Hague. 575p. Science 224:863-865.

1985 Life as a phytoplankter. Review of C.S. Reynolds, 1984. The ecology of freshwater phytoplankton. Cambridge Univ. Press, New York. 384p. Ecology 66:1392.

1986 The Hubbard Brook Ecosystem. Review of G.E. Likens (ed.),

1985. An ecosystem approach to aquatic ecology. Mirror Lake and Its Environment. Springer-Verlag, New York. 516p. Science 232:1031-1032.

1987 Large rivers. Review of B.R. Davies and K.F. Walker (eds.), 1986. The ecology of river systems. Dr. W. Junk Publ., Dordrecht. 792 p. Ecology 68:756-757.

Saline lakes. Review of U.T. Hammer, 1986. Saline lake ecosystems of the world. Monographiae Biologicae. vol. 59. Dr. W. Junk Publ., Dordrecht. 616p. Ecology 68:755.

1990 The Conservation of Australian wetlands. Review of A.J. McComb and P.F. Lake, 1988. Surrey Beatty. 196 p. Amer. Sci. 78:171.

1991 Review of B.R. Allanson, R.C. Hart, J.H. O'Keefe and R.D. Roberts, 1990. Inland waters of southern Africa: an ecological perspective. Monogr. Biol. 64. Klumer Academic Publ. Dordrecht 458 p. Limnol. Oceanogr. 35:1864-1865.

1997 Review of Committee on Inland Aquatic Ecosystems, 1996. Freshwater Ecosystems: Revitalizing Educational Programs in Limnology by National Research Council, Washington, D.C. 364 p.Trans. Amer. Geophys. Union (EOS) 2 Dec 1997:552 and 557.

1999 Review of Oren, A. (ed.), 1999. Microbiology and biogeochemistry of hypersalin environments. CRC Press 359 p. Limnol. Oceanogr. 44: 1597.

2000 Review of J.F. Talling and J.Lemaolle, 1998. Ecological dynamics of tropical inland waters. Freshwater Biology 44: 663-664.

Committee, Workshop and Technical Reports:

Tundisi, J.G., J.M. Melack, V. Montecino and J.F. Talling. 1983. Primary production in freshwater lakes and reservoirs. Pages 6-11, In: Report of Symposium on Savanna and Woodland Ecosystems in Tropical America and Africa - a Comparison. Internat. BioSciences Network, ICSU, Paris.

Kirk, J.T.O., E.G.J. Akhurst, B.R. Allanson, J.U. Grobbelaar, J.R. Hely-Hutchinson, J.M. Melack, J.C. Patterson, R.D. Robarts and A.B. Viner. 1984. Turbidity and suspensoids. Chapter 5, Pages 108-133. In: R.C. Hart and B.R. Allanson (eds.) Limnological Criteria for Management of Water Quality in the Southern Hemisphere. South African. Nat. Scient. Program Report No. 93.

Science and Mission Requirements Working Group. 1984. Earth Observing System. NASA Tech. Memorandum 86129. Vol. 1, 51 p. + Appendix 55 p.

Melack, J.M. and F. Setaro. 1986. Survey of sensitivity of southern California lakes to acid deposition. Final Report, California Air Resources Board Contract A3-107-32. 73 p.

Earth Observing System Science Steering Committee. 1987. From Pattern to Process: The Strategy of the Earth Observing System. NASA. 140 p.

Imaging Spectrometry Science Advisory Group. 1987. High Resolution Imaging Spectrometer: Science Opportunities for the 1990s. NASA. 74 p.

Working Group on Great Lakes Research. 1987. Basic Issues in Great Lakes Research. Spec. Rep. No. 123. Great Lakes Research Division, Univ. of Michigan, Ann Arbor. 174 p.

Melack, J.M., S.D. Cooper and R.W. Holmes. 1987. Chemical and biological survey of lakes and streams located in the Emerald Lake watershed; Sequoia National Park. Final Report, California Air Resources Board Contract A3-096-32. 345 p.

Committee on Great Lakes Research Issues. 1988. Great Lakes Unified Ecosystem Studies. University of Michigan. 12 p.

Dozier, J., J.M. Melack, D. Marks, K. Elder, R. Kattelmann and M. Williams. 1987. Snow deposition, melt, runoff and chemistry in a small alpine watershed, Emerald Lake basin, Sequoia National Park. Final Report, California Air Resources Board Contract A3-106-32. 349 p.

Melack, J.M., R.S. Jellison, G.L. Dana, P.H. Lenz and D.B. Herbst. 1988. Limnological conditions at Mono Lake. Appendix D. The Future of Mono Lake. Community and Organization Research Inst. University of California, Santa Barbara.

Jellison, R.S., G.L. Dana and J.M. Melack. 1988. Phytoplankton and brine shrimp dynamics in Mono Lake, California. Final Report, Los Angeles Dept. of Water and Power. 189 p.

Cooper, S.D., K. Kratz, R.W. Holmes and J.M. Melack. 1988. An integrated watershed study: an investigation of the biota in the Emerald Lake system and stream channel experiments. Final Report, California Air Resources Board Contract A5-139-33. 89 p.

Sickman, J.O. and J.M. Melack. 1989. Characterization of year-round sensitivity of California's montane lakes to acidic deposition: Final Report, California Air Resources Board Contract A5-203-32. 104 p.

Melack, J.M., S.D. Cooper and T.M. Jenkins, Jr. 1989. Biological and chemical characteristics of Emerald Lake and the streams in its watershed, and responses of the lakes and streams to acidic deposition. Final Report, California Air Resources Board Contract A6-184-37. 377 p.

Jellison, R.S., G.L. Dana and J.M. Melack. 1989. Phytoplankton and brine shrimp dynamics in Mono Lake, California. Final Report, Los Angeles Department of Water and Power. 174 p.

Berg, N., B. McGurk, J.M. Melack, D. Marks and D. Dawson. 1989. Evaluation of methods for measurement of snowfall and collection of snow for chemical analysis. Final Report, California Air Resources Board Contract A6-078-32.124p.

Dozier, J. and J.M. Melack. 1989. Snow, snowmelt, rain, runoff and chemistry in a Sierra Nevada watershed. Final Report, Califorina Air Resources Board. Contract A6-147-32. 268p.

Melack, J.M., S. Hamilton, J. Sickman and S. Cooper. 1989. Effects of atmospheric deposition on ecosystems in Sequoia National Park: Ecological impacts of aquatic

habitats. Final Report, U.S. National Park Service, Cooperative Agreement 8006-2-0002. 168 p.

Dana, G.L., R. Jellison and J.M. Melack. 1990. Mono Lake database. Report to the Los Angeles Department of Water and Power. 32 p.

Dana, G.L., R. Jellison and J.M. Melack. 1990. Methods manual. Report to the Los Angeles Department of Water and Power. 110 p.

Jellison, R., G.L. Dana, J. Romero and J.M. Melack. 1990. Phytoplankton and brine shrimp dynamics in Mono Lake, California. Annual report to the Los Angeles Department of Water and Power. 218 p.

Dana, G.L., R. Jellison, J. Romero, and J.M. Melack. 1991. Mixing and plankton dynamics in Mono Lake, California. Annual report to the Los Angeles Department of Water and Power. 288 p.

Melack, J.M., J.O. Sickman, F.V. Setaro, and D. Engle. 1993. Long-term studies of lakes and watersheds in the Sierra Nevada: patterns and processes of surface-water acidification. Final Report, California Air Resources Board, Contract A932-060. 185 p.

Melack, J.M. 1993. Ecology of the offshore waters of Mono Lake, California. Direct testimony, California Water Resources Control Board. 28 p.

Melack, J.M., J. O. Sickman, F. Setaro and D. Dawson. 1994. Monitoring of wet deposition in alpine areas in the Sierra Nevada. Final Report. Contract A932-081. California Air Resources Board

Kasischke, E. and J. M. Melack. 1995. Ecology. Pages 2-1 to 2-31. In Spaceborne synthetic aperture radar: current status and future directions. Report to Committee on Earth Sciences, Space Science Board, National Academy of Sciences. NASA Tech. Memorandum 4679

Jellison, R., J. Romero, J. Melack, D. Heil and G. Dana. 1995. Mixing and plankton dynamics in Mono Lake, California. Final report (1993-1994) to Los Angeles Department of Water and Power

Richey, J., R. Victoria, J. Melack, S. Wilhelm, M. McClain, A. Devol and L. Martinelli. 1995. Organic matter and nutrient dynamics in river corriders of the Amazon basin and their response to anthropogenic change. Synthesis paper (Surface water chemistry group) for Workshop on the Ecological Component of the Integrated Amazon Study: Effects of Forest Conversion (INPA, CENA and NASA)

Novo, E., M. Gastil and J.M. Melack. 1995. An algorithm for chlorophyll using first difference transformation of AVIRIS reflectance spectra. Pages 121-124. In Summaries of the Fifth Annual JPL Airborne Earth Science Workshop, Pasadena, CA

Jellison, R., J. Romero, J. Melack, and D. Heil. 1996. Mixing and plankton dynamics in Mono Lake, California. Final report (1995) to Los Angeles Department of Water and Power

Engle, D.L. and J.M. Melack. 1997. Assessing the potential impact of acid deposition on high altitude aquatic ecosystems in California: Integrating ten years of

investigation. Final Report. California Air Resources Board. Contract 093-312

Jellison, R., J. Romero, J. Melack and D. Heil. 1997. Mixing and plankton dynamics in Mono Lake, California. Final report (1996) to Los Angeles Department of Water and Power

Melack, J.M., J.O. Sickman, F. Setaro and D. Dawson. 1997. Monitoring of wet deposition in alpine areas in the Sierra Nevada. Final Report. California Air Resources Board contract A932-081, 209 p

Melack, J.M., J.O. Sickman, A. Leydecker and D. Marrett. 1998. Comparative analyses of high-altitude lakes and catchments in the Sierra Nevada: Susceptibility to acidification. Final Report. California Air Resources Board contract A032-188, 615 p

Sahagian, D. and J.M. Melack (eds.). 1998. Global wetland distribution and functional characterization: Trace gases and the hydrologic cycle. IGBP Report 46, 92 p

Gastil, M. and J.M. Melack. 1998. Improved atmospheric correction for AVIRIS spectra from inland water. Pages In Summaries of the Eighth Annual JPL Airborne Earth Science Workshop, Pasadena, CA

Jellison, R., J.M. Melack, and D. Heil. 1998. Mixing and plankton dynamics in Mono Lake, California. Annual Report (1997) to Los Angeles Department of Water and Power

Schimel, D., D. Glover, J.M. Melack, R. Beer, R. Myneni, Y. Kaufman, C. Justice and J. Drummond. 1999. Greenhouse gases and atmospheric chemistry. Pages 163-193 In M.D. King (ed.). EOS Science Plan. NASA

Jellison, R., J.M. Melack, and D. Heil. 1999. Mixing and plankton dynamics in Mono Lake, California. Annual Report (1998) to Los Angeles Department of Water and Power

Jellison, R. and J.M. Melack. 2000. Mixing and plankton dynamics in Mono Lake, California. Annual Report (1999) to Los Angeles Department of Water and Power

Jellison, R., S. Roll and J.M. Melack. 2001. Mixing and plankton dynamics in Mono Lake, California. Annual Report (2000) to Los Angeles Department of Water and Power

Jellison, R., S. Roll and J.M. Melack. 2002. Mixing and plankton dynamics in Mono Lake, California. Annual Report (2001) to Los Angeles Department of Water and Power

Jellison, R., S. Roll and J.M. Melack. 2003. Mixing and plankton dynamics in Mono Lake, California. Annual Report (2002) to Los Angeles Department of Water and Power

Jellison, R., K. Rose and J.M. Melack. 2003. Assessment of internal nutrient loading to Crowley Lake, Mono County. Final Report to California State Water Resources Control Board (contract #00-196-160-0)

Jellison, R., S. Roll and J.M. Melack. 2004. Mixing and plankton dynamics in Mono Lake, California. Annual Report (2003) to Los Angeles Department of Water and Power

PROFESSIONAL ACTIVITY

Co-convenor, Societas Internationalis Limnologiae, Workshop on African Limnology, Phytoplankton and primary productivity and Saline lakes groups, Nairobi, Kenya. 1979.

Invited participant, NSF sponsored workshop on carbon transport and processing in the Amazon Basin, Friday Harbor, Washington. 1980.

Invited speaker, Public Hearing for Kapiloff Acid Deposition Bill, San Francisco, California. 1980.

Invited participant, U.S. Geological Survey - National Parks Water Quality Program Development Workshop, Sequoia and Yosemite National Parks, California. 1981.

Expert witness to California Assembly Committee on Water, Parks and Wildlife at Public Hearing - The Future of Mono Lake, Sacramento. 1981.

Organizer and Chairman of Symposium/Workshop on Mono Lake, Santa Barbara, California. 1982.

Chairman, Phytoplankton section, Second International Symposium on Salt Lakes, Saskatoon, Saskatchewan. 1982.

Member, Mono Lake Research Steering Committee, Sacramento, California. 1983-84.

Member, AIBS Review Panel for proposals submitted to NASA's Global Biology Program, Washington, D.C. 1983 - 84.

Invited participant, Planetary Biology Committee's (Space Science Board) Workshop to write Towards a Science of the Biosphere under auspices of NAS/NRC, Snowmass, Colorado. 1983.

Member, Science and Mission Requirements Working Group for NASA's System Z, a permanent, adaptable, space facility for scientific study of the earth in the 1990s, Washington, D.C. 1983-84.

Invited speaker and rapporteur, Symposium on Savanna and Woodland Ecosystems in Tropical America and Africa, Brasilia, Brazil. 1983.

Invited speaker and participant, International Workshop on Transport of Carbon and Minerals in Major World Rivers. Caracas, Venezuela. 1984.

Invited speaker, Mono Lake: Beyond the Public Trust Doctrine - Public Policy Program, UCLA. Los Angeles. 1984.

Member, Science Steering Committee for NASA's Earth Observing System, Washington, D.C. 1984-87.

Organizer and Chairman of Third International Symposium on Inland Saline Waters, Nairobi, Kenya. 1985.

Member, EPA National Surface Water Survey: Eastern Lake Survey - Phase II, Peer Review Panel. 1985.

Member, Imaging Spectrometer Science Advisory Group, Jet Propulsion Lab (NASA). 1985-87.

Invited participant, Tropical Ecosystem Project, NASA - Ames Research Center. 1985-87.

Member, National Academy of Science - Mono Basin Ecosystem Study Committee. 1985-87.

Invited participant and speaker. Workshop on Ecological Principles for Watershed Management, East-West Center, Honolulu, Hawaii. 1986.

Member, Review Committee for Remote Sensing Research Program, Space Sciences Laboratory, University of California, Berkeley. 1986.

Organizer and co-chairman. Special symposium, 50th ASLO meeting. Remote sensing of lakes and coastal environments.

Invited participant and group leader. Basic issues in Great Lakes research. NSF (ocean sciences) sponsored workshop. Kellogg Biological Station, Michigan. 1986.

Invited contributor. Regional Case Studies, EPA sponsored project for National Acid Precipitation Assessment Program. 1986-1989.

Invited participant. Complex interactions in lake communities. NSF (ecology) sponsored workshop. Notre Dame, Indiana. 1987.

Invited participant. Factors controlling community structure and function in tropical versus temperate streams. NSF (ecology) sponsored workshop. Flathead Lake Biological Station, Montana. 1987.

Visiting scientist. Centers for Water Research, Environmental Fluid Dynamics and Limnological Modeling, University of Western Australia, Perth, Australia. 1987-88.

Invited plenary speaker. Second Symposium on International Satellite Land Surface Climatology Project, Niamey, Niger. 1988.

Invited plenary speaker. Second Congress of Brazilian Limnology, Cuiaba, Brazil. 1988. (presentation in Portuguese).

Member and subpanel Chair. NASA Eos Interdisciplinary Science Peer Review Panel, Washington, D.C. 1988.

Invited speaker and participant. Lotic Ecosystem Recovery, EPA sponsored symposium. Duluth, Minnesota. 1988.

Invited participant. Workshop on Ecosystem Risk Assessment and Monitoring, National Research Council, Washington, D.C. 1989.

Member. High Resolution Imaging Spectrometer Science Team, NASA. 1989-1995.

Member. Shuttle Imaging Radar Experiment Science Team. NASA. 1989-1998.

Invited participant. Cary Conference on Comparative Analyses of Ecosystems:

Patterns, Mechanisms and Theories, Institute of Ecosystem Studies, Millbrook, N.Y. 1989.

Member. EPA Direct/Delayed Response Project. Peer Review Panel. Corvallis, OR. 1989.

Invited speaker and participant. Implementation group for lake studies of US/USSR. Earth Sciences Joint Working Group. Leningrad, USSR. 1989.

Invited plenary speaker. Troubled waters of the greenhouse Earth. NABS-EPA-NASA symposium. Blacksburg, Virginia. 1990.

Co-organizer, Special Symposium - A tribute to Peter Kilham, Biology and Geology - Life at the Interface. Annual Meeting, American Society of Limnology and Oceanography, 1990.

Deputy chairperson. US/USSR Earth Sciences Joint Working Group. Leningrad, USSR. 1990.

Chairperson, Wetlands Monitoring session, International Symposium on Ecological Indicators. Ft. Lauderdale, Florida, 1990.

Invited speaker, Eutrophication of tropical waters. World Bank and SCOPE. Washington, D.C., 1990.

Invited plenary speaker, 2nd International Limnology Week. National Water Commission. Guadalajara, Mexico, 1991.

Invited speaker, Phosphorus cycles in terrestrial and aquatic ecosystems. Regional workshop 4: Africa. SCOPE and UNEP. Nairobi, Kenya, 1991.

Member, Science Steering Committee. Lake Biwa Transport Experiment. Planning meetings Kyoto, Japan and Barcelona, Spain, 1992.

Chair, Remote sensing and modeling session, ISLSCP Americas Workshop, Remote Sensing of Land Surface for Studies of Global Change. Washington, D.C., 1992.

Invited plenary speaker, Investigators' Working Group of NASA's EOS Program. Keystone, CO, 1992.

Co-Chair, SIL Working Group on Saline Inland Waters. 1992-2001.

Member, Review Panel for proposals submitted to NASA's Sea-Viewing Wide-Field-of-View Sensor program. Washington, D.C., 1992.

Member, Review Panel for proposals submitted to EPA's Environmental Monitoring and Assessment Program, Washington, D.C., 1993

Invited speaker and chair, Phosphorus cycles in terrestrial and aquatic ecosystems. SCOPE Synthesis Meeting. Budapest, Hungary, 1993.

Invited speaker, Current research and future perspectives, California Air Resources Board Conference. Sacramento, 1993.

Co-Chair and Member, User Working Group, Oak Ridge National Laboratory-Data Active Archive Center, 1993- 1999

Invited plenary speaker, North American Benthological Society, Orlando, FL . 1994

Invited speaker and session co-chair, Committee on Space Research (COSPAR) Scientific Assembly, Hamburg, Germany. 1994

Co-Chair. Surface water chemistry group for the Ecological Component of the Integrated Amazon Study. 1993 - 1997

Invited participant, Working Group for UNESCO project: Surface water typologies at global scale. 1993

Co-Chair, Ecology working group: Spaceborne synthetic aperture radar: current status and future directions. Report to Committee on Earth Sciences, Space Science Board, National Academy of Sciences. 1994-1995

Invited plenary speaker, International Congress of Societas Internationalis Limnologiae, São Paulo, Brazil. 1995

Chair, Biogeochemistry Panel, and Member, Executive Committee, Investigators' Working Group of NASA's Earth Observing System. 1995 to 2000

Co-Chair, International Geosphere Biosphere Program wetlands project. 1995 - 2001

Member, Science Advisory Panel for LightSAR, 1996 - 1999

Co-Chair, Inter-American Institute workshop on experimental and time series analyses in limnology, Manitoba, Canada, and follow up activities 1996 - 1998

Invited participant, SCOPE workshop on nitrogen in terrrestrial and aquatic systems, Termas do Chillan, Chile and follow up activities 1996 - 1997.

Invited participant, EPA/NASA workshop on water monitoring, remote sensing and advanced technologies, Washington, D.C., 1996

Member, NCEAS Working Group on Intrinsic and Extrinsic Variability in Community Dynamics, 1997 - 1998

Member, Expert Panel for Environmental Defense Fund on Paraguay-Pantanal Hidrovia, 1996-1997

Member, Data Information System Working Group for Large-scale Atmosphere-Biosphere Experiment in the Amazon, 1997-2000

Member, National Research Council sponsored Panel to Review the Alaska Distributed Active Achive Center, Fairbanks, Alaska, and follow up activities. 1997-1999

Member, Review Panel for Industrial Research Chair proposal, Natural Sciences and Engineering Research Council of Canada, Victoria, British Colombia 1998

Chair, Review Committee for Ecotoxicology Program at UC Davis, Toxic

Substances Research and Training Program, 1998

Organizer, Special Session on Earth System Science and Public Policy at Investigators' Working Group Meeting of NASA's Earth Observing System, Durham, N.H., 1998

Invited plenary speaker, International Symposium of the North American Lake Management Society, Banff, Canada 1998

Member, SCOPE/NCEAS Working Group on Regional and Landscape-Scale Nitrogen Budgets, 1998 - 1999.

Invited participant, ESA workshop on Atmospheric Deposition: the Ecological Response, Washington, D.C., 1999

Co-organizer, LBA workshop on remotely sensed land surface properties, Cachoeira Paulista, Brazil, 1999

Organizer and Chairman of Seventh International Symposium on Inland Saline Waters, Death Valley, California, 1999.

Member, External Review of Centre for Water Research and Department of Environmental Engineering, University of Western Australia, Perth. 1999

Session Chair, INTECOL Wetlands Symposium, Quebec City, Canada, 1999

Plenary speaker, International Symposium on High Mountain Lakes and Streams, Innsbruck, Austria, 2000

External Reviewer, Global Change program, Oak Ridge National Laboratory, 2002

Invited speaker and participant, N fluxes and processes in tropical and temperate systems, PiraCena VII workshop, Ubatuba, Brazil, 2003

Science Advisory Committee, Center for Ecological Health Research (UC Davis), 1999 – 2002

Member, Medea (Advisory group on environmental science to federal agencies), 1996 – 2003

External Reviewer, CALFED In-Delta Storage project, 2002-2003

Member, Science Advisory Committee, Tropical Rivers Alliance, 2003

Member, Independent Science Board, California Bay-Delta Authority's CALFED Bay-Delta Program, 2003 – 2006

Invited plenary speaker, International symposium entitled "Water: histories, cultures, ecologies", University of Western Australia, Perth, Australia, 2003

Member, Water Management Science Board, California Bay-Delta Authority's CALFED Bay-Delta Program, 2005 – 2006

Member, NRC/NAS Committee on Geophysical and Environmental Data, 1999 - 2005.

Member, Hydroecology Committee of National NEON Committee, 2005

Member, LTER Planning Committee, 2005-2006

Member, Science Advisory Panel, Eros Data Center-Data Active Archive Center. 1994 – present

Member, Standard Methods Committee, American Water Works Association, 1999 – present

Member, Science Steering Committee, Large-scale Atmosphere-Biosphere Experiment in the Amazon. 1996-present

Member, NCEAS working group on aquatic-terrestrial linkages in carbon dynamics, 2005 - present

Member, NCEAS working group on methane dynamics, 2006 - present

Member, Board of Community Environmental Council, 2006 - present

Reviewer of proposals for NSF, NASA, AIBS, California Space Institute, Universities Council on Water Resources, University-wide Energy Research Group, NOAA, DOE, MAB, EPA, NERC (U.K.), NSERC (Canada), InterAmerican Institute

Presented over 170 papers at professional meetings, universities and government laboratories.

UNIVERSITY SERVICE and TEACHING:

Systemwide:

Faculty Manager, Sierra Nevada Aquatic Research Laboratory and Valentine Reserve, Mammoth Lakes, California. 1979-present.
Member, University Committee on Research Policy (2003 – 2004)
Member, Coordinating Board for UC Water Resources Center. 1995- 2002
Member, Science Advisory Committee, EPA Center for Ecological Health Research. 1999- 2002
Member, Executive Committee of UC Toxic Substances Research and Teaching Program.
1991-1999
Member, Advisory Committee on Professional Education. 1988-1989.

Campus:

Associate Dean, Bren School, 2006-present
Acting Dean, Bren School, 2005
Member, Natural Reserve System Campus Advisory Committee. 1979-present.
Chair and Member, Advisory Committee for Institute for Computational Earth System Science. 1992-1996, 2001-present
Exexcutive Committee, Santa Barbara Channel LTER. 2001- present
Chair, Academic Senate Council of Research and Instructional Resources, 2002-2004
Chair, Search Committee for Dean of Bren School, 2004-2005
Member, Task Force on Environmental Studies, 2005-2006

Member, Academic Senate Executive Committee, 2002-2004
Chair and Member, Academic Senate Committee on Research. 1990-1994, 1995- 1997.
Member, Academic Senate Committee on Educational Policy and Academic Planning. 2000-2001
Member, Academic Senate Committee on Capital Projects, 1996 – 2000
Chair, Executive Committee (Bren School). 2001 - 2004
Chair, Building and Space Committee (Bren School). 1990-2003.
Member, Search Committee, Associate Vice Chancellor for Design, Construction and Physical Facilities. 2001-2002.
Chair and Member, Committee on Recruitment and Admissions (Bren School). 1999-2001
Member, North Campus Housing Committee, 1998-2003
Chair, Campus Wetlands Committee. 1985-1990, 1993-2001.
Chair, Academic Development Committee for School of Environmental Science and Management. 1993 - 1994.
Chair, Chancellor's Task Force for a School of Environmental Science and Management. 1988-1991.
Member, Search Committee for Dean of School of Environmental Science and Management. 1991-1993.
Member, Building Committee for School of Engineering, 1998-2000
Member, Rates and Recharge Committee. 1988-1991.
Chair and Member, Advisory Committee for Computer Systems Laboratory. 1988-1991.
Member, Advisory Committee for Marine Science Institute. 1988-1995.
Chair and Member, Valentine Eastern Sierra Reserve Advisory Committee 1978-1995.
Member, Pacific Rim Committee. 1991-1994, 1995-1997
Member, Environmental Studies Advisory Committee. 1993-1995.

Departmental:
Chair, Section of Aquatic and Population Biology. 1989-1991.
Member, Aquatic Biology Oversight Committee. 1997-2004
Member, Noble Hall Renovation Committee. 2003 - 2004
Member, FTE Committee (Biology). 1993, 1995- 1997.
Chair and Member, Academic Personnel Review Committees. 1982-present.
Member, Long-range Planning Committee (Biology). 1990-1991.
Graduate Advisor, Section of Aquatic and Population Biology. 1985-1987.
Member, Budget and Space Committee (Biology). 1982-1984
Education Abroad Advisor (Biology). 1970-1991, 1997
Member, Building Committee (EEMB). 1998
Chair and Member, Resources Committee (EEMB). 1998-2001
Seminar Chairperson, Section of Aquatic and Population Biology. 1982.
Faculty Search Committees
Aquatic Ecologist (Biology) 1978-1980.
Plant Ecologist (Biology) 1981-1983.
Terrestrial Remote Sensing Geographer (Geography) 1993.
Ecosystem Ecologist (Biology) 1993-1994.
Earth System Scientist and Environmental Economist (ESM) 1995
Biogeochemist, Earth System Scientist, Applied Ecologist and Environmental Economist (ESM) 1996
Environmental Microbiologist (ESM). 1996-1997
Applied Ecologist (ESM) 1997-1998
Environmental Economist and Environmental Policy Analyst (ESM), 1998-2000
Corporate Environmental Management (ESM), 1999-2000

Ecosystem Ecologist (EEMB) 2000-2003
Freshwater Ecologist (EEMB) 2003-2004

Courses Taught:

Ecological Processes in Aquatic Environments (upper class course for Aquatic Biology majors), 1977- 2001.
Chemical and Physical Methods in Aquatic Environments (upper class lab), 1977-2000.
Biological Limnology (upper class and graduate course), 1978-1986.
Aquatic Biology (non-major course), 1986.
Tropical Ecology (upper class and graduate course), 1987-1996.
Stream Ecology (upper class and graduate course), 1993-1995.-2004
Graduate Seminar in Aquatic Biology, 1977-present.
Graduate Seminar in Environmental Science, 1996 - present.
Environmental Biogeochemistry (Masters of Environmental Science and Management course), 1997 - present

Supervision of Graduate Students (Chair or Co-Chair)

Petra H. Lenz, Ph.D 1982 (Research Scientist, University of Hawaii)
"Population studies on *Artemia* in Mono Lake, California" 230 p.

Stephen G. Njuguna, Ph.D. (Univ. of Nairobi) 1983 (University of Nairobi, Nairobi, Kenya)
"Nutrient - productivity relationships in tropical Naivasha basin lakes, Kenya" 300 p.

John L. Stoddard, Ph.D. 1986 (Research Scientist, EPA, Corvallis, Oregon)
"Nutritional status, microcrustacean communities and susceptibility to acid precipitation of high elevation lakes in the Sierra Nevada, California" 189 p.

Lance F.W. Lesack, Ph.D. 1988 (Professor, Simon Fraser University, British Columbia, Canada)
"Mass balance of nutrients, major solutes and water in an Amazon floodplain lake and its biogeochemical implications for the Amazon basin" 494 p.

Mark W. Williams, Ph.D. 1991 (Professor, University of Colorado Boulder)
"Hydrologic and geochemical controls on the hydrochemistry of a seasonally snow-covered basin: the Emerald Lake watershed, Sierra Nevada, California" 185 p.

Robert S. Jellison, Ph.D. 1992 (Associate Research Biologist, Sierra Nevada Aquatic Research Laboratory)
"Limnology of hypersaline Mono Lake, California, during the onset, persistence and breakdown of meromixis" 247 p.

Yong Wang, Ph.D. 1992. (Professor, University of North Carolina, Greensboro)
"Radar backscatter modeling and applications in forested environments" 94p.

Diana L. Engle, Ph.D. 1993 (Specialist, UCSB)
"Effects of sediment and nutrient inputs on seston dynamics and epiphytic algae and aquatic invertebrates of floating meadows" 260 p.

Stephen K. Hamilton, Ph.D. 1994 (Associate Professor, Kellogg Biological Station, Michigan State University)
"Aquatic biogeochemistry of the Orinoco River floodplain (Venezuela) and the Pantanal wetland (Brazil)" 236 p.

Solange Filoso, Ph.D. 1996 (Research Scientist, University of Maryland)
"Throughfall and aquatic biogeochemistry in the Anavilhanas Archipelago, Negro River, Brazil" 197 p.

Dalton Valeriano, Ph.D. 1996 (Research Scientist, Brazilian Space Institute (INPE))
"Relationship between tropical forest structure and remotely sensed synthetic aperture radar data" 148 p.

Jose Romero, Ph.D. 1996 (Environmental Consultant, Perth, Western Australia)
"Stratification and mixing in hypersaline Mono Lake, California" 238 p.

Michael R. Williams, Ph.D. 1997 (Staff Researcher, EPA Chesepeake Bay Program)
"Sources of solutes in precipitation and surface runoff of mixed-conifer and alpine catchments in the Sierra Nevada, California" 183 p.

Tim Hovanec, Ph.D. 1998 (Director of Aquatic Research, Aquaria, Inc., Moorpark, CA)
"Characterization of the nitrifying bacteria in aquaria and Mono Lake, California, using molecular methods" 183 p.

Osni de Sousa, Ph.D. 1998. (Research Scientist, EMBRAPA, Brazil; deceased)
"Sediment transport and geomorphology of the Taquari River, Pantanal" 135 p.

Jeff Chambers, Ph.D. 1998. (Assistant Professor, Tulane University)
"The role of large wood in the carbon cycle of central Amazon rain forest" 117 p.

Laura Hess, Ph.D. 1999. (Project Scientist, ICESS, UCSB)
"Radar remote sensing of inundation and wetland vegetation."

Al Leydecker, 2000: Ph.D. (Postdoctoral Researcher, Marine Science Institute, UCSB; retired)
"Evaporation, episodic lake acidificatioin, and weathering as the proximate source of silica and base cations in seasoanlly snow covered catchments in Sierra Nevada, California" 206 p.

Veronique La Capra, 2000: Ph.D. (Staff Researcher, EPA, Washington, D.C.)
"Biogeochemistry of floodplain waters in burned and unburned areas of the Pantanal wetland of Brazil".312 p.

Antonio Beaumord, 2000: Ph.D. (Assistant Professor, Univali, Itajai, Santa Catarina, Brazil)
"Ecology and ecomorphology of fish assemblages of the Parana-Paraguay basin in Brazil" 123 p.

James Sickman, 2001: Ph.D. (Assistant Professor, University of California, Riverside)
"Comparative analyses of nitrogen biogeochemistry In high elevation ecosystems" 343p.

Kevin Taulbee, 2004: Ph.D. (Postdoctoral Fellow, EPA)
"Effects of light and nutrients on algae and invertebrate grazers in streams" 138 p.

Tim Robinson, 2006: Ph.D. (Biologist, Cachuma Water Authority)
"Catchment and subcatchment scale linkages between land use and nutrient concentrations and fluxes in coastal California streams" 280 p.

Julie Simpson, 2006: Ph.D. (Project Scientist, Larry Walker Associates, Davis, California)
"The effects of natural and anthropogenic perturbations on stream primary producer communities in southern California " 249 p.

Darcie Goodman, 2002 - present: Ph.D.

Craig Nelson, 2002 - present: Ph.D.

Steve Sadro, 2005 – present: Ph.D.

Alexios Monopolis, 2006 – present: Ph.D.

Frank V. Setaro: M.A. 1983
"Responses of phytoplankton to experimental fertilization with nitrogen and phosphorus in an Amazon floodplain lake" 119 p.

Patricia Pinheiro, M.Sc.: (Fed. Univ. of Amazonas) 1985
"Estudio sazonal dos efeitos das adicoes de nutrientes sobre o crescimento do fitoplankton en um lago de varzeo (Lago Calado--Amazonia central)" 88 p.

Luis Rodrigues: M.A. 1986
Masters by course work.

James O. Sickman: M.A. 1991
"Planktonic primary productivity and responses of phytoplankton to acid and nutrient additions in Emerald Lake, Sierra Nevada, California" 143 p.

Suzanne Sippel: M.A. 1993
"Microwave remote sensing of inundated areas in the Amazon river floodplain, Brazil" 71 p.

Scott Coombs, M.Sc.: 2006.
"The impact of fire on hydrology and suspended sediment and nutrient export in southern California chaparral watersheds" 117 p.

Jana Carey, Mark de la Garza, Tyra Gebhard, Julie Harris and Gwen Heistand. Bren School MESM 1998
"Investigating the cumulative impacts of land use change on local wetland watersheds: Goleta and Devereux Sloughs, Santa Barbara County, California"

Joanna D.E. Athanassopoulos, James S. Dalton and Adam Fischer. Bren School MESM. 1999
"Offshore oil platform decommissioning: A comparative study of strategies and ecological, regulatory, political and economic issues involved in decommissioning planning" 123 p.

Dana L. Armanino, Jon A.G. Clemens, Chris H. Coburn, Noah P. Molotch, Stephanie A. Oakes and Jill K. Richardson. Bren School MESM 2000
"Analysis of alternative watershed management strategies for the Lauro Canyon watershed, Santa Barbara, California" 69 p.

Andrew Breibart, Robin E. Cathcart, Karin A. Didriksen and J. Lauren Everett. Bren School MESM 2001
"Mammoth groundwater extraction: A hydrological analysis of potential recharge to an eastern Sierra Nevada watershed" 160 p.

Peter Choi, Paola Gomez-Priego, Bill Sears and Alex Tuttle. Bren School MESM 2002
"Arroyo Hondo management plan"

Lisa Ackerman, Jeffrey Bannon, Achira Leophairatana and Kazuhiko Yamada. Bren School MESM 2003.
"Assessment of seawater desalination as a water supply strategy for San Diego County"

Erin Darling, Augusto Bedoya, Danny Kahn and David Beard. Bren School MESM 2004.
"Wiring the Farm: Operational Practices for Sustainable Agriculture"

Kristi Birney, Amber Griffin, Jonathan Gwiazda, Johnny Kefauver, Takehiko Nagai and Douglas Varchol. Bren School MESM 2006.
"Potential Deep-Sea Mining of Seafloor Sufides: A Case Study in Papua New Guinea"

Mike Rossiter, Maya Debner, Joanne Siew, Christy Ciarametaro and Drew Beckwith. Bren School MESM 2007.
"Evaluation of Rainfall-Runoff Relationships to Inform Development of an Incentive Program for Stormwater Pollution Reduction in South Coast Watersheds"

RESEARCH GRANTS (active grant in italics at top of each section)

1. **Tropical limnology and remote sensing of tropical wetlands**

Linking remote sensing of variations in inundation and aquatic vegetation with regional analyses of carbon dynamics in Amazon wetlands
NASA, 2006-2008, $424,800

Hydrologic modeling of the central Amazon basin using remotely sensed data
Ohio State Univ. (NASA), 2005-2007, $72,700.

Nutrient dynamics in Amazon lakes.
National Science Foundation, 1979-1981; $189,000.
Co-Principal Investigator with T.R. Fisher (Univ. of Maryland)

Nutrient supply and primary productivity in Amazon floodplain lakes.
National Science Foundation, 1981-1985; $549,000.
Co-Principal Investigator with T.R. Fisher (Univ. of Maryland)

Nutrient dynamics on the Amazon floodplain: rates of input and recycling.
National Science Foundation, 1985-1987; $190,000.
Co-Principal Investigator with T.R. Fisher (Univ. of Maryland)

Periphyton on the Amazon River's floodplain: biomass, productivity and nutrient exchanges.
National Science Foundation, 1987-1990; $750,000.
Co-Principal Investigator with T.R. Fisher (Univ. of Maryland)

Analysis of floodplain dynamics in the Amazon River basin and coastal Georgia using synthetic aperature radar (SIR-B experiment).
NASA - Land Processes Program, 1984-1989; $113,000.
Principal Investigator with D. Simonett (UCSB) as Co-PI.

Methane flux measurements during the Amazon Ground Emissions Experiment
NASA - Biospheric Research Program, 1985-1986; $100,000.
Co-Principal Investigator with R.C. Harris as PI. (NASA, Langley).

Biogenic gas emissions and source dynamics along the Amazon River floodplain.
NASA - Biospheric Research Program, 1987; $21,000.
Co-Principal Investigator with S. MacIntyre (UCSB).

Amazon floodplain habitats and methane emissions to the atmosphere: an application of Landsat TM imagery.
California Space Institute, 1987-88; $20,500.

Determining the extent of inundation on subtropical and tropical river floodplains beneath vegetation of varying types and densities. (SIR-C experiment).
NASA - Land Processes Program, 1989-1997; $750,000.

Regional Amazon Model: Synoptic scale hydrological and biogeochemical cycles
NASA, 1994-1996; $60,000
Co-investigator with J. Richey (Univ. of Washington) as PI.

Measuring inundation area in tropical wetlands using passive microwave data: a feasibility study.
California Space Institute, 1991-1992, $12,000.

Biogeochemistry of dissolved gases in the Pantanal wetland of Brazil.
NASA-Earth Science and Applications Division, 1991-1994, $360,000.

JERS Amazon Multi-season Mapping Study.
NASA, 1995-1998, $176,000

Multi-scale analysis of inundation with microwave and optical remote sensing in the Amazon Basin: applications to biogeochemical measurements and modeling
NASA, 1998 to 2002, $585,000

Applications and validation of the SRTM DEM in the Amazon.
NASA, 2000-2003, $400,000
Co-Principal Investigator with D. Alsdorf (UCSB) as PI

Linking vegetative cover and inundation in Amazon wetlands with regional analyses of carbon dynamics
NASA, 2003-2006, $791,000.

2. **Ecology of saline lake**

Limnology and plankton in Mono Lake, California.
Los Angeles Department of Water and Power,
1982 - 2008; $3,000,000 (in sequential increments)

Ecology of Mono Lake, California.
National Geographic Society, 1979-1982; $15,000.

Ecology of *Artemia* in Mono Lake, California.
Conservation Endowment Fund and Santa Clara Audubon Society, 1982;

$11,000.
Packard Foundation, 1983-1984; $20,000.

Analysis of aquatic ecology of Mono Lake.
California Dept. of Fish and Game, 1986-1987; $60,000.

Internation

al symposium on inland saline waters - a renewable resource.
National Science Foundation, 1985-1986; $7,600.

Applications of AVIRIS and HIRIS to lakes and reserviors.
NASA, 1989-1996; $550,000.

Responses of a saline lake to environmental change from seasonal to decadal time scales
National Science Foundation, 1995- 2000; $250,000

3. **Atmospheric deposition and limnology of mountain lakes**

Nutrient deposition and alteration of food web structure in high Sierran lakes: Response by microbial communities
California Water Resources Center, 2004-2007, $58,000

Responses of high elevation, aquatic ecosystems to interannual climate variability and trends in nutrient inputs
National Science Foundation, 2007-2012, $420,000

Assessment of acidity of lakes and precipitation in the Sierra Nevada, California.
California Water Resources Center, 1980-1982; $38,000.

Ecological impacts of acid precipitation in the Sierra Nevada, California.
California Water Resources Center, 1982-1984; $37,000.

Effects of atmospheric deposition on ecosystems of Sequoia National Park:
Ecological impacts on aquatic habitats.
U.S. Department of Interior, National Park Service,
1982-1988; $83,000

Long Valley Reservoir eutrophication evaluation.
Los Angeles Department of Water and Power, 1982; $6,000.

Chemical and biological survey of lakes and streams located in the Emerald Lake watershed (Sequoia National Park) of the Sierra Nevada.
California Air Resources Board, 1984-1986; $430,000.

Snow deposition, melt, runoff and chemistry in a small alpine watershed, Emerald Lake basin, Sequoia National Park.
California Air Resources Board, 1984-1987; $390,000.
Co-Principal Investigator with J. Dozier (UCSB) as PI.

Survey of sensitivity of southern California lakes to acid deposition.
California Air Resources Board, 1985-1986; $70,000.

The hydrologic mass balance component of the Emerald Lake basin integrated watershed study.

California Air Resources Board, 1985-1987 $200,000.
Co-Principal Investigator with J. Dracup (UCLA) as PI.

An integrated watershed study: an investigation of the biota in the Emerald Lake system (Sequoia National Park) and stream channel experiments.

California Air Resources Board, 1986-1987; $147,000

Characterization of year-round sensitivity of California's montane lakes to acid deposition.

California Air Resources Board, 1986-1988, $237,000.

Evaluation of methods for measurement of snow for chemical analysis.

California Air Resources Board, 1986-1989; $113,000.
Co-Principal Investigator with N. Berg (US Forest Service) as PI.

Snow melt, rain, runoff and chemistry in a Sierra Nevada watershed.

California Air Resources Board, 1987-1988; $365,000.
Co-Principal Investigator with J. Dozier (UCSB) as PI.

An integrated watershed study: biological and chemical characteristics of Emerald Lake and streams and their responses to acidic deposition.

California Air Resources Board, 1987-1988; $370,000.

Hydrology, hydrochemical modeling and remote sensing in seasonally snow-covered alpine drainage basins.

NASA - Earth Observing System, 1989-2000; $7,500,000.
Co-Principal Investigator with J. Dozier (UCSB) as PI.

Long-term studies of lakes and watersheds in the Sierra Nevada: patterns and processes of surface water acidification.

California Air Resources Board, 1989-1992; $400,000.

Effects of atmospheric deposition on the ecosystems of Sequoia and Kings Canyon National Park: ecological impact on aquatic habitats.

Cooperative Park Service, 1989-1992; $22,800.

Monitoring of wet deposition in alpine areas in the Sierra Nevada.

California Air Resources Board, 1989-1993; $470,000.

Hydrologic and biogeochemical response of alpine catchments to global change.

U.S. Geological Survey, 1990-1992; $166,000.

Watershed biogeochemical processes affecting surface water in the Sierra Nevada, with emphasis on snowmelt episodes.

California Air Resources Board, 1991-1994; $352,600.
Co-Principal Investigator with A. Brown (UCSB) as PI.

Comparative analyses of high-altitude lakes and catchments in the Sierra Nevada: susceptibility to acidification.

California Air Resources Board, 1991-1994, $525,500.

Assessing the potential impact of acid deposition on high altitude aquatic ecosystems in California: integrrating ten years of investigations.
California Air Resources Board, 1994-1996, $54,000

Restoration of riparian habitat and assessment of riparian corridor fencing and other watershed BMP on nutrient loading and eutrophication in Crowley Lake, CA.
Lahontan Regional Water Quality Control Board, 2000 –2002, $245,000

Arsenic sources and the feasibility of using nitrogen isotopes to determine nitrogen sources to Crowley Lake.
Lahontan Regional Water Quality Control Board, 2000-2003, $45,000

Microbial and hydrological controls of nitrogen losses from alpine and chaparral ecosystems during seasonal transitions
National Science Foundation, 2001-2006, $795,000

4. **Coastal California ecosystems**

LTER: Land/Ocean interactions and the dynamics of kelp forest communities.
National Science Foundation, 2007-2012, $4,800,000
Co-Principal Investigator with D. Reed (UCSB) as PI

Development of a stream monitoring program for Santa Rosa Island, Channel Islands National Park
National Park Service, 2005-2006, $30,000

Sustainable Fisheries.
Paul G Allen Charitable Foundation, 2006-2009, $5,000,000
Co-Principal Investigator with S. Gaines (UCSB) as PI

LTER: Land/Ocean interactions and the dynamics of kelp forest communities.
National Science Foundation, 2000-2006, $4,200,000
Co-Principal Investigator with D. Reed (UCSB) as PI

Western Center for Estuarine Ecosystem Indicator Research
UC Davis (NASA), 2001-2006, $200,000

Assessment of coastal water resources and watershed conditions in an adjacent to Channel Islands National Park and Cabrillo National Monument
California Cooperative Ecosystem Studies Unit – National Park Service,
2005-2006, $80,000

5. **Other**

Facilities improvements at the Sierra Nevada Aquatic Research Laboratory.
National Science Foundation, 1985-1986; $95,000.
Co-Principal Investigator with H. Offen (UCSB) as PI.

Experimental stream system at the Sierra Nevada Aquatic Research Laboratory
National Science Foundation, 1989-1991; $175,000.
Co-Principal Investigator with D. Dawson and S. Cooper.

Data base center at the Sierra Nevada Aquatic Research Laboratory.
National Science Foundation, 1996-1998; $100,000.
Co-Principal Investigator with D. Dawson and S. Cooper

Outdoor science education follow-up in the classroom.
Eastern Sierra Interpretive Association, 1997-2002; $4,700
Co-Principal Investigator with D. Dawson

Outdoor science education at Valentine Eastern Sierra Reserve.
US Department of Agriculture, 1997-1999: $17,000
Co-Principal Investigator with D. Dawson