CURRICULUM VITA

PATRICK J. MULHOLLAND

Environmental Sciences Division, Oak Ridge National Laboratory
P.O. Box 2008, Oak Ridge, TN 37831-6036
Phone: 865-574-7304
Cell: 865-803-2300
Fax: 865-576-3989
e-mail: mulhollandpj@ornl.gov
webpage: http://www.esd.ornl.gov/people/mulholland/

Education:

Ph.D. University of North Carolina	Environmental Biology	1979
M.S. Cornell University	Environmental Engineering	1975
B.S. Cornell University	Civil Engineering	1973

Current and Past Positions:

2008-2009	NEON Visiting Scientist for development of stream experiments and observations
2002-present	Distinguished Research Staff Member, Environmental Sciences Division, ORNL
1994-2001	Senior Research Staff Member, Environmental Sciences Division, ORNL
1988-present	Adjunct Faculty Member, Department of Ecology and Evolutionary Biology, University of Tennessee, Knoxville
1981-1994	Research Staff Member, Environmental Sciences Division, ORNL
1979-1981	Research Associate, Environmental Sciences Division, ORNL
1974-1979	Graduate Research Assistant, Department of Environmental Sciences and Engineering, University of North Carolina, Chapel HillP.O. Box 2008

Research Areas:

Ecology of streams (nutrient cycling, primary production, algal-herbivore interactions, carbon dynamics and energy flow)
Biogeochemistry and land/water interactions in forested catchments
Watershed hydrology
Wetland ecology
Climate change effects on freshwater ecosystems

Honors/Awards:

American Geophysical Union Fellow, 2009.

U.S. Department of Defense/Strategic Environmental Research and Development Program (SERDP) Project of the Year, 2007 (Riparian ecosystem management at military installations: Determination of impacts and evaluation of restoration strategies, SI-1186).

Contribution to Nobel Peace Prize 2007, presented for participation in Working Group II, Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), Lead co-author of Chapter 10, Hydrology and Freshwater Ecology, 1996.

AAAS Fellow, 1997.

Distinguished Alumni Award, Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, 1995.

Scientific Achievement Award, Environmental Sciences Division, Oak Ridge National Laboratory, 1991.

Books:

Jones, J. B., Jr., and P.J. Mulholland (editors). 2000. Streams and Ground Waters. Academic Press, San Diego, CA.

Journal Articles, Book Chapters and Reports:

Kuenzler, E. J., P. J. Mulholland, L. A. Ruley, and R. P. Sniffen. 1977. Water quality in North Carolina Coastal Plain streams and effects of channelization. University of North Carolina Water Resources Research Institute Report No. 127. 160 pp.

Mulholland, P. J., and E. J. Kuenzler. 1979. Organic carbon export from upland and forested wetland watersheds. Limnology and Oceanogrophy 24:960-966.

Kuenzler, E. J., P. J. Mulholland, L. A. Yarbro, and L. A. Smock. 1980. Distributions and budgets of carbon phosphorus, iron, and manganese in a floodplain swamp ecosystem. University of North Carolina Water Resources Research Institute Report No. 157. 234 pp.

Mulholland, P. J. 1981. Organic carbon flow in a swamp-stream ecosystem. Ecological Monographs 51:307-322.

Mulholland, P. J. 1981. Formation of particulate organic carbon in water from a southeastern swamp-stream. Limnology and Oceanography 26:790-795.

Mulholland, P. J., L. A. Yarbro, R. P. Sniffen, and E. J. Kuenzler. 1981. Effect of floods on nutrient

and metal concentrations in a Coastal Plain stream. Water Resources Research 17:758-764.

Mulholland, P. J. 1981. Deposition of river-borne organic carbon in floodplain wetlands and deltas, pp. 142-172. In: The flux of carbon in the world's rivers to the oceans, Proceedings National Research Council Workshop. CONF-8009140. National Technical Information Service, Springfield, Virginia.

Mulholland, P. J. 1981. Inland aquatic ecosystems and the perturbed global carbon cycle. Institute for Energy Analysis Research Memorandum, ORAU/IEA-81-7(n), Oak Ridge Associated Universities, Oak Ridge, Tennessee. 52 pp.

Reed, R. M., L. D. Voorhees, and P. J. Mulholland. 1982. Using peat for energy: potential environmental constraints, pp 675-691. In: Symposium Proceedings, Peat as an Energy Alternative II., Institute of Gas TEchnology, Chicago, Illinois.

Cada, G. F., and P. J. Mulholland. 1982. Guidance manual for Department of Energy compliance with the Corps of Engineers permits on dredging and filling activities. DOE/EP 0060. U.S. Department of Energy, Office of Environmental Compliance, Washington, D.C. 17pp.

Mulholland, P. J., and J. A. Watts. 1982. Transport of organic carbon to the oceans by rivers of North America: a synthesis of existing data. Tellus 34:176-186.

Mulholland, P. J., and J. W. Elwood. 1982. The role of lake and reservoir sediments as sinks in the perturbed global carbon cycle. Tellus 34:490-499.

Newbold, J. D., P. J. Mulholland, J. W. Elwood, and R. V. O'Neill. 1982. Organic carbon spiralling in stream ecosystems. Oikos 38:266-272.

Mulholland, P. J., J. D. Newbold, J. W. Elwood, and C. L. Hom. 1983. The effect of grazing intensity on phosphorus spiralling in autotrophic streams. Oecologia 58:358-366.

Voorhees, L. D., M. J. Sale, J. W. Webb, and P. J. Mulholland. 1984. Long-term stabilization of uranium mill tailings, pp 381-393. In: Proceedings International Atomic Energy Agency, Radioactive Waste Management, Vol. 4, International Atomic Energy Agency, Vienna, Austria.

Yarbro, L. A., E. J. Kuenzler, P. J. Mulholland, and R. P. Sniffen. 1984. Effects of stream channelization on exports of nitrogen and phosphorus from North Carolina Coastal Plain watersheds. Journal of Environmental Management 8:151-160.

Mulholland, P. J., J. W. Elwood, J. D. Newbold, J. R. Webster, L. A. Ferren, and R. P. Perkins. 1984. Phosphorus uptake by decomposing leaf detritus: effect of microbial biomass and activity. Verh. Internat. Verein Limnol. 22:1899-1905.

Mulholland, P. J., J. W. Elwood, J. D. Newbold, L. A. Ferren, and J. R. Webster. 1985. Phosphorus

spiralling in a woodland stream: seasonal variations. Ecology 66:1012-1023.

Mulholland, P. J., J. W. Elwood, J. D. Newbold, and L. A. Ferren. 1985. Effect of a leaf-shredding invertebrate on organic matter dynamics and phosphorus spiralling in heterotrophic laboratory streams. Oecologia 66:199-206.

Baes, C. F., Jr., A. Bjorkstrom, and P. J. Mulholland. 1985. Uptake of carbon dioxide by the oceans, pp. 81-112. In: J. R. Trabalka (ed.), Atmospheric Carbon Dioxide and the Global Carbon Cycle, U.S. Department of Energy, Carbon Dioxide Research Division, DOE/ER-0239.

Mulholland, P. J. 1985. Pretreatment hydrologic monitoring and corrective measures implementation at Liquid Waste Trench 7. ORNL/CF-85/471, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Mulholland, P. J., J. W. Elwood, A. V. Palumbo, and R. J. Stevenson. 1986. Effect of stream acidification on periphyton composition, chlorophyll, and productivity. Canadian Journal of Fisheries and Aquatic Sciences 43:1846-1858.

Segars, J. E., R. A. Minear, J. W. Elwood, and P. J. Mulholland. 1986. Chemical characterization of soluble phosphorus forms along a hydrologic flowpath of a forested stream ecosystem. ORNL/TM-9737. Oak Ridge National Laboratory, Oak Ridge, TN.

Minear, R. A., J. W. Elwood, and P. J. Mulholland. 1986. Phosphorus chemical form differentiation in aquatic environments, pp. 208-218. In: J. N. Lester, R. Perry, and R. N. Sterritt (eds.), Proceedings International Conference on Chemicals in the Environment, Selper Limited, London.

Palumbo, A. V., M. A. Bogle, R. R. Turner, J. W. Elwood, and P. J. Mulholland. 1987. Bacterial communities in acidic and circumneutral streams. Applied and Environmental Microbiology 53:337-344.

Palumbo, A. V., P. J. Mulholland, and J. W. Elwood. 1987. Extraction with DMSO to simultaneously measure periphyton photosynthesis, chlorophyll, and ATP. Limnology and Oceanography 32:464-471.

Mulholland, P. J., A. V. Palumbo, J. W. Elwood, and A. D. Rosemond. 1987. Effects of acidification on leaf decomposition in streams. Journal of the North American Benthological Society 6:147-158.

Mulholland, P. J. 1987. Stream protection: the management of rivers for instream uses (book review). Journal of the North American Benthological Society 6:145-146.

Palumbo, A. V., P. J. Mulholland, J. W. Elwood. 1987. Microbial communities on leaf material protected from macroinvertebrate grazing in acidic and circumneutral streams. Canadian Journal of Fisheries and Aquatic Sciences 44:1064-1070.

Farrell, M. P., V. H. Dale, D. L. DeAngelis, L. K. Mann, P. J. Mulholland, R. V. O'Neill, T.-H. Peng, W. M. Post, and A. M. Solomon. 1988. Research Plan: Global Carbon Cycle Component of Energy Systems, The Carbon Dioxide Research Program, U. S. Department of Energy, Washington, D. C.

Turner, R. R., M. A. Bogle, M. A. Zeiler, P. J. Mulholland, J. W. Elwood, and R. B. Cook. 1988. Aluminum forms in stream sediment: relation to bedrock geology and water chemistry, pp. 118-120. In: S. E. Lindberg and T. C. Hutchinson (eds.), Proceedings Sixth International Conference on Heavy Metals in the Environment, CEP Consultants, Ltd., Edinborough, United Kingdom.

Minear, R. A., J. E. Segars, J. W. Elwood, and P. J. Mulholland. 1988. Separation of inositol phosphates by high performance ion chromatography. The Analyst 113: 645-651.

Palumbo, A. V., P. J. Mulholland, and J. W. Elwood. 1988. Epilithic microbial populations and leaf decomposition in acid stressed streams, pp. 69-90. In: S. S. Rao (ed.), Microbial Interactions in Acid Stressed Aquatic Ecosystems, CRC Press, Boca Raton, Florida.

Mulholland, P. J., R. A. Minear, and J. W. Elwood. 1988. Production of soluble, high molecular weight phosphorus and its subsequent uptake by stream detritus. Verh. Internat. Verein Limnol. 23: 1190-1197.

Elwood, J. W., P. J. Mulholland, and R. E. Perkins. 1988. Phosphorus dynamics in a stream microbial community. Verh. Internat. Verein Limnol. 23: 1198-1208.

Elwood, J. W., and P. J. Mulholland. 1989. Effects of acid precipitation on stream ecosystems, pp. 85-136. In: D. C. Adriano et al. (eds), Acid Precipitation: Biological and Ecological Effects, Vol. 4, Springer-Verlag, New York.

Olsen, C. R., M. Thein, I.L. Larsen, P. D. Lowry, P. J. Mulholland, N. H. Cutshall, J. T. Byrd, and H. L. Windom. 1989. Plutonium, lead-210, and carbon isotopes in the Savannah Estuary: riverborne versus marine sources. Environmental Science and Technology 23:1475-1481.

DeAngelis, D. L., P. J. Mulholland, A. V. Palumbo, A. D. Steinman, M. S. Huston, and J. W. Elwood. 1989. Nutrient cycling and food web stability. Annual Review of Ecology and Systematics 20:71-95.

DeAngelis, D. L., P. J. Mulholland, J. W. Elwood, A. V. Palumbo, and A. D. Steinman. 1990. Biogeochemical cycling constraints on stream ecosystem recovery. Environmental Management 14:685-697.

Mulholland, P. J., C. N. Dahm, M. B. David, D. M. DiToro, T. R. Fisher, H. F. Hemond, I. Kogel-Knabner, M. H. Meybeck, J. L. Meyer, and J. R. Sedell. 1990. What are the temporal and spatial variations of organic acids at the ecosystem level? pp. 315-329. In: E. M. Perdue and E. T. Gjessing (eds.), Organic Acids in Aquatic Ecosystems, John Wiley and Sons, Chichester, U.K.

Steinman, A. D., P. J. Mulholland, A. V. Palumbo, J. W. Elwood, D. L. DeAngelis, and T. L. Flum. 1990. Resistance of stream ecosystems to light elimination. Oikos 58:80-90.

Mulholland, P. J., G. V. Wilson, and P. M. Jardine. 1990. Hydrogeochemical response of a forested watershed to storms: effects of preferential flow along shallow and deep pathways. Water Resources Research 26:3021-3036.

Mulholland, P. J., A. D. Steinman, and J. W. Elwood. 1990. Measurement of phosphorus uptake length in streams: comparison of radiotracer and stable PO_4 releases. Canadian Journal of Fisheries and Aquatic Sciences 47:2351-2357.

Wanninkhof, R., P. J. Mulholland, and J. W. Elwood. 1990. Gas exchange rates for a first order stream determined with deliberate and natural tracers. Water Resources Research 26:1621-1630.

Mulholland, P. J., A. D. Steinman, A. V. Palumbo, J. W. Elwood, and D. B. Kirschtel. 1991. Role of nutrient recycling and herbivory in regulating periphyton communities in laboratory streams. Ecology 72: 966-982.

Post, W. M., V. H. Dale, D. L. DeAngelis, L. K. Mann, P. J. Mulholland, R. V. O'Neill, T. -H. Peng, and M. P. Farrell. 1991. Formulating energy policies related to fossil fuel use: critical uncertainties in the global carbon cycle. Pp. 77-95 in: Southeast Regional Climate Symposium, Global Change: a Southern Perspective, South Carolina Water Resources Commission, Columbia, SC.

Mulholland, P. J., A. D. Steinman, A. V. Palumbo, D. L. DeAngelis, and T. E. Flum. 1991. Influence of nutrients and grazing on the response of stream periphyton communities to a scour disturbance. Journal of the North American Benthological Society 10: 127-142.

Steinman, A. D., P. J. Mulholland, A. V. Palumbo, T. E. Flum, and D. L. DeAngelis. 1991. Resilience of lotic ecosystems to a light elimination disturbance. Ecology 72: 1299-1313.

DeAngelis, D. L., W. M. Post, P. J. Mulholland, A. D. Steinman, and A. V. Palumbo. 1991. Nutrient limitation and the structure of food webs. Ecology International Bulletin 19: 15-28.

Steinman, A.D., P. J. Mulholland, and D. B. Kirschtel. 1991. Interactive effects of nutrient reduction and herbivory on biomass, taxonomic structure, and phosphorus uptake in lotic periphyton communities. Can. J. Fish. Aquat. Sci. 48:1951-1959.

Mulholland, P. J., and D. R. Lenat. 1992. Streams of the southeastern Piedmont: Atlantic drainage, pp. 193-231. In: C. T. Hackney, S. M. Adams, and W. A. Martin (eds.), Biodiversity of the Southeastern United States, Aquatic Communities, John Wiley and Sons, Inc., New York.

Mulholland, P. J., and C. R. Olsen. 1992. Marine origin of Savannah River Estuary sediments: evidence from radioactive and stable isotope tracers. Estuarine, Coastal and Shelf Science 34:95-107.

Post, W. M., F. Chavez, P. J. Mulholland, J. Pastor, T.-H. Peng, K. Prentice, and T. Webb III. 1992. Climate feedbacks in the global carbon cycle, pp. 392-412. In: D. Dunnette and R. O'Brien (eds.), The Science of Global Change: The Impact of Human Activities on the Environment, American Chemical Society, Washington, D.C.

Mulholland, P. J. 1992. Biogeochemistry of small watersheds (meeting review). Bulletin of the Ecological Society of America 73:61-63.

Mulholland, P. J., C. T. Driscoll, J. W. Elwood, M. P. Osgood, A. V. Palumbo, A. D. Rosemond, M. E. Smith, and C. Schofield. 1992. Relationships between stream acidity and bacteria, macroinvertebrates, and fish: a comparison of north temperate and south temperate mountain streams, USA. Hydrobiologia 239:7-24.

Steinman, A. D., P. J. Mulholland, and W. R. Hill. 1992. Functional responses associated with growth form in stream algae. Journal of the North American Benthological Society 11:229-243.

Genereux, D., H. Hemond, and P. Mulholland. 1992. Field studies of streamflow generation using natural and injected tracers on Bickford and Walker Branch Watersheds. ORNL/TM-12018, Oak Ridge National Laboratory, Oak Ridge Tennessee.

Rosemond, A. D., S. R. Reice, J. W. Elwood, and P. J. Mulholland. 1992. The effects of stream water acidity on benthic invertebrate communities in the southeast U.S. Freshwater Biology 27:193-209.

Steinman, A. D., P. J. Mulholland, A. V. Palumbo, D. L. DeAngelis, and T. E. Flum. 1992. Stability characteristics of lotic periphyton following repeated chlorine exposures. Ecological Applications 2:341-355.

Mulholland, P. J. 1992. Regulation of nutrient concentrations in a temperate forest stream: roles of upland, riparian, and instream processes. Limnology and Oceanography 37:1512-1526.

Mulholland, P. J., and A. D. Rosemond. 1992. Periphyton response to longitudinal nutrient depletion in a first-order stream. Journal of the North American Benthological Society 11:405-419.

Olsen, C. R., I. L. Larsen, P. J. Mulholland, K. L. Von Damm, J. M. Grebmeier, L. C. Schaffner, R. J. Diaz, and M. M. Nichols. 1993. The concept of an equilibrium surface applied to particle sources and contaminant distributions in estuarine sediments. Estuaries 16:683-696.

Genereux, D. P., H. F. Hemond, and P. J. Mulholland. 1993. Spatial and temporal variability in streamflow generation on the West Fork of Walker Branch Watershed. Journal of Hydrology 142:137-166.

Genereux, D. P., H. F. Hemond, and P. J. Mulholland. 1993. Use of ^{222}Rn and Ca as tracers in a

three-end-member mixing model for streamflow generation on the West Fork of Walker Branch Watershed. Journal of Hydrology 142:167-211.

Rosemond, A. D., P. J. Mulholland, and J. W. Elwood. 1993. Top-down and bottom-up control of periphyton in a woodland stream: effects of and between nutrients and herbivores. Ecology 74:1264-1280.

Mulholland, P. J. 1993. Hydrometric and stream chemistry evidence of three storm flowpaths in Walker Branch Watershed. J. of Hydrology 151:291-316.

Turner, R. S., P. J. Hanson, M. A. Huston, C. T. Garten, Jr., and P. J. Mulholland. 1993. A large-scale throughfall manipulation experiment on Walker Branch Watershed, pp. 96-105. In: L. Rasmussen, T. Brydges, and P. Mathy, Experimental Manipulations of Biota and Biogeochemical Cycling in Ecosystems, Publication No. EUR 14914 EN, Commission of the European Communities, Brussels, Belgium.

Mulholland, P. J. 1993. The fate of nutrients in streams. Oak Ridge National Laboratory Review 26:8-15.

Mulholland, P. J. 1993. River conservation and management. P. J. Boon, P. Calow, and G. E. Petts (eds.). J. North American Benthological Society 12:100-101 (book review).

Cook, R. B., J. W. Elwood, R. R. Turner, M. A. Bogle, P. J. Mulholland, and A. V. Palumbo. 1994. Acid-base chemistry of high-elevation streams in the Great Smoky Mountains. Water, Air and Soil Pollution 72:331-356.

Mulholland, P. J., A. D. Steinman, E. R. Marzolf, D. R. Hart, and D. L. DeAngelis. 1994. Effect of periphyton biomass on hydraulic characteristics and nutrient cycling in streams. Oecologia 98:40-47.

Marzolf, E. R., P. J. Mulholland, and A. D. Steinman. 1994. Improvements to the diurnal upstream-downstream dissolved oxygen change technique for determining whole-stream metabolism in small streams. Can. J. Fish. Aquat. Sci. 51:1591-1599.

Hunsaker, C. T., C. T. Garten, and P. J. Mulholland. 1994. Modeling nitrogen cycling in forested watersheds of Chesapeake Bay, pp. 481-493. In: Proceedings of the Water Environment Federation 67th Annual Conference and Exposition, Volume 4, Surface Water Quality and Ecology, Chicago, Ill.

DeAngelis, D. L., M. Loreau, D. Neergaard, P. J. Mulholland, and E. R. Marzolf. 1995. Modeling nutrient-periphyton dynamics in streams: the importance of transient storage zones. Ecol. Modelling 80:149-160.

Steinman, A. D., P. J. Mulholland, and J. J. Beauchamp. 1995. Phosphorus cycling and biomass accrual in stream periphyton communities. Journal of the North American Benthological Society 14:

371-381.

Mulholland, P. J., E. R. Marzolf, S. P. Hendricks, R. V. Wilkerson, and A. K. Baybayan. 1995. Longitudinal patterns of nutrient cycling and periphyton characteristics in streams: a test of upstream-downstream linkage. Journal of the North American Benthological Society 14:357-370.

Mulholland, P. J. 1996. Role in nutrient cycling, pp.609-639. In: R. J. Stevenson, M. L. Bothwell, and R. L. Lowe (eds.), Benthic Algal Ecology in Freshwater Ecosystems, Academic Press, New York.

Steinman, A. D., and P. J. Mulholland. 1996. Measurement of phosphorus limitation, uptake, and turnover, pp. 161-190. In: F. R. Hauer and G. A. Lamberti (eds.), Methods in Stream Ecology, Academic Press, San Diego, CA.

Arnell, N., B. Bates, H. Lang, J. Magnuson, and P. Mulholland. 1996. Hydrology and freshwater ecology (Chapter 10), pp. 325-363. In: Watson, R. T., M. C. Zinyowera, and R. H. Moss (eds.), Climate Change 1995, Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses, Contribution of Working Group II to the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), Cambridge University Press.

Mulholland, P. J. 1997. Organic matter dynamics in the West Fork of Walker Branch, Tennessee, USA. Journal of the North American Benthological Society 16:61-67.

Mulholland, P. J. 1997. Dissolved organic matter concentration and flux in streams. Journal of the North American Benthological Society 16: 131-141.

Mulholland, P. J., W. K. Roy, M. G. Ryon, E. M. Schilling, J. G. Smith, J. W. Webb, D. C. West, D. J. Awl, J. M. Mitchell, L. R. Pounds, B. A. Rosensteel, and M. J. Harvey. 1997. Parcel ED-1 Mitigation Plan Implementation Annual Report, October 1997. ORNL/M-6371.

Mulholland, P. J., G. R Best, C. C. Coutant, G. M. Hornberger, J. L. Meyer, P. J. Robinson, J. R. Stenberg, R. E. Turner, F. Vera-Herrera, and R. G. Wetzel. 1997. Effects of climate change on freshwaters of the Southeastern United States and the Gulf Coast of Mexico. Hydrological Processes 11:949-970.

Mulholland, P. J., E. R. Marzolf, J. R. Webster, D. R. Hart, and S. P. Hendricks. 1997. Evidence that hyporheic zones increase heterotrophic metabolism and phosphorus uptake in forest streams. Limnol. Oceanogr. 42:443-451. ESD #4620.

Mulholland, P. J., and W. R. Hill. 1997. Seasonal patterns in streamwater nutrient and dissolved organic carbon concentrations: Separating catchment flow path and in-stream effects. Water Resources Research 33:1297-1306. ESD #4634.

Jones, J. B., Jr., and P. J. Mulholland. 1998. Influence of drainage basin topography and elevation

on carbon dioxide and methane supersaturation of stream water. Biogeochemistry 40: 57-72. ESD# 4728.

Jones, J. B., Jr., and P. J. Mulholland. 1998. Carbon dioxide variation in a hardwood forest stream: an integrative measure of whole catchment ecosystem respiration. Ecosystems 1: 183-196. ESD# 4729.

Shriner, D. S., R. B. Street, R. Ball, D. D=Amours, K. Duncan, D. Kaiser, A. Maarouf, L. Mortsch, P. Mulholland, R. Neilson, J. A. Patz, J. D. Scheraga, J. G. Titus, H. Vaughan, and M. Weltz. 1998. North America, pp. 253-330. In: R. T. Watson, M. C. Zinyowera, and R. H. Moss (eds.), The Regional Impacts of Climate Change, An Assessment of Vulnerability. Special Report of International Panel on Climate Change Working Group II, Cambridge University Press, Cambridge, United Kingdom.

Jones, J. B., Jr., and P. J. Mulholland. 1998. Methane input and evasion in a hardwood forest stream: effects of subsurface flow from shallow and deep pathways. Limnology and Oceanography 43: 1243-1250. ESD #4764.

Mulholland, P. J., and M. J. Sale. 1998. Impacts of climate change on water resources: findings of the IPCC Regional Assessment of Vulnerability for North America. Water Resources Update, Universities Council on Water Resources, Issue No. 112, pages10-15, Summer 1998.
ESD #4906.

Marzolf, E. R., P. J. Mulholland, and A. D. Steinman. 1998. Reply: Improvements to the diurnal upstream-downstream dissolved oxygen change technique for determining whole-stream metabolism in small streams. Can. J. Fish. Aquat. Sci. 55: 1786-1787.

Hart, D. R., P. J. Mulholland, E. R. Marzolf, D. L. DeAngelis, and S. P. Hendricks. 1999. Relationships between hydraulic parameters in a small stream under varying flow and seasonal conditions. Hydrologic Processes 13:1497-1510. ESD Pub. #4835.

Mulholland, P. J., E. R. Marzolf, J. R. Webster, D. R. Hart, and S. P. Hendricks. 1999. Erratum: Evidence that hyporheic zones increase heterotrophic metabolism and phosphorus uptake in forest streams. Limnol. Oceanogr. 44:230-231.

Webb, J.R., M.B. Adams, J.N. Galloway, H. Van Miegroet, P.J. Mulholland, and W.T. Swank. 1999. Southern Appalachian Mountain Region. pp. 42-46; 75-91 in J.R. Gosz and P. Murdoch, Integrating the Nation's Environmental Monitoring and Research Networks and Programs: An Exercise to Demonstrate the Value of Index Areas in a National Network. A Report prepared for the Office of Science and Technology Policy, Washington, D.C.

Mulholland, P. J., and D. L. DeAngelis. 2000. Effect of surface/subsurface exchange on nutrient dynamics and nutrient spiraling in streams, pp. 149-166. In: J. B. Jones, Jr. and P. J. Mulholland (eds.), Streams and Ground Waters. Academic, San Diego, CA. ESD #4773.

Meyer, J. L., M. J. Sale, P. J. Mulholland, and N. L. Poff. 1999. Impacts of climate change on aquatic ecosystem functioning and health. Journal of the American Water Resources Association 35:1373-1386. ESD #4942.

Mulholland, P. J., J. L. Tank, D. M. Sanzone, W. M.. Wollheim, B. J. Peterson, J. R. Webster, and J. L. Meyer. 2000. Food Web Relationships in a Forested Stream Determined by Natural Abundance and Experimental ^{15}N-Tracer Studies. Journal of the North American Benthological Society 19:145-157. ESD #4959.

Mulholland, P. J., J. L. Tank, D. M. Sanzone, W. M.. Wollheim, B. J. Peterson, J. R. Webster, and J. L. Meyer. 2000. Nitrogen Cycling in a Forest Stream Determined by a ^{15}N Tracer Addition. Ecological Monographs 70(3):471-493. ESD #4901.

Rosemond, A. D., P. J. Mulholland, and S. H. Brawley. 2000. Seasonally shifting limitation of stream periphyton: response of algal populations and assemblage biomass and productivity to variation in light, nutrients, and herbivores. Canadian Journal of Fisheries and Aquatic Sciences 57:66-75. ESD #4905.

Tank, J. L., J. L. Meyer, D. M. Sanzone, P. J. Mulholland, J. R. Webster, B. J. Peterson, W. M. Wollheim, and N. E. Leonard. 2000. Analysis of nitrogen cycling in a forest stream during autumn using a ^{15}N tracer addition. Limnology and Oceanography 45:1013-1029. ESD #5029.

Mulholland, P. J., J. L. Tank, D. M. Sanzone, J. R. Webster, W. Wollheim, B. J. Peterson, and J. L. Meyer. 2001. Ammonium and nitrate uptake lengths in a small forested stream determined by ^{15}N tracer and short-term nutrient enrichment experiments. Verh. Internat. Verein Limnol. 27:1320-1325. ESD #4813.

Tank, J. L., P. J. Mulholland, J. L. Meyer, W. B. Bowden, J. R. Webster, and B. J. Peterson. 2001 Contrasting food web linkages for the grazing pathway in 3 temperate forest streams using ^{15}N as a tracer. Verh. Internat. Verein. Limnol. 27:2832-2835.

Wilson, K. B., P. J. Hanson, P. J. Mulholland, D. D. Baldocchi, and S. D. Wullschleger. 2001. A comparison of methods for determining forest evapotranspiration and its components across scales: sap-flow, soil water budget, eddy covariance and catchment water balance. Agricultural and Forest Meteorology 106:153-168. ESD #5016.

Mulholland, P. J. 2001. Assessment and control of nonpoint source pollution of aquatic ecosystems: A practical approach (book review). Limnology and Oceanography 46: 212.

Peterson, B. J., W. M. Wollheim, P. J. Mulholland, J. R. Webster, J. L. Meyer, J. L. Tank, E. Marti, W. B. Bowden, H. M. Valett, A. E. Hershey, W. H. McDowell, W. K. Dodds, S. K. Hamilton, S. Gregory, and D. J. Morrall. 2001. Control of nitrogen export from watersheds by headwater streams. Science 292:86-90.

Hill, W. R., P. J. Mulholland, and E. R. Marzolf. 2001. Stream ecosystem responses to forest leaf emergence in spring. Ecology 82:2306-2319. ESD #5050.

Mulholland, P. J., C. S. Fellows, J. L. Tank, N. B. Grimm, J. R. Webster, S. K. Hamilton, E. Marti, L. Ashkenas, W. B. Bowden, W. K. Dodds, W. H. McDowell, M. J. Paul, and B. J. Peterson. 2001. Inter-biome comparison of factors controlling stream metabolism. Freshwater Biology 46:1503-1517. ESD Publ. #5071.

Martin, L. A., P. J. Mulholland, J. R. Webster, and H. M. Valett. 2001. Denitrification in sediments of headwater streams in the southern Appalachian Mountains, USA. Journal of the North American Benthological Society 20:505-519.

Thomas, S.A., H.M. Valett, J.R.Webster, P.J. Mulholland, C.S. Fellows, C.N. Dahm, and C.G. Peterson. 2001. Nitrogen retention in headwater streams the influence of groundwater surface water interaction. In Optimizing Nitrogen Management in Food and Energy Production and Environmental ProtectionProceedings of the 2nd International Nitrogen Conference on Science and Policy. TheScientificWorld 1: 623-631.

Sanzone, D. M., J. L. Tank, P. J. Mulholland, J. L. Meyer, and S. E. G. Findlay. 2001. Microbial incorporation of nitrogen in stream detritus. Hydrobiologia 464:27-35.

Findlay, S., J. Tank, S Dye, H. M. Valett, P. Mulholland, W. H. McDowell, S. Johnson, S. K. Hamilton, J. Edmonds, W. K. Dodds, W. B. Bowden. 2002. A cross-system comparison of bacterial and fungal biomass in detritus pools of headwater streams. Microbial Ecology 43:55-66.

Dodds, W. K., A. J. Lopez, W. B. Bowden, S. Gregory, N. B. Grimm, S. K. Hamilton, A. E. Hershey, E. Marti, W. H. McDowell, J. L. Meyer, D. Morrall, P. J. Mulholland, B. J. Peterson, J. L. Tank, H. M. Valett, J. R. Webster, and W. Wollheim. 2002. Nitrogen uptake as a function of concentration in streams. Journal of the North American Benthological Society 21:206-220.

Mulholland, P. J., J. L. Tank, J. R. Webster, W. B. Bowden, W. K. Dodds, S. V. Gregory, N. B. Grimm, S. K. Hamilton, S. L. Johnson, E. Marti, W. H. McDowell, J. Merriam, J. L. Meyer, B. J. Peterson, H. M. Valett, and W. M. Wollheim. 2002. Can uptake length in streams be determined by nutrient addition experiments? Results from an inter-biome comparison study. Journal of the North American Benthological Society 21:544-560.

Thomas, S. A., H. M. Valett, J. R. Webster, and P. J. Mulholland. 2003. A regression approach to estimating reactive solute uptake in advective and transient storage zones of stream ecosystems. Advances in Water Resources 26:965-976.

Mulholland, P. J. 2003. Large scale patterns in DOC concentration, flux, and sources, pp. 139-159. In: S. Findlay and R. Sinsabaugh (ed.), Aquatic Ecosystems: Interactivity of Dissolved Organic Matter, Elsevier Science.

Webster, J. R., P. J. Mulholland, J. L. Tank, H. M. Valett, W. K. Dodds, B. J. Peterson, W. B. Bowden, C. N. Dahm, S. Findlay, S. V. Gregory, N. B. Grimm, S. K. Hamilton, S. L. Johnson, E. Marti, W. H. McDowell, J. L. Meyer, D. D. Morrall, S. A. Thomas, W. M. Wollheim. 2003. Factors affecting ammonium uptake in streams – an interbiome perspective. Freshwater Biology 48:1329-1352.

Jones, J. B., Jr., E. H. Stanley, and P. J. Mulholland. 2003. Long-term decline in carbon dioxide supersaturation in rivers across the contiguous United States. Geophysical Research Letters 30 (10):1495-1499.

Jones, J. B., E. H. Stanley, and P. J. Mulholland. 2003. Increased alkalinity in the Mississippi. Science 302:985 (letter).

DeAngelis, D. L., and P. J. Mulholland. 2004. Dynamic consequences of allochthonous inutrient input to freshwater systems, pp. 12-24. In: Food Webs at the Landscape Level, G. A. Polis, M. E. Power, and G. R. Huxel (eds.), The University of Chicago Press, Chicago, IL.

Mulholland, P. J., H. M. Valett, J. R. Webster, S. A. Thomas, L. N. Cooper, S. K. Hamilton, and B. J. Peterson. 2004. Stream denitrification and total nitrate uptake rates measured using a field 15N isotope tracer approach. Limnology and Oceanography 49(3): 809-820.

Dale, V H., Mulholland, P., Olsen, L. M., Feminella, J., Maloney, K., White, D. C., Peacock, A., and Foster, T., "Selecting a Suite of Ecological Indicators for Resource Management," Landscape Ecology and Wildlife Habitat Evaluation: Critical Information for Ecological Risk Assessment, Land-Use Management Activities and Biodiversity Enhancement Practices, ASTM STP 1458, L. A. Kapustka, H. Gilbraith, M. Luxon, and G. R. Biddinger, Eds., ASTM International, West Conshohocken, PA, 2004.

Mulholland, P. J. 2004. The importance of in-stream uptake for regulating stream concentrations and outputs of N and P from a forested watershed: evidence from long-term chemistry records for Walker Branch Watershed. Biogeochemistry 70: 403-426.

Houser, J. N., P. J. Mulholland, and K. O. Maloney. 2005. Catchment disturbance and stream metabolism: patterns in stream respiration and gross primary production along a gradient of upland soil and vegetation disturbance. Journal of the North American Benthological Society 24(3): 538-552.

Maloney, K. O, P.J. Mulholland, and J.W. Feminella. 2005. The effects of catchment-scale military land use on stream physical and organic matter variables in small Southeastern Plains catchments (USA). Journal of Environmental Management 35:677-691.

Mulholland, P. J., J. N. Houser, and K. O. Maloney. 2005. Stream diurnal dissolved oxygen profiles as indicators of in-stream metabolism and disturbance effects: Fort Benning as a case study.

Ecological Indicators 5:243-252.

Payn, R. A., J. R. Webster, P. J. Mulholland, H. M. Valett, and W. K. Dodds. 2005. Estimation of stream nutrient uptake from nutrient addition experiments. Limnology and Oceanography: Methods 3:174-182.

Houser, J. N., P. J. Mulholland, and K. O. Maloney. 2006. Upland disturbance affects headwater stream nutrients and suspended sediments during baseflow and stormflow. Journal of Environmental Quality 35: 352-365.

Jardine, P. M., M. A. Mayes, P. J. Mulholland, P. J. Hanson, J. R. Tarver, R. J. Luxmoore, J. F. McCarthy, and G. V. Wilson. 2006. Vadose zone flow and transport of dissolved organic carbon at multiple scales in humid regimes. Vadose Zone Journal 5: 140-152.

Mulholland, P. J., S. A. Thomas, H. M. Valett, J. R. Webster, and J. Beaulieu. 2006. Effects of light on nitrate uptake in small forested streams: diurnal and day-to-day variations. Journal of the North American Benthological Society 25: 583-595.

Steinman, A. D. and P. J. Mulholland. 2006. Phosphorus limitation, uptake, and turnover in benthic stream algae, Chapter 9, pp 187-212. In: F. R. Hauer and G. A. Lamberti (eds), Methods in Stream Ecology, 2nd edition, Academic Press.

Fellows, C. S., H. M. Valett, C. N. Dahm, P. J. Mulholland, and S. A. Thomas. 2006. Coupling nutrient uptake and energy flow in headwater streams. Ecosystems 9: 788-804.

Roberts, B. J., P. J. Mulholland, and J. N. Houser. 2007. Effects of upland disturbance and in-stream restorations on hydrodynamics and ammonium uptake in headwater streams. Journal of the North American Benthological Society 26: 38-53.

Roberts, B. J., P. J. Mulholland, and W. R. Hill. 2007. Multiple scales of temporal variability in ecosystem metabolism rates: results from two years of continuous monitoring in a forested headwater stream. Ecosystems 10:588-606. doi: 10.1007/s10021-007-9059-2.

Roberts B.J. and P. J. Mulholland. 2007. In-stream biotic control on nutrient biogeochemistry in a forested headwater stream, West Fork of Walker Branch. J. Geophys. Res 112:G04002 , doi: 10.1029/2007JG000422.

Maloney, K.O., J. W. Feminella, R. M. Mitchell, S. A. Miller, P. J. Mulholland, and J. N. Houser. 2008. Land use legacies and small streams: the relationships between historic and contemporary land use patterns with present-day stream conditions. Journal of the North American Benthological Society 27:280-294.

Mulholland, P. J, A. M. Helton, G. C. Poole, R. O. Hall, Jr., S. K. Hamilton, B. J. Peterson, J. L. Tank, L.R. Ashkenas, L. W. Cooper, C. N. Dahm, W. K. Dodds, S. Findlay, S. V. Gregory, N. B.

Grimm, S. L. Johnson, W. H. McDowell, J. L. Meyer, H. M. Valett, J. R. Webster, C. Arango, J. J. Beaulieu, M. J. Bernot, A. J. Burgin, C. Crenshaw, L. Johnson, B. R. Niederlehner, J. M. O'Brien, J. D. Potter, R. W. Sheibley, D. J. Sobota, and S. M. Thomas. 2008. Stream denitrification across biomes and its response to anthropogenic nitrate loading. Nature 452:202-205; doi: 10.1038/nature06686.

Johnson, D. W., D. E. Todd, Jr., C. F. Trettin, and P. J. Mulholland. 2008. Decadal changes in potassium, calcium, and magnesium in a deciduous forest soil. Soil Science Society of America Journal 72: 1795-1805.

Valett, H. M, S. A. Thomas, P. J. Mulholland, J. R. Webster, C. N. Dahm, C. S. Fellows, C. L. Crenshaw, and C. G. Peterson. 2008. Endogenous and exogenous control of ecosystem function: N cycling in headwater streams. Ecology 89(12):3515-3527.

Fagre, D.B., C.W. Charles, C.D. Allen, C. Birkeland, F.S. Chapin III, P.M. Groffman, G.R. Gunternspergen, A.K. Knapp, A.D. McGuire, P.J. Mulholland, D.P.C. Peters, D.D. Roby, and G. Sugihara. 2009. Thresholds of Climate Change in Ecosystems. A report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. U.S. Geological Survey, Reston, VA, USA. 156 pages.

Mulholland, P. J, , R. O. Hall, Jr., D. J. Sobota, W. K. Dodds, S. Findlay, , N. B. Grimm, S. K. Hamilton, W. H. McDowell, J. M. O'Brien, J. L. Tank, L.R. Ashkenas, L. W. Cooper, C. N. Dahm, S. V. Gregory, S. L. Johnson, J. L. Meyer, B. J. Peterson, G. C. Poole, H. M. Valett, J. R. Webster, C. Arango, J. J. Beaulieu, M. J. Bernot, A. J. Burgin, C. Crenshaw, A. M. Helton, L. Johnson, B. R. Niederlehner, J. D. Potter, R. W. Sheibley, and S. M. Thomas. 2009. Nitrate removal in stream ecosystems measured by ^{15}N addition experiments: denitrification. Limnology and Oceanography 54: 666-680.

Hall, R. O., Jr., J. L. Tank, D. J. Sobota, P. J. Mulholland, J. M. O'Brien, W. K. Dodds, J. R. Webster, H. M. Valett, G. C. Poole, B. J. Peterson, J. L. Meyer, W. H. McDowell, S. L. Johnson, S. K. Hamilton, N. B. Grimm, S. V. Gregory, C. N. Dahm, L. W. Cooper, L.R. Ashkenas, S. M. Thomas, R. W. Sheibley, J. D. Potter, B. R. Niederlehner, L. Johnson, A. M. Helton, C. Crenshaw, A. J. Burgin, M. J. Bernot, , J. J. Beaulieu, C. Arango. 2009. Nitrate removal in stream ecosystems measured by ^{15}N addition experiments: total uptake. Limnology and Oceanography 54: 653-665.

Alexander, R. B., J. K. Bohlke, E. W.Boyer, M. B. David, J. W. Harvey, P. J. Mulholland, S. P. Seitzinger, C. R. Tobias, C. Tonitto, W. M. Wollheim. 2009. Simulating temporal variations of nitrogen losses in river networks with a dynamic transport model unravels the coupled effects of hydrological and biogeochemical processes. Biogeochemistry doi: 10.1007/s10533-008-9274-8.

Mulholland, P. J., B. J. Roberts, W. R. Hill, and J. G. Smith. 2009. Stream ecosystem responses to the 2007 spring freeze: unexpected effects of climate change. Global Change Biology 15:1767-1776.

Dale, V, K Kline, P. Mulholland, M. Downing, R. Graham, and L Wright. 2009. Selecting metrics for sustainable bioenergy feedstocks, Pages 49-53. In: Proceedings of the Second Workshop. Beijing, October 15-17, 2008, China-US Joint Research for Ecosystem and Environmental Change, Institute for a Secure and Sustainable Environment, University of Tennessee.

Webster, J. R., J. D. Newbold, S. A. Thomas, H. M. Valett, and P. J. Mulholland. 2009. Nutrient uptake and mineralization during leaf decay in streams - a model simulation. International Review of Hydrobiology 94:372-390.

Mulholland, P. J., and J. R. Webster. 2010. Nutrient dynamics in streams and the role of J-NABS. Journal of the North American Benthological Society 29:100-117.

Koirala, S. R., R. W. Gentry, P. J. Mulholland, E. Perfect, and J. S. Schwartz. 2010. Time and frequency domain analyses of high-frequency hydrologic and chloride data in an east Tennessee watershed. Journal of Hydrology 387:256-264.

Helton, A. M., G. C. Poole, J. L. Meyer, W. M. Wollheim, B. J. Peterson, P. J. Mulholland, J. A. Stanford, C. Arango, L.R. Ashkenas, L. W. Cooper, W. K. Dodds, S. V. Gregory, R. O. Hall, S. K. Hamilton, S. L. Johnson, W. H. McDowell, J. D. Potter, J. L. Tank, S. M. Thomas, H. M. Valett, J. R. Webster, and L. Zeglin. Thinking outside the channel: nitrogen cycling in networked river ecosystems. Frontiers in Ecology and the Environment (in press).

Kardol, P., D. E.Todd, P. J. Hanson, and P. J. Mulholland. 2010. Long-term successional forest dynamics: species and community responses to climatic variability. Vegetation Science (in press).

Bernot, M.J., D.J. Sobota, R.O. Hall, P.J. Mulholland, W.K. Dodds, J.R. Webster, J.L. Tank, L.R. Ashkenas, L. W. Cooper, C. N. Dahm, S. Findlay, S. V. Gregory, N. B. Grimm, S. K. Hamilton, S. L. Johnson, W. H. McDowell, J. L. Meyer, B. J. Peterson, G.C. Poole, H. M. Valett, C. Arango, J. J. Beaulieu, A. J. Burgin, C. Crenshaw, A.M. Helton, L. Johnson, J. Merriam, B. R. Niederlehner, J. M. O'Brien, J. D. Potter, R. W. Sheibley, S. M. Thomas, and K. Wilson. 2010. Inter-regional comparison of land-use effects on stream metabolism. Freshwater Biology (in press).

Koirala, S. R., R. W. Gentry, P. J. Mulholland, E. Perfect, J. S. Schwartz, and G. S. Sayler. Persistence of hydrologic and reactive water chemistry data in an east Tennessee watershed. Journal of Hydrology? (submitted).

Editorial Boards:

Associate Editor, Ecosystems, 2008 – 2010.

Associate Editor, AGU-Biogeosciences, American Geophyscial Union, 2004 - 2008.

Associate Editor, Limnology and Oceanography, American Society of Limnology and Oceanography, 1997-2003.

Associate Editor, Journal of the North American Benthological Society, North American Benthological Society, 1995-1998.

Special Topics Editor, Limnology and Oceanography, Special volume devoted to climate change and its effects on freshwater ecosystems of North America, American Society of Limnology and Oceanography, 1996.

Associate Editor, Ecology/Ecological Monographs, Ecological Society of America, 1990-1994.

Professional Society Offices:

Executive Committee Member, North American Benthological Society, 1994 to 1997.
Executive Committee Chair, North American Benthological Society, 1995-1996.
Awards Committee Chair, North American Benthological Society, 1997-1998.
President, Oak Ridge Chapter of Sigma Xi, 1997-1998.
Endowment Committee Member, North American Benthological Society, 1999 to 2004 (2003-2004 Chair).
National Representative, International Society of Limnology (SIL), 2004-present.

Professional Activities:

Workshop Participant, "The flux of organic carbon in the world's rivers," National Research Council, Woods Hole, Massachesetts, September 22-24, 1980.

Workshop Participant, "Tropical wetlands in the global carbon cycle," The Institute of Ecology, Indianapolis, Indiana, June 1-2, 1982.

Workshop Participant, "Transport of carbon and minerals in major world rivers," SCOPE/UNEP International Carbon Unit, Caracas, Venezuela, March 26-30, 1984.

Workshop Participant, "Stream organic matter budgets at LTER sites," Coweeta Hydrologic Laboratory, North Carolina, October 18-19, 1985.

Workshop Participant, "Anticipating global change - planning for a DOE initiative," Argonne National Laboratory, Argonne, Illinois, June 8-11, 1987.

Workshop Participant, "The role of dissolved organic carbon in surface water acidification," U.S. EPA, Tucson, Arizona, February 25-28, 1988.

Symposium Participant, "Recovery of Lotic Ecosystems", U.S. EPA, Duluth, Minnesota, October 3-6, 1988.

Participant, Dahlem Workshop on "Organic Acids in Aquatic Ecosystems", Senate of City of Berlin, Berlin, Federal Republic of Germany, May 7-12, 1989.

Workshop Participant, "Wetland and Riparian Ecotones in Landscape Dynamics", U.S. Man and the Biosphere Program and U.S. EPA, Oak Ridge, TN, Sept. 19-21, 1990.

Workshop Participant, "National Needs for Controlled Environments in Ecology and Environmental Sciences", National Sciences Foundation, Lake Tahoe, CA, Feb. 21-25, 1993.

Chairperson, Southeastern U.S. and Gulf Coast Mexico Regional Working Group, Symposium on "Freshwater Ecosystems and Climate Change in North America", Sponsored by the American Society of Limnology and Oceanography and the North American Benthological Society, October 24-26, 1994, Alexandria, VA.

Workshop Participant, "Solute dynamics and N-15 tracer experiments in streams", Sponsored by the National Science Foundation's Long Term Ecological Research (LTER) Program, July 16-18, 1995, Coweeta Hydrologic Laboratory, NC.

Chairperson, Hydrologic and Biogeochemical Linkages in Streams and Catchments, Special Session at the American Society of Limnology and Oceanography Aquatic Sciences Meeting, February 10-14, 1997, Sante Fe, NM.

Convener, Water Resources Group, AU.S. Climate Forum: The Consequences of Global Change for the Nation@, U.S. Global Change Research Program, November 12-13, 1997, Washington, DC.

Workshop Participant, ADissolved Organic Matter in Aquatic Ecosystems@, Sponsored by the Ecosystems Studies Program, National Science Foundation, May 2-4, 2000, Millbrook, NY.

Workshop Participant, ALong-term monitoring of aquatic and riparian ecosystems in the Heartland Network of National Parks@, U.S. National Park Service, Apr. 24-25, 2001, Hot Springs National Park, AR.

Symposium Participant, LTER Science Symposium on Land-water interactions, Sevilleta Research Station, April 18, 2002, Socorro, NM.

Workshop Participant, Emerging Research Issues for Limnology: The Study of Inland Waters, American Society of Limnology and Oceanography and the National Science Foundation, December 2-4, 2002, Boulder, CO.

Workshop Participant, U.S. Climate Change Science Program Ecosystems Workshop, U. S. Climate

Change Science Program, February 23-25, 2004, Silver Springs, MD.

Workshop Organizer, Regional NEON for the area from the Southern Appalachians to the Ozarks, June 24, 2004, Oak Ridge, TN.

Workshop Organizer, NEON's Role in Studying Ecological Effects of Climate Change, sponsored by NSF and AIBS, August 24-25, Tucson, AZ.

Workshop Participant, "Nitrogen dynamics in stream ecosystems", LTER Intersite Comparison Workshop, Manhattan, KS, September 15-17, 2004.

Workshop Organizer, "Ecological Impacts of Climate Change", NEON Science Workshop, American Institute of Biological Sciences and The National Science Foundation, Tucson, AZ, August 24-25, 2004

Hydroecology Committee Co-Chair, NEON Design Consortium, American Institute of Biological Sciences and The National Science Foundation, January – June, 2005.

Meeting Co-Chair, American Society of Limnology and Oceanography All Sciences Meeting, February 21-25, 2005, Salt Lake City, UT.

Workshop Participant, "Cyberinfrastructure needs for inter-site studies", NSF LTER Network Office, October 19-20, 2005, Madison, WI.

Workshop Participant, "Denitrification modeling workshop", Denitrification Research Coordination Network, NSF, Nov 28-30, 2006, Institute of Ecosystem Studies, Millbrook, NY.

Invited Participant, "Coping with Climate Change National Summit", U.S. EPA and NSF, May 8-10, 2007, University of Michigan, Ann Arbor, Michigan.

Workshop Participant, "Application of Metabolic Theory to Stream Ecosystems", NSF-LTER, May 13-14, 2007, Sevilleta LTER station, New Mexico.

Participant, U.S. Climate Change Science Program (CCSP) panel for preparation of Science and Assessment Product 4.2, "Thresholds of change in ecosystems", July 24-26, 2007, Denver, CO.

Member, U.S. Environmental Protection Agency Board of Scientific Counselors (BOSC), Subcommittee for Mid-Cycle Review of ORD Global Change Research Program, January 2008.

Workshop Participant, "Role of Riparian Zones", NSF, January 28-30, 2008, Indianapolis, IN.

Workshop Leader, "STREON development – Stream experiments within NEON, February 25-27, 2008, Boulder, CO.

Workshop Participant, “Sustainability of Biofuels Workshop: State of Science and Future Directions, U.S. Department of Energy Office of Science and U.S. Department of Agriculture, October 28-29, 2008, Bethesda, MD.

Workshop organizer, “A watershed perspective on bioenergy sustainability”, U.S. DOE, Office of Bioenergy Programs and National Council for Air and Stream Improvement, Oak Ridge National Lab., February 3-4, 2010.

Invited Presentations:

"The nutrient spiralling concept - its utility in analyzing streams and rivers as ecosystems," invited paper, ASLO/AGU Winter Meeting, San Francisco, December 1982.

"Phosphorus spiralling in lotic ecosystems: results of field and laboratory studies," Biology Forum, University of Alabama, Tuscaloosa, Alabama, March 1984.

"Nutrient spiralling: a concept of nutrient cycling in ecosystems with strong advective transport," Biological Sciences Seminar Series, Univ. of Mississippi, Oxford, Mississippi, February 1986.

"Nutrient Spiralling in Stream Ecosytems", Biological Sciences Seminar Series, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, October 1988.
"Nutrient sprialling in streams: nutrient cycling and downstream transport in lotic ecosystems", Ecology Seminar Series, University of North Carolina, Chapel Hill, NC, March 1990.

"Hydrogeochemistry of Walker Branch Watershed, a samll forested watershed in the Ridge and Valley Province of eastern Tennessee", ORNL-TVA-Univ. of Tennessee Water Resources Consortium Water Resources Initiative Seminar Series, TVA Engineering Laboratory, Norris, TN, July 1991.

"Stream outputs from a forested upland watershed: Influence of hydrologic flowpaths and biogeochemical processes", Estuarine Research Federation Special Symposium on Watershed-Estuary Interactions, San Francisco, CA, Nov. 1991.

"Regulation of stream water chemistry in a forested watershed: a matter of rocks, soil, and bugs", Seminar Program, Institute of Ecosystem Studies, Mary Flagler Cary Arboretum, Millbrook, NY, February 1992.

"Regulation of stream chemistry: effects of hydrological, geochemical, and biological processes", Ecology Seminar Series, University of Alabama, Tuscaloosa, AL, March 1992.

"Regulation of stream chemistry: effects of hydrological, geochemical, and biological processes", Biology Department Seminar Series, University of Alabama at Birmingham, Birmingham, AL, March 1992.

"Stream Chemsitry: The interaction of hydrological, geochemical, and biological processes", Department of Environmental Sciences Seminar, University of Virginia, Charlottesville, VA, March 1993.

"Stream chemistry: a reflection of the hydrologic coupling of biogeochemical processes in forested catchments?", Gordon Research Conference on Hydrologic, Geochemical, and Biological Processes in Forested Catchments, Plymouth, NH, August 1993.

"Are valley bottoms the wetlands of upland catchments: a streamwater chemistry perspective", SAMAB Conference on Wetland Ecology, Management, and Conservation, Knoxville, TN, September 1993

"How hydrologic, geochemical, and biologic processes interact to control streamwater chemsitry", Georgia Institute of Technology Environmental Engineering Department Seminar Series, Atlanta, GA, October 1993.

"The regulation of stream water chemistry: hydrologic, geochemical, and biological processes", University of Maryland, Center for Environmental and Estuarine Studies Seminar Series, Horn Point Laboratory, Cambridge, MD, March 1994.

"Hydrological and biogeochemical factors controlling stream water chemistry", Seminar Series of the Groupe de Recherche Interuniversitaire en Limnologie et en Environment Aquatique, Universite du Quebec a Montreal, Montreal, Canada, March 1994.

"Nutrient dynamics in streams: surface spiraling and subsurface cycling", Department of Biology Seminar Series, Idaho State University, Pocatello, Idaho, March 1995.

"Nutrient dynamics in streams: surface spiraling and subsurface cycling", Biology Department Graduate Seminar, Eastern Kentucky University, Richmond, KY, April 1995.

AEffects of hydrologic processes on stream nutrient cycling and metabolism at scales ranging from catchments to algal mats@, Weaver Lecture Series in Forestry, Auburn University School of Forestry, Auburn, AL, January 1997.

ANitrogen cycling in a deciduous forest stream: results from a 15N-tracer addition experiment in Walker Branch, Tennessee@, Biology Department Seminar Series, Univ. of Nevada, Las Vegas, NV, October 1998.

"Nitrogen cycling in stream ecosystems determined by tracer-level 15N additions: Results from Walker Branch and from the Lotic Intersite Nitrogen Experiment (LINX)", Biogeochemistry Seminar Series, Department of Ecology and Systematics, Cornell University, Ithaca, NY, September 1999.

"Nitrogen cycling in stream ecosystems determined by tracer-level 15N additions: Results from

Walker Branch and from the Lotic Intersite Nitrogen Experiment (LINX)", Biology Department Seminar Series, University of Louisville, Louisville, KY, October 2000.

AIn-stream processes: important modifiers of watershed nutrient exports@, LTER Science Symposium on Land-Water Linkages, Sevilleta LTER Station, Socorro, NM, April 18, 2002.

ANitrogen uptake and cycling in streams: results from whole-stream 15N addition experiments@, Department of Ecology, Evolution and Behavior Seminar Series, University of Minnesota, Minneapolis, MN, May 1, 2002.

ANitrogen uptake and cycling in streams: results from whole-stream 15N addition experiments@, Department of Biology Seminar Series, Miami University, Oxford, OH, Sept. 30, 2002.

ANitrogen uptake and cycling in streams: results from whole-stream 15N addition experiments@, Stroud Water Research Center Seminar Series, Avondale, PA, Feb. 20, 2003.

"Measuring denitrification in streams", LTER All Scientists Meeting, Sept. 19-21, 2003, Seattle, WA (invited talk).

ANitrogen uptake and cycling in streams: results from whole-stream 15N addition experiments", Grand Valley State University Water Research Center, Muskegon, MI, Dec 13, 2004.

"The abiotic template in streams: Its effect on ecosystem processes", Plenary address, American Geophysical Union/North American Benthological Society Joint Meeting, New Orleans, LA, May 23, 2005.

"Long-term, high frequency, large scale studies in catchments science", Gordon Confernce on Catchment Science, Waterville, ME, July 21, 2005.

"Nitrate uptake and denitrification in streams: Results from the LINX II study", SUNY-ESF, Syracuse, NY, April 17, 2007.

"Effects of military training on stream ecosystems: Fort Benning Digital Multi-Purpose Range Complex as a Case Study", 2007 Sustaining Military Readiness Conference, U.S. Department of Defense, Orlando, FL, August 1, 2007.

"Nitrate uptake and denitrification in streams: Results from the LINX II study", Cornell University Ecology Seminar Series, Ithaca, NY, October 29, 2007.

"Streams as nitrogen filters in the landscape", EarthTalks 2008 Colloquium Series, Earth and Environmental Systems Institute, Penn State University, September 29, 2008.

"Biofuel crops: impacts on hydrology and water quality", Plenary talk, "Sustainability of Biofuels Workshop: Stte of Science and Future Directions, U.S. Department of Energy Office of Science and

U.S. Department of Agriculture, October 28-29, 2008, Bethesda, MD.

"Streams as nitrogen filters in the landscape: results from a large intersite ^{15}N addition study of nitrate uptake in streams", Duke University Biogeochemistry Seminar Series, November 7, 2008.

"Metabolism, nutrient dynamics, and terrestrial-aquatic linkage in a forest stream ecosystem (Walker Branch), Virginia Tech Department of Civil and Environmental Engineering Seminar Series, March 20, 2009.

Committee/Advisory Positions:

Chair, NEON Stream Experiment Working Group, Neon Inc, 2009-2010.

U.S. EPA Science Advisory Board, Ecological Processes and Effects Committee, Review of guidance on "Empirical Approaches for Nutrient Criteria Derivation", September 9-11, 2009, Washington, DC.

Advisory Committee, CALFED Ammonium Workshop, March 10-11, 2009, Sacramento, CA.

U.S. EPA Board of Scientific Counselors Subcommittee for Mid-Cycle Review of Global Change Research Program, 2008.

National representative, International Society of Limnology (SIL), 2004 – 2010.

Consortium of Universities for the Advancement of Hydrological Sciences, Inc (CUAHSI) Subcommittee on Biogeosciences Component of Hydrologic Measurement Facilities (co-author of May 2006 White Paper "Advancing biogeochemical research in the field hydrological sciences: The CUAHSI Hydrological Measurement Facility – Biogeochemical Component "), 2006.

Co-chair, American Society of Limnology and Oceanography All Sciences Meeting, February 2005, Salt Lake City, Utah.

Coweeta Hydrological Laboratory LTER Advisory Board, U.S. National Science Foundation/University of Georgia, 1987- 2003.

NSF Review Panel for Long Term Ecological Reserves, National Science Foundation, Ecosystem Studies Program, 1992.

Everglades Nutrient Threshold Research Review Panel, Florida Department of Environmental Protection, 1996-1998.

Professional Affiliations:

Ecological Society of America
North American Benthological Society
American Society of Limnology and Oceanography
Societas Internationale Limnologie
American Geophysical Union
Sigma Xi
AAAS

Post-Doctoral Fellows Supervised:
Alan Steinman
Erich Marzolf
Susan Hendricks
Jeremy Jones
Jennifer Tank
Jeffrey Houser
Brian Roberts

Graduate Students Supervised:
David Genereux, Massachusetts Institute of Technology, Ph.D. 1991
Amy Rosemond, Vanderbilt University, Ph.D. 1993
Terry Flum, University of Tennessee, Ph.D. 1997
Mark Mitch, University of Virginia, Ph.D. 1998 (expected)
David Kirschtel, University of Louisville, M.S. 1992
Elizabeth Jay, University of North Carolina, M.S. 1993
Amy Halleran, University of Tennessee, M.S. 1995
Lara Martin, Virginia Tech, M.S. 2000
Shesh Koirala, University of Tennessee, Ph.D. 2007
Brian Lutz, Duke University, PhD 2011 (expected)