

Michael E. McClain
Curriculum Vitae

ADDRESS

Department of Environmental Studies
Florida International University
Miami, FL 33199
Tel. (305) 348-6826 Fax (305) 348-6137
Email: mcclainm@fiu.edu

RESEARCH INTERESTS

Water quality management, meso-scale biogeochemistry and hydrology, land/water interactions, natural attenuation processes in rivers, deterministic modeling, remote sensing and image analysis, land use dynamics, participatory research at community level, water resources management and watershed science in a developing country context.

TEACHING PROGRAM

Undergraduate – EVR 4211 – Water Resources; EVR 4869L – Environmental Problem Solving;
EVR 1001 – Introduction to Environmental Science
Graduate – EVR 5215 – Water Resources Assessment; EVR 5332 – Integrated Solutions for
Water in Environment and Development; EVR 6329 - Watershed Analysis and
Management

EDUCATION

Ph.D. University of Washington, 1996, Oceanography [*Biogeochemistry*]
Dissertation: Terrestrial Controls on the Biogeochemistry of Dissolved Organic Matter
and Inorganic Nitrogen in Streams of the Central Amazon Basin, Brazil
M.Sc. University of Miami, Florida, 1990, Oceanography [*Geochemistry*]
Thesis: A Geochemical Study of Early Meteoric Diagenesis at Ocean Bight, Great
Exuma Island, Bahamas
B.A. University of Colorado, Boulder, 1987, Geology

PROFESSIONAL EXPERIENCE

2005-present Associate Professor, Florida International University, Miami, FL USA
Aug05-Feb06 Fulbright Fellow, Universidad Autónoma de Santo Domingo, Rep. Dom.
1998-2005 Assistant Professor, Florida International University, Miami, FL USA
1997-2003 Visiting Professor, Universidad Nacional Agraria La Molina, Lima, Perú
1997-1999 NSF Int. Research Fellow, Univ. Nacional Agraria La Molina, Lima, Perú
1997-1998 Senior Environmental Scientist, Walsh and Associates, Lima, Peru
1991-1996 Research Assistant, University of Washington, Seattle, WA
1990-1991 Environmental Geologist, Walsh and Associates, Boulder, CO
1989-1990 Environmental Geologist, Harding Lawson Associates, Denver, CO

LANGUAGES (other than English)

Spanish (fluent), Portuguese (fluent), French (passable)

SELECTED PROFESSIONAL ACTIVITIES

- Coordinator of the graduate certificate program in Water, Environment, and Development in the FIU Department of Environmental Studies
- Director and Lead Scientist of the Global Water for Sustainability Program, a global consortium supported by USAID to improve water resources management
- Director and Lead Scientist of the Caribbean Coastal Scenarios Program, a collaborative research network supported by the Inter American Institute for Global Change Research
- Member, Freshwater Scientific Committee of the DIVERSITAS Program
- Member, Science Advisory Committee on the UNESCO-IHP ISARM Program
- Member, Scientific Steering Committee of the Large Scale Biosphere-Atm Experiment
- Affiliated Scientist, IGBP Land-Ocean Interactions in the Coastal Zone Program
- Member, Steering Committee of the White Water to Blue Water Initiative ('02-05)
- Director and Lead Scientist of the Andean Amazon Rivers Analysis and Management Project ('97-04)
- Latin American Coordinator of the IGBP Initiative on Global Change Research in Mountain Regions ('98-99)
- Key Person in Latin America - UNESCO-IHP Ecohydrology Program ('96-01)
- Member, Executive Council of the Latin American and Caribbean Center, FIU
- Webmaster, Department of Environmental Studies, FIU
- Member of Graduate Committee, Department of Environmental Studies, FIU ('98-02)

PEER REVIEWER (SELECTED JOURNALS & AGENCIES)

- Archiv für Hydrobiologie
- Biogeochemistry
- Ecohydrology & Hydrobiology
- Ecological Applications
- Ecosystems
- Geology
- Hydrobiologia
- Hydrological Sciences Journal
- Limnology and Oceanography
- Water and Soil Conservation
- Water Resources Research
- Wetland Ecology and Management
- National Science Foundation, NASA

HONORS AND AWARDS

- 2005 Fulbright Scholar (Research and Teaching Award to the Dominican Republic)
1997 NSF International Research Fellow Award
1990 Dean's Prize for the outstanding Master's Thesis in the marine sciences, University of Miami's Rosenstiel School of Marine and Atmospheric Sciences
1988 President, Marine Science Graduate Student Organization
1988 Tenneco Fellowship

PROFESSIONAL AFFILIATIONS

American Geophysical Union (Hydrology Section)

American Society of Limnology & Oceanography
American Water Resources Association
Ecological Society of America
International Water Resources Association

RESEARCH GRANTS

- US Agency for International Development (USAID): *Transboundary Water for Biodiversity and Human Health in the Mara River Basin, Kenya/Tanzania*. McClain P.I., Oct 07 – Sep 09.
- Inter American Institute for Global Change Research (with funds from NSF): *Caribbean Coastal Scenarios*. McClain PI, Jun 06 – Dec 10.
- US Agency for International Development (USAID): *Transboundary Water for Biodiversity in the Mara River Basin, Kenya/Tanzania*. McClain P.I., Oct 05 – Sep 07.
- US Agency for International Development (USAID): *The Global Water for Sustainability (GLOWS) Program*. McClain P.I., Oct 04 – Sep 09.
- Inter American Institute for Global Change Research (with funds from NSF): *Land-Ocean Interactions in the Caribbean: Formulating a Research Agenda to Support Regional Integrated Watershed and Marine Ecosystem Management*. McClain P.I., Mar 04 – Jan 05.
- Andrew W. Mellon Foundation: *Development of a Multi-Institutional Base of Research across a Gradient of Ecosystems in the Peruvian Amazon*. McClain P.I., Jan. 03 – Dec. 05.
- Earthwatch Institute: *The Diversity of Aquatic Organisms and Status of Aquatic Habitats in Rivers of the Andean Foothills in the Peruvian Amazon Basin, 2001, 2002*.
- Inter-American Institute for Global Change Research (with funds from NSF): *Mercury Contamination of Rivers in the Andean Amazon*. McClain P.I., Jun. 00 – Jun. 01.
- Andrew W. Mellon Foundation: *The Function of Riparian Forests as Regulators of Local and Regional Scale Nitrogen Cycles*. McClain P.I., Jan. 00 – Dec. 02.
- US National Science Foundation: *IGBP Initiative on Global Change Research in Mountain Regions – Implementation Plan for Latin America*. McClain P.I., Aug. 99 – Sep. 00.
- Inter-American Institute for Global Change Research (with funds from NSF): *The Andean Amazon Rivers Analysis and Management (AARAM) Program*. McClain P.I., Sep. 99 – Aug. 04.
- Inter-American Institute for Global Change Research (with funds from NSF): *Natural and Anthropogenic Controls on the Hydrology and Biogeochemistry of Meso-Scale Andean Amazon River Systems: Integrating Andean Systems into Basinwide Investigations*. McClain Co-PI with Peruvian PI Carlos Llerena, Jun. 98 – May 00.
- US National Science Foundation: *A Regional Analysis of Hydrological and Biogeochemical Processes at the Terrestrial-Aquatic Interface of Andean Amazon River Systems*. McClain P.I., Aug. 97 – Jul. 99.
- Inter-American Foundation: *M.Sc. Thesis support for Rosa Cossio from US Graduate Study Fellowship Program for Latin American and Caribbean Citizens*. McClain P.I., Jan. 00 – Dec. 01.

- Inter-American Institute for Global Change Research (with funds from NSF): *Andean Amazon Rivers Analysis and Monitoring (AARAM) Project Start-Up Activities*. McClain authorship, JE Richey P.I., 96-98.
- US National Science Foundation: *Hydrology of Meteoric Diagenesis - Holocene Calcareenites of Ocean Bight, Great Exuma Island, Bahamas*. McClain co-authorship. R.N. Ginsburg P.I. Dec. 88 – Nov. 89.

PUBLICATIONS

Refereed Journal Articles

- McClain ME & R Naiman. 2008. Andean influences on the ecology of the Amazon River Basin. *BioScience*. In press.
- Anderson EP, Montoya M, Soto A, Flores H, and McClain ME. 2008. Challenges and opportunities for indigenous management of a migratory fish, *Prochilodus nigricans*, in the Peruvian Amazon. In: *Challenges for Diadromous Fishes in a Dynamic Global Environment*. American Fisheries Society Symposium, Halifax, Canada. In press.
- Gomez-Peralta D, SF Oberbauer, ME McClain, TE Philippi. 2008. Rainfall and Cloud-Water Interception in Tropical Montane Forests in the Eastern Andes of Central Peru. *Forest Ecology and Management*, In press.
- Townsend-Small A, McClain ME, Hall B, Llerena CA, Noguera JL, Brandes JA. 2008. Contributions of suspended organic matter from mountain headwaters to the Amazon River: A one-year time series study in the central Peruvian Andes. *Geochimica et Cosmochimica Acta*. Vol 72/3 pp 732-740.
- Jacobs SM, JS Bechtold, HC Biggs, NB Grimm, S Lorentz, ME McClain, RJ Naiman, SS Perakis, G Pinay, MC Scholes. 2008. Nutrient vectors and riparian processing in African semiarid savanna ecosystems. *Ecosystems*.
- Melesse A, V Nangia, X Wang & M McClain. 2007. Wetland Restoration Response Analysis using MODIS and Groundwater Data. *Sensors* 7, 1916-1933.
- Wang X, A Melesse & ME McClain. 2007. Water quality changes as result of coalbed methane development in a rocky mountain watershed. *Journal of the American Water Resources Association*. doi: 10.1111/j.1752-1688.2007.00118.x
- Townsend-Small A, JL Noguera, ME McClain & JA Brandes. 2007. Radiocarbon and stable isotope geochemistry of organic matter in the Amazon headwaters, Peruvian Andes. *Global Biogeochemical Cycles*, 21, GB2029, doi:10.1029/2006GB002835.
- Mena CA, R Bilsborrow & ME McClain. 2006. Socioeconomic drivers of deforestation in the Napo River Basin of Ecuador. *Environmental Management* 37: 802–815.
- Saunders TJ, ME McClain & CA Llerena. 2006. The N and P biogeochemistry of terrestrial-aquatic flowpaths in a small montane catchment of the Peruvian Amazon. *Hydrological Processes* 20: 2549–2562.
- Anderson Olivas E, M Montoya, and ME McClain. 2005. Better-managed water for western Amazonia. *World Water* 28:30-31.
- Townsend-Small A, ME McClain & JA Brandes. 2005. Contributions of carbon and nitrogen from the Andes mountains to the Amazon River: Evidence from an elevational gradient of soils, plants, and river material. *Limnology and Oceanography* 50(2): 672–685.
- Décamps H, Pinay G, Naiman RJ, Petts GE, McClain ME, Hillbricht-Ilkowska A, Hanley TA, Holmes RM, Quinn J, Gibert J, Planty Tabacchi AM, Schiemer F, Tabacchi E & Zalewski M, 2003. Riparian zones: Where biogeochemistry meets biodiversity in management practice. *Polish Journal of Ecology* 52(1): 3-18 .
- Grimm NB, McDowell WH, Gergel S, Boyer E, Dent L, Groffman P, Hart S, Harvey J, Johnston

- C, Mayorga E, McClain ME & Pinay G, 2003. Merging Aquatic and Terrestrial Perspectives of Biogeochemistry, *Oecologia*.
- McClain ME & Cossio RE, 2003, The use of riparian environments in the rural Peruvian Amazon. *Environmental Conservation* 30: 242-248.
- McClain ME & eleven others, 2003, Biogeochemical hot spots and hot moments at the interface of terrestrial and aquatic ecosystems. *Ecosystems* 6: 301-312.
- Ramos O, Llerena C, McClain M & Quintanilla J. 2003. Perdidas de nitrógeno del bosque de neblina en la sub-cuenca de San Alberto, Oxapampa, Perú. *Revista Boliviana de Química* 20: 86-90.
- Sobieraj J, Elsenbeer H, and McClain ME, 2002. The cation and silica chemistry of a Subandean river basin in western Amazonia. *Hydrological Processes* 16: 1353-1372.
- McClain ME, Aparicio LM & Llerena CA, 2001. Water use and protection in rural communities of the Peruvian Amazon basin. *Water International* 26: 400-410.
- Hedges JI, Mayorga E, Tsamakis E, McClain ME, Aufdenkampe A, Benner R, Opsahl S, Black B, Pimentel T, Quintinilla J & Maurice L. 2000. Organic matter in Bolivian tributaries of the Amazon river: A comparison to the lower mainstem, *Limnology and Oceanography* 45: 1449-1466.
- Downing JA, McClain ME, Twilley R, Melack JM, Elser J, Rabalais NN, Lewis WM, Turner RE, Corredor J, Soto D, Yanez-Arancibia A, Kopaska JA & Howarth RW. 1999. The impact of accelerating land-use change on the N-cycle of tropical aquatic ecosystems: Current conditions and projected changes, *Biogeochemistry* 46: 109-148.
- Lewis WM, Melack JM, McDowell WH, McClain ME & Richey JE. 1999. Nitrogen yields from undisturbed watershed in the Americas. *Biogeochemistry* 46: 149-162.
- McClain ME & Llerena CA, 1998. El manejo de cuencas en la selva: De los Andes a la Amazonia, *Agua y Riego* 11: 11-13.
- McClain ME, Richey JE, Brandes JA & Pimentel TP, 1997. Dissolved organic matter and terrestrial-lotic linkages in the central Amazon basin, Brazil, *Global Biogeochemical Cycles* 11: 295-312.
- McClain ME & Richey JE, 1996. Regional-scale linkages of terrestrial and lotic ecosystems in the Amazon basin: a conceptual model for organic matter. *Arch. Hydrobiol. Suppl. 113 Large Rivers* 10: 111-125.
- Richey JE, Wilhelm SR, McClain ME, Victoria RL, Melack JM & Araujo-Lima C, 1997. Organic matter and nutrient dynamics in river corridors of the Amazon basin and their response to anthropogenic change. *Ciencia e Cultura* 49: 98-110.
- McClain ME, Richey JE & Victoria RL, 1996. Andean contributions to the biogeochemistry of the Amazon basin. *Bulletin de l'Institut Français d'Etudes Andines* 24: 425-437.
- Brandes JA, McClain ME & Pimentel TP, 1996. ¹⁵N evidence for the origin and cycling of inorganic nitrogen in a small Amazonian catchment. *Biogeochemistry* 34: 45-56.
- McClain ME, Richey JE & Pimentel TP, 1994. Groundwater nitrogen dynamics at the terrestrial-lotic interface of a small catchment in the Central Amazon Basin. *Biogeochemistry* 27: 113-127.
- McClain ME, Swart PK & Vacher L, 1994. Reply - The hydrogeochemistry of early meteoric diagenesis in a Holocene deposit of biogenic carbonates. *Journal of Sedimentary Research* A64: 415-416.
- McClain ME, Swart PK & Vacher HL, 1992. The hydrogeochemistry of early meteoric diagenesis in a Holocene Deposit of Biogenic Carbonates. *Journal of Sedimentary Petrology* 62: 1008-1022.
- McClain ME & Karr EY, 1989. The Florida basement: Diary of a turbulent past. *The Compass* 66: 52-58.

Books and Book Chapters

- McClain ME & D Gann. In press. South American Rivers. Encyclopedia of Inland Waters. Elsevier Inc.
- McClain ME, RE Cossio, D Gann & TJ Saunders. In press. Land use and cover in riparian areas of the Andean Amazon: Consequences for people and ecosystems. IAI-SCOPE RAP: Understanding ecosystem function and environmental constraints to guide the management strategies of the future.
- McClain ME, R Galarraga, CA Llerena & JE Ruiz. 2007. Linking Global Change Research to Improved Policies and Management for Rivers: Lessons from the Andean Amazon Rivers Analysis and Monitoring Project. In Tiessen H, M Brklacich, G Breulmann, and RSC Menezes. (eds.). Communicating Global Change Science to Society. Island Press, Washington DC.
- McClain ME, 2007. Ecohydrology as a tool in the sustainable development of large tropical rivers. in Harper, D, M Zalewski, SE Jorgensen, N Pacini. (eds.). Ecohydrology: Processes, Models and Case Studies. CAB International, Wallingford, Oxfordshire.
- Naiman RJ, Décamps H & McClain ME, 2005. Riparia: Ecology, Conservation, and Management of Streamside Communities. Elsevier Academic Press.
- McClain ME (ed.), 2002. *The Ecohydrology of South American Rivers and Wetlands*. Special Publication no. 6 of the International Association of Hydrological Sciences.
- McClain ME, 2002. The application of ecohydrological principles for better water quality management in South America. Pp. 193-209 In McClain ME (ed.), *The Ecohydrology of South American Rivers and Wetlands*. Special Publication no. 6 of the International Association of Hydrological Sciences.
- McClain ME, Victoria, RL & Richey JE (eds.), 2001. *The Biogeochemistry of the Amazon Basin*. Oxford University Press.
- McClain ME, 2001. The relevance of biogeochemistry to Amazon development and conservation. pp. 3-16 In McClain ME, Victoria, RL & Richey JE (eds.) *The Biogeochemistry of the Amazon*. Oxford University Press.
- McClain ME & Elsenbeer H, 2001. Terrestrial inputs to Amazon streams and internal biogeochemical processing. pp. 185-208 In McClain ME, Victoria, RL & Richey JE (eds.) *The Biogeochemistry of the Amazon*. Oxford University Press.
- McClain ME, Bilby RE and Triska FJ. 1998, Biogeochemistry of N, P, and S in Northwest rivers: Natural distributions and responses to disturbance. pp. 347-372, In Naiman RJ & Bilby RE (eds.) *River Ecology and Management: Lessons from the Pacific Coastal Ecoregion*. Springer-Verlag, New York.

Conference Proceedings and other papers

- Stiefel JM, AM Melesse, ME McClain, and RM Price. 2007. Surface and Groundwater Dynamics of Rainwater Harvesting in Rajasthan, India: A GIS and Tracer Approach. Rainwater and Urban Design 2007 Conference Proceedings, Sydney, Australia
- Anderson Olivas E, M Montoya, and ME McClain. 2005. Better-managed water for western Amazonia. World Water 28:30-31.
- McClain ME, 2001. The Natural Attenuation of Contaminants in Large Tropical Rivers, proceedings of the International Scientific and Industrial Forum - Great Rivers 2001. May 15-18, Nizhny Novgorod, Russia
- McClain ME, 1999. Water resources management in the Amazon basin: Issues, challenges, and opportunities. pp. 77-86 in *General Reports on the Ecological Revitalization of the Great River Basins, Vol. I*, UNESCO Chair, Nizhny Novgorod, Russia.
- McClain ME, Mayorga E, Logsdon MG & Richey JE, 1996. A conceptual framework for

modelling organic matter dynamics in large river systems. *Proceedings of the Fourth International Symposium on the Geochemistry of the Earth's Surface*: 323-326.

Technical Reports

McClain ME and Zalewski, M, 2001. Summary of the projects presented to the International Symposium - Hydrological and Geochemical Processes in Large Scale River Basins, held in Manaus, Brazil, 15-19 November 1999. UNESCO Technical Document.

Zalewski M and McClain ME. 1998. A List of Scientific Activities of IHP-V Projects 2.3/2.4 "Ecohydrology". Technical Documents in Hydrology No. 21, UNESCO, Paris

Book Reviews

McClain ME, 2004, Riverbank Filtration: Understanding Contaminant Biogeochemistry and Pathogen Removal, *Journal of the American Water Resources Association* 40 (2): 546-547.

McClain ME, 2003, Watershed Health Monitoring, *Journal of the American Water Resources Association* 39 (3): 729-730.

McClain ME, 1998, Driven by Nature, *Ecology* 79: 1469-1470.

McClain ME, 1997, Limnology in Latin America, *Limnology & Oceanography* 42: 206.

Articles in Professional Newsletters

McClain ME, E Anderson & D Ombara, 2006. Securing Water for the Environment in the Mara River Basin of East Africa. *Basins and Coasts* Vol. 1, Issue 1.

McClain ME & Galarraga RH, 2000. New global change research effort launched in Latin America. *EOS, Transactions, American Geophysical Union*, Vol. 81, No. 26. p. 296.

McClain ME, 2000. The IGBP Mountain Research Initiative (MRI) - Planning Begins for the Latin American Component. *BAHC News* No. 7, pp. 7-8.

Llerena CA, Galarraga RH & McClain ME, 2000. Research in the Amazon Headwaters: Andean Amazon Rivers Analysis and Management (AARAM). *BAHC News* No. 8, pp. 20-21.

McClain ME, 1999. The Andean Amazon Rivers Analysis and Management (AARAM) Project. Newsletter of the Inter American Institute for Global Change Research

Articles in Online Publications

Saunders TJ, McIndoo LV & McClain ME. 2003. Importancia Ecológica, Servicios Ambientales y Manejo Participativo de la Cuenca Amazónica. Vol. 1 of the IUCN online journal *Simposium*. <http://www.sur.iucn.org/simp/simposium/>

PRESENTATIONS AT PROFESSIONAL CONFERENCES AND WORKSHOPS

McClain ME, Capacity Building for Environmental Flows. 10th International River Symposium and Environmental Flows Conference, September 2-7, 2007, Brisbane, Australia. [Panel Member representing Capacity Building]

McClain ME, Protecting ecosystems and their services using the tools of IWRM. Stockholm World Water Week, August 12-18, 2007, Stockholm, Sweden. [Seminar Co-Chair]

Aufdenkampe AK, E Mayorga, JI Hedges, CA Masiello, TA Brown, ME McClain, CA Llerena, P Quay, AV Krusche & JE. Richey, The evolution of organic matter in the Amazon River system: Trends in radiocarbon, amino acid and lignin phenol composition, 234th American Chemical Society National Meeting, August 19-23, 2007, Boston, MA, USA.

- Anderson EP, TJ Saunders, JE Celi & ME McClain, Enabling integrated water resources management in the Andean Amazon: The role of freshwater science and conservation. Annual Meeting of the Ecological Society of America, 5-10 August, 2007, San Jose, CA, USA.
- McClain ME, Pago por Servicios Ambientales: Experiencias Exitosas y Lecciones Aprendidas. XIII Conferencia Interamericana de Alcaldes y Autoridades Locales, 14 June, 2007, Miami.
- Waggoner LA, ME McClain, Land use Controls on Water Quality and Aquatic Ecosystems in the Andean Amazon, Peru. American Geophysical Union Joint Assembly, 22-25 May, 2007, Acapulco, Mexico.
- Galarraga RH & ME McClain, IAI Global Change Agenda and Support of Higher Education in the Andean Amazon Countries. American Geophysical Union Joint Assembly, 22-25 May, 2007, Acapulco, Mexico.
- Galarraga RH, ME McClain, A Estacio, F Ortega & A Febres, Use of precipitation - runoff models to generate hydrologic scenarios in a high-altitude Andean Basin of the Ecuadorian Amazon Region. Case study of the Quijos River Basin, American Geophysical Union Joint Assembly, 22-25 May, 2007, Acapulco, Mexico.
- Melesse, A, S Ahmad, M McClain, X Wang, H Lim, V Nangia, Suspended Sediment Load Prediction Using Artificial Neural Networks Approach, American Geophysical Union Joint Assembly, 22-25 May, 2007, Acapulco, Mexico.
- McClain ME, Galarraga R, Llerena CA & Ruiz JE, Linking Global Change Research to Improved Policies and Management for Rivers in the Andean Amazon. Earth System Science Program Open Science Conference. November 9-12, 2006, Beijing, China.
- Townsend-Small A, Noguera JL, McClain ME & Brandes JA, Organic matter transport from the Peruvian Andes to the Amazon River, Fall Meeting of the American Geophysical Union, December 5-9, 2005, San Francisco, USA.
- McClain ME, Blanco A, Celi J, Gann D, Mena C & Waggoner L, Land Use Change and Impacts on Aquatic Systems in the Andean Headwaters of the Amazon, 19th Annual Meeting of the Society for Conservation Biology, July 15-19, 2005, Brasilia, Brazil.
- McClain ME, Brandes JA, Celi JE, Galarraga R, Hall BC, Llerena CA, Pelaez M, Rosselli A, Singler H & Townsend-Small A, Organic Matter and Nutrient Dynamics in Andean Headwater Rivers of the Amazon Basin, Summer Meeting of the American Society for Limnology and Oceanography, June 19-24, 2005, Santiago de Compostela, Spain. [Session Co-Chair]
- Townsend-Small A, McClain ME & Brandes JA, Andean influences on the biogeochemistry of organic matter in the Amazon River, European Geosciences Union General Assembly, April 24-29, 2005, Vienna Austria.
- McClain M, Caribbean Coastal Scenarios - An Integrated Analysis of Inland-Coastal Linkages to Guide Sustainable Use and Protection of Coastal Ecosystems, CCS Workshop, September 30, 2004, Santo Domingo, Dominican Republic (workshop organizer).
- McClain M, Caribbean Catchment-Coastal Zone Interactions : An Integrated Analysis to Guide Sustainable Use and Protection of Coastal Ecosystems in the Caribbean through Better Management of Watersheds, White Water to Blue Water Conference, March 22-26, 2004, Miami Florida, USA. (Breakout Session Chair)
- Saunders TJ & McClain M, Nitrogen dynamics in surface and subsurface waters of a montane forest, headwaters of the Amazon, Peru, Ecological Society of America Meeting, August 3-8, 2003, Savannah, Georgia USA
- Llerena CA & McClain M, Análisis Y Manejo de Ríos de la Amazonia Andina: Proyecto Aaram-Perú, III Congreso Latino Americano de Manejo de Cuencas, June 9-13, 2003, Arequipa, Peru.

- Townsend-Small A, McClain M & Brandes J, Stable Isotopic Tracers of Nitrogen and Carbon Cycling in Rivers and Streams in the Andean Amazon Basin of Peru, Annual Meeting of the Geological Society of America, October 27-30, 2002, Denver USA.
- McClain ME, Brandes JA, Llerena CA & Reynel C, Nitrogen stocks and fluxes in riparian and upland montane forest of the Andean Amazon Basin, Annual Meeting of the Ecological Society of America, August 4-9, 2002, Tucson USA.
- Saunders TJ & McClain ME, N and P Fluxes and Transformations along an upland-riparian-stream transect in montane forest of the Andean Amazon Basin, San Alberto catchment, Peru, Annual Meeting of the Ecological Society of America, August 4-9, 2002, Tucson USA.
- Brandes JA, McClain ME, Llerena CA, Townsend-Small A & Haberer J, Comparisons of stable isotopic trends in vegetation, soils and Particulate matter in 2 upland Peruvian catchments, Annual Meeting of the Ecological Society of America, August 4-9, 2002, Tucson USA.
- Núñez F, Reynel C & McClain M, Elemental fluxes in litterfall in riparian montane forest of the San Alberto catchment, Andean Amazon Basin, Annual Meeting of the Ecological Society of America, August 4-9, 2002, Tucson USA.
- Townsend-Small A, Haberer J, McClain M & Brandes J, Isotopic Tracers of N Processing in the San Alberto Catchment, Andean Amazon Basin, Annual Meeting of the Ecological Society of America, August 4-9, 2002, Tucson USA.
- Rosselli A, Gebelein J & McClain M, Aquatic Habitat Identification and Mapping in the Ecuadorian Amazon Using Landsat 7 ETM+ Data, 7th International Conference of Remote Sensing for Marine and Coastal Environments, May 20-22, 2002, Miami USA.
- Ayllon R & McClain M, Evaluación del Uso y Manejo de la Pesca Artesanal en la Cuenca del Rio Pachitea, Amazonia Peruana, Reunión Internacional de Limnología del Alto Amazonas, May 20-24, 2002, Leticia Colombia.
- McClain ME, The Collaborative Research Network of the Inter-American Institute for Global Change Research: CRN 47- AARAM, First AMPATH International Conference, April 12, 2002, Universidad Austral de Chile, Valdivia Chile. [Invited]
- Townsend-Small A, Haberer J, McClain M, Ramos O, Gardner W, McCarthy M & Brandes J, Nitrogen and Carbon Cycling in Deforested and Pristine Upland (2400m) Forest Catchments in the Peruvian Andes, Fall Meeting of the American Geophysical Union, December 10-14, San Francisco, USA.
- Cossio RE, McClain ME & Bray DB, Socioeconomic Factors Influencing the Use and Misuse of Riparian Forest in the Central Amazon Basin of Peru, Open Meeting of the Human Dimensions of Global Environmental Change Research Community, October 6-8, 2001, Rio de Janeiro Brazil.
- Mena CA & McClain ME, Analysis of Deforested Lands in the Napo Basin: Socioeconomic and Geophysical Factors, Spatial Patterns and Metrics, Open Meeting of the Human Dimensions of Global Environmental Change Research Community, October 6-8, 2001, Rio de Janeiro Brazil.
- McClain ME and 7 others, Hot Spots and Hot Moments in Landscape Biogeochemistry, Annual Meeting of the Ecological Society of America. August 5-10, 2001, Madison Wisconsin USA. [Invited]
- McClain ME, The Natural Attenuation of Contaminants in Large Tropical Rivers, proceedings of the International Scientific and Industrial Forum - Great Rivers 2001. May 15-18, Nizhny Novgorod, Russia [Invited]
- McClain ME & Llerena CA, Análisis y Manejo de Ríos de la Amazonia Andina: Proyecto AARAM. II Taller Científico Internacional sobre Manejo de Cuencas Hidrográficas Geocuenca 2001, April 9-13, 2001, La Havana Cuba. [Round Table Participant]

- McClain ME, Global Change Impacts on the Hydrology and Water Quality of Latin American Mountain River Systems, Fall Meeting of the American Geophysical Union, December 15-19, 2000, San Francisco USA. [Invited]
- McClain ME, Working Group Leader, International Workshop: Flood Protection Alternatives and Wetland Conservation - Tempisque River, May 2-6, 2000, Palo Verde Biological Station, Costa Rica.
- McClain ME, Co-Organizer, Workshop to Plan Activities within the Mountains Initiative in Latin America, March 8-10, Papallacta, Ecuador.
- McClain ME, Gomez-Barrios M & Gonzales M, Water Quality in the Peruvian Amazon: A Survey of Results from Environmental Impact Assessments. International Symposium on Hydrological and Geochemical Processes in Large-Scale River Basins, November 16-19, 1999, Manaus Brazil
- McClain ME, Pinay G & Holmes RM, Contrasting biogeochemical cycles of riparian forests in temperate, wet tropical, and arid regions. Ecological Society of America Annual Meeting, August 1999, Spokane Washington.
- McClain ME, Water resources management in the Amazon basin: Issues, challenges, and opportunities. *International Conference "Great Rivers-99"*, May 25-29, 1999, Nizhny Novgorod, Russia
- McClain ME, and six others, The Andean Amazon rivers analysis and management project. 79th American Meteorological Society Annual Meeting, Dallas, TX 10-15 January, 1999.
- Llerena CA & McClain ME, The Pachitea watershed project. 79th American Meteorological Society Annual Meeting, Dallas, TX 10-15 January, 1999.
- McClain ME, Becker A & Bugmann H. El Inicativo del IGBP sobre Cambios Globales en Regiones Montañosas. III Simposio Internacional de Desarrollo Sustentable en Regiones Montañosas, Quito, Ecuador, 9-14 December, 1998
- McClain ME, Auto Purificación de Ecosistemas Acuáticos en la Amazonia: una Herramienta para el Desarrollo Sostenible. IV Congreso Latino American de Ecología, Arequipa, Peru, 20-25 August, 1998
- McClain ME, E Mayorga, MT Logsdon & JE Richey, A conceptual framework for modelling organic matter dynamics in large river systems. Fourth International Symposium on the Geochemistry of the Earth's Surface, Yorkshire, England, 22-28 July, 1996.
- McClain ME, Richey JE, Brandes JA & Pimentel TP, Dissolved organic matter from forests to streams in contrasting catchments of the Central Amazon Basin, Brazil. Fall Meeting of the American Geophysical Union, San Francisco, CA, 11-15 Dec., 1995
- McClain ME, Richey JE & Victoria RL, Andean contributions to the biogeochemistry of the Amazon basin. Seminar "Water, Glaciers, and Climate Change in the Tropical Andes", La Paz, Bolivia, June 13-16, 1995 [Invited Lecture]
- McClain ME & Richey JE, Regional-scale linkages of terrestrial and lotic ecosystems of the Amazon Basin: A conceptual model for organic carbon and nitrogen. First International Symposium "The Ecology of Large Rivers", Krems, Austria, April 18-22, 1995
- Richey JE & McClain ME, The biogeochemistry and hydrology of the Amazon River system: 13 years of research in the CAMREX project. First International Symposium "The Ecology of Large Rivers", Krems, Austria, April 18-22, 1995
- McClain ME & Richey JE, Groundwater nitrogen dynamics across near-stream ecotones in a small catchment of the Central Amazon Basin. UNESCO Ecotones Program International Workshop on the Ecology and Management of Aquatic-Terrestrial Ecotones, Seattle, WA Feb. 13-19, 1994
- Brandes J & McClain ME, Inorganic nitrogen and ¹⁵N natural abundance patterns in a small Amazonian catchment. ASLO/PSA Joint Meeting, Miami, FL, June 12-16, 1994
- McClain ME, Hedges JI, Richey JE & Pimentel TP, Terrestrial contributions of dissolved organic

carbon to headwater streams of the Central Amazon Basin. Gordon Conference on Hydrologic, Geochemical and Biological Interactions in Forested Catchments, Plymouth, NH, August 1-6, 1993

INVITED/PUBLIC SEMINARS

- The Millennium Challenge Corporation in Latin America, Panel comments on the lecture of Ambassador John Danilovich at the Summit of the Americas Center, Feb 1st, 2008, Miami FL, USA.
- Strategic Partnerships to Secure Water for People and the Environment: A New Role for Academia, Lecture presented to the US Southern Command Environmental Security Conference, September 17th, 2007, Miami FL, USA.
- The Global Water for Sustainability Program, Lecture presented to the Water Institute at the University of Florida, March 8th, 2007, Gainesville FL, USA.
- Confronting the World's Water Crisis, Lecture presented to Environmental Science Program at Florida Memorial University, September 1st, 2006, Miami Springs FL, USA.
- Global Change and Rivers of the Amazon Headwaters, Lecture presented to the International Group of Funding Agencies in Global Change Research (IGFA), October 26, 2005, Alexandria VA, USA.
- El Uso de Modelos de Simulación en la Planificación y el Manejo de Recursos Naturales, Lecture presented during Agronomy Day at the Universidad Autónoma de Santo Domingo, October 4, 2005, Santo Domingo, Dominican Republic.
- Cambios en el Uso de la Tierra y las Dinámicas de Ríos en la Amazonía Andina, Lecture presented at the University of Puerto Rico in the CREST-CATEC Seminar Series, September 21, 2005, San Juan, Puerto Rico.
- The Global Water for Sustainability Program, Presented at the UNESCO-IHE Institute for Water Education, June 28, 2005, Delft, The Netherlands.
- Global Water Issues, Presented during FIU Earth Week Activities, Florida International University, April 6, 2005, Miami, USA.
- Andean controls on the biogeochemistry of the Amazon River, Lecture given at Cornell University in the Biogeochemistry & Environmental Biocomplexity Seminar Series, February 4, 2005, Ithaca New York, USA.
- Andean controls on the biogeochemistry of the Amazon River, Lecture in the Brown Bag Seminar Series of the FIU Southeast Environmental Research Center, February 9, 2005, Miami FL, USA.
- Volunteer Water Quality Monitoring in Biscayne Bay: The Baykeepers Project, Lecture given to the monthly meeting of the Sierra Club, May 10, 2004, Miami FL.
- Recursos Acuáticos de la Amazonia Andina: Proyecto AARAM, Public Lecture given at the University of Havana, Cuba, March 19, 2004
- La Influencia de la Variabilidad Climática en los Recursos Hídricos, presented at the IAI Summer Institute on Vulnerabilidad Asociada a la Variabilidad y Cambio Climático en América Central y el Caribe, November 2003, Santo Domingo, Dominican Republic.

- Aquatic Resources of the Andean Amazon, given to the College of Engineering Sciences, Technology and Agriculture at Florida A&M University, September 5, 2002, Tallahassee, FL.
- Water, Aquatic Life, and People in the Amazon Basin, Public Lecture given to the monthly meeting of the Sierra Club, June 10, 2002, Miami FL.
- Andean Controls on the Biogeochemistry of the Amazon River, given as part of the Laura Randall Schweppe Endowed Lecture Series in Marine Science at the University of Texas Marine Science Institute, April 31, 2002, Port Aransas TX.
- Amazon: The Journey from Source to Sea of Earth's Greatest River, Public Lecture given at the University of Texas Marine Science Institute, May 2, 2002, Port Aransas TX.
- People, Water, and Ecosystems in the Andean Amazon – Making Slick Science Meaningful, to the Tropilunch Seminar of the Tropical Conservation and Development Program at the University of Florida, March 12, 2002, Gainesville FL.
- Water resources management in the absence of physical infrastructure, institutional controls, or money! The case of the Western Amazon Basin, to the Graduate Seminar Series of the Department of Civil and Environmental Engineering, University of Cincinnati, January 19, 2001, Cincinnati OH

COURSES TAUGHT

EVR 6329 Watershed Analysis and Management (3 credits). This graduate course is a detailed introduction to the Watershed Approach to natural resources research and management. Systems are analyzed using EPA's BASINS software. The course addresses the biophysical, social, and political issues that must be simultaneously considered in order to effectively manage natural resources at the watershed scale. (Taught Spring Semester of 2000, 2001, 2002, 2003, 2004)

EVR 5332 Water in Environment and Development (3 credits). This graduate course examines the theory and practice of integrated water resources management through diverse case studies, directed readings, and group projects. (Taught Fall 2006, 2007)

EVR 5320 Environmental Resource Management (3 credits). A core graduate course of the program examining the scientific and philosophical basis for the management of renewable and non-renewable energy, mineral, air, water, and biotic resources. (Co-taught Fall 2002)

EVR 5215 Water Resources Assessment (3 credits). A comprehensive introduction to the occurrence and management of water resources. Topics covered include the hydrological cycle and the physical processes controlling surface and ground water, water quality characteristics and water quality monitoring, water treatment, water rights, and water management. (Taught Spring Semester of 2008)

EVR 4920 Environmental Studies Seminar (1 credit). An undergraduate seminar course featuring a series of talks by FIU and external experts addressing current environmental topics as well as development of professional skills. Students also prepare short presentations. (Taught Spring 2003)

EVR 4869L Environmental Problem Solving (2 credits). This senior undergraduate laboratory course introduces students to systems thinking and an analytical approach to environmental problem solving using the modeling software, Stella. As part of the course student's research

and develop their own model of a particular environmental problem and recommend actions to resolve the problem. (Taught Fall Semester of 2000, 2001, 2002, 2003, 2004)

EVR 4211 Water Resources (3 credits). A comprehensive introduction to the occurrence and management of water resources for undergraduates (combined course with EVR 5215). Topics covered include the hydrological cycle and the physical processes controlling surface and ground water, water quality characteristics and water quality monitoring, water treatment, water rights, and water management. The course features a number of guest lectures and many examples from South Florida. (Taught Spring Semester of 2001, 2002, 2003, 2004, 2005, 2007, 2008)

EVR 1001 Introduction to Environmental Sciences (3 credits): A large undergraduate physical science course for non-science majors, emphasizing air and water pollution, water resources, solid waste management, and energy resources. (Taught Fall 1999 and Spring 2000)

GRADUATE STUDENT TRAINING

Major Advisor

- Donna Sakura-Lemessy (M.Sc.): Utilizing Sub-Pixel Analysis to Resolve, Delineate and Map Forest Riparian Buffer Zones in the Pachitea Basin, Peru (*Completed Summer 2001*)
- Rosa Cossío (M.Sc.): Human Land Use in Riparian Zones of Two Communities in the Palcazu Basin, Central Andean Amazon, Peru (*Completed Fall 2001*)
- Carlos Mena (M.Sc.): Analysis of deforestation in the Napo Basin: Socioeconomic factors, spatial patterns, and metrics (*Completed Fall 2001*)
- Roxanna Ayllon (M.Sc.): Evaluation of the Use and Management of Fish Resources in the Pachitea River Basin, Peruvian Amazon (*Completed Fall 2002*)
- Alejandro Rosselli (M.Sc.): Aquatic Habitat Identification and Mapping in the Western Amazon Using Landsat 7 Enhanced Thematic Mapper Plus (Etm+) Data (*Completed Fall 2002*)
- Daniel Gann (M.Sc.): Land-cover detection and landscape structure analysis in the Pachitea basin, Peruvian Amazon (*Completed Spring 2003*)
- Marcelo Ayabaca (M.Sc.): Rainfall variability in the Napo basin of Ecuador and its relevance to water resources (*Completed Spring 2004*)
- Thomas Saunders (M.Sc.): Inorganic Nitrogen Composition and Fluxes along Runoff Pathways in Montane Forests of the Peruvian Amazon (*Completed Spring 2004*)
- Jorge Celi (M.Sc.): Land Use Impacts on River Water Quality in the Quijos Basin, Ecuadorian Amazon (*Completed Summer 2005*)
- Andrea Blanco (M.Sc.): The Impact of Solid and Liquid Wastes from Rural Communities on River Ecosystems of the Pachitea Basin, Peruvian Amazon (*Completed Summer 2005*)
- Lindsey Wagonner (M.Sc.): Land-use impacts on stream biogeochemistry in the Chontabamba basin, Peru (*completed Spring 2006*)
- Ximena Mesa (M.Sc.): River resiliency in the Pastaza River Basin of Ecuador (*ongoing*)
- Beth McCartney (M.Sc.): Influences of different flow regimes on rivers of the Mara River Basin, Kenya and Tanzania (*ongoing*)

Committee Member

- Simon Teixeira (M.Sc. EVR): The sustainability of aquaculture in Trinidad and Tobago: A case study of the County of St. Patrick (*Completed Fall 2002*)

- Inga Parker (M.Sc. Biology): Integrative microscale evaluations of tussock tundra under growing season manipulations (*Completed Spring 2003*)
- David Reed (M.Sc. EVR): Seed Germination and Growth of Four Wetland Tree Species in Response to Environmental Factors in Tree Islands of Northern Shark Slough, Everglades National Park (*ongoing*)
- Craig Rose (Ph.D. Biology): The effects of environmental heterogeneity on the mechanisms structuring seagrass plant communities (*Completed 2004*)
- Gustavo Rubio (M.Sc. Biology): Decomposition of *Cladium jamaicense* and *Eleocharis* spp. In the ecotone regions of Taylor Slough and Shark River Slough (*Completed 2003*)
- James Watling (Ph.D. Biology): Ecological implications of habitat fragmentation for amphibians and reptiles in a Neotropical lowland forest (*Completed Spring 2005*)
- Kevin Whelan (Ph.D. Biology): Small scale lightening gap dynamics of mangroves in Florida (*Completed Spring 2005*)
- Mark Zucker (M.Sc. EVR): Using hydrologic and water quality techniques to determine spatial and temporal patterns of freshwater to Joe Bay (*Completed Spring 2003*)
- Daniel Gomez (M.Sc. Biology): Cloud combing in the Tropical Montane Cloud Forest: importance of canopy structure and use by plants (*Completed Fall 2004*)
- Lawrence Lopez (M.Sc. Biology): Hyperabundant Rodent Communities in Lago Guri: Seed Predation and the Fate of Tropical Dry Forests (*Completed 2004*)
- Tiffany Troxler-Gann (Ph.D. Biology) Investigating ecosystem linkages in a complex landscape: nitrogen sources, sinks and retention mechanisms in forested islands of the southern Everglades (*Completed Spring 2005*)
- Cristina Ugarte (Ph.D. Biology) The effects of harvest and hydrology on pig frogs (*Rana grylio*) (*Completed Fall 2004*)
- John Carriger (M.Sc. EVR): An aquatic ecological risk assessment on pesticides detected in surface waters of the C-111 canal system and related estuarine discharge sites (*Completed Fall 2003*)
- Nilesh Timilsina (M.Sc. EVR): Patterns of habitat degradation and its effects on community structure and faunal movement in Southwestern Nepal (*Completed Spring 2005*)
- Kathryn Stanaway (M.Sc. EVR): The Effect of Microbial Mats on Sediment Nutrient Fluxes in Florida Bay (*Completed Fall 2005*)
- Min Gao (Ph.D. Chemistry): Chemical characterization of soil organic matter in an oligotrophic, subtropical, freshwater wetland: Sources, diagenesis and preservation (*ongoing*)
- Jeremy Vaudo (Ph.D. Biology): The role of predators in structuring soft bottom communities (*ongoing*)
- Simrat Pal Singh (Ph.D. Chemistry): Assessing the sources, quantity and trends on human waste contaminants along protected South Florida ecosystems: A chemical tracer-based study (*ongoing*)
- Alyssa Dausman (Ph.D. Earth Sciences): The effects of fluid temperature, fluid concentration, and geology on groundwater flow in a carbonate platform (*ongoing*)
- Virginia Walsh (Ph.D. Earth Sciences): Geochemical determination of the fate and transport of injected fresh wastewater into a deep saline aquifer (*ongoing*)
- Christina Hoffman (M.Sc. EVR): Geospatial Mapping and Analysis of Water Availability-Demand-Use within the Mara River Basin (*Completed Spring 2007*)
- John Stiefel (M.Sc. EVR): The Effectiveness of Rainwater Harvesting for the Artificial Recharge of Groundwater in the Wakal River Basin, India (*Completed Fall 2007*)

- Katherine Sleasman (M.Sc. EVR): The Effects of Microbial Mats on Sediment Nutrient Fluxes in Florida Bay, USA (*Completed Summer 2007*)
- Himadri Biswas (M.Sc. EVR): Hydrogeological Model of Groundwater Dynamics in the Wakal River Basin in Rajasthan, India (*ongoing*)
- Liya Mango (M.Sc. EVR): A Catchment Model Simulating the Hydrology and Water Quality of the Mara River as a Function of Land Use and Land Cover (*ongoing*)
- George Atisa (M.Sc. EVR): The Economics of Water in the Mara River Basin of Kenya and Tanzania (*ongoing*)
- Mariana Montoya (Ph.D. Geography – University of Texas): Resource Use Among the Kandoshi People of the Abanico del Pastaza, Peru.