

LEONARD J. SCINTO, Ph.D.

Office

Southeast Environmental Research Center
Florida International University
University Park
Miami, FL 33199
(305) 348-1965 fax: (305) 348-4096
Email: scintol@fiu.edu
Freshwater Biogeochemistry Laboratory – www.fiu.edu/~fwbgchem/

Home

3091 Bird Ave
Coconut Grove, FL
33133
(305) 461-0074

Objective:

To investigate biogeochemical cycles affecting the ecology of aquatic and wetland ecosystems. To understand how the physical and chemical environment influences biota and how biotic activities alter ecosystems. To apply this information to natural and created systems for reuse of chemical elements to: allow ecologically-efficient land use, to improve surface water quality, and to minimize anthropogenic environmental impacts. To disseminate knowledge of ecological system processes and the role these processes have in affecting environmental health to foment informed management decisions especially regarding aquatic systems.

Education:

- 1990 - 1997 Ph.D. Soil and Water Science, University of Florida.
Wetland Biogeochemistry, K.R. Reddy, Ph.D. advisor.
Dissertation: Phosphorus Cycling in a Periphyton-Dominated Freshwater Wetland.
Minor: Environmental Engineering Science - Graduate Wetlands Certification.
Award for Graduate Student Excellence in Soil and Water Science for 1997.
- 1987 – 1990 M.S. Soil Science, University of Florida. K.R. Reddy, Ph.D. advisor.
Thesis: Seasonal Variation in Soil Phosphorus Distributions in Two Wetlands of South Florida.
Minor: Environmental Engineering Science
- 1983 – 1985 B.S. Biological Sciences, Northern Illinois University.
Minors: Environmental Studies and Chemistry
- 1981 – 1982 Moraine Valley Community College. Palos Hills, IL.

Professional Experience:

- 2001 - Present Assistant Research Scientist. Southeast Environmental Research Center, Florida International University, Miami, FL.
- 1997 – 2001 Visiting Research Scientist. Southeast Environmental Research Program, Florida International University, Miami, FL.
- 1994 - 1997 Pre-Doctoral Fellow. Soil and Water Science Department, University of Florida, Gainesville, FL.
- 1987 – 1994 Graduate Research Assistant. Soil and Water Science Department, University of Florida, Gainesville, FL.
- 1986 - 1987 Lecturer in Biological Sciences. Northwestern University, Evanston, IL.
- 1984 - 1985 Undergraduate Research Technician. Department of Biological Sciences, Northern Illinois University. DeKalb, IL.

Funded Grants:

current

- 11/2006 – 01/2008 St. John’s River Water Management District. Assessment of N-fixation in Lakes Jesup and Monroe, Florida. SK42812. L.J. Scinto, W. Anderson, M. Ikenaga, C. Sinigalliano, and S. Thomas. \$249,953.
- 09/2006 – 09/2009 U.S. Environmental Protection Agency. Hydrologic Models for Creation and Restoration of Tree Islands and Freshwater Wetlands. EM-83298101. L.J. Scinto and J. Richards. \$193,400.
- 06/2006 – 02/2008 Town of Miami Lakes, FL. Monitoring, assessment, education, and management of aquatic resources in Miami Lakes, Florida. L.J. Scinto. \$50,000.
- 01/2006 – 12/2008 Department of the Interior/National Park Service – Everglades National Park. Developing ecosystem response indicators to hydrologic and nutrient modification in Northeast Shark River Slough, Everglades National Park. CA H5297-05-0099. E.E. Gaiser, D.Children, L.J. Scinto, and J. Trexler. \$407,261.
- 06/2005 – 08/2008 Department of the Interior/National Park Service – Everglades National Park. Retention and subsurface flow through the S-332 Detention Basins. CA H5297-02-0106. E.E. Gaiser, D.Children, R. Price, L.J. Scinto, and J. Trexler. \$418,320.
- 04/2005 – 09/2008 South Florida Water Management District. Loxahatchee impoundment landscape assessment (LILA) tree island experiments and site management. RS050962. L.J. Scinto, R. Price, and M. Ross. \$505,000

05/2005 – Department of the Interior/National Park Service. Monitoring, modeling and
09/2008 assessment of the Everglades ecosystem: R-EMAP Phase III; FIU subcontract.
J.H. Richards, Y. Cai, D.Childers, E.E. Gaiser, T. Philippi, and L.J. Scinto.
\$784,000

Past

06/2006 – South Florida Water Management District. Baseline soil characterization of
03/2007 the Nubbin Slough Pilot Stormwater Treatment Areas in the Lake Okeechobee
Watershed. #4500000037. L.J. Scinto. \$113,596.

06/2004 – St. Johns River Water Management District. Lake Harney sediment
09/2005 accumulation and past water quality. W.T. Anderson, E.E. Gaiser, L.J. Scinto.
\$94,164.

11/2002- U.S. Department of Energy to Hemispheric Center for Environmental
10/2004 Technology (HCET/FIU) sub-account for Special Technical and Analytical
Services. Parent Grant DE-FG26-00NT40806. Using Monitored Natural
Attenuation Processes for the Remediation of Trichloroethylene Contaminated
Soils and Groundwater. \$20,000/annum (\$40k total).

07/2003 – Professional Service Industries, Inc./South Florida Water Management
11/2004 District. Sample collection and laboratory analysis at STA-2 field site. L.J.
Scinto. \$127,000.

06/2003 – St. Johns River Water Management District. Sediment nutrient characteristics
12/2004 and paleolimnological reconstruction of Lake Monroe, FL, USA. W.T.
Anderson, E.E. Gaiser, L.J. Scinto. \$132,000.

08/2001 – U.S. Department of the Army. Periphyton design and analysis for the C-51
08/2003 (STA 1 – East) Project. R. D. Jones, E. E. Gaiser, M. Gantar, L. J. Scinto.
\$792,000.

01/1996 – U.S. Department of Interior/National Park Service and South Florida Water
12/2003 Management District. Numerical interpretation of Class III narrative nutrient
water quality criteria for Everglades wetlands. D. Childers, R. Jones, J.
Trexler. \$4,600,000 for 5 years. Biogeochemistry component: Scinto and
Jones: \$55,000 annually, Soils and Microbial Processes components:
Jayachandran and Scinto: \$50,000 annually.

09/2000 – U.S. Department of Interior. Evaluation of the potential use of periphyton-
09/2002 dominated storm water treatment areas for phosphorus reduction in the
Southern Everglades. R. D. Jones, E. E. Gaiser, M. Gantar, L. J. Scinto.
\$580,000.

- 01/1999 – South Florida Water Management District. Research integration of natural
01/2001 advanced treatment technologies. R. D. Jones, E. E. Gaiser, M. Gantar, L. J. Scinto. \$570,000.
- 11/1998 – U.S. Department of Interior/National Park Service. Using transect sampling to
11/1999 relate a phosphorus addition flume study to long-term water quality impacts in
Everglades marshes. D. Childers, C. Buzzelli, E. Gaiser, R. Jones, J. Richards,
L.J. Scinto, J. Trexler. \$241,000.
- 08/1994 – South Florida Water Management District. Phosphorus retention by
12/1996 periphyton. K.R. Reddy and L.J. Scinto. \$128,000.

Publications:
Reviewed

Thomas, S., E. E. Gaiser, M. Gantar, L. J. Scinto. (2006). Quantifying the response of calcareous periphyton crusts to rehydration: A microcosm study (Florida Everglades). *Aquatic Botany* 84:317-323.

Gaiser, E.E., D.L. Childers, R.D. Jones, J.H. Richards, L.J. Scinto, and J.C. Trexler. (2006). Periphyton responses to eutrophication in the Florida Everglades: Cross-system patterns of structural and compositional change. *Limnology and Oceanography* 51:617-630.

Gaiser, E.E., J.C. Trexler, J.H. Richards, D.L. Childers, D. Lee, A.L. Edwards, L.J. Scinto, K. Jayachandran, G.B. Noe, and R.D. Jones. (2005). Cascading ecological effects of low-level phosphorus enrichment in the Florida Everglades. *Journal of Environmental Quality* 34:717-723

Gaiser, E.E., L.J. Scinto, J.H. Richards, K. Jayachandran, D.L. Childers, J.C. Trexler, and R.D. Jones. (2004). Phosphorus in periphyton mats provides the best metric for detecting low-level P enrichment in an oligotrophic wetland. *Water Research* 38: 507-516

Scinto, L.J. and K.R. Reddy. (2003). Biotic and abiotic uptake of phosphorus by periphyton in a subtropical freshwater wetland. *Aquatic Botany* 77: 203-222.

Noe, G.B., L.J. Scinto, J. Taylor, D.L. Childers, and R.D. Jones. (2003). Phosphorus cycling and partitioning in oligotrophic Everglades wetland ecosystem: A radioisotope tracing study. *Freshwater Biology* 48:1993-2008.

Childers, D.L., R.F. Doren, R. Jones, G.B. Noe, M. Rugge, and L.J. Scinto. (2003). Decadal change in vegetation and soil phosphorus patterns across the Everglades landscape. *Journal of Environmental Quality* 32: 344 – 362.

Thomas, S., E.E. Gaiser, M. Gantar, A. Pinowska, L.J. Scinto, and R.D. Jones. (2002). Growth of calcareous epilithic mats in the margin of natural and polluted hydrosystems: Phosphorus removal implications in the C-111 basin, Florida Everglades, USA. *Lake and Reservoir Management* 18(4):324-330.

Childers, D.L., R.D. Jones, J.C. Trexler, C. Buzzelli, S. Dailey, A.L. Edwards, E.E. Gaiser, K. Jayachandran, A. Kenne, D. Lee, J.F. Meeder, J.H.K. Pechman, A. Renshaw, J. Richards, M. Rugge, L.J. Scinto, P. Sterling, and W. Van Gelder, 2002. Quantifying the effects of low level phosphorus enrichment on unimpacted Everglades wetlands with in situ flumes and phosphorus dosing. *In* Porter, J. and Porter, K. (eds). *The Everglades, Florida Bay and Coral Reefs of the Florida Keys: An Ecosystem Sourcebook*. CRC Press. Boca Raton, FL.

Noe, G. B., D. L. Childers, A. L. Edwards, E. Gaiser, K. Jayachandran, D. Lee, J. Meeder, J. Richards, L. J. Scinto, J. Trexler and R. D. Jones. 2002. Short-term changes in phosphorus storage in an oligotrophic Everglades wetland ecosystem receiving experimental nutrient enrichment. *Biogeochemistry* 59:239-267.

McCormick, P.V., and L.J. Scinto. 1999. Influence of phosphorus loading on wetland periphyton assemblages: A case study from the Everglades. p. 301 - 319. *In* K.R. Reddy et al. (ed.) *Phosphorus biogeochemistry in subtropical ecosystems*. Lewis Publishers, Boca Raton, FL.

Reddy, K.R., E. Flaig, L.J. Scinto, O. Diaz, and T.A. DeBusk. 1996. Phosphorus assimilation in a stream system of the Lake Okeechobee Basin. *Water Resources Bull.* 32(5): 901-915.

Reddy, K.R., O.A. Diaz, L.J. Scinto, and M. Agami. 1995. Phosphorus dynamics in selected wetlands and streams of the Lake Okeechobee Basin. *Ecological Engineering* 5:183-207.

Scinto, L.J. 1997. Phosphorus cycling in a periphyton-dominated freshwater wetland. Ph.D. diss. University of Florida, Gainesville, FL.

Technical

L.J. Scinto. 2007. Nubbin Slough Stormwater Treatment Area (STA) Baseline Soil Characterization. Final report submitted to the South Florida Water Management District, West Palm Beach, FL Contract No. 4500000037.

Anderson, W.E., L.J. Scinto, E.E. Gaiser, B. Carroll, A. Quillen, and D. Johnson. 2004. Lake Harney sediment accumulation and past water quality. Final report submitted to the St. John's River Water Management District, Palatka, FL Contract No. SH45213.

Scinto, L.J., S.P. Long, J. Acevedo, and J. Haberer. 2004. Periphyton-based stormwater treatment project. Final report submitted to the South Florida Water Management District, West Palm Beach, FL Contract No.C-15858-A02.

Anderson, W.E., E.E. Gaiser and L.J. Scinto. 2004. Lake Monroe sediment accumulation and past water quality. Final report submitted to the St. John's River Water Management District, Palatka, FL Contract No. SG452AA.

Childers, D.L., E.E. Gaiser, R.D. Jones, J. Richards, M. Ruge, L.J. Scinto, and J. Trexler. 2001. Using transect sampling to relate a phosphorus addition flume study to long-term water quality Impacts in Everglades marshes. Final report submitted to Everglades National Park, Homestead, FL Cooperative Agreement CA5280-9-9003.

Teaching Experience:

- 1997 – present Florida International University
Numerous guest lectures and seminars. Graduated 1 MSc student as major advisor through affiliation with the Department of Environmental Studies. Supervised 3 Post-Doctorate Fellows. Committee member for 2 graduated Doctoral Students, 2 graduated Master's Students and currently serve on several other committees.
- 1987 – 1997 University of Florida
Teaching Assistant: Wetlands Biogeochemistry (graduate level), and General Soils (undergraduate).
- 1986 – 1987 Northwestern University, Evanston, IL
Lecturer in Biological Sciences
Laboratory instructor: Diversity of Life, Genetics, and Ecology and Evolutionary Biology (undergraduate).

Additional Training and Skills

Radiation Safety Short Courses at UF and FIU.
Scanning Electron Microscopy Short Course.
USCG Motorboat Operators Certification Course

Field and laboratory experimental techniques involving: construction and use of field enclosures and mesocosm raceway systems, in situ measurement of physicochemical soil and water parameters, periphyton and phytoplankton uptake studies, bioassays, intact core/column collection, phosphorus fractionation schemes, radioisotope (^{32}P) tracing studies, development of extraction schemes, and controlled pH and redox incubation experiments, microbial gas flux measurements, and enzyme activity determination.

Extensive analytical chemistry experience including use of: atomic absorption spectrometry, gas and ion chromatography, visible, UV, and fluorescent spectrophotometry, liquid scintillation counting, electrochemical analysis, use of carbon/nitrogen analyzer. Other analytical techniques include: scanning electron microscopy, x-ray diffraction, thermogravimetric analysis, and a variety of wet chemistry digestion methods.

Presentations and Abstracts:

L.J. Scinto, P.I. Kalla, D.J. Scheidt, and R.J. Lewis. 2006. Biogeochemical indicators across the Greater everglades Landscape – Results of R-EMAPIII. D.J. Scheidt and L.J. Scinto, Soil subsidence in the public Everglades. E. Cline and L.J. Scinto, A review of, and future directions for research at the Loxahatchee Impoundment Landscape Assessment (LILA) Project. Invited Panelist – Defining success in Everglades tree islands. 2006 Greater Everglades Ecosystem Restoration Conference, Lake Buena Vista , FL, USA

L.J. Scinto, J. Haberer, and S. Long. 2005. Sediment accretion and long term sequestration of phosphorus and carbon in periphyton-dominated stormwater treatment areas. 9th International Symposium on Biogeochemistry in Wetlands. Baton Rouge, LA.

L.J. Scinto, D.L. Childers, E.E. Gaiser, R.D. Jones, M. Ruge, and J. Trexler. 2003. Changes in ecosystem macronutrient budgets, microbial characteristics, and vegetation patterns along phosphorus-enrichment gradients in Everglades wetlands. Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem. Palm Harbor, FL.

Boyer, J.N., D. Childers, R. Jaffe, R.D. Jones, and L.J. Scinto. 2000. What we already know about the water quality/nutrient status of the Florida coastal Everglades LTER and its Environs. LTER All Scientists Meeting, Snowbird, UT.

Gaiser, E. E., L. J. Scinto, J. H. Richards, D. L. Childers, J. D. Trexler, K. Jayachandran and R. D. Jones. 2000. Nutrients sequestered in microbial mats reflect remote source water quality in Everglades National Park. Greater Everglades Ecosystem Restoration Science Conference. Naples, FL.

Scinto, L.J., K. Jayachandran, and R.D. Jones. 1999. Determination of microbial parameters in flooded peat soils using fluorescent compounds. Sixth Symposium on Biogeochemistry of Wetlands. July 11-14, 1999. Ft. Lauderdale , FL.

Scinto, L.J. et al. 1999. Identifying phosphorus concentrations that will protect the Everglades: A flume dosing experiment. Poster presented at the South Florida Restoration Science Forum. May 17-19, 1999. Boca Raton, FL.

Scinto, L.J. 1997. Phosphorus cycling in a periphyton-dominated freshwater wetland. Ph.D. diss. University of Florida, Gainesville, FL

Scinto, L.J. 1995. Phosphorus Dynamics in a Freshwater Wetland as Influenced by Periphytic Activity. American Society of Agronomy, St. Louis, MO. Agronomy Abstracts. p. 333.

Scinto, L.J. 1994. Phosphorus Uptake Kinetics in a Periphyton Dominated Freshwater Wetland. American Society of Agronomy, Seattle, WA. Agronomy Abstracts. P. 417.

Scinto, L.J. 1992. Phosphorus Assimilation Capacity of Stream Sediments and Wetland Soils. American Society of Agronomy, Minneapolis, MN. Agronomy Abstracts. p. 57. Statewide Environmental Research Expo, University of Florida, First Prize Poster Contest.

Scinto, L.J. 1990. Seasonal variation in soil phosphorus distribution in two wetlands of South Florida. M.S. thesis. University of Florida, Gainesville, FL 265 pp.

Scinto, L.J. 1989. Seasonal Variation in the Phosphorus Distribution in Stream Sediments and Wetland Soils of South Florida. American Society of Agronomy, Las Vegas, NV. Agronomy Abstracts. p. 44.

Affiliations and Service:

Collaborator Florida Coastal Everglades Long-term Ecological Research,
National Science Foundation.
American Society of Agronomy - Soil Science Society of America
Tree-mendous Miami – Member Board of Directors
Gamma Sigma Delta
Reviewer for several journals including; J. Environmental Quality, Soil
Science Society of America Journal, and Wetlands, among others.
South Florida Water Management District Expert Advisor

***References:
(Alphabetical)***

Daniel L. Childers
Program Officer, Ecosystems Cluster & LTER Program
Division of Environmental Biology
National Science Foundation
4201 Wilson Blvd
Arlington VA 22230
703 292 7870 (office)
703 292 9064 (FAX) and

Department of Biological Sciences and
Southeast Environmental Research Center
Florida International University
Miami FL 33199
(305) 348-3101
childers@fiu.edu

Rudolf Jaffe, Ph.D.
Director
Southeast Environmental Research Center
Florida International University
Miami FL 33199
(305) 348-3095
jaffer@fiu.edu

Fred H. Sklar, Ph.D.
Chief Scientist, Everglades Division
South Florida Water Management District
3301 Gun Club Road
West Palm Beach FL 33406
(561) 682-6504
fsklar@sfwmd.gov