

## Curriculum Vitae

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### EDUCATION

University of California at Santa Barbara, B.A., Aquatic and Population Biology, June 1979  
(G.P.A. 3.89 excluding freshman year)  
University of California at Santa Barbara, M.A. Aquatic and Population Biology, June 1982 (G.P.A. 3.88)  
Louisiana State University, Ph.D., Major: Marine Sciences (Mathematical Ecology),  
Minor: Experimental Statistics, August 1986 (G.P.A. 3.77)

### EXPERIENCE

2016- Member of Maurepas Diversion Technical Advisory Group, CPRA  
2013- Member of LaVegMod modeling group, CPRA Master Plan  
2013- Member of Changing Course Technical Team  
2010 Team member of Science and Engineering Special Team  
2008- Chief Scientist, Wetland Resources, LLC  
2000-18 Expert Witness on six cases involving damage or mitigation of marshes and baldcypress swamps  
2005- Board of Directors, Atchafalaya Basin Keeper  
2006- Board of Directors, Little Leaf Louisiana  
1998- Director, Internet Laboratory of Biological Sciences  
1994- Director, Project CYPRESS, Systemic Initiatives Program  
1993- Development Advisory Board, Global Wildlife Foundation  
1992- Academic Advisor (Region 1 state university representative), evaluation of proposed projects under Breaux-Johnson Bill, Lake Pontchartrain Basin  
1998- Full Professor, Dept. of Biological Sciences, Southeastern Louisiana University  
1987-90 Chief statistical consultant for 220 scientists at U.S.D.A. Southern Regional Research Center  
1987-90 Assistant Professor, Dept. of Experimental Statistics and Coastal Ecology Institute, Louisiana State University  
1986-88 Seer Corporation, consulting, research and development of K-systems analysis software  
1986-88 Environmental Consultant, Pyburn and Odom  
1986 Post-doctoral Researcher, Coastal Ecology Institute  
1985-86 Design of knowledge base for Expert System on Multivariate Statistics ("A Guide for Use in Statistical Technique Optimization" - GUSTO)  
1977-82 Head of primary production study of aquatic macrophytes and microflora for California Wetlands Management Project

### AWARDS AND HONORS

Won Propeller's Water Challenge, 2015, \$10,000  
Best Paper Award at the joint conference of the World Organization of Systems and Cybernetics and the International Institute of General Systems Studies. 2002  
President's Award for Excellence in Research, 1996. SLU's annual career award for research productivity.  
Faculty Research Award, presented for outstanding scientific manuscript at the annual meeting of the Association of Southeastern Biologists (ASB), 1993. Encompasses twelve states.  
Named "Lead Ecologist" of Louisiana by the Ecological Society of America (>9,000 members) for their Ecology in Education Program, 1992.  
Faculty Research Award, Association of Southeastern Biologists (ASB), 1988.  
Full Member of Sigma Xi, 1987.  
Graduate Student Awards: Joseph Lipsey, Sr. Memorial Scholarship, 1986; Eugene P. Odum Award, 1986; First Place Paper, Gulf Estuarine Research Society, 1986; Co-president Marine Environmental Researchers, 1983-84; Louisiana State Rockefeller Scholarship, 1983-1986; Alumni Federation Fellowship, LSU, 1982-1986; Sea Grant Fellowship, UCSB, 1980-1982.

### PUBLICATIONS (Refereed Journals, Book Chapters)

Onuf, C. P., M. L. Quammen, **G. P. Shaffer**, C. H. Peterson, J. W. Chapman, J. Cermak, and R. W. Holmes. 1978. An analysis of the values of central and southern California coastal wetlands. In: Wetland Functions and Values: the State of Our Understanding, Eds. P. E. Greeson, J. R. Clark, and J. E. Clark. Amer. Water Res. Assoc., Minneapolis. 186-199.

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- Shaffer, G. P.** 1984. The effect of sedimentation on the primary production of the benthic microflora. Estuaries. 7(4B):497-500.
- Shaffer, G. P.**, and C. P. Onuf. 1985. Reducing the error in estimating annual production of benthic microflora: hourly to monthly rates, patchiness in space and time. Mar. Ecol. Prog. Ser. 26:221-231.
- Shaffer, G. P.**, and P. Cahoon. 1987. Extracting information from ecological data containing high spatial and temporal variability. Int. J. Gen. Sys. 13:107-123.
- Shaffer, G. P.** 1988. K-systems analysis for determining the factors influencing benthic microfloral production in a Louisiana estuary, USA. Mar. Ecol. Prog. Ser. 43:43-54.
- Shaffer, G. P.** 1988. A comparison of benthic microfloral production on the west and gulf coasts of the United States: an introduction to the dynamic K-systems model. Mar. Ecol. Prog. Ser. 43:55-62.
- Shaffer, G. P.**, and M. J. Sullivan. 1988. Water column productivity attributable to displaced benthic diatoms in well-mixed shallow estuaries. J. Phycology. 24:132-140.
- Delucca, A. J., **G. P. Shaffer**, and R. J. Berni. 1988. Analysis of epiphytic bacteria and endotoxin during cotton plant maturation. Am. Ind. Hyg. Assoc. J. 49:539-545.
- Delucca, A. J., and **G. P. Shaffer**. 1989. A two year study of the factors influencing endotoxin levels on cotton grown in hot, humid, environments. British J. Indust. Med. 46:887-891.
- Marshall, H. F., **G. P. Shaffer**, and E. J. Conkerton. 1989. An improved method for the measurement of free amino acids in peanut (*Arachis hypogaea*). Analytical Biochemistry. 189:2529-2534.
- Ross, L. F., and **G. P. Shaffer**. 1989. The fermentation of carbohydrates by intestinal microflora from infants under aerobic and anaerobic conditions. J. Clin. Micro. 2529-2534.
- Gosselink, J. G., **G. P. Shaffer**, L. C. Lee, D. M. Burdick, D. Childers, W. Conner, D. Cushman, S. Fields, S. Hamilton, M. Koch, N. Leibowitz, and J. Visser. 1990. Landscape conservation in a forested wetland watershed: can we manage cumulative impacts? BioScience 40:588-600.
- Pitt, J. I., M. A. Klich, **G. P. Shaffer**, R. H. Cruickshank, J. C. Frisvad, E. G. Mullaney, A. H. S. Onions, R. A. Samson, and A. P. Williams. 1990. Differentiation of Penicillium glabrum from Penicillium spinulosum and other closely related species: an integrated taxonomic approach. System. Appl. Microbiol. 13:304-309.
- Sasser, C. E., J. G. Gosselink, and **G. P. Shaffer**. 1991. Distribution of nitrogen and phosphorus in a Louisiana freshwater floating marsh. Aquatic Bot. 41:317-331.
- Shaffer, G. P.**, D. M. Burdick, J. G. Gosselink, and L. C. Lee. 1992. A cumulative impact management plan for a forested wetland watershed in the Mississippi River Floodplain. Wetlands. Ecol. Manag. 1(3):199-210.
- Spanier, A.M., A.J. St. Angelo, and **G.P. Shaffer**. 1992. The response of beef flavor to oxygen depletion and a mixed antioxidant/chelator cocktail. J. Agric. Food Chem. 40(9):1656-1662.
- Shaffer, G. P.**, C. E. Sasser, J. G. Gosselink, and M. Rejmanek. 1992. Vegetation dynamics in the emerging Atchafalaya Delta, Louisiana, USA. J. Ecology 80:677-687.
- Bett, K., **G. P. Shaffer**, J.R. Vercellotti, T.H. Sanders, and P.D. Blankenship. 1993. Reducing the noise contained in descriptive sensory data. J. Sensory Studies 8:13-29.
- Llewellyn, D. W., and **G. P. Shaffer**. 1993. Marsh restoration in the presence of intense herbivory: the role of Justicia lanceolata. Wetlands 13(3):176-184.
- Myers, R. S., **G. P. Shaffer**, and D. W. Llewellyn. 1995. Baldcypress restoration in southeast Louisiana: the relative effects of herbivory, flooding, competition, and macronutrients. Wetlands 15(2):141-148.
- Llewellyn, D. L., **Shaffer, G. P.**, N. J. Craig, D. Pashley, L.A. Creasman, and M. Swain. 1996. Restoration of the Mississippi River Alluvial Plain: a decision support system for prioritizing restoration sites. Conservation Biology 10(5):1446-1455.
- Shaffer, G. P.** 1997. K-systems analysis: an anti silver-bullet approach to ecosystems modeling. IIGSS. 32-39
- Day, J.W. Jr. **G.P. Shaffer**, D. Britsch, D. Reed, S. Hawes, and D. Cahoon. 1999. Statistical version of Pattern and process of land loss in the Louisiana coastal zone: an analysis of spatial and temporal patterns of wetlands habitat change (published with permission of Estuaries and written by Shafe). In: Recent research in coastal Louisiana: Natural system function and response to human influence. L.L. Rozas, J.A. Nyman, C. E. Proffitt, N.N. Rabalais, D.J. Reed, and R.E Turner (editors). Louisiana Sea Grant College Program, Baton Rouge, LA. p. 193-200.
- Keddy, P.A. and **G.P. Shaffer**. 2000. Review of Status and Trends of the Nation's Biological Resources. (M.J. Mac, P.A. Opler, C.E. Puckett-Haecker, and P.D. Doran (eds.), 1998, U. S. Geological Survey, Department of the Interior.) Wetlands 20: 565-566.
- Day, J.W., Jr., **G.P. Shaffer**, D. Britsch, D. Reed, S. Hawes, and D. Cahoon. 2000. Pattern and process of land loss in the Louisiana coastal zone: an analysis of spatial and temporal patterns of wetlands habitat change. Estuaries 23(4):425-438.
- Dowty, R. A., **G.P. Shaffer**, M.W. Hester, G.W. Childers, F. M. Campo, and M.C. Greene. 2001. The

- phytoremediation of small-scale oil spills in fresh marsh environments: a mesocosm approach. Marine Environmental Research 52:195-211.
- Souther, R.F., and **G.P. Shaffer**. 2000. The effects of submergence and light on two age classes of baldcypress (Taxodium distichum (L.) Richard) seedlings. Wetlands 20: 697-706.
- Day, J.W., Jr., **G.P. Shaffer**, D. Britsch, D. Reed, S. Hawes, and D. Cahoon. 2001. Patterns and processes of land loss in coastal Louisiana are complex: a reply to Turner 2001. Estimating the indirect effects of hydrologic change on wetland loss: if the Earth is curved, then how would we know it?. Estuaries 24(4): 647-651.
- Thomson, D.T., **G.P. Shaffer**, and J. A. McCorquodale. 2002. A potential interaction between sea-level rise and global warming: implications for coastal stability on the Mississippi River Deltaic Plain. Global Planetary Change 32:49-59.
- Hoepfner, S.S., and **G.P. Shaffer**. 2004. The K-systems glitch: granulation of predictor variables. Kybernetes: The International Journal of Systems and Cybernetics 33:962-972.
- Visser, J. M., G. D. Steyer, **G. P. Shaffer**, S. S. Hoepfner, M. W. Hester, E. Reyes, P. A. Keddy I. A. Mendelsshon, C. H. Sasser, and C. Swarzenski. 2004. Habitat switching module. In: LCA Study – Main Report (Edited by Robert Twilley). US Army Corps of Engineers. New Orleans, LA.
- Martin, S. B. and **G. P. Shaffer**. 2005. Sagittaria biomass partitioning relative to salinity, hydrological regime, and substrate type: implications for plant distribution patterns in coastal Louisiana, USA. Journal of Coastal Research 21(1):164-171.
- Chambers, M.S., W.H. Conner, J.W. Day, S.P. Faulner, E.S. Gardiner, M.S. Hughs, R.F. Keim, K.W. McLeod, C.A. Miller, J.A. Nyman, and **G.P. Shaffer**. 2005. Protection and Utilization of Louisiana's Coastal Wetland Forests: Final Report to the Governor of Louisiana from the Coastal Wetland Forest Conservation and Use Working Group. Louisiana Governor's Office for Coastal Activities, Baton Rouge, LA. 121 p.
- Willis, J.M., M.W. Hester, and **G.P. Shaffer**. 2005. A mesocosm evaluation of processed drill cuttings for wetland restoration and creation. Ecological Engineering 25: 41-50.
- Shaffer, G. P.**, S. S. Hoepfner, and J. G. Gosselink. 2005. The Mississippi River alluvial plain: characterization, degradation, and restoration. In: The World's Largest Wetlands. (Edited by L. H. Fraser and P. A. Keddy. Cambridge University Press. Pages 272-315.
- Day, J.W., W.H. Conner, and **G.P. Shaffer**. 2006. The importance of pulsed physical events for sustainability of Louisiana coastal forested wetlands. In: Hydrology and Management of Forested Wetlands Proceedings of the international Conference. American Society of Agricultural and Biological Engineers, St. Joseph, MI. Pages 158-166.
- Keim, R.F., J.L. Chambers, M.S. Hughs, L.D. Dimov, W.H. Conner, **G.P. Shaffer**, E.S. Gardiner, and J.W. Day. (2006). Long-term success of stump sprouts in high-graded baldcypress-water tupelo swamps in the Mississippi Delta. Forest Ecology and Management 234:24-33.
- Keim, R.F., J.L. Chambers, M.S. Hughes, J.A. Nyman, C.A. Miller, J.B. Amos, W.H. Conner, J.W. Day Jr., S.P. Faulkner, E.S. Gardiner, S.L. King, K.W. McLeod, and **G.P. Shaffer**. 2006. Ecological consequences of changing hydrological conditions in wetland forests of coastal Louisiana. P. 383-396 in: Coastal Environment and Water Quality, Y.J. Xu and V.P. Singh, eds. Challenges in Coastal Hydrology and Water Quality, Water Resource Publications, Highlands Ranch, Colo. 534 p.
- Effler, R. S., **G.P. Shaffer**, S.S. Hoepfner, and R.A. Goyer. 2007. Ecology of the Maurepas Swamp: Effects of Salinity, Nutrients, and Insect Defoliation. In: Tidally Influenced Forested Wetlands, Eds. W.H. Conner, K.W. Kraus, and T.W. Doyle. Springer.
- Faulkner, S.P., J.L. Chambers, W.H. Conner, R.F. Keim, J.W. Day, E.S. Gardiner, M.S. Hughs, , S.L. King, K.W. McLeod, C.A. Miller, J.A. Nyman, and **G.P. Shaffer**. 2007. Conservation and use of coastal wetland forests in Louisiana. In: Tidally Influenced Forested Wetlands, Edited by W.H. Conner and K.W. Kraus, and T.W. Doyle. Springer.
- Keddy, P.A., D. Campbell, T. McFalls, **G.P. Shaffer**, R. Moreau, C. Dranguet, and R. Heleniak. 2007. The Wetlands of lakes Pontchartrain and Maurepas: origins, processes, and restoration. Environmental Reviews. 15:43-77.
- Shaffer, G.P.** and J. W. Day, Jr. 2007. Use of Freshwater Resources to Restore Baldcypress – Water Tupelo Swamps in the Upper Lake Pontchartrain Basin. White Paper. Louisiana Department of Wildlife and Fisheries.
- Bett, K.L., **G.P. Shaffer**, J.R. Vercellotti, T.H. Sanders, and P.D. Blankenship. 2007. Reducing the noise contained in descriptive sensory data. J. of Sensory Studies 8(1):13-29.
- Hoepfner, S.S., **G.P. Shaffer**, and Thais E. Perkins. 2008. Through droughts and hurricanes: Tree mortality, forest structure, and biomass production in a coastal swamp targeted for restoration in the Mississippi River Deltaic. Forest Ecology and Management. 256:937-948.
- McCarthy, D.R., **G.P. Shaffer**, and C. Jeansonne. 2009. Determination of the correct criteria for K-systems reconstruction. International Journal of General Systems. 38(8):813-822.

- Shaffer, G.P.**, Wood, W.B., Hoepfner, S.S., Perkins, T.E., Zoller, J.A., and D. Kandalepas. 2009. Degradation of Baldcypress – Water Tupelo Swamp to Marsh and Open Water in Southeastern Louisiana, USA: An Irreversible Trajectory? *Journal of Coastal Research, Special Issue*. 54:152-165.
- Shaffer, G.P.**, J.W. Day, S. Mack, G.P. Kemp, I. van Heerden, M.A. Poirrier, K.A. Westpahl, D. FitzGerlad, A. Milanes, C. Morris, R. Bea, and P.S. Penland. 2009. The MRGO navigation project: a massive human-induced environmental, economic, and storm disaster. *Journal of Coastal Research*. 54:206-224.
- van Heerden, I.L., G.P. Kemp, **G.P. Shaffer**, R. Bea, D. FitzGerald, J.W. Day, C. Morris, and A. Milanes. 2009. How a navigation canal contributed to most of the flooding of New Orleans during Hurricane Katrina. *Public Organiz Rev*. 9:291-308.
- Kandalepas, D. K.J. Stevens, **G.P. Shaffer**, and W.J. Platt. 2010. How abundant are root-colonizing fungi in southeastern Louisiana's degraded marshes? *Wetlands* 30(2):189-197.
- McFalls, T.B., P. Keddy, D. Campbell, and **G.P. Shaffer**. 2010. Hurricanes, floods, levees, and nutria: vegetation responses to interacting disturbance and fertility regimes with implications for coastal wetland restoration. *Journal of Coastal Research* 26(5): 901-911.
- Lundberg, C.J., **G.P. Shaffer**, W.B. Wood, and J.W. Day, Jr. 2011. Growth rates of baldcypress (*Taxodium distichum*) seedlings in a treated effluent assimilation marsh. *Ecological Engineering*. 37:549-553.
- Visser, J. M., J. W. Day, Jr., L. L. Battaglia, **G. P. Shaffer**, and M. W. Hester. 2011. Chapter 4. Mississippi River Delta Wetlands. In D. Batzer and A. Baldwin (eds.) *Wetland Habitats of North America: Ecology and Conservation Concerns*. University of California Press.
- Day, J.W., Jr., **G.P. Shaffer**, R. Hunter, W. B. Wood, R. Lane, C.A. Lundberg, J. Day, and M. Hunter. 2011c. An analysis of the Hammond Assimilation Wetland: system response, nutria herbivory, and vegetation recovery. White Paper, Louisiana Department of Environmental Quality.
- Day, J.W., R. Hunter, R. Keim, R. DeLaune, **G. P. Shaffer**, E. Evers, D. Reed, C. Brantley, P. Kemp, J. Day, and M. Hunter. 2012. Ecological response of forested wetlands with and without large-scale Mississippi River input: Implications for management. *Ecological Engineering* 46:57-67.
- Conner, W.H., K.W. Krauss, and **G.P. Shaffer**. 2012. Restoring coastal freshwater forested wetlands following severe hurricanes. J. Stanturf et al. (eds.), *A Goal-Oriented Approach to Forest Landscape Restoration*, World Forests 16, DOI 10.1007/978-94-007-5338-9\_16.
- Kemp, G.P., J.W. Day, Jr., J.K. Vrijling, **G.P. Shaffer**, I.L. van Heerden, R. Storesund, R.G. Bea, S.A. Binselam, and K. Westphal. (submitted). Effects of navigation channels on surge and wave dynamics in the Lake Borgne funnel east of New Orleans, USA, during Hurricane Katrina. *Journal of Sustainable Development and Planning*.
- Visser, J.M., W.P. Broussard III, **G.P. Shaffer**, and J.W. Day Jr. 2013. Chapter 17. Climate Change effects on the Ecology of the Mississippi River Delta. In: T.S. Bianchi, M. A. Allison, and W-J Cai (eds.) *Biochemical Dynamics at Large River-Coastal Interfaces: Linkages with Global Climate Change*.
- Morris, J.T., **G.P. Shaffer**, and J.A. Nyman. 2013. Brinson Review: Perspectives on the influence of nutrients in sustaining coastal wetlands. *Wetlands*. 33(6):975-988.
- Morris, J.T., J.A. Nyman, and **G.P. Shaffer**. 2014. The Influence of Nutrients in Sustaining the Coastal Wetlands of the Mississippi Delta. In: *Perspectives on the Restoration of the Mississippi Delta*. J.W. Day, G.P. Kemp, A. Freeman, and D.P. Muth (eds.). Springer Verlag, 194 p.
- Shaffer, G.P.**, J.W. Day, R.G. Hunter, R.R. Lane, C.J. Lundberg, W.B. Wood, E.R. Hillmann, J.N. Day, E. Strickland, and D. Kandalepas. 2015. System response, nutria herbivory, and vegetation recovery of an assimilation wetland in coastal Louisiana. *Ecological Engineering* 79:120-131.
- Lane, R.R, J.W. Day, **G.P. Shaffer**, R.G. Hunter, J.N. Day, W.B. Wood, and P. Settoon. 2016. Hydrology and water budget analysis of the East Joyce Wetlands: past history and prospects for the future. *Ecological Engineering*. 87: 34-44.
- Hunter, R. J.W. Day, **G.P. Shaffer**, R. Lane, A.J. Englande, R. Reimers, D. Kandalepas, W.B. Wood, J. Day, and E.R. Hillman. 2016. Restoration and management of a degraded baldcypress swamp and freshwater marsh in coastal Louisiana. *Water*. 8(3): 71-
- Shaffer G.P.**, J.W. Day, D. Kandalepas, W.B. Wood, R. Hunter, R. Lane, and E. Hillman. 2016. Decline of the Maurepas Swamp, Pontchartrain Basin, Louisiana, and approaches to restoration. *Water*. 8(3): 101-
- Day J.W, R.R. Lane, C.F. D'Elia, A.R.H. Wiegman, J.S. Rutherford, **G.P. Shaffer**, C.G. Brantley<sup>4</sup>, G.P. Kemp. 2016. Large infrequently operated river diversions for Mississippi Delta restoration. *Estuarine, Coastal & Shelf Science* 183:292-303.
- Cretia, K.F., W.B. Wood, J.M. Visser, K.W. Krauss, L.A. Sharp, G.D. Steyer, **G.P. Shaffer**, and S.C. Piazza. 2017. Floristic Quality Index and Forested Floristic Quality Index: Assessment Tools for Restoration Projects and Monitoring Sites in Coastal Louisiana. USGS-Published Research. 1040: 459-473.
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- Sasser, C.E., G.O. Holm, E. Evers-Hebert, and **G.P. Shaffer**. 2018. The nutria in Louisiana: a current and historical perspective. Pp. 39-60 in *Restoration of the Mississippi Delta: Pathways to a Sustainable Future*, eds. J.W. Day and J.A. Erdman. Springer.
- Shaffer, G.P.**, J.W. Day, and R.R. Lane. 2018. Optimal use of fresh water to restore baldcypress-water tupelo swamps and fresh marshes and protect against saltwater intrusion: a case study of the Lake Pontchartrain Basin. Pp. 61-76 in *Restoration of the Mississippi Delta: Pathways to a Sustainable Future*, eds. J.W. Day and J.A. Erdman. Springer.
- Day, J.W., R.R. Lane, C.F. D’Elia, A.R.H. Wiegman, J.S. Rutherford, and **G.P. Shaffer**. 2018. Large infrequently operated river diversions for Mississippi Delta restoration. Pp. 113-133 in *Restoration of the Mississippi Delta: Pathways to a Sustainable Future*, eds. J.W. Day and J.A. Erdman. Springer.
- Hunter, R.G, J.W Day, R.R. Lane, **G.P. Shaffer**, J.N. Day, W.H. Conner, J.M. Rybczyk, J.A. Mistich, and J.Y. Ko. 2018. Using natural wetlands for municipal effluent assimilation: a half century of experience for the Mississippi River Delta and surrounding environs. Pp. 15-81 in *Multifunctional Wetlands: Pollution Abatement and Other Ecological Services from Natural and Constructed Wetlands*, eds. N.N. Nagabhatla and C.D. Metcalfe. Springer.
- Rutherford, J.S. J.W. Day, C.F. D’Elia, A.R.H. Wiegman, C.S. Willson, R.H. Caffey, **G.P. Shaffer**, R.R. Lane, and D. Batker. 2018. Evaluating trade-offs of a large infrequent sediment diversion for restoration of a forested wetland in the Mississippi Delta. ECSS, 1-16.
- Day, J.W., DeLaune, R., White, J., Lane, R., Hunter, R., **Shaffer, G.P.** 2019. Can denitrification explain coastal wetland loss: A review of case studies in the Mississippi Delta and New England. *Estuar. Coastal Shelf Sci.* 1-11.
- Day, J.W., R.R. Lane, R. Hunter, and **G.P. Shaffer**. 2019. Response to: Turner, R.E., J.E. Bodker, and C. Schulz. 2017. The belowground intersection of nutrients and buoyancy in a freshwater marsh. *Wetlands Ecology & Management*. 4:1-9. *Wetlands Ecology and Management*.
- Elsy-Quirk, T, S.A. Graham, I.A. Mendelsohn, G. Snedden, **G. Shaffer**, L.A. Sharp, R.R. Twilley, J. Pahl, R. Lane, J.W. Day. 2019. Synthesis of wetland responses to freshwater, sediment, and nutrient inputs: Will Mississippi River sediment diversions enhance coastal wetland sustainability? ECSS. 221: 170-183.
- Hillmann, E.R., **G.P. Shaffer**, W.B. Wood, J.W. Day, J. Day, J. Mancuso, R.R. Lane, and R.G. Hunter. 2019. Above- and Belowground Response of Baldcypress and Water Tupelo Seedlings to Variable Rates of Nitrogen Loading: Mesocosm and Field Studies. *Ecological Engineering*. In press.
- Hillmann, E.R., **G.P. Shaffer**, W.B. Wood, J.W. Day, C.E. Carrell, R.R. Lane. 2019. Belowground Biomass Production Under Cross-Classified Combinations of Water Quality, Hydrology, Sedimentation, and Hurricane Simulation. *Ecological Engineering*. (In review).
- Day, J.W., R.G Hunter, R.R. Lane, and **G.P. Shaffer**. 2019. Long-term assimilation wetlands in coastal Louisiana: a review of monitoring data and management. *Ecological Engineering*. (In review).
- Shaffer, G.P.** and D. Kandalepas. 2019. Monitoring of the Lac des Allemands Swamp (BA-34-2) Hydrologic Restoration Project. 2018 Final Report. CPRA. 14pp.
- Shaffer, G.P.**, T.A. Stevens, and C. Beachy. 2019. Ecological Responses to a Recently Constructed Breakwater Jetty in the Lake Pontchartrain, Louisiana. Final Report, 27p.
- Day, J.W., **G.P. Shaffer**, D.R. Cahoon, R. Delaune. 2019. Canals, backfilling, and wetland loss in the Mississippi Delta: a response to Turner and McClenachan (2018). ECSS 227:1-8.
- Janowsky, J., E. Kimbrough, D. Kanadlepas, **G.P. Shaffer**, and S.A. Van Bael. 2019. Bacterial and fungal endophyte communities differ in trees of natural versus wastewater-treatment wetlands. *Wetlands Ecology and Management*. (In press).
- Jafari, N.H., B.D. Harris, J.W. Day, C.E. Sasser, G.P. Kemp, R.R. Lane, C. Wigand, G.O. Holme, A. Freeman, L.A. Sharp, and **G.P. Shaffer**. 2019. Wetland soil strength with emphasis on the impact of nutrients and sediments. ECSS 229:1-27.
- John White, Brady Couvillion<sup>1\*</sup>, John Day, Ronald D. Delaune, John A. Nyman, **Gary Shaffer**. 2020. A Rebuttal of “Net Land Gain or Loss for Two Mississippi River Diversions: Caernarvon and Davis Pond”. ECSS.

#### **TECHNICAL REPORTS, PROCEEDINGS** (42, available on request)

#### **PRESENTATIONS**

**Invited** presentations at: Gulf Coast Research Laboratory, Loyola University, Louisiana State University, University of Maryland, Mississippi State University, University of Rhode Island, Washington State University, Louisiana State University, Loyola University, Tulane University, National Wetlands Research Center, U.S. Corps. of

Engineers, US Environmental Protection Agency, American Water Resources Association, LaCEPT, and conferences of the Ecological Society of America, the Estuarine Research Federation, the International Institute for System Studies, the Operations Research Society of America, Sigma Xi, the Association of Southeastern Biologists, the Society of Wetland Scientists, the World Organization of Systems and Cybernetics, and INTECOL. Present 2 to 4 papers per year at regional, national, and international conferences of the following societies: American Institute of Biological Sciences; Association of Southeastern Biologists; Ecological Society of America; Estuarine Research Federation; Gulf Estuarine Research Society; International Association for Landscape Ecology; Society of Wetland Scientists; Coastal and Estuarine Habitat restoration; World Organization of Systems and Cybernetics, Coastal Ecosystem and Estuarine Restoration.

**GRANTS AND CONTRACTS** (not including University match)

- Shaffer, G. P.** 1987-1990. Statistical consulting. USDA, Southern Regional Research Center. \$63,950.
- Gosselink, J. G., **G. P. Shaffer**, and C. E. Sasser. 1990. Role of Herbivory in Controlling Plant Succession in an Emerging Coastal Delta. Sea Grant Project R/MPE-48/PD. \$22,859.
- Shaffer, G. P.**, and D. W. Llewellyn. 1991. A Landscape Restoration Plan for the Bottomland Hardwood Forests of the Lower Mississippi River Valley, U.S.A. The Louisiana Nature Conservancy. \$62,558.
- Shaffer, G. P.** 1991. The Role of Nutria in Controlling Freshmarsh Vegetation Associations and the Potential for Utilizing Herbivore-resistant Vegetation in Marsh Restoration Efforts. Sea Grant Project R/MPE-61-PD. \$13,660.
- Shaffer, G. P.** 1991-1998. **Fifteen** grants on cypress and marsh restoration. Southeastern Louisiana University Faculty Development Grant. \$30,000.
- Shaffer, G. P.** 1992. Endotoxin in Cotton: A Multivariate Statistical Analysis. USDA. \$3,500.
- Shaffer, G. P.** 1992-95. A Hierarchical Approach to Cypress and Marsh Restoration in the Manchac/Maurepas area: From Landscape Planning to Consideration of Local Herbivores. LEQSF Research and Development Program. \$94,904.
- Shaffer, G. P.** 1993. Statistical and Ecological Consulting. USACE. \$1,800. Lee Wilson & Assoc. \$2,624.
- Shaffer, G. P.** 1993. Restoration of the "Prairie" in the Manchac Wildlife Management Area: Creation of Floating Marsh. Orr Memorial Research Grant.
- Llewellyn, D. W., and **G. P. Shaffer**. 1994-95. Analyzing Global Change Through Dendrochronology Using Remote Sensing Techniques. U.S. Forest Service. \$26,098.
- Childers, G. W., Bancroft, K., and **G. P. Shaffer**. 1994-96. Bioremediation Protocol for Small-Scale Oil Spills in Louisiana Wetlands. OSRADP. \$75,000.
- Shaffer, G. P.**, and G. Purdy. 1994-95. Wetlands Creation for Science Education and Endangered Species Habitat at the Global Wildlife Center: Critical Manipulation of Water Levels. \$4,837.
- Shaffer, G. P.** 1995-96. Discovering Science: An Experimental Arena for the Students of Southeastern. SLU Enhancement Funds. \$25,000.
- Shaffer, G. P.**, and Diana Hastings. 1996. Exploring Wetland and Estuarine Micro-Ecosystems in the Classroom: A Technique for Improving Science-Fair Projects. SLU Teacher/Researcher Prg. \$2,000.
- Llewellyn, D. W. and **G. P. Shaffer**. 1995-96. Adventitious root development, carbon dioxide enrichment, and natural regeneration of *Taxodium distichum* (baldcypress). U.S. Forest Service. \$10,000.
- Shaffer, G. P.** 1995-96. Statistical and Ecological Consulting. LUMCON for CWPPRA. \$6,500.
- Shaffer, G. P.** 1996-97. Statistical and Ecological Consulting. LUMCON for CWPPRA. \$4,300.
- Shaffer, G. P.**, M. W. Hester, and G. W. Childers. 1996-97. Use of Restored Drilled Cuttings for Marsh Creation: A Mesocosm Approach. Department of Energy (DOE). \$50,000.
- Shaffer, G. P.**, M. W. Hester, and G. W. Childers. 1997. Restored Drilled Cuttings for Marsh Creation: Extension and Expansion of a Mesocosm Approach to Emulate Field Conditions Under Varying Hydrologic Regimes. DOE. \$24,998.
- Shaffer, G. P.**, M. C. Greene, and M. White. 1997. A PerPetual Learning Environment (APPLE) for the Department of Biological Sciences at Southeastern Louisiana University. LEQSF. \$51,000.
- Shaffer, G. P.**, Clausen, S., Childers, G. W., and R. Moffett. 1997. The Edward G. Schlieder Endowed Chair of Environmental Studies. Edward G. Schlieder Foundation and LEQSF matching funds. \$1,000,000.
- Shaffer, G. P.** and M. W. Hester. 1997-1998. Coast 2050 Consulting Team. LADNR. \$30,620.
- Shaffer, G. P.**, M. Hester, and G. W. Childers. 1998-2000. Use of Restored Drilled Cuttings for Marsh Creation: A Field Demonstration Study. DOE. \$225,567.
- Shaffer, G. P.**, and E. Simoneaux 1994-2001. Project CYPRESS: Using Wetlands Ecology as a Vehicle for Teaching Mathematics and Science in Louisiana. **Funded 7 times.** NSF (LaSIP). \$1,153,000.
- Shaffer, G. P.** 1998-99. Regeneration of Baldcypress (*Taxodium distichum* (L.) Richard) Clearcuts and the effects of Submergence, Salinity Pulses, and Light Regime on Various Age Classes of Baldcypress Seedlings. US Forest Service. \$11,600.
- Souther, R. F., and **Shaffer, G. P.** 1998. Submergence Restrictions on Baldcypress Seedlings. OSCAR. \$1,500.
- Siccard, R., and **Shaffer, G. P.** 1998. Competition between Three Sagittarias Under Variable Levels of

- Flooding, Salinity, and Substrate Type. OSCAR. \$1,500.
- Shaffer, G. P.** 1998-99. Statistical and Ecological Consulting for CWPPRA. LUMCON. \$9,692.
- Martin, G. G., and **G.P. Shaffer**. 1999-2000. Mitigation of 180 acres of baldcypress swamp at Sawgrass Bayou and in the Lake Maurepas Basin. Wilprise Pipeline Co. \$450,000.
- Shaffer, G. P.** 1999-2,000. Statistical and Ecological Consulting for CWPPRA: Science Advisor for Complex Projects. CWPPRA. \$9,392.
- Hester, M., and **G.P. Shaffer**. 1999-2000 Analytical Assessment of Novel Substrates for Marsh Creation. Argonne National Laboratory. \$43,000.
- Shaffer, G.P.**, M.W. Hester, W.H. Conner, and P.A. Keddy. 2000. A Feasibility Study for a Freshwater Diversion into the Maurepas swamps. LUMCON (EPA, project sponsor). \$127,000.
- Keddy, P. A., M.W. Hester, **G. P. Shaffer**, W. Font, A. Cheek, P. Stouffer, R. Hastings, R. Moreau, D. Dardis, and W. Norton. 2001. Ecology and Restoration Potential of the Manchac Wetlands. EPA. \$186,117 (Shaffer)
- Keddy, P. A., M.W. Hester, **G. P. Shaffer**, G. W. Childers, G. Howard, B. Crother, and W. Norton. 2001. Ecology and Restoration Potential of the Manchac Area Wetlands, Phase II. EPA. \$134,000 (Shaffer)
- Shaffer, G.P.** 2001. A Feasibility Study for a Freshwater Diversion into the Maurepas Swamps: Phase 0. LUMCON (EPA, project sponsor, CWPPRA funded). \$56,000.
- Hoepfner, S. S., and **G.P. Shaffer**. 2001. Lake Maurepas Freshwater Diversion Feasibility Study. EPA STAR Fellowship, \$28,586.
- Shaffer, G.P.** and S.S. Hoepfner. 2001. A Feasibility Study for a Diversion into the Maurepas Swamps: Interim Study Period, April-December, 2001. EPA, \$93,751.
- Shaffer, G.P.** and S. L. Howell. 2001. Studying Nocturnal Behavior Through the Use of Infra Red Photographic Technology. Student Technology Fee. \$2,992.
- Shaffer, G.P.** and S.S. Hoepfner. 2002-03. Phase 1 Feasibility Study for a Diversion into the Maurepas Swamps. EPA, \$108,075.
- Shaffer, G.P.** 2001-2002. Adaptive Management Team Statistical Consultant. DNR. \$25,000.
- Shaffer, G.P.** 2002-2003. CWPPRA Science Advisor. LUMCON \$13,600.
- Shaffer, G.P.** 2003-2005. Consultant and model builder for the LCA document. ULL and DNR. \$28,852.
- Shaffer, G.P.** 2003. Expert Swamp Ecologist for Barataria Diversion. EPA. \$11,436.
- Shaffer, G.P.** and T. Perkins. 2003. Technological Upgrade for the Wetlands Restoration Laboratory. SLU Student Technology Fee Large Projects Grant. \$12, 277.
- Shaffer, G.P.** and J. Day 2003. Monitoring, Experimentation, and Modeling Environmental Stressors in the Swamps of Lake Maurepas. CREST. \$54,742.
- Shaffer, G.P.** and P.A. Keddy. 2003. Habitat-State Change in the Wetlands of Lake Pontchartrain Basin: From Species Associations to Ecosystem Responses Under Different Diversion Scenarios. LPBRA, NOAA. \$159,777.
- Shaffer, G.P.** 2003. A Whole-System Approach for Restoring the Wetlands of the Western Lake Pontchartrain Basin. EPA. \$340,000.
- Shaffer, G.P.** 2004-2008. Ecological Consultant – CWPPRA Monitoring Program. DNR. \$22,800.
- Shaffer, G.P.** and P.A. Keddy. 2004-2006. Habitat-State Change in the Wetlands of Lake Pontchartrain Basin: From Species Associations to Ecosystem Responses Under Different Diversion Scenarios. LPBRA,NOAA. \$136,318.
- Shaffer, G.P.** 2006-2009. De-energizing Storms with Cypress/Tupelo Buffers: A Plan to Restore the Repressed Swamps of the Lake Pontchartrain Basin by Using Point and Nonpoint Sources of Freshwater. EPA (PBRP). \$148,600.
- Shaffer, G.P.** 2006-2008. Habitat State Change and the Effects of Hurricanes Katrina and Rita on Aboveground Turnover in the Manchac/Maurepas Wetlands Under Varying Restoration Scenarios. CREST \$74,830.
- Shaffer, G.P.** 2006-2008. Reducing Hurricane-Damage in the Lake Pontchartrain Basin by Using Point Sources of Freshwater to Regenerate Cypress – Tupelo Swamps: A Demonstration Project. NOAA (PRP). \$122,365.
- Shaffer, G.P.** 2009-2010. Building Baldcypress – Water Tupelo Matrix Levees By Using Municipal Wastewater, While Investigating Nutria Mitigation Strategies. NOAA (PRP) \$63,300.
- Shaffer, G.P.** 2008-2010. Coastal Science Assistantship Program Fellowship. \$62,500. Sea Grant (NOAA).
- Keim, R.F., D.H. Braud, **G.P. Shaffer**, and J.L. Chambers. 2009-10. Mapping Wetland Forest Condition in Coastal Louisiana. LADEQ (EPA). \$159,232 (Southeastern’s subcontract).
- Shaffer, G.P.** 2009-2010. Academic Advisor to CWPPRA and to CRMS monitoring program evaluation team. CWPPRA, \$12,500.
- Shaffer, G.P.**, J.W. Day, Jr., and R. Hunter. 2012-14. Establishment of baldcypress – water tupelo nurseries for restoration of forested wetlands and for protection of flood control levees in coastal Louisiana. Coastal Protection and Restoration Fund, CPRA. \$150,000.

- Shaffer, G.P.** 2011-2012. Academic Advisor of Pontchartrain Basin for CWPPRA and to CRMS monitoring program evaluation team, and development of Forest Floristic Quality Index for swamps of southeastern USA. CWPPRA, \$11,000.
- Shaffer, G.P.** 2013. Academic Advisor of Pontchartrain Basin for. CWPPRA, \$3,000.
- Shaffer, G.P.,** J.W. Day, Jr., and R. Hunter. 2012-14. Establishment of baldcypress – water tupelo nurseries for restoration of forested wetlands and for protection of flood control levees in coastal Louisiana. Coastal Protection and Restoration Fund, CPRA. \$150,000 (Comite Resources, Inc and Wetland Resources, LLC).
- Shaffer, G.P.** 2013-2014. LaVegMod Baldcypress – Water Tupelo and Bottomland Hardwood Models. The Water Institute of the Gulf and CPRA. \$33,912.
- Shaffer, G.P.,** J.W. Day, Jr., and R. Hunter. 2012-16. Establishment of baldcypress – water tupelo nurseries for restoration of forested wetlands and for protection of flood control levees in coastal Louisiana. Coastal Protection and Restoration Fund, CPRA. \$150,000 (Comite Resources, Inc and Wetland Resources, LLC).
- Shaffer, G.P.** 2000-. Academic Advisor of Pontchartrain Basin for CWPPRA. \$3,000 per year.
- Shaffer, G.P.** 2014 - 2020. Maurepas/Manchac Baldcypress Restoration Fund. Fine for illegal logging of Maurepas swamp: placed in Southeastern Alumni Foundation Fund. \$33,000.
- Shaffer, G.P.** 2014-2016. Technical Team Advisory Services for the River Reintroduction into Maurepas Swamp Project. Contract #2503-13-43. CPRA. \$33,558.
- Shaffer, G.P.,** J.W. Day, R.R. Lane and R. Hunter. Pending. Pending. Using marsh organs and mesocosms to evaluate the impact of water-level rise, salinity, and nutrients on the sustainability and value of ecosystem services of Mississippi Delta coastal marshes. CPRA. \$515,616. (Southeastern is lead university)
- Shaffer, G.P.** 2016. Baseline monitoring of Lac des Allemands BA-34-2 swamp. \$37,650. Wetland Resources, LLC (tried to go through Southeastern but overhead was too high).
- Barret, S. and **Shaffer, G.P.** 2017. Relative effects of flooding and nutrient addition on net primary production of three common wetland plant species. LEEC, \$1,200.
- Stevens, N. and **G.P.Shaffer.** 2015-2017. Using marsh organs to separate the effects of nutrients and flooding on coastal wetland plants. Sea Grant, \$2,500.
- Shaffer, G.P.** 2017. Wetland Vegetation summer course. LUMCON, \$4,504.
- Shaffer, G.P.** 2016-2023. Edward G. Schielder Foundation Professorship for Environmental Studies and Sustainability. \$18,500 per year.
- Shaffer, G.P.** 2018. Ecological responses to a recently constructed breakwater jetty in Lake Pontchartrain, Louisiana. Tangipahoa Parish, \$20,000.
- Moreau, R., **G.P. Shaffer,** D. Dardis, and G. Alkadi. 2019. Turtle Cove Marsh Restoration and Education-Outreach Virtual Enhancement Project. Entergy \$42,500.
- Shaffer, G.P.** 2017-2027. Design and implementation of the 42-acre Sankofa Wetland Park in Lower Ninth Ward, New Orleans, LA, ~\$333,000
- Shaffer, G.P.** 2017-2025. Member of Maurepas diversion Technical Advisory Group. CPRA, \$288,000
- Shaffer, G.P.** and D. Kandalepas. 2017-2037. Hydrologic restoration of the Lac des Allemands swamp. CPRA, \$1,200,000.

### **TEACHING EXPERIENCE**

Applied Biostatistics (undergraduate-graduate level (UG)); Botany (U); Biological Science for Teachers (G), Ecology (U); Ecological Methods (U); Estuarine Ecology (G); Experimental Design (G); Experimental Design for Teachers (G); Experimental Statistics for Agricultural Sciences - I, II (G); Foundations of Biology (U); Multivariate Statistics (G); Plant Ecology (UG); Simulation Modeling (UG); Statistical Techniques for Environmental Sciences - I, II (G); Science for Teachers (G); Wetlands Ecology (UG).

### **OTHER TEACHING INTERESTS**

SAS Programming I, II; Geographic Information Systems; Landscape Ecology; Aquatic Ecology; Phycology.

### **REVIEWER**

American Journal of Botany, Diatom Research, Estuaries, Ecological Engineering, Journal of Experimental Botany, Journal of Experimental Marine Biology and Ecology, JGR Oceans, Journal of Phycology, Marine Ecology - Progress Series, Wetlands, Restoration Ecology, Mississippi-Alabama Sea Grant proposals, National Wetlands Research Center, National Oceanic and Atmospheric Administration proposal, Louisiana Agricultural Experiment Station proposals, many peer reviews for colleagues.

### **EXPERT WITNESS**

Louisiana DOTD vs. Monteleone, et al., 2006-2007  
 Pontchartrain Levee District vs. Monteleone (case settled spring 2007)  
 Robinson vs USA (MRGO litigation) 2007-2009



Louisiana DOTD vs. Monteleone, et al., 2008-2009

Lafourche Realty Company, Inc. and Allen Company, Inc. v Entergy Louisiana, Inc., Irby Construction Company, et al. (case settled spring 2012)

Spanish Lake Restoration, LLC v. Shell Oil Company, et al. (fall 2013)