Jacob F. Schaefer

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Education and Professional Positions –

1992 B.S. in Biology, minor in Chemistry
Stetson University, Deland Florida, 32720

1995 M.S. in Zoology
University of Oklahoma, Department of Zoology
Advisor: Loren G. Hill

1999 Ph.D. in Zoology
University of Oklahoma, Department of Zoology
Advisor: William J. Matthews

2000 Postdoctoral Researcher
Sam Noble Oklahoma Museum of Natural History
Advisor: Edie Marsh-Matthews

2000 Assistant Professor
Southern Illinois University Edwardsville, Department of Biological Sciences
Edwardsville, IL 62025

2004 Assistant Professor and Curator of Fishes
University of Southern Mississippi, Department of Biological Sciences
Hattiesburg, MS 39401

2008 Associate Professor and Curator of Fishes
University of Southern Mississippi, Department of Biological Sciences
Hattiesburg, MS 39401

2014 Professor and Curator of Fishes
University of Southern Mississippi, Department of Biological Sciences
Hattiesburg, MS 39401

Areas of Research Interests -

Evolutionary Ecology, Evolutionary Physiology, Community Ecology and Ichthyology

Teaching Experience -

University of Southern Mississippi
Ichthyology (5 Semesters)

Population and Community Ecology (7 semesters)
Environmental Physiology (4 semesters)
Multivariate Applications in Ecology (graduate, 6 semesters)
Honors Introductory Biology (7 semesters)
Ecology of Color and Light (graduate, 1 semester)
Biology of Fishes (1 Semester)
Environmental Biology (1 semester)

Southern Illinois University Edwardsville

Human Anatomy and Physiology I (9 semesters)
Human Anatomy and Physiology II (9 semesters)
Aquatic Ecosystems (1 semester)
Physiological Ecology (1 semester)
Comparative Vertebrate Anatomy (1 semester)
Introductory Biology for Non Majors (2 semesters)
Senior Assignment, Senior Research Seminar, (1 semester)
Advanced Community Ecology (graduate, 1 semester)

University of Oklahoma

Experimental Design in Ecology, U. of OK. Biol. Station, (4 sessions)
Human Anatomy (cadaver based, 2 semesters)

Peer Reviewed Publications

56. Mickle, P.M., J. Schaefer, S. Adams, B. Kreiser and T. Slack. Comparing river condition to successful hatch of Alabama shad (*Alosa alabamae*) in northern Gulf of Mexico drainages. In press *Fishery Bulletin.*

55. Schaefer, J., D. Duvernell and D. Campbell**. Hybridization and introgression in two ecologically dissimilar *Fundulus* hybrid zones. *Evolution*. DOI: 10.1111/evo.12920

54. Clark*, S., J. Schaefer. 2016. Demographic and environmental influences on the local movement dynamics of the blackspotted topminnow, *Fundulus olivaceus*. *Behavioral Ecology and Sociobiology.* **70**(4): 557-567.

53. Schaefer, J., N. Frazier and J. Barr. 2015. Northern Gulf of Mexico near-coastal fish assemblage dynamics following the Deepwater Horizon oil spill. *Transactions of the American Fisheries Society*. **145**(1): 108-119.

52. Cashner, R.C., J. Schaefer, A. Echelle, F. Galvez and M. Ghedotti. 2016 (anticipated). Fundulidae: Topminnows. *In* Warren, M.L. and B. M. Burr eds. Diversity of North American Freshwater Fishes: Natural History, Ecology, & Conservation Volume 2. Johns Hopkins University Press, Baltimore Maryland.

51. Matamoros, W., C. Hoagstrom, J. Schaefer and B. Kreiser. 2015. Fish faunal provinces of the conterminous USA reflect Quaternary connections exemplified

by distributions of primary freshwater fishes. *Biological Reviews* DOI: 10.1111/brv.12196.

50. Michaelsen**, S., J. Schaefer and M. Peterson. 2015. Fluctuating asymmetry in *Menidia beryllina* exposed to oil from the Deepwater-Horizon spill. *PLoSOne* DOI: 10.1371/journal.pone.0118742

49. Feldheim, K.A., B.R. Kreiser, B. Schmidt, D.D. Duvernell and J.F. Schaefer. 2014. Isolation and characterization of microsatellite loci for the blackstripe topminnow (*Fundulus notatus*) and their variability in two closely related species. *Journal of Fish Biology* **85**(5): 1726-1732.

48. Matamoros, W. C. McMahon, P. Chakrabarty, A. James, and J. Schaefer. 2014. Derivation of the Freshwater Fish Fauna of Central America Revisited: Myers's hypothesis in the 21st Century. *Cladistics* **31**(2): 177-188.

47. Earnest*, K., J. Scott*, J. Schaefer and D. Duvernell. 2014. The landscape genetics of syntopic topminnows (*Fundulus notatus* and *F. olivaceus*) in a riverine contact zone. *Ecology of Freshwater Fish* **23**(4): 572-580.

46. Franssen, N., Stewart*, L. and J. Schaefer. 2013. Morphological divergence and flow-induced phenotypic plasticity in fish from anthropogenically altered stream habitats. *Ecology and Evolution* ***3***: 4648-4657.

45. Duvernell, D.D., S. Meier*, J. Schaefer, and B.R. Kreiser. 2013. Contrasting phylogeographic histories between broadly sympatric topminnows in the *Fundulus notatus* species complex. *Molecular Phylogenetics and Evolution* **69**: 653-663.

44. Duvernell, and J. Schaefer. 2013. Variation in contact zone dynamics between two species of topminnows, *Fundulus notatus* and *F. olivaceus*, across isolated drainage systems, *Evolutionary Ecology.* **28**: 37-53.

43. Schaefer, J. 2013. *Fundulus notatus* (blackstripe topminnow) and *Fundulus olivaceus* (blackspotted topminnow), in M. Eberle and D. Edds. Fishes of Kansas. University Press of Kansas, Lawrence.

42. Franssen, N.R., J. Harris*, S.R. Clark*, J.F. Schaefer and L. K. Stewart*. 2013. Shared and unique morphological responses of stream fishes to anthropogenic habitat alteration. *Proceedings of the Royal Society* **280***:* 20122715.

41. Mickle, P.F., J. Schaefer, D.A. Yee and S.B Adams. 2013. Diet of juvenile Alabama shad (*Alosa alabamae*) in two northern Gulf of Mexico drainages. *The Southeastern Naturalist* **12**(1): 233-237.

40. Matamoros, W.A., J. Schaefer, P. Chakrabarty and L. Hernandez*. 2012. *Profundulus kreiseri* a new species from Honduras with a new look at the relationships within Profundulidae. *Zookeys* **227**: 49-62.

39. Schaefer, J.F. 2012. Hatch success and temperature dependent development time in two broadly distributed topminnows (Fundulidae). *Naturwissenschaften* **99**(7):591-595.

38. Schaefer, J., S. Clark* and M.L. Warren. 2012. Diversity and stability in Mississippi stream fish assemblages. *Freshwater Science* **31**(3): 882-894.

37. Schaefer, J.F. D. Duvernell, B. Kreiser, C. Champagne*, S.R. Clark*, M. Gutierrez*, L. Stewart**, C. Coleman**. 2012. Evolution of a sexually dimorphic trait in a broadly distributed topminnow (*Fundulus olivaceus*). *Ecology and Evolution* **2**(7): 1371-1381.

36. Matamoros, W.A., B.R. Kreiser and J.F. Schaefer. 2011. A delineation of Nuclear Middle America biogeographical provinces based on river basin faunistic similarities. *Reviews in Fish Biology and Fisheries*, **22**: 351-365.

35. Aldredge*, P., M. Gutierrez*, J. Schaefer, D. Duvernell, W.A. Matamoros and P. Brunkow. 2011. Variability in movement dynamics of *Fundulus notatus* and *F. olivaceus* populations. *Ecology of Freshwater Fish*, **50**: 513-521.

34. Schaefer, J., D. Duvernell and B. Kreiser. 2011. Shape variability in topminnows (*Fundulus notatus* species complex) along the river continuum. *Biological Journal of the Linnean Society* **103**: 612-621.

33. Schaefer, J.F., D. Duvernell and B. Kreiser. 2011. Ecological and genetic assessment of spatial structure among replicate contact zones between two topminnow species. *Evolutionary Ecology* **25**(5): 1145-1161.

32. Schaefer, J.F. and A. Walters**. 2010. Metabolic cold adaptation and developmental plasticity in metabolic rates among species in the *Fundulus notatus* species complex. *Functional Ecology* **24**(5): 1087-1094.

31. Mickle*, P., J.F. Schaefer, S.B. Adams and B.R. Kreiser. 2010. Habitat use of age 0 Alabama shad in the Pascagoula River drainage, USA. *Ecology of Freshwater Fish* **19**: 107-115.

30. Matamoros*, W.A. and J.F. Schaefer. 2010. A new species of *Profundulus* (Cyprinodontiformes: Profundulidae) from the Honduran central highlands. *Journal of Fish Biology* **76**(6): 1498-1507.

29. Matamoros*, W.A., J.F. Schaefer and B. R. Kreiser. 2009. Annotated checklist of the freshwater fishes that occur in continental and insular Honduras. *Zootaxa* **2307**:1-38.

28. Feldheim, K.A., P.J. Sanchez**, W.A. Matamoros, J.F. Schaefer, B.R. Kreiser. 2009. Isolation and Characterization of Microsatellite Loci for Mountain Mullet (*Agonostomus monticola*). *Molecular Ecology Resources* **9(6)**:1482-1484.

27. Gido, K.B., J.F. Schaefer and J.A. Falke. 2009. Convergence of littoral zone fish communities in reservoirs. *Freshwater Biology* **54**: 1163-1177.

26. Schaefer, J.F., B.K. Kresier, P. Mickle*, C. Champagne* and D. Duvernell. 2009. Patterns of co-existence and hybridization among two topminnows (*Fundulus euryzonus* and *F. olivaceus*) in a riverine contact zone. *Ecology of Freshwater Fish* **18**: 360-368.

25. Matamoros*, W.A., P. Mickle, J. Schaefer, W. Arthurs, J. Ikoma, R. Ragsdale. 2009. First record of *Agonostomus monticola* (Family: Mugilidae) in Mississippi freshwaters with notes of its distribution in the southern USA. *The Southeastern Naturalist* **8**(1): 175-178.

24. Bowen*, B.R., B. Kreiser, P. F. Mickle, J. Schaefer, and S. B. Adams. 2008. Phylogenetic relationships among North American *Alosa* species (Clupeidae). *Journal of Fish Biology* ***72***: 1188-1201.

23. Vigueira**, P., J.F. Schaefer, B.R. Kreiser and D. Duvernell. 2008. Tests of reproductive isolation among species in the *Fundulus notatus* (Cyprinodontiformes: Fundulidae) species complex. *Evolutionary Ecology* **22**(1): 55-70.

22. Zuber*, B., and J.F. Schaefer. 2007. Fluctuating asymmetry and condition of fishes exposed to varying levels of environmental stressors. *Proceedings of the Mississippi Water Resources Board* **37**:179-185.

21. Meadows, D., S.B. Adams and J.F. Schaefer. 2007. Threatened Fishes of the World: *Alosa alabamae* Jordan and Evermann, 1896 (Clupeidae). *Environmental Biology of Fishes* **82**(2):173-174.

20. Lutterschmidt, W.I, J.F. Schaefer and R. Furrillio. 2007. Relationships between parasite load and physiological performance (CTMax and endurance) of two Centrarchids (*Lepomis megalotis* and *Lepomis macrochirus*). *Journal of Comparative Parasitology* **74**(2): 194-203.

19. Duvernell, D., J.F. Schaefer, D. Hancks**, J. Fonoti* and A. Ravanelli**. 2007. Hybridization and Introgression Among Syntopic Populations of the Topminnows

Fundulus notatus and *F. olivaceus* in Southern Illinois. *Journal of Evolutionary Biology*. **20**: 152-164.

18. Matthews, W.J., K.B. Gido, G.P. Garrett, F.P. Gelwick, J. Stewart and J. Schaefer. 2006. Modular experimental riffle-pool stream system. *Transactions of the American Fisheries Society* **135**:1559-1566.

17. Kerfoot*, J.R. and J.F. Schaefer. 2006. Ecomorphology and habitat utilization of *Cottus* species. *Environmental Biology of Fishes* **76**:1-13.

16. Schaefer, J.F., and A. Ryan**. 2006. Developmental plasticity in the thermal tolerance of zebrafish (*Danio rerio*). *Journal of Fish Biology* **69**:722-734.

15. Schaefer, J.F. 2006. A simple and economical method for precise, programmable thermal regimes in recirculating aquatic mesocosms. *North American Journal of Aquaculture* **68**:240-244.

14. Schaefer, J.F., P. Mickle*, J. Spaeth*, B. Zuber*, W. Matamoros*, S.B. Adams, B.R. Kreiser and P. Vigueira**. 2006. Effects of hurricane Katrina on the fish fauna of the Pascagoula drainage. *Proceedings of the Mississippi Water Resources Board* **36**:62-68.

13. Schaefer, J.F., K.B. Gido, and M. Smith. 2005. A test for community change using a null model approach. *Ecological Applications* **15**(5): 1761-1771.

12. Schaefer, J.F, K. Gido, and M. Smith. 2005. Computer Program: A test for community change using a null model approach. *Ecological Archives* A015-052.

11. Gido, K.B., J.F. Schaefer and J. Pigg. 2004. Patterns of fish invasions in the Great Plains of North America. *Biological Conservation* **118**:121-131.

10. Schaefer, J.F. and J.R. Kerfoot*. 2004. Fish assemblage change in an adventitious stream: Landscape perspectives. *American Midland Naturalist* **151**(1):143-155.

9. Schaefer, J.F., K.B. Gido, D. Spooner and E. Marsh-Matthews. 2003. Effects of barriers and thermal refugia on local movement of the threatened leopard darter (*Percina pantherina*). *Environmental Biology of Fishes* **66**:391-400.

8. Schaefer, J.F. 2001. Riffles as barriers to interpool movement by three cyprinids (*Notropis boops*, *Campostoma anomalum* and *Cyprinella venusta*). *Freshwater Biology* **46**:379-388.

7. Lienesch, P., W.I. Lutterschmidt and J.F. Schaefer. 2000. Seasonal and Long-Term Changes in the Fish Assemblage of a Small Stream Isolated by a Reservoir. *Southwestern Association of Naturalists* **45**(3):274-288.

6. Gido, K. B., J.F. Schaefer, K.A. Work, P. Lienesch, W.J. Matthews and E. Marsh-Matthews. 1999. Effects of red shiner (*Cyprinella lutrensis*) on Red River pupfish (*Cyprinodon rubrofluviatilis*). *Southwestern Association of Naturalists* **44**(3):287-295.

5. Schaefer, J.F., W.I. Lutterschmidt and L.G. Hill. 1999. Physiological performance and stream microhabitat use by the centrarchids (*Lepomis megalotis* and *Lepomis macrochirus*). *Environmental Biology of Fishes* **54**:303-312.

4. Schaefer, J.F. and W.I. Lutterschmidt. 1997. Predator/prey computer simulation (Option 2). Chapter 15, Section 3, Pp 199-202. In: P.M. Hopkins and D.G. Smith (Eds.), *Introduction to Zoology: A Laboratory Manual* (3rd edition). Morton Publishing Co., Englewood, Colorado.

3. Lutterschmidt, W.I. and J.F. Schaefer. 1997. A computer simulation for demonstrating and modeling predator-prey oscillations. *Journal of Biological Education* **31**(3):221-227.

2. Lutterschmidt, W. I. and J.F. Schaefer. 1996. Mist netting for snakes: adapting a technique borrowed from ornithology for sampling semi-aquatic snake populations. *Herpetological Review* **27**(3):131-132.

1. Schaefer, J.F., S.T. Heulett and T.F. Farrell. 1994. Interactions between two poeciliid fishes (*Gambusia holbrookii* and *Heterandria formosa*) and their prey in a Florida marsh. *Copeia* **1994**:516-521.

* - Graduate student authors, ** - undergraduate student authors

Published Book Reviews -

2005. Review of "Fishes of Oklahoma", Quarterly Review of Biology. **80**(1):129.

Manuscripts In Review or in Revision-

Clark*, S., J. Schaefer. Selective predation by *Esox americanus* in field and mesocosm trials. In review, *Copeia*.

Schmidt, B. V., J. Schaefer. Hierarchical genetic population structure of six headwater stream fishes. *Journal of Fish Biology*.

Lutterschmidt, W.I., Martin, S.L. and J. Schaefer. Fluctuating Asymmetry in Two Common Freshwater Fishes as a Biological Indicator of Urbanization and Environmental Stress within the Middle Chattahoochee Watershed. In revision, *Symmetry*.

Clark, S., L.K. Stewart, B. R. Kreiser, J. Schaefer. Contrasting sex-specific patterns of movement in a small-bodied stream fish: the importance of spatial scale. *Oikos*.

Manuscripts In Preparation-

Schaefer, J., B. Kreiser, and S. Flanagan. Population genomics of *Fundulus grandis* following the Deepwater Horizon oil spill.

Invited Seminars -

Southeastern Louisiana State University, Fall 2016
Tulane University, Fall 2012
Southern Illinois University Edwardsville, Fall 2011
Union University, Fall 2010
Sam Houston State University, Spring 2010
Southeastern Louisiana State University, Fall 2009
Clemson University, Spring 2009
USM Gulf Coast Research Laboratory, Spring 2009
Kansas State University, Fall 2008
Louisiana State University, Spring 2007
Sam Houston State University, Fall 2004
Tulane University, Fall 2004
Mississippi State University, Fall 2004
Northern Kentucky University, Spring 2004
Saint Louis University, Fall 2002
Central Missouri State University, Spring 2000.
California State University at Chico, Spring 2000.
Virginia Wesleyan University, Spring 2000.
Southern Illinois University Edwardsville, Spring 2000.

Papers Presented -

Duvernell, D.D. and J. Schaefer. 2016. Phylogeography of two broadly overlapping topminnow species using GBS SNPs. Evolution.

Hubbell, J. and J. Schaefer. 2016. Occupancy modeling of the Yazoo Darter within the upper Yazoo Drainage River system. American Society of Ichthyologists and Herpetologists.

Sevick, T. and J. Schaefer. 2016. Effect of fragmentation and habitat type of the abundance and diversity of nekton in coastal Mississippi. American Society of Ichthyologists and Herpetologists.

Liddon, L.E. and J. Schaefer. 2016. Effects of wave exposure on the structure of fish assemblages across an exposure gradient. American Society of Ichthyologists and Herpetologists.

Schaefer, J., B. Kreiser and S. Flanagan. 2016. Population genomics of *Fundulus grandis* following the Deepwater Horizon oil spill. American Society of Ichthyologists and Herpetologists.

Schaefer, J., J. Barr and N. Frazier. 2015. Comparing fishing pressure and oil spill impacts for northern Gulf of Mexico near-coastal fish assemblages. Gulf of Mexico Research Institute.

Schaefer, J. and D. Duvernell. Population genomics of two ecologically disparate *Fundulus* hybrid zones. Evolution 2014.

Duvernell, J. and J. Schaefer. Contrasting Genetic Structure of Two Topminnow Species in Adjacent Contact Zones. Evolution 2014.

Campbell, D., J. Schaefer and W. Matamoros. Evolution of body size in catfish (Siluriformes). Evolution 2014.

Westhafer, E., D. Duvernell and J. Schaefer. Population Genetics of the Blackspotted Topminnow using Genomic SNP Analysis. Evolution 2014.

Liddon, L. J. Schaefer and N. Franssen. Gill area variation in flowing and non flowing populations of *Cyprinella venusta*. Southwestern Association of Naturalists 2014.

Schaefer, J., D. Duvernell and C. Campbell. Population genomics of two ecologically disparate *Fundulus* hybrid zones. Southwestern Association of Naturalists 2014.

Stewart, L. and J. Schaefer. Temperature preference in the *Fundulus notatus* species complex. Southwestern Association of Naturalists 2014.

Clark, S. and J. Schaefer. Effects of habitat complexity and predation threat on the movement patterns of the blackspotted topminnow, *Fundulus olivaceus*. Southwestern Association of Naturalists 2014.

Schaefer, J., N. Frazier and J. Barr. 2014. Mississippi coastal fish assemblage structure and dynamics before and after the Deepwater Horizon oil-spill. Gulf of Mexico Research Institute.

Schaefer, J., N. Frazier and J. Barr. 2014. Mississippi coastal fish assemblage structure and dynamics before and after the Deepwater Horizon oil-spill. Southern Division of the American Fisheries Society.

Clark, S. and J. Schaefer. Effects of habitat complexity and predation threat on the movement patterns of the blackspotted topminnow, *Fundulus olivaceus*. Southeastern Fishes Council 2013.

Stewart, L. and J. Schaefer. Temperature preference in the *Fundulus notatus* species complex. Southeastern Fishes Council. 2013.

Michaelsen, S. and J. Schaefer. Fluctuating asymmetry as a measure of environmental stress caused by the 2010 Deepwater Horizon oil spill. Southeastern Fishes Council. 2013.

Schmidt, B., J. Schaefer and B.R. Kreiser. The influence of migration path characteristics on the population structure of *Fundulus olivaceus* and *Semotilus atromaculatus* in four drainages of Mississippi. Southeastern Fishes Council. 2013.

Schaefer, J., D. Duvernell and C. Campbell. Population genomics of two ecologically disparate *Fundulus* hybrid zones. Southeastern Fishes Council. 2013.

Duvernell, D., J. Schaefer and B. Kreiser. Variation in contact zone dynamics between two species of topminnows, *Fundulus notatus* and *F. olivaceus* across isolated drainage systems. American Society of Ichthyologists and Herpetologists. 2013.

Duvernell, D., J. Schaefer and B. Kreiser. Variation in contact zone dynamics between two species of topminnows, *Fundulus notatus* and *F. olivaceus* across isolated drainage systems. Southwestern Association of Naturalists. 2013.

Harris, J. and J. Schaefer. Life history trait convergence in two species of the *Fundulus notatus* species complex. Southwestern Association of Naturalists. 2013.

Michaelsen, S. and J. Schaefer. Fluctuating asymmetry as an indicator of environmental stress in the Mississippi Sound caused by the 2010 Deepwater Horizon oil spill. Southwestern Association of Naturalists. 2013.

Stewart, L., N. Franssen and J. Schaefer. Morphological diversification and flow-induced plasticity in *Cyprinella venusta*. Southwestern Association of Naturalists. 2013.

Clark, S.C. and J. Schaefer. Reproductive-based patterns of movement in *Fundulus olivaceus*. Southwestern Association of Naturalists. 2013.

Clark, S.C. and J. Schaefer. Reproductive-based patterns of movement in *Fundulus olivaceus*. Southeastern Fishes Council. 2012.

Mickle, P.M., J. Schaefer, S.B Adams, B.R. Kreiser and T. Slack. Comparing river condition to successful hatching of Alabama Shad (*Alosa alabamae*) in northern Gulf of Mexico drainages. Southeastern Fishes Council. 2012.

Harris, J. and J. Schaefer. Life history trait convergence in two species of the *Fundulus notatus* species complex. Southeastern Fishes Council. 2012.

Franssen, N., L. Stewart and J. Schaefer. Morphological diversification and flow-induced plasticity in *Cyprinella venusta*. Southeastern Fishes Council. 2012.

Duvernell, D. J. Schaefer and B. Kreiser. Variation in contact zone dynamics between two species of topminnows, *Fundulus notatus* and *F. olivaceus*, across isolated drainage systems. Southeastern Fishes Council. 2012.

Stewart, L., N.R. Franssen, J.F. Schaefer. A tale of two tails: body shape and swimming performance in the *Fundulus notatus* species complex. Southeastern Fishes Council. 2011.

Schaefer, J., B. Kreiser, D. Duvernell, C. Coleman, M. Gutierrez, S. Clark, L. Stewart, C. Coleman. Variability in spot count phenotype in relation to reproductive investment, turbidity, predation and sexual selection. Southeastern Fishes Council. 2011.

Schaefer, J. Temperature, body size and variability in topminnow development rates. Evolution. The Southwestern Naturalist. 2011.

Schaefer, J., B. Kreiser, B. Schmidt, D. Duvernell. Temporal variability in a *Fundulus* contact zone in Mississippi. Evolution. 2011.

Schaefer, J., C. Champagne, M. Gutierrez, S. Clark, B. Kreiser, D. Duvernell. Variability in spot count phenotype in relation to reproductive investment, turbidity and sexual selection. Evolution 2011.

Johns, M., J. Scott, D. Duvernell, B. Kreiser, J. Schaefer. Within-drainage comparison of genetic structure for two topminnow species, *Fundulus notatus* and *F. olivaceus*. Evolution 2011.

Duvernell, D., B. Kreiser, J. Schaefer. Contrasting evolutionary histories of the two broadly distributed species in the *F. notatus* species complex. Evolution 2011.

Schaefer, J. Temperature, body size and variability in topminnow development rates. Southwestern Association of Naturalists. 2011.

Schaefer, J. Temperature, body size and variability in topminnow development rates. American Society of Ichthyologists and Herpetologists. 2011.

Duvernell, D., B. Kreiser and J. Schaefer. Phylogeography of the *Fundulus notatus* species complex of topminnows inferred from nuclear AFLP and mtDNA cytochrome b variation. Evolution. 2010.

Schaefer, J.F., D. Duvernell and B. Kreiser. Morphological variation along the river continuum. Southwestern Association of Naturalists. 2010.

Anciulis, N., J.F. Schaefer and D.D. Duvernell. Genetic study of hybridization and introgression between two topminnow species in an artificial stream system. Illinois State Academy of Sciences. 2010.

Meier, S.L., B. Kreiser, J.F. Schaefer and D.D. Duvernell. A phylogeographic analysis of the Fundulus notatus complex using nuclear Amplified Fragment Length Polymorphisms (AFLPs). Illinois State Academy of Sciences. 2010.

Alldredge, P.A., D. D. Duvernell, J. F. Schaefer, J.F. B.D. Schoeneck and H.Z. Selby. Analysis of home range and movement patterns of the blackstripe topminnow, *Fundulus notatus* (Family:Fundulidae), in Cahokia Creek. Illinois State Academy of Sciences. 2010.

Clark, S., M. Warren and J. Schaefer. Temporal patterns of fish assemblage structure in Mississippi National Forests. Southwestern Association of Naturalists. 2010.

Champagne, C., J. Schaefer, B.R. Kreiser, P. Mickle and D. Duvernell. Feeding-related morphometrics of the blackstripe topminnow, *Fundulus notatus*. Southwestern Association of Naturalists. 2010.

Schaefer, J.F., D. Duvernell and B. Kreiser. Hybrid zone dynamics in the *Fundulus notatus* species complex. Southeastern Fishes Council. 2009.

Schaefer, J.F., D. Duvernell and B. Kreiser. Hybrid zone dynamics in the *Fundulus notatus* species complex. American Fisheries Society. 2009.

Duvernell, D., Schaefer, J and B. Kreiser. Contact Zone Dynamics in the *Fundulus notatus* complex. Society for the Study of Evolution, 2009.

Matamoros, W., Schaefer, J., Kresier, B., Borowsky, R., Bradic, M. And Scheid, P. Assessment of Honduran freshwater ichthyological provinces using microsatellite data from *Astyanax aeneus*. The Southwestern Association of Naturalists. 2009.

Schaefer, J.F., Kresier, B.K., Mickle, P., Champagne, C. and D. Duvernell. Patterns of co-existence and hybridization among two topminnows (*Fundulus euryzonus* and *F. olivaceus*) in a riverine contact zone. Southeastern Fishes Council, 2008.

Zuber, B.C. and J. Schaefer. Fluctuating asymmetry and condition in fishes exposed to varying levels of environmental stressors. Southeastern Fishes Council, 2008.

Schaefer, J. Metabolic cold adaptation and developmental plasticity in metabolic rates among species in the *Fundulus notatus* complex. Evolution, 2008.

Schaefer, J. Metabolic cold adaptation and developmental plasticity in metabolic rates among species in the *Fundulus notatus* complex. The Southwestern Association of Naturalist, 2008.

Bishop, J., and Schaefer, J. Movement and habitat use of *Atractosteus spatula* in the Hatchie River, TN. Alligator Gar Working Group Meeting, 2008.

Schaefer, J., Mickle, P.F., Spaeth, J., Adams, S.B., Kreiser, B.K., Matamoros, W., Zuber, B., Bishop, J. Effects of hurricane Katrina on the fish fauna of the Pascagoula drainage. American Society of Ichthyologists and Herpetologists, 2007.

Zuber, B., Schaefer, J.F. Fluctuating asymmetry and condition in fishes exposed to varying levels of environmental stressors. Mississippi Water Resources Council, 2007.

Vigueira, P., Schaefer, J.F., Duvernell, D and Kreiser, B. Reproductive isolation among species in the *Fundulus notatus* species complex. American Society of Ichthyologists and Herpetologists, 2006.

Schaefer, J.F., Mickle, P., Spaeth, J., Zuber, B., Matamoros, W., Adams, S., Kreiser, B., Vigueira, P. Effects of hurricane Katrina on the big river fish fauna of the Pascagoula drainage. Mississippi Water Resources Conference, 2006.

Schaefer, J.F., Vigueira, P., Duvernell, D., Kreiser, B. Reproductive isolation among species in the Fundulus notatus species complex. Southwestern Association of Naturalists, 2006.

Retzlaff, W., A. Ringhausen, S. Hu, J. Schaefer, N. Satam, and P. Bhattari. Calculating 150 years of land use change within a Midwestern watershed. Ecological Society of America, 2005.

Duvernell, D., Schaefer, J. Hybridization and introgression between two killifish species, *Fundulus notatus* and *Fundulus olivaceus*. Evolution, 2005.

Schaefer, J., K. Gido, J. Kerfoot, G. Reeck. Developmental plasticity in the thermal tolerance of zebrafish. American Society of Ichthyologists and Herpetologist, 2005.

Spaeth, J., J. Schaefer, B. Kreiser and Ramirez, R. The effects of unfavorable habitat on the dispersal of Campostoma anomalum (Cyprinidae) as measured by microsatellites. American Association of Ichthyologists and Herpetologist, 2005.

Persons, K., J. Schaefer and D. Duvernell. Fundulus morphometrics Synclinal variance in morphology within the *Fundulus notatus* species complex. American Association of Ichthyologists and Herpetologist, 2005.

Ramierez, R. J. Schaefer and B. Meinardi. Effects of Flooding on Fish Community in an Ozark River Drainage. American Society of Ichthyologists and Herpetologist. 2004.

Foster, A., J. Schaefer, D. Duvernell, and A. Ravanelli. The effects of turbidity on the rate of hybridization between two topminnows. American Society of Ichthyologists and Herpetologist. 2004.

Ravanelli, A.M., A. Foster, J. Schaefer and D. Duvernell. Morphological and Molecular Analysis of Two Species of Killifish (genus Fundulus) in a Hybrid Zone. Evolution, 2004.

Gido, K.B., J.F. Schaefer, A. Lickteig, D. Qixin, Z. Jepson, N. Mutti, G. Reeck. Heat Shock Proteins and Temperature Adaptation by Native Minnows of Kansas. 2004. Ecological Genomics Workshop.

Kasselbaum, B. and Schaefer, J.F. Thermal biology of darters from thermally contrasting streams in a Midwestern drainage. Illinois State Academy of Sciences 2004. Southwestern Association of Naturalists 2004.

Mammoliti, C., Mulhern, D., Tabor, V., Schaefer, J., Shaw, M. Effects Of Gravel Mining On The Neosho Madtom (*Noturus placidus*). Midwest Fish and Wildlife Conference 2003.

Kerfoot, J. and Schaefer, J.F., Microhabitats and ecomorphologies of Cottus spp. Southwestern Association of Naturalists. Southwestern Association of Naturalists 2003, Illinois State Academy of Sciences 2003.

Meinardi, B. and Schaefer, J.F. Thermal stress and conservatioin of two darters , *Etheostoma caeruleum* (rainbow darter) and *Etheostoma flabellare* (fantail darter), in a small midwestern drainage, Southwestern Association of Naturalists 2003, Illinois State Academy of Sciences 2003

Love, E., Smith, M., and Schaefer, J. Illinois State Academy of Sciences 2003. Effects of Inter- and Intraspecific Competition on *Boltonia decurrens*, an endangered Wetland species.

Schaefer, J.F., Gido, K.B. and Kerfoot, J. A method for assessment of long term change in stream fish assemblages. American Society of Ichthyologists and Herpitologists. 2002.

Gido, K.B. and Schaefer, J.F. Patterns of fish invasions in the Great Plains. American Society of Ichthyologists and Herpitologists. 2002.

Funderburg, C., Zacha, S. and Schaefer, Jacob F. The Influence Of Land Use On The Fish Community In A Midwestern Drainage. Illinois State Academy of Science. 2002.

Kerfoot, J.R. and Schaefer, Jacob F. The Stability of Piasa Creek Fish Assemblage. Illinois State Academy of Science. 2002.

Schaefer, J.F. and Gido, K. Use of deep water as a thermal refugia and observed piscivory by the threatened leopard darter (Percina pantherina). Oklahoma Chapter of the American Fisheries Society 2001.

Schaefer, J.F. and Gido, K. Use of deep water as a thermal refugia and observed piscivory by the threatened leopard darter (Percina pantherina). Southwestern Association of Naturalists 2000.

Gido, K.B., Schaefer, J.F. and Pigg, J. Hydrologic variability and susceptibility to invasion: testing some assumptions with a long term data set. Southwestern Association of Naturalists 2000.

Schaefer, J. F. Modeling movement and dispersal of stream fish: A mark-resight study in Brier Creek (Oklahoma). American Society of Ichthyologists and Herpetologists 1999. Southwestern Association of Naturalists 1999.

Schaefer, J.F. Modeling movement and dispersal of stream fish. Poster presentation. Southern Division American Fisheries Society 1999.

Schaefer, J.F., Gido, K.B., Work, K.A., Lienesch, P.W., Matthews, W.J. and Marsh-Matthews, E. Effects of Red shiner (*Cyprinella lutrensis*) on Red River Pupfish (*Cyprinodon rubrofluviatilis*). Southwestern Association of Naturalists 1998.

Schaefer, J.F. 1997. The influence of riffles on the movement rates of fish within streams. American Society of Ichthyologists and Herpetologists 1997. Southwestern Association of Naturalists 1997.

Schaefer, J. F., lutterschmidt, W. I., and Hill, L. G. 1996. Stream microhabitat use by two centrarchids (*Lepomis megalotis* and *Lepomis macrochirus*). American Society of Ichthyologists and Herpetologists 1996. Southwestern Naturalists 1996.

Leinesch, P., Lutterschmidt, W. I. and Schaefer, J. F. Assemblage changes in a small creek after isolation due to reservoir formation. Southwestern Naturalists 1996.

Grants and Contracts-

*U.S. Fish and Wildlife Service, subcontracted through Mississippi Department of Wildlife Fisheries and Parks. Survey of Black Creek, Okatoma Creek and the Bouie River for P. aurora populations. 2016-2017. $14,992.

*National Science Foundation (one of four Co-PI). Acquisition of a shared high performance computational (HPC) cluster for research, training, and institutional use. 2016-2019. $622,986.

*National Fish and Wildlife Foundation. Population Structure of Yazoo Darters and Fish Assemblage Dynamics of the Yocona and Tallahatchie River Drainages (MS). 2016-2017. $80,714.

*National Science Foundation. A genomic analysis of the impact of genetic divergence, and chromosomal rearrangement on introgression in replicate *Fundulus* hybrid zones. 2016-2019. $150,000.

*U.S. Fish and Wildlife Service. Survey of upper Yazoo drainage for *Etheostoma raneyi* populations. 2015-2016. $34,796.

*U.S. Forest Service. Reinventory of fish communities and fish habitats in Mississippi National Forests. 2015-2016. $39,939.

*U.S. Fish and Wildlife Service. Survey of upper Pascagoula basin for *Percina aurora* populations. 2012-2014. $30,000.

*B.P. Inc. Assessment of Oil and/or Dispersant-Related Impacts to Mississippi Coastal Fishes Resulting from the Deepwater Horizon Incident. 2011-2015. $1,684,065.

*U.S. Forest Service. Oil Spill Effects on Diadramous Fishes of the Pascagoula River, MS. 2010-2014. $70,015.

*U.S. Fish and Wildlife Service. Survey of Little Bayou Pierre for *Etheostoma rubrum* populations. 2010-2011. $10,000

*U.S. Fish and Wildlife Service. Assessment of putative pearl darter populations in the upper Pearl River. 2009-2010. $24,952

*National Science Foundation (one of three Co-PI). Acquisition of instrumentation to strengthen ecological research and education at the University of Southern Mississippi. 2009-2010. $284,368

*U.S. Forest Service. Reinventory of fish communities and fish habitats in Mississippi National Forests. 2009-2010. $14,835

*U.S. Environmental Protection Agency. National River and Stream Assessment Program. Mississippi sampling program subcontracted through Tetra Tech Inc. 2009. $125,911

*U.S. Forest Service. Post Katrina water quality assessment of streams in the DeSoto National Forest. 2008-2009. $10,939

*U.S. Fish and Wildlife Service. Population structure and trophic ecology of Alabama shad (*Alosa alabamae*) in the Pascagoula drainage, Mississippi. 2008. $33,310

*National Science Foundation. Improvements to the USM/GCRL Ichthyological collection. $256,211. 2008-2010.

*Critical Ecosystem Partnership Fund, Conservation International. Biogeographical patterns of northern mesomerican (Honduras) freshwater fishes: Looking for "hotspots" and zones of endimism. $38,533. 2007-2008.

*National Science Foundation. Phylogeography, ecology and reproductive isolation in the *Fundulus notatus* species complex. $408,455. 2007-2010.

*Tennessee Wildlife Resources Agency. Movement, dispersal, survivorship and home range estimates of stocked young of year alligator gar (*Atractosteus spatula*) in the Upper Hatchie River. $10,000. 2007.

*N.O.A.A. - Status and viability of Alabama shad (*Alosa alabamae*) in the Pascagoula River drainage. $18,000. 2005-2007.

*U.S.D.A. Forest Service - Status and viability of Alabama shad (*Alosa alabamae*) in the Pascagoula River drainage, and range wide population genetic structure. $16,000. 2006-2008.

SIUE Summer Research Fellowship. Fish dispersal through a riverine landscape: Effects of unfavorable habitat. $6,000. 2003.

*Analysis of gravel mining impacts on the Neosho Madtom. Kansas Department of Wildlife and Parks. $6,000. 2003.

SIUE Graduate School, Funded construction of artificial stream research park, $10,000. 2003.

*Kansas Department of Parks and Wildlife. Analysis of gravel mining impacts on the Neosho Madtom. $5,500. 2002.

*U.S. Army Corps of Engineers. A complete faunal survey of Lake Wappapello. $144,000. 2002-2005.

*Illinois Department of Natural Resources. A mark/recapture study to estimate movement and dispersal of nongame stream fish in Piasa Creek (Jersey county, IL), $1,000. 2001-2002.

SIUE Excellence in undergraduate education. $14,975, Fall 2002.

SIUE Excellence in undergraduate education. $4,000, Fall 2001.

SIUE Summer Research Fellowship, 2002. Environmental degradation and the long-term change in the fish community of Piasa Creek. $6,000.

SIUE Summer Research Fellowship. 2001. Detecting nonrandom long-term change in biological community data. $6,000.

*External Funding - $3,266,829 ($3,110,329 at USM)

University and Departmental Service -

Chair of USM IACUC Committee, 2016-present
USM University Research Council, 2015-2018
USM Graduate Council, 2013-2016
USM Graduate Credentials Committee (Chair, 2015-2016), 2013-2016
Graduate Coordinator, USM Department of Biological Sciences 2011-present
USM College of Science and Technology, University Prioritization Committee
Seminar Coordinator, USM Department of Biological Sciences, August 2008 – 2010
USM Wet Laboratory Manager, 2004-present

Chair Search Committee, Department of Biological Sciences (2015)
Search committee, Ecosystem ecologist (USM)
Search committee, Physiologist (USM, 2 committees)
Search committee, Anatomy and Physiology (SIUE)
Search committee, Physiologists (SIUE)
President of USM Sigma Xi Chapter, 2004 – 2015

Professional Service -

External Program Reviewer – Sam Houston State University Graduate Program in Biological Sciences
Webmaster, The Southeastern Fishes Council (www.sefishescouncil.org)
ASIH Special Committee to review "Guidelines for Use of Fishes in Research", 2013
Treasurer, Southwestern Association of Naturalists, June 2003 - July 2008
Development Committee, Southwestern Association of Naturalists, 2011 - present
Board of Governors, Southwestern Association of Naturalists, 2003 – present
Chair of Trustees, Southwestern Association of Naturalists, 2010 – present
NSF Evolutionary Ecology Panel Member (3 panels)
Reviewed Proposals - National Science Foundation (multiple), National Oceanic and Atmospheric Administration (multiple), Department of Defense (multiple), Smithsonian Institute, National Centre for the Replacement and Reduction of Animals in Research, Illinois State Academy of Sciences.
Associate Editor (ecology) - *Copeia*, 2010 – Present
Guest Editor: Southeastern Naturalist (multiple), Ecology of Freshwater Fishes
Ad hoc reviewer for 39 journals: American Midland Naturalists, Aquacultural Engineering, Biological Conservation, Biological Invasions, Biological Journal of the Linnean Society, Biology Letters, Conservation Biology, Copeia, Ecological Applications, Ecology of Freshwater Fishes, Ecology Research, Evolution, Evolutionary Ecology, Fisheries, Florida Scientist, Freshwater Biology, Hydrobiologia, Journal of Animal Ecology, Journal of Biogeography, Journal of Fish Biology, Journal of Fish and Wildlife Management, Journal of Freshwater Ecology, Journal of Sea Research, Journal of the Mississippi Academy of Sciences, Marine and Freshwater Research, Molecular Ecology, Molecular Phylogenetics and Evolution, North American Journal of Fisheries Management, Northeastern Naturalist, Oecologia, Physiological and Biochemical Zoology, PLoS ONE, Proceedings of the Southeastern Fishes Council, Royal Society Open Science, Southeastern Naturalist, Southwestern Naturalist, Texas Journal of Science, Transaction of the Illinois Academy of Science, Transactions of the American Fisheries Society, Zoomorphology

Graduate Students -

James Kerfoot, Summer 2003, Completed MS (SIUE).
Bethany Meinardi, Spring 2004, Completed MS (SIUE).
John Spaeth, Spring 2008, Completed MS (USM).
Brianna Zuber, Fall 2008, Completed MS (USM).
Justin Bishop, Spring 2009, Completed MS (USM)
Wilfredo Matamoros, Fall 2010, co-chair with B. Kreiser, Completed PhD (USM)
Melissa Gutierrez, Spring 2010, Completed MS (USM)
Paul Mickle, Fall 2010, Completed PhD (USM)
Charles Champagne, Summer 2011, Completed MS (USM)
Scott Clark, Summer 2011, Completed MS (USM)
Jared Harris, Fall 2013, Completed MS (USM)
Laura Stewart, Summer 2015, Completed MS (USM)
Bjorn Schmidt, Spring 2016, Completed PhD (USM)
Scott Clark, Fall 2011 – present
Thomas Sevick, Spring 2014 - present
Lauren Liddon, Fall 2014 – present
Joshua Hubbell, Spring 2016 – present
Peter Flood, Spring 2016 - present

Postdoctoral Scholars -

Dr. Nathan Franssen (2011-2012)
Dr. Wilfredo Matamoros (2012-2014)

Professional Memberships and Honors -

2015 University of Southern Mississippi, College of Science and Technology, Nominee for Bennett Distinguished Professor
2012 University of Southern Mississippi, College of Science and Technology, Nominee for USM Innovation Award for Basic Research
2011 University of Southern Mississippi, College of Science and Technology Outstanding Faculty Research Award
2000 George Miksch Sutton Award in Conservation Research, The Southwestern Association of Naturalists.
Beta Beta Beta biological honor society member since 1991
Southwestern Association of Naturalists
American Fisheries Society
Society for the Study of Evolution
Southeastern Fishes Council
American Society of Ichthyologists and Herpetologists

References and Collaborators -

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