

## Jacob F. Schaefer

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Department of Biological Sciences, University of Southern Mississippi

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### Education and Professional Positions –

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- 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 -

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Evolutionary Ecology, Evolutionary Physiology, Community Ecology and Ichthyology

### Teaching Experience -

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University of Southern Mississippi  
Ichthyology (5 Semesters)

Population and Community Ecology (7 semesters)  
 Environmental Physiology (5 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

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59. Schmidt, B. V., J. Schaefer. 2017. Hierarchical genetic population structure of six headwater stream fishes. In press, *Journal of Fish Biology*.
58. Schmidt, B.V., J. Schaefer. 2017. Ecological and landscape effects on genetic distance in an assemblage of headwater fishes. *Ecology of Freshwater Fish* doi: 10.1111/eff.12375
57. Lutterschmidt, W.I., Martin, S.L. and J. Schaefer. 2016. Fluctuating asymmetry in two common freshwater fishes as a biological indicator of urbanization and environmental stress within the Middle Chattahoochee watershed. *Symmetry* **8**:124.
56. Mickle, P.M., J. Schaefer, S. Adams, B. Kreiser and T. Slack. 2016. Comparing river condition to successful hatch of Alabama shad (*Alosa alabamae*) in northern Gulf of Mexico drainages. *Fishery Bulletin* **114**:503-512.
55. Schaefer, J., D. Duvernell and D. Campbell\*\*. 2016. Hybridization and introgression in two ecologically dissimilar *Fundulus* hybrid zones. *Evolution* **70**:1051-1063.
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* **91**(3): 813-832.
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* (3<sup>rd</sup> 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 -**

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

#### **Manuscripts in Review or in Revision-**

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Schaefer, J., B. Kreiser, and S. Flanagan. Population genomics of *Fundulus grandis* following the Deepwater Horizon oil spill. In revision, *Marine Ecology Progress Series*.

Clark, S., T. Slack, B. Kreiser and J. Schaefer. Persistence and stability of Pearl Darter populations. In review *Endangered Species Research* in August 2017

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. In revision, *Oikos*.

### **Manuscripts In Preparation-**

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Stewart, L. K., J. Schaefer, and A. King. The role of stream gradients in isolation and coexistence of *F. notatus* and *F. olivaceus*.

### **Invited Seminars -**

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Gulf Coast Research Laboratory, Fall 2016  
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 -**

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Clark, S. R., W.T. Slack, B. R. Kreiser and J. Schaefer. 2016. Persistence and stability of Pearl Darter populations. Southeastern Fishes Council.



- Hubbell, J., and J. Schaefer 2016. Single-species and species-interaction occupancy modeling of the Yazoo Darter and Goldstripe Darter within the upper Yazoo Drainage. Southeastern Fishes Council.
- Flood, P., J. Hubbell, and J. Schaefer. 2016. Changes in fish assemblages of the Yazoo River drainage based on anthropogenic effects. Southeastern Fishes Council.
- Liddon, L.E. and J. Schaefer. 2016. Effects of wave exposure on the structure of fish assemblages across an exposure gradient. Southeastern Fishes Council.
- 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.
- Anculius, 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.
- Allredge, 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.
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- 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.
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- 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.
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- Lienesch, 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-**

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- \*U.S. Forest Service. Water quality assessment of streams in the DeSoto National Forest.. 2017-2021. \$11,715.
- \*U.S. Forest Service. Reinventory of fish communities and fish habitats in Mississippi National Forests. 2017-2021. \$160,720.
- \*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 Diadromous 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 mesoamerican (Honduras) freshwater fishes: Looking for “hotspots” and zones of endemism. \$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 - \$4,306,956

### **University and Departmental Service -**

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Chair of USM Innovation Awards Committee, 2016

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, Marine Physiologist (USM, Chair of committee)

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 -**

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External Program Reviewer – Sam Houston State University Graduate Program in Biological Sciences

Webmaster, The Southeastern Fishes Council ([www.sefishescouncil.org](http://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

President Elect, Southwestern Association of Naturalists, 2017-2018

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

Editorial Board – *Ecology of Freshwater Fish*, 2016 - Present

Guest Editor: Southeastern Naturalist (multiple), Ecology of Freshwater Fishes

*Ad hoc* reviewer for 40 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, Freshwater Science, Hydrobiologia, Journal of Animal Ecology, Journal of Biogeography, Journal of Evolutionary Biology, 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 -**

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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, Summer 2016, Completed PhD (USM)

Thomas Sevick, Fall 2016, Completed MS (USM)

Lauren Liddon, Summer 2017 Completed MS (USM)  
Joshua Hubbell, Spring 2016 – present  
Austin Greishoeber, Fall 2017 – present  
Sara Barrett, Fall 2017 - present

### **Postdoctoral Scholars -**

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

### **Professional Memberships and Honors -**

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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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