

Jacob Schaefer

Curriculum Vitae

February 2020

📍 School of Biological, Environmental and Earth Sciences, University of Southern Mississippi.
🏠 ichthyology.usm.edu
☎ 601-266-4928
✉ Jake.Schaefer@usm.edu

Education and Qualifications

- 1992 B.S. Biology, Stetson University, Deland Florida
1995 M.S. Zoology, University of Oklahoma, Norman Oklahoma
1999 Ph.D. Zoology, University of Oklahoma, Norman Oklahoma.

Professional Positions

- 2018– **Director**, School of Biological, Environmental and Earth Sciences.
2014– **Professor and Curator of Fishes**, University of Southern Mississippi, Department of Biological Sciences.
2008– **Associate Professor and Curator of Fishes**, University of Southern Mississippi, Department of Biological Sciences.
2004– **Assistant Professor and Curator of Fishes**, University of Southern Mississippi, Department of Biological Sciences.
2000– **Assistant Professor**, Southern Illinois University Edwardsville, Department of Biological Sciences
1999– **Postdoctoral Researcher**, Sam Noble Oklahoma Museum of Natural History & Advisor: Dr. Edith March-Matthews.

Teaching Experience (Undergraduate and Graduate)

USM Ichthyology (U and G)	6 Semesters
USM Population and Community Ecology (U and G)	7 Semesters
USM Environmental Physiology (U and G)	5 Semesters
USM Multivariate Applications in Ecology (G)	6 Semesters
USM Honors Introductory Biology (U)	7 Semesters
USM Environmental Biology (U)	1 Semester
USM Biology of Fishes (U and G)	1 Semester
SIUE Human Anatomy and Physiology I (U)	9 Semesters
SIUE Human Anatomy and Physiology II (U)	9 Semesters
SIUE Aquatic Ecosystems (U)	1 Semester
SIUE Physiological Ecology (U)	1 Semester
SIUE Comparative Anatomy (U)	1 Semester
SIUE Introductory Biology for Non Majors (U)	2 Semesters
SIUE Advanced Community Ecology (G)	1 Semester
SIUE Senior Assignment Research Seminar (U)	1 Semester

Research

- My research interest are in evolutionary ecology, evolutionary physiology, and community ecology. All of the research in my laboratory utilizes freshwater fishes as model organisms to address basic and applied questions.

Membership of Associations

- American Society of Ichthyologists and Herpetologists
- Southeastern Fishes Council
- Society for the Study of Evolution
- American Fisheries Society
- Southwestern Association of Naturalists

Grants

2019	U.S. Fish and Wildlife Service - Survey of Bayou Pierre for Populations of Bayou Darter (<i>Etheostoma rubrum</i>)	\$33,000
2019	U.S. Fish and Wildlife Service subcontracted through Mississippi Department of Wildlife Fisheries and Parks - Ecology and population structure of Pearl Darter (<i>P. aurora</i>) populations in the Pascagoula drainage	\$48,100
2017-2018	U.S. Forest Service - Water quality assessment of streams in the DeSoto National Forest.	\$11,175
2017-2022	U.S. Forest Service - Reinventory of fish communities and fish habitats in Mississippi National Forests.	\$160,720
2016-2017	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 <i>P. aurora</i> populations	\$14,192
2016-2019	National Science Foundation (one of four Co-PI) - Acquisition of a shared high performance computational (HPC) cluster for research, training, and institutional use.	\$622,986
2016-2017	National Fish and Wildlife Foundation - Population structure of Yazoo Darters and fish assemblage dynamics of the Yocona and Tallahatchie River Drainages (MS).	\$80,714
2016-2019	National Science Foundation - A genomic analysis of the impact of genetic divergence, and chromosomal rearrangement on introgression in replicate <i>Fundulus</i> hybrid zones.	\$150,000
2015-2016	U.S. Fish and Wildlife Service - Survey of upper Yazoo drainage for <i>Etheostoma raneyi</i> populations.	\$34,796
2015-2016	U.S. Forest Service - Reinventory of fish communities and fish habitats in Mississippi National Forests.	\$39,939
2012-2014	U.S. Fish and Wildlife Service - Survey of upper Pascagoula basin for <i>Percina aurora</i> populations.	\$30,000
2011-2015	B.P. Inc. - Assessment of oil and/or dispersant-related impacts to Mississippi coastal fishes resulting from the Deepwater Horizon Incident.	\$1,684,065
2010-2014	U.S. Forest Service - Oil spill effects on diadromous fishes of the Pascagoula River, MS.	\$70,015
2010-2011	U.S. Fish and Wildlife Service - Survey of Little Bayou Pierre for <i>Etheostoma rubrum</i> populations.	\$10,000
2009-2010	U.S. Fish and Wildlife Service - Assessment of putative pearl darter populations in the upper Pearl River.	\$24,952
2009-2010	National Science Foundation - Acquisition of instrumentation to strengthen ecological research and education at the University of Southern Mississippi.	\$284,368
2009-2010	U.S. Forest Service - Reinventory of fish communities and fish habitats in Mississippi National Forests.	\$14,835
2009	U.S. Environmental Protection Agency (subcontracted through Tetra Tech Inc.) - National River and Stream Assessment Program, Mississippi Stream Sampling.	\$125,911
2008-2009	U.S. Forest Service - Post Katrina water quality assessment of streams in the DeSoto National Forest.	\$10,939
2008	U.S. Fish and Wildlife Service - Population structure and trophic ecology of Alabama shad (<i>Alosa alabamae</i>) in the Pascagoula drainage, Mississippi.	\$33,310
2008-2010	National Science Foundation - Improvements to the USM/GCRL Ichthyological collection.	\$256,211

2007-2008	Critical Ecosystem Partnership Fund, Conservation International - Biogeographical patterns of northern mesoamerican (Honduras) freshwater fishes: Looking for "hotspots" and zones of endemism.	\$38,533
2007-2010	National Science Foundation - Phylogeography, ecology and reproductive isolation in the <i>Fundulus notatus</i> species complex.	\$408,455
2007	Tennessee Wildlife Resources Agency- Movement, dispersal, survivorship and home range estimates of stocked young of year alligator gar (<i>Atractosteus spatula</i>) in the Upper Hatchie River.	\$10,000
2005-2007	National Oceanic and Atmospheric Administration - Status and viability of Alabama shad (<i>Alosa alabamae</i>) in the Pascagoula River drainage.	\$18,000
2006-2008	U.S. Forest Service - Status and viability of Alabama shad (<i>Alosa alabamae</i>) in the Pascagoula River drainage, and range wide population genetic structure.	\$16,000
2002	Kansas Department of Parks and Wildlife - Analysis of gravel mining impacts on the Neosho Madtom.	\$5,500
2002-2005	U.S. Army Corps of Engineers - A complete faunal survey of Lake Wappapello	\$144,000
2001-2002	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

University and Departmental Service

- Search Committee, Founding Dean of the College of Arts and Sciences, 2017-2018
- Chair of USM Innovation Awards Committee, 2016-2018
- Chair of USM IACUC Committee, 2016-present
- USM University Research Council, 2015-present
- USM Graduate Council, 2013-2016
- USM Graduate Credentials Committee (Chair, 2015-2016), 2013-2016
- Graduate Coordinator, USM Department of Biological Sciences 2011-2018
- 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

- External Program Reviewer - Sam Houston State University Graduate Program in Biological Sciences
- External Promotion and Tenure Review for three universities
- 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 – 2017
- 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
- *Ad hoc* reviewer for 41 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, Estuaries and Coasts, 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 Mentored

- 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)
- Sara Barrett, Spring 2020, Completed MS (USM)
- Joshua Hubbell, Spring 2016 – present
- Andrew Coomes, Spring 2018 - present
- Loren Stearman, Spring 2019 - present

Invited Seminars

- Louisiana State University, Spring 2018
- 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.

Honors and Awards

- 2018 Donald W. Tinkle Research Excellence Award, Southwestern Association of Naturalists
- 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.

Publications

Published

1. Cashner, R, J Schaefer, A Echelle, F Galvez, and M Ghedotti (2020). "Fundulidae: Topminnows". In: *Diversity of North American Freshwater Fishes: Natural History, Ecology Conservation*. Ed. by M Warren and B Burr. Vol. 2. Baltimore, Maryland: Johns Hopkins University Press.
2. Hubbell, J, J Schaefer, P Flood, ML Warren, and K Sterling (2020). Fragmentation alters ecological gradients and headwater fish assemblage composition relative to land use in a dendritic river system. *Canadian Journal of Fisheries and Aquatic Sciences*.

3. Hubbell, J, J Schaefer, ML Warren, and K Sterling (2020). Modeling patterns of coexistence of three congeneric headwater fishes. *Freshwater Biology*.
4. Clark, S, B Kreiser, and JF Schaefer (2019). Scale dependence of sex-specific movement in a small-bodied stream fish. *Freshwater Biology* (64), 1342–1353.
5. Duvernell, D, E Westhafer, and JF Schaefer (2019). Late Pleistocene range expansion of North American topminnows accompanied by admixture and introgression. *Journal of Biogeography* (46), 2126–2140.
6. Clark, S, B Kreiser, and JF Schaefer (2018). Persistence and stability of Pearl Darter populations. *Endangered Species Research* **36**, 99–109.
7. Schaefer, J, B Kreiser, and S Flanagan (2018). Population genomics of *Fundulus grandis* following the Deepwater Horizon oil spill. *Journal of Experimental Marine Biology and Ecology* (509).
8. Schmidt, BV and JF Schaefer (2018). Comparative genetic isolation patterns for multiple headwater fishes in three geographic regions. *Journal of Fish Biology* **92**, 1090–1109.
9. Schmidt, BV and J Schaefer (2017). Ecological and landscape effects on genetic distance in an assemblage of headwater fishes. *Ecology of Freshwater Fish* **27**, 617–631.
10. Clark, SR and JF Schaefer (2016). Ecological influences on the local movement dynamics of the blackspotted topminnow, *Fundulus olivaceus*. *Behavioral Ecology and Sociobiology* **70**(4), 557–567.
11. Lutterschmidt, WI, SL Martin, and JF 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**(11), 124.
12. Mickle, PF, JF Schaefer, SB Adams, BR Kreiser, and WT Slack (2016). Environmental conditions of 2 river drainages into the northern Gulf of Mexico during successful hatching of Alabama shad (*Alosa alabamae*). *Fishery Bulletin* **114**(4).
13. Schaefer, J, D Duvernell, and DC Campbell (2016). Hybridization and introgression in two ecologically dissimilar *Fundulus* hybrid zones. *Evolution* **70**(5), 1051–1063.
14. Schaefer, J, N Frazier, and J Barr (2016). Dynamics of near-coastal fish assemblages following the Deepwater Horizon oil spill in the northern Gulf of Mexico. *Transactions of the American Fisheries Society* **145**(1), 108–119.
15. Matamoros, WA, CW Hoagstrom, JF Schaefer, and BR Kreiser (2015). Fish faunal provinces of the conterminous United States of America reflect historical geography and familial composition. *Biological Reviews* **91**(3), 813–832.
16. Michaelsen, S, J Schaefer, and MS Peterson (2015). Fluctuating asymmetry in *Menidia beryllina* before and after the 2010 Deepwater Horizon oil spill. *PLOS ONE* **10**(2). Ed. by JF Valentine, e0118742.
17. Feldheim, KA, BR Kreiser, B Schmidt, DD Duvernell, and JF Schaefer (2014). Isolation and characterization of microsatellite loci for the blackstripe topminnow *Fundulus notatus* and their variability in two closely related species: *fundulus notatus* microsatellite loci. *Journal of Fish Biology* **85**(5), 1726–1732.
18. Matamoros, WA, CD McMahan, P Chakrabarty, JS Albert, and JF Schaefer (2014). Derivation of the freshwater fish fauna of Central America revisited: Myers's hypothesis in the twenty-first century. *Cladistics* **31**(2), 177–188.
19. Schaefer, J (2014). “*Fundulus notatus* (blackstripe topminnow) and *Fundulus olivaceus* (blackspotted topminnow)”. In: *Kansas Fishes*. Ed. by ME Eberle and D Edds. Lawrence, Kansas: University Press of Kansas.
20. Duvernell, D 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.
21. Duvernell, DD, SL Meier, JF Schaefer, and BR Kreiser (2013). Contrasting phylogeographic histories between broadly sympatric topminnows in the *Fundulus notatus* species complex. *Molecular Phylogenetics and Evolution* **69**(3), 653–663.

22. Earnest, K, J Scott, J Schaefer, and D Duvernell (2013). The landscape genetics of syntopic topminnows (*Fundulus notatus* and *F. olivaceus*) in a riverine contact zone. *Ecology of Freshwater Fish* **23**(4), 572–580.
23. Franssen, NR, J Harris, SR Clark, JF Schaefer, and LK Stewart (2013). Shared and unique morphological responses of stream fishes to anthropogenic habitat alteration. *Proceedings of the Royal Society B: Biological Sciences* **280**(1752).
24. Franssen, NR, LK Stewart, and JF Schaefer (2013). Morphological divergence and flow-induced phenotypic plasticity in a native fish from anthropogenically altered stream habitats. *Ecology and Evolution* **3**(14), 4648–4657.
25. Mickle, P, JF Schaefer, D Yee., and S Adams (2013). Diet of juvenile Alabama Shad (*Alosa alabamae*) in two northern Gulf of Mexico Drainages. *The Southeastern Naturalist* **12**(1), 233–237.
26. Matamoros, WA, JF Schaefer, CL Hernández, and P Chakrabarty (2012). *Profundulus kreiseri*, a new species of Profundulidae (Teleostei, Cyprinodontiformes) from northwestern Honduras. *ZooKeys* (227), 49.
27. Matamoros, W, B Kreiser, and J Schaefer (2012). A delineation of Nuclear Middle America biogeographical provinces based on river basin faunistic similarities. *Reviews in Fish Biology and Fisheries* **22**(1), 351–365.
28. Schaefer, J (2012). Hatch success and temperature dependent development time in two broadly distributed topminnows (Fundulidae). *Naturwissenschaften* **99**(7), 591–595.
29. Schaefer, JF, SR Clark, and ML Warren (2012). Diversity and stability in Mississippi stream fish assemblages. *Freshwater Science* **31**(3), 882–894.
30. Schaefer, JF, DD Duvernell, BR Kreiser, C Champagne, SR Clark, M Gutierrez, LK Stewart, and C Coleman (2012). Evolution of a sexually dimorphic trait in a broadly distributed topminnow (*Fundulus olivaceus*). *Ecology and Evolution* **2**(7), 1371–1381.
31. Alldredge, P, M Gutierrez, D Duvernell, J Schaefer, P Brunkow, and W Matamoros (2011). Variability in movement dynamics of topminnow (*Fundulus notatus* and *F. olivaceus*) populations. *Ecology of Freshwater Fish* **20**(4), 513–521.
32. Schaefer, J, D Duvernell, and B Kreiser (2011). Ecological and genetic assessment of spatial structure among replicate contact zones between two topminnow species. *Evolutionary Ecology* **24**(5), 1145–1161.
33. 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**(3), 612–621.
34. Matamoros, W and J Schaefer (2010). A new species of Profundulus (Cyprinodontiformes: Profundulidae) from the Honduran central highlands. *Journal of Fish Biology* **76**(6), 1498–1507.
35. Mickle, P, J Schaefer, S Adams, and B Kreiser (2010). Habitat use of age 0 Alabama shad in the Pascagoula River drainage, USA. *Ecology of Freshwater Fish* **19**, 107–115.
36. Schaefer, J 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.
37. Feldheim, K, W Matamoros, J Schaefer, and B Kreiser (2009). Isolation and Characterization of Microsatellite Loci for Mountain Mullet (*Agonostomus monticola*). *Molecular Ecology Resources* **9**(6), 1482–1484.
38. Gido, K, J Schaefer, and J Falke (2009). Convergence of fish communities from the littoral zone of reservoirs. *Freshwater Biology* **54**, 1163–1177.
39. Matamoros, W, J Schaefer, P Mickle, W Arthurs, R Ikoma, and R Ragsdale (2009). First Record of *Agonostomus monticola* (Family: Mugilidae) in Mississippi Freshwaters with Notes of its Distribution in the Southern United States. *Southeastern Naturalist* **8**(1), 175–178.

40. Matamoros, W, J Schaefer, and B Kreiser (2009). Annotated checklist of the freshwater fishes of continental and insular Honduras. *Zootaxa* **2307**, 1–38.
41. Schaefer, J, B Kreiser, C Champagne, P Mickle, and D Duvernell (2009). Patterns of co-existence and hybridisation between narrowly endemic (*Fundulus euryzonus*) and broadly distributed (*F. olivaceus*) topminnows in a riverine contact zone. *Ecology of Freshwater Fish* **18**(3), 360–368.
42. Bowen, B, B Kreiser, P Mickle, J Schaefer, and S Adams (2008). Phylogenetic relationships among North American *Alosa* species (Clupeidae). *Journal of Fish Biology* **72**, 1188–1201.
43. Vigueira, P, J Schaefer, D Duvernell, and B Kreiser (2008). Tests of reproductive isolation among species in the *Fundulus notatus* (Cyprinodontiformes: Fundulidae) species complex. *Evolutionary Ecology* **22**(1), 55–70.
44. Duvernell, D, J Schaefer, D Hancks, J Fonoti, and A Ravanelli (2007). Hybridization and reproductive isolation among syntopic populations of the topminnows *Fundulus notatus* and *F. olivaceus*. *Journal of Evolutionary Biology* **20**, 152–164.
45. Lutterschmidt, W, J Schaefer, and R Fiorillo (2007). The ecological significance of Helminth endoparasites on the physiological performance of two sympatric fishes. *Comparative Parasitology* **74**(2), 194–203.
46. Meadows, D, S Adams, and J Schaefer (2007). Threatened fishes of the world: *Alosa alabamae* (Jordan and Everman, 1896) (Clupeidae). *Environmental Biology of Fishes* **82**(2), 173–174.
47. Zuber, B and J 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.
48. Kerfoot, JR and JF Schaefer (2006). Ecomorphology and habitat utilization of Cottus species. *Environmental Biology of Fishes* **76**(1), 1–13.
49. Matthews, W, K Gido, G Garrett, F Gelwick, J Stewart, and J Schaefer (2006). Modular experimental riffle-pool stream system. *Transactions of the American Fisheries Society* **135**, 1559–1566.
50. Schaefer, J (2006). A simple and economical method for maintaining precise, programmable thermal regimes in recirculating aquatic mesocosms. *North American Journal of Aquaculture* **68**(3), 240.
51. Schaefer, J and A Ryan (2006). Developmental plasticity in the thermal tolerance of zebrafish (*Danio rerio*). *Journal Of Fish Biology* **69**, 722–734.
52. Schaefer, J, P Mickle, J Spaeth, B Kreiser, S Adams, W Matamoros, B Zuber, and P Vigueira (2006). Effects of hurricane katrina on the fish fauna of the Pascagoula River Drainage. *Proceedings of the Mississippi Water Resources Board* **36**, 62–68.
53. Schaefer, J, K Gido, and M Smith (2005). A test for community change using a null model approach. *Ecological Applications* **15**(5), 1761–1771.
54. Schaefer, J, K Gido, and M Smith (2005). Computer Program: A test for community change using a null model approach. *Ecological Archives* **A015-052**.
55. Gido, K, J Schaefer, and J Pigg (2004). Patterns of fish invasions in the great plains of North America. *Biological Conservation* **118**(2), 121–131.
56. Schaefer, J and J Kerfoot (2004). Fish assemblage dynamics in an adventitious stream: a landscape perspective. *American Midland Naturalist* **151**(1), 134–145.
57. Schaefer, J, K 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**(4), 397–400.
58. Schaefer, J (2001). Riffles as barriers to interpool movement by three cyprinids (*Notropis boops*, *Camposotoma anomalum* and *Cyprinella venusta*). *Freshwater Biology* **46**(3), 379–388.
59. Lienesch, P, W Lutterschmidt, and J Schaefer (2000). Seasonal and long-term changes in the fish assemblage of a small stream isolated by a reservoir. *The Southwestern Naturalist* **45**(3), 274–288.

60. Gido, K, J Schaefer, K Work, P Lienesch, E Marsh-Matthews, and W Matthews (1999). Effects of red shiner (*Cyprinella lutrensis*) on red river pupfish (*Cyprinodon rubrofluvialis*). *Southwestern Naturalist* **44**(3), 287–295.
61. Schaefer, J, W Lutterschmidt, and L Hill (1999). Physiological performance and stream microhabitat use by the centrarchids *Lepomis megalotis* and *Lepomis macrochirus*. *Environmental Biology of Fishes* **54**, 303–312.
62. Lutterschmidt, W and J Schaefer (1997). “Predator/prey computer simulation (Option 2)”. In: *Introduction to Zoology: A Laboratory Manual*. Ed. by P Hopkins and S D.G. 3rd ed. Englewood, Colorado: Morton Publishing.
63. Lutterschmidt and Schaefer (1997). A computer simulation for demonstrating and modelling predator-prey oscillations. *Journal of Biological Education* **31**(3), 221–227.
64. Lutterschmidt, W and J Schaefer (1996). Mist netting for snakes: adapting a technique from ornithology for sampling semi-aquatic snake populations. *Herpetological Review* **27**(3), 131–132.
65. Schaefer, J, S Heulett, and T Farrell (1994). Interactions between two poeciliids (*Gambusia holbrooki* and *Heterandria formosa*) and their prey in a Florida marsh. *Copeia* **2**, 516–520.

In Review or Revision

1. Matamoros, W, S Fenoglio, S Clark, and J Schaefer (n.d.). Ontogenetic shift in the diet of *Agonostomus monticola* (Pisces: Mugilidae) from the Honduran Caribbean coast with comments in its reproductive periodicity. *Journal of Applied Ichthyology* ().

Papers Presented at Conferences

1. Schaefer, J and D Duvernell (2019). Variability in replicate natural and experimental hybrid zones in the *Fundulus notatus* species complex. *Southwestern Association of Naturalists*.
2. Barrett, S and J Schaefer (2018). Alternative stable state driving changes in community assemblage with the Pascagoula River. *Southeastern Fishes Council*.
3. Barrett, S and J Schaefer (2018). Alternative stable state driving changes in community assemblage with the Pascagoula River. *Ecological Society of America*.
4. Hubbell, J and J Schaefer (2018). Evidence for habitat filtering as a basis for the coexistence of three darters (*Etheostoma*) in a Gulf coastal plain drainage. *Southwestern Association of Naturalists*.
5. Hubbell J, Schaefer, J and P Flood (2018). The influence of coarse-scale environmental and thropogenic gradients on the functional diversity and beta diversity of headwater fish assemblages within a southeaster river system. *Ecological Society of America*.
6. Schaefer, J and D Duvernell (2018). Variability in replicate natural and experimental hybrid zones in the *Fundulus notatus* species complex. *Ecological Society of America*.
7. Schaefer, J, B Kreiser, and J Hubbell (2018). Population genomics of two headwater specialist darters in the Yazoo River basin. *Southeastern Fishes Council*.
8. Schaefer, J, B Kreiser, and H J. (2018). Population genomics of two headwater specialist darters in the Yazoo River basin. *Southwestern Association of Naturalists*.
9. Duvernell, D and J Schaefer. (2016). Phylogeography of two broadly overlapping topminnow species using GBS SNPs. *Evolution*.
10. Flood, P, J Hubbell, and J Schaefer (2016). Changes in fish assemblages of the Yazoo River drainage based on anthropogenic effects. *Southeastern Fishes Council*.
11. 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*.
12. Liddon, L and J Schaefer. (2016). Effects of wave exposure on the structure of fish assemblages across an exposure gradient. *Southeastern Fishes Council*.

13. Liddon, L and J Schaefer. (2016). Effects of wave exposure on the structure of fish assemblages across an exposure gradient. *American Society of Ichthyologists and Herpetologists*.
14. 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*.
15. Seveck, 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*.
16. 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*.
17. Campbell, D, J Schaefer, and W Matamoros (2014). Evolution of body size in catfish (Siluriformes). *Evolution*.
18. Clark, S and J Schaefer. (2014). Effects of habitat complexity and predation threat on the movement patterns of the blackspotted topminnow, *Fundulus olivaceus*. *Southwestern Association of Naturalists*.
19. Duvernell, J and J Schaefer. (2014). Contrasting Genetic Structure of Two Topminnow Species in Adjacent Contact Zones. *Evolution*.
20. Liddon, L, J Schaefer, and N Franssen (2014). Gill area variation in flowing and non flowing populations of *Cyprinella venusta*. *Southwestern Association of Naturalists*.
21. Schaefer, J, D Duvernell, and C Campbell (2014). Population genomics of two ecologically disparate *Fundulus* hybrid zones. *Southwestern Association of Naturalists*.
22. Schaefer, J and D Duvernell. (2014). Population genomics of two ecologically disparate *Fundulus* hybrid zones. *Evolution*.
23. 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*.
24. 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*.
25. Stewart, L and J Schaefer. (2014). Temperature preference in the *Fundulus notatus* species complex. *Southwestern Association of Naturalists*.
26. Westhafer, E, D Duvernell, and J Schaefer (2014). Population Genetics of the Blackspotted Topminnow using Genomic SNP Analysis. *Evolution*.
27. Clark, S and J Schaefer. (2013). Effects of habitat complexity and predation threat on the movement patterns of the blackspotted topminnow, *Fundulus olivaceus*. *Southeastern Fishes Council*.
28. Clark, S and J Schaefer. (2013). Reproductive-based patterns of movement in *Fundulus olivaceus*. *Southwestern Association of Naturalists*.
29. Duvernell, D, J Schaefer, and B Kreiser. (2013). 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*.
30. Duvernell, D, J Schaefer, and B Kreiser. (2013). Variation in contact zone dynamics between two species of topminnows, *Fundulus notatus* and *F. olivaceus* across isolated drainage systems. *Southwestern Association of Naturalists*.
31. Harris, J and J Schaefer. (2013). Life history trait convergence in two species of the *Fundulus notatus* species complex. *Southwestern Association of Naturalists*.
32. Michaelsen, S and J Schaefer. (2013). Fluctuating asymmetry as a measure of environmental stress caused by the 2010 Deepwater Horizon oil spill. *Southeastern Fishes Council*.
33. Michaelsen, S and J Schaefer. (2013). Fluctuating asymmetry as an indicator of environmental stress in the Mississippi Sound caused by the 2010 Deepwater Horizon oil spill. *Southwestern Association of Naturalists*.

34. Schaefer, J, D Duvernell, and C Campbell. (2013). Population genomics of two ecologically disparate *Fundulus* hybrid zones. *Southeastern Fishes Council*.
35. Schmidt, B, J Schaefer, and B Kreiser (2013). The influence of migration path characteristics on the population structure of *Fundulus olivaceus* and *Semotilus atromaculatus* in four drainages of Mississippi. *Southeastern Fishes Council*.
36. Stewart, L, N Franssen, and J Schaefer. (2013). Morphological diversification and flow-induced plasticity in *Cyprinella venusta*. *Southwestern Association of Naturalists*.
37. Stewart, L and J Schaefer. (2013). Temperature preference in the *Fundulus notatus* species complex. *Southeastern Fishes Council*.
38. Clark, S and J Schaefer. (2012). Reproductive-based patterns of movement in *Fundulus olivaceus*. *Southeastern Fishes Council*.
39. Duvernell, D, J Schaefer, and B Kreiser. (2012). Variation in contact zone dynamics between two species of topminnows, *Fundulus notatus* and *F. olivaceus*, across isolated drainage systems. *Southeastern Fishes Council*.
40. Franssen, N, L Stewart, and J Schaefer. (2012). Morphological diversification and flow-induced plasticity in *Cyprinella venusta*. *Southeastern Fishes Council*.
41. Harris, J and J Schaefer. (2012). Life history trait convergence in two species of the *Fundulus notatus* species complex. *Southeastern Fishes Council*.
42. Mickle, P, J Schaefer, S Adams, B Kreiser, and T Slack. (2012). Comparing river condition to successful hatching of Alabama Shad (*Alosa alabamae*) in northern Gulf of Mexico drainages. *Southeastern Fishes Council*.
43. Duvernell, D, B Kreiser, and J Schaefer. (2011). Contrasting evolutionary histories of the two broadly distributed species in the *F. notatus* species complex. *Evolution*.
44. Johns, M, J Scott, D Duvernell, B Kreiser, and J Schaefer. (2011). Within-drainage comparison of genetic structure for two topminnow species, *Fundulus notatus* and *F. olivaceus*. *Evolution*.
45. Schaefer, J (2011). Temperature, body size and variability in topminnow development rates. *Evolution*.
46. Schaefer, J (2011). Temperature, body size and variability in topminnow development rates. *The Southwestern Naturalist*.
47. Schaefer, J (2011). Temperature, body size and variability in topminnow development rates. *Southwestern Association of Naturalists*.
48. Schaefer, J (2011). Temperature, body size and variability in topminnow development rates. *American Society of Ichthyologists and Herpetologists*.
49. Schaefer, J, C Champagne, M Gutierrez, S Clark, B Kreiser, and D Duvernell. (2011). Variability in spot count phenotype in relation to reproductive investment, turbidity and sexual selection. *Evolution*.
50. Schaefer, J, B Kreiser, D Duvernell, C Coleman, M Gutierrez, S Clark, and L Stewart (2011). Variability in spot count phenotype in relation to reproductive investment, turbidity, predation and sexual selection. *Southeastern Fishes Council*.
51. Schaefer, J, B Kreiser, B Schmidt, and D Duvernell. (2011). Temporal variability in a *Fundulus* contact zone in Mississippi. *Evolution*.
52. Stewart, L, N Franssen, and J Schaefer. (2011). A tale of two tails: body shape and swimming performance in the *Fundulus notatus* species complex. *Southeastern Fishes Council*.
53. Alldredge, P, DD Duvernell, J Schaefer, B Schoeneck, and H Selby. (2010). Analysis of home range and movement patterns of the blackstripe topminnow, *Fundulus notatus* (Family: Fundulidae), in Cahokia Creek. *Illinois State Academy of Sciences*.
54. Anciuilis, N, J Schaefer, and D Duvernell. (2010). Genetic study of hybridization and introgression between two topminnow species in an artificial stream system. *Illinois State Academy of Sciences*.

55. Champagne, C, J Schaefer, B Kreiser, P Mickle, and D Duvernell. (2010). Feeding-related morphometrics of the blackstripe topminnow, *Fundulus notatus*. *Southwestern Association of Naturalists*.
56. Clark, S, M Warren, and J Schaefer. (2010). Temporal patterns of fish assemblage structure in Mississippi National Forests. *Southwestern Association of Naturalists*.
57. Duvernell, D, B Kreiser, and J Schaefer. (2010). Phylogeography of the *Fundulus notatus* species complex of topminnows inferred from nuclear AFLP and mtDNA cytochrome b variation. *Evolution*.
58. Meier, S, B Kreiser, J Schaefer, and D Duvernell. (2010). A phylogeographic analysis of the *Fundulus notatus* complex using nuclear Amplified Fragment Length Polymorphisms (AFLPs). *Illinois State Academy of Sciences*.
59. Schaefer, J, D Duvernell, and B Kreiser. (2010). Morphological variation along the river continuum. *Southwestern Association of Naturalists*.
60. Duvernell, D, J Schaefer, and B Kreiser. (2009). Contact Zone Dynamics in the *Fundulus notatus* complex. *Evolution*.
61. Matamoros, W, J Schaefer, B Kresier, R Borowsky, M Bradic, and P Scheid. (2009). Assessment of Honduran freshwater ichthyological provinces using microsatellite data from *Astyanax aeneus*. *The Southwestern Association of Naturalists*.
62. Schaefer, J, D Duvernell, and B Kreiser. (2009). Hybrid zone dynamics in the *Fundulus notatus* species complex. *Southeastern Fishes Council*.
63. Schaefer, J, D Duvernell, and B Kreiser. (2009). Hybrid zone dynamics in the *Fundulus notatus* species complex. *American Fisheries Society*.
64. Bishop, J and J Schaefer (2008). Movement and habitat use of *Atractosteus spatula* in the Hatchie River, TN. *Alligator Gar Working Group Meeting*.
65. Schaefer, J (2008). Metabolic cold adaptation and developmental plasticity in metabolic rates among species in the *Fundulus notatus* complex. *Evolution*.
66. Schaefer, J (2008). Metabolic cold adaptation and developmental plasticity in metabolic rates among species in the *Fundulus notatus* complex. *The Southwestern Association of Naturalist*.
67. Schaefer, J, B Kresier, P Mickle, C Champagne, and D Duvernell. (2008). Patterns of co-existence and hybridization among two topminnows (*Fundulus euryzonus* and *F. olivaceus*) in a riverine contact zone. *Southeastern Fishes Council*.
68. Zuber, B and J Schaefer. (2008). Fluctuating asymmetry and condition in fishes exposed to varying levels of environmental stressors. *Southeastern Fishes Council*.
69. Schaefer, J, P Mickle, J Spaeth, S Adams, B Kreiser, W Matamoros, B Zuber, and J Bishop (2007). Effects of hurricane Katrina on the fish fauna of the Pascagoula drainage. *American Society of Ichthyologists and Herpetologists*.
70. Zuber, B and J Schaefer (2007). Fluctuating asymmetry and condition in fishes exposed to varying levels of environmental stressors. *Mississippi Water Resources Council*.
71. Schaefer, J, P Mickle, J Spaeth, B Zuber, W Matamoros, S Adams, B Kreiser, and P Vigueira (2006). Effects of hurricane Katrina on the big river fish fauna of the Pascagoula drainage. *Mississippi Water Resources Conference*.
72. Schaefer, J, P Vigueira, D Duvernell, and B Kreiser (2006). Reproductive isolation among species in the *Fundulus notatus* species complex. *Southwestern Association of Naturalists*.
73. Vigueira, P, J Schaefer, D Duvernell, and B Kreiser (2006). Reproductive isolation among species in the *Fundulus notatus* species complex. *American Society of Ichthyologists and Herpetologists*.
74. Duvernell, D and J Schaefer (2005). Hybridization and introgression between two killifish species, *Fundulus notatus* and *Fundulus olivaceus*. *Evolution*.
75. Persons, KJS and D Duvernell. (2005). *Fundulus* morphometrics Synclinal variance in morphology within the *Fundulus notatus* species complex. *American Association of Ichthyologists and Herpetologist*.

76. Retzlaff, W, A Ringhausen, S Hu, J Schaefer, N Satam, and P Bhattari. (2005). Calculating 150 years of land use change within a Midwestern watershed. *Ecological Society of America*.
77. Schaefer, J, K Gido, J Kerfoot, and G Reeck (2005). Developmental plasticity in the thermal tolerance of zebrafish. *American Society of Ichthyologists and Herpetologist*,
78. Spaeth, J, J Schaefer, B Kreiser, and R Ramirez (2005). The effects of unfavorable habitat on the dispersal of *Campostoma anomalum* (Cyprinidae) as measured by microsatellites. *American Association of Ichthyologists and Herpetologist*.
79. Foster, A, J Schaefer, D Duvernell, and A Ravanelli. (2004). The effects of turbidity on the rate of hybridization between two topminnows. *American Society of Ichthyologists and Herpetologist*.
80. Gido, K, J Schaefer, A Lickteig, D Qixin, Z Jepson, N Mutti, and G Reeck. (2004). Heat Shock Proteins and Temperature Adaptation by Native Minnows of Kansas. *Ecological Genomics Workshop*.
81. Kasselbaum, B and J Schaefer (2004). Thermal biology of darters from thermally contrasting streams in a Midwestern drainage. *Illinois State Academy of Sciences*.
82. Kasselbaum, B and J Schaefer (2004). Thermal biology of darters from thermally contrasting streams in a Midwestern drainage. *Southwestern Association of Naturalists*.
83. Ramierez, R, J Schaefer, and B Meinardi. (2004). Effects of Flooding on Fish Community in an Ozark River Drainage. *American Society of Ichthyologists and Herpetologist*.
84. Ravanelli, A, A Foster, J Schaefer, and D Duvernell. (2004). Morphological and Molecular Analysis of Two Species of Killifish (genus *Fundulus*) in a Hybrid Zone. *Evolution*.
85. Kerfoot, J and J Schaefer (2003). Microhabitats and ecomorphologies of *Cottus* spp. *Southwestern Association of Naturalists*.
86. Kerfoot, J and J Schaefer (2003). Microhabitats and ecomorphologies of *Cottus* spp. *Illinois State Academy of Sciences*.
87. Love, E, M Smith, and J Schaefer (2003). Effects of Inter- and Intraspecific Competition on *Boltonia decurrens*, an endangered Wetland species. *Illinois State Academy of Sciences*.
88. Mammoliti, C, D Mulhern, V Tabor, J Schaefer, and M Shaw (2003). Effects Of Gravel Mining On The Neosho Madtom (*Noturus placidus*). *Midwest Fish and Wildlife Conference*.
89. Meinardi, B and J Schaefer (2003). 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*.
90. Meinardi, B and J Schaefer (2003). Thermal stress and conservatioin of two darters , *Etheostoma caeruleum* (rainbow darter) and *Etheostoma flabellare* (fantail darter), in a small midwestern drainage. *Illinois State Academy of Sciences*.
91. Funderburg, C, S Zacha, and J Schaefer (2002). The Influence Of Land Use On The Fish Community In A Midwestern Drainage. *Illinois State Academy of Science*.
92. Gido, K and J Schaefer (2002). Patterns of fish invasions in the Great Plains. *American Society of Ichthyologists and Herpitologists*.
93. Kerfoot, J and J Schaefer (2002). The Stability of Piasa Creek Fish Assemblage. *Illinois State Academy of Science*.
94. Schaefer, J, K Gido, and J Kerfoot (2002). A method for assessment of long term change in stream fish assemblages. *American Society of Ichthyologists and Herpitologists*.
95. Schaefer, J and K Gido (2001). 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*.
96. Gido, K, J Schaefer, and J Pigg (2000). Hydrologic variability and susceptibility to invasion: testing some assumptions with a long term data set. *Southwestern Association of Naturalists*.

97. Schaefer, J and K Gido (2000). Use of deep water as a thermal refugia and observed piscivory by the threatened leopard darter (*Percina pantherina*). *Southwestern Association of Naturalists*.
98. Schaefer, J (1999). Modeling movement and dispersal of stream fish: A mark-resight study in Brier Creek (Oklahoma). *American Society of Ichthyologists and Herpetologists*.
99. Schaefer, J (1999). Modeling movement and dispersal of stream fish: A mark-resight study in Brier Creek (Oklahoma). *Southwestern Association of Naturalists*.
100. Schaefer, J (1999). Modeling movement and dispersal of stream fish. *Southern Division American Fisheries Society*.
101. Schaefer, J, K Gido, K Work, P Lienesch, W Matthews, and E Marsh-Matthews (1998). Effects of Red shiner (*Cyprinella lutrensis*) on Red River Pupfish (*Cyprinodon rubrofluviatilis*). *Southwestern Association of Naturalists*.
102. Schaefer, J (1997). The influence of riffles on the movement rates of fish within streams. *American Society of Ichthyologists and Herpetologists 1997*.
103. Schaefer, J (1997). The influence of riffles on the movement rates of fish within streams. *Southwestern Association of Naturalists 1997*.
104. Lienesch, P, W Lutterschmidt, and J Schaefer (1996). Assemblage changes in a smallcreek after isolation due to reservoir formation. *Southwestern Naturalists*.
105. Schaefer, J, W Lutterschmidt, and L Hill (1996). Stream microhabitat use by two centrarchids (*Lepomis megalotis* and *Lepomis macrochirus*). *American Society of Ichthyologists and Herpetologists 1996*.
106. Schaefer, J, W Lutterschmidt, and L Hill (1996). Stream microhabitat use by two centrarchids (*Lepomis megalotis* and *Lepomis macrochirus*). *Southwestern Naturalists 1996*.