

# Morgan E. Raley, Ph.D.

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## Curriculum Vitae

HydroGENomics Consulting  
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mobile: (919) 618-3212

### Present Position

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Consultant, HydroGENomics

### Education

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1999 Ph.D. Biology Saint Louis University (Advisor: R. M. Wood)  
1994 B.S. Biology University of Missouri--St. Louis (Cum Laude)

### Research Interests

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Conservation genetics of endangered and threatened North American ichthyofauna  
Molecular systematics and population genetics of cypriniform and perciform fishes  
Forces driving molecular evolution in aquatic ecosystems  
Evolution, biogeography, and species discovery in the North American ichthyofauna  
Molecular systematics, biogeography and population genetics of North American unionids  
Conservation genetics of endangered and threatened North American unionids  
Biogeography and drainage evolution shaping North American aquatic faunas

### Professional Experience

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Present	Consultant	HydroGENomics
2007-2014	Research Curator	NC State Museum of Natural Sciences
2001-2007	Postdoctoral Associate, informal	NC State University, Coll. of Veterinary Medicine
1999-2001	Research Technician	NC State Museum of Natural Sciences
1994-1999	Graduate Research Assistant	Saint Louis University
1993-1994	Undergraduate Researcher	University of Missouri--St. Louis
1991-1994	Medical Research Technician	Washington University, Department of Neurology
1990-1991	Work Study Student	Washington University, Department of Neurology

## Grant Awards

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2014	\$9,750	NC WRC Genotyping services for Lake James Walleye with microsatellite markers.
2014	\$285,412	NSF MRI Acquisition of a next-generation sequencing instrument for interdisciplinary research in the NC Museum of Natural Sciences
2013	\$74,274	NC WRC Genotyping services for American Shad and Blueback Herring with microsatellite markers.
2013	\$110,941	NCBC IDG Acquiring an Automated Pipetting System and Next-Generation DNA Sequencer to Advance Interdisciplinary Research in the Genomics and Microbiology Laboratory of the NC Museum of Natural Sciences Nature Research Center.
2012	\$57,000	NC WRC Genotyping services for American Shad with microsatellite markers.
2011	\$41,000	NC WRC Genotyping services for American Shad with microsatellite markers.
2011	\$23,000	USFWS/KY Waterways. Genetic evaluation of the status of <i>Anodontooides denigrata</i> .
2009	\$5,000	NC WRC Addendum to: Rare mussel conservation genetics: Tar River Spiny Mussel ( <i>Elliptio steinstansana</i> )
2009	\$5,000	SC DNR Genetics of select Broad River, SC freshwater mussel species
2007	\$34,000	NC WRC Rare mussel conservation genetics: Appalachian Elktoe and Brook Floater in western North Carolina
2007	\$18,000	VA DGIF Species level relationships of the lanceolate <i>Elliptio</i> in five major river basins of eastern Virginia
2006	\$20,000	USFWS Population status of the Carolina Heelsplitter in North and South Carolina.
2004	\$218,400	NC DoT Propagation of freshwater mussels for augmenting native populations
2003	\$97,424	NC DoT Genetic characterization of the genus <i>Alasmidonta</i> in NC to facilitate accurate environmental impact assessments
2003	\$20,000	Progress Energy Surveys and genetic investigation of the “Carolina” Redhorse, <i>Moxostoma</i> sp.
2003	\$3,000	US Forest Serv. Search for cryptic species in the Flutedshell, <i>Lasmigona costata</i> (Rafinesque, 1820) (Mollusca: Bivalvia: Unionidae).
2002	\$1,500	US Forest Serv. Search for cryptic species in the Flutedshell, <i>Lasmigona costata</i> (Rafinesque, 1820) (Mollusca: Bivalvia: Unionidae).

## Publications

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H Evans, K Carlson, R Wisser, **M Raley**, K Potoka, K Dockendorf. (**In Review**). Development of molecular tools for responsible restoration of blueback herring. *Molecular Ecology Resources*.

M Lopes-Lima, E Froufe, VT Do, M Ghamizi, KE Mock, Ü Kebapçı, O Klishko, S Kovitvadhi, U Kovitvadhi, OS Paulo, JM Pfeiffer III, **M Raley**, N Riccardi, H Şereflişan, R Sousa, A Teixeira, S Varandas, X Wu, DT Zanatta, A Zieritz, AE Bogan. 2017. Phylogeny of the most species rich freshwater bivalve family (Bivalvia: Unionida: Unionidae): Defining modern subfamilies and tribes. *Molecular Phylogenetics & Evolution*. 106(2017):174-191.

HW Robison, RC Cashner, **ME Raley** & TJ Near. 2014. A New Species of Darter from the Ouachita Highlands in Arkansas Related to *Percina nasuta* (Percidae: Etheostomatinae). *Bulletin of the Peabody Museum of Natural History*. 55(2):237–252.

KL Tang, MK Agnew, MV Hirt, DN Lumbantobing, **ME Raley**, T Sado, V-H Teoh, L Yang, HL Bart, PM Harris, S He, M Miya, K Saitoh, AM Simons, RM Wood & RL Mayden. 2013. Limits and phylogenetic relationships of East Asian fishes in the subfamily Oxygastrinae (Teleostei: Cypriniformes: Cyprinidae). *Zootaxa*. 3681(2): 101–135.

- CT McAllister, WC Starnes, **ME Raley** & HW Robison. 2010. Geographic distribution records for select fishes of central and northern Arkansas. *Journal of the Texas Academy of Sciences*. 62(4):271-280.
- KL Tang, MK Agnew, W-J Chen, MV Hirt, **ME Raley**, T Sado, LM Schneider, L Yang, HL Bart, S He, H Liu, M Miya, K Saitoh, AM Simons, RM Wood, & RL Mayden. 2011. Phylogeny of the gudgeons (Teleostei: Cyprinidae: Gobioninae). *Molecular Phylogenetics & Evolution*. 61(1):103-124.
- AE Bogan, JM Smith, & **ME Raley**. 2011. The Lilliput (*Toxolasma parvum*) (Mollusca: Bivalvia: Unionidae) introduced into North Carolina. *Journal of the North Carolina Academy of Science*. 127(2):192-193.
- AE Bogan, J Bowers-Altman, & **ME Raley**. 2011. The first confirmed record of the Chinese pond mussel (*Sinanodonta woodiana*) in the United States. *The Nautilus*. 125(1):41-43.
- AE Bogan, J Bowers-Altman, & **ME Raley**. 2011. A new threat to conservation of North American freshwater mussels: Chinese Pond Mussel (*Sinanodonta woodiana*) in the United States. *Tentacle*. 19:39-40.
- CT McAllister, WC Starnes, HW Robison, RE Jenkins, & **ME Raley**. 2009. Distribution of the Silver Redhorse, *Moxostoma anisurum* (Cypriniformes: Catostomidae) in Arkansas. *Southwestern Naturalist*. 54(4):514-518.
- AE Bogan, ON Mandryka, YM Punin, **ME Raley**, & JF Levine. 2007. Preliminary taxonomic examination of the *Unio* and *Anodonta* species from the Baltic Region based upon molecular data. Pages. 56-58. IN: *Molluscs, Morphology, phylogeny, biogeography and ecology. The collection articles on materials of Seventh (xv1) Conference on Study of Mollusks, November 14-17, 2006*. Editors E.N. Egorova, P.V. Kijashko and B.I. Sirenko. St. Petersburg, Zoological Institute, Russian Academy of Sciences. [in Russian].
- JM Caldwell, **ME Raley**, & JF Levine. 2007. Mitochondrial multiplex real-time PCR as a source tracking method in fecal-contaminated effluents. *Environmental Science & Technology*. 41(9):3277-3283.
- O Miller, FJ Fuller, WA Gebreyes, GA Lewbart, RB Shivappa, DM Stone, PF Dixon, **ME Raley**, & JF Levine. 2007. Phylogenetic analysis of spring viremia of carp virus reveals distinct subgroups with common origins for recent isolates in North America and the UK. *Diseases of Aquatic Organisms*. 76(3):193-204.
- ME Raley**, JF Levine, & AE Bogan. 2006. Hemolymph as a nonlethal and minimally invasive source of DNA for molecular systematic studies of freshwater mussels. *Tentacle*. 14:33-34.
- ME Raley** & RM Wood. 2001. Molecular systematics of members of the *Notropis dorsalis* species group (Actinopterygii: Cyprinidae). *Copeia* 2001:638-645.
- RM Wood & **ME Raley**. 2000. Cytochrome *b* sequence variation in the crystal darter, *Crystallaria asprella* (Actinopterygii: Percidae). *Copeia* 2000:20-26.

## Manuscripts In Preparation

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EL Cushman, HK Evans, GR Moyer, **ME Raley**, AS Williams, & TL Darden. Development of a standardized genetic tool and estimation of genetic measures for responsible aquaculture-based fisheries enhancement of American shad (*Alosa sapidissima*) in the Carolinas

**ME Raley** & RM Wood. Intraspecific molecular systematics of the Longnose Shiner, *Notropis longirostris* (Teleostei: Cyprinidae)

**ME Raley** & RM Wood. Intraspecific molecular systematics of the Sabine Shiner, *Notropis sabiniae* (Teleostei: Cyprinidae)

AE Bogan, Y Huang, JF Levine, TL King, **ME Raley**. Phylogenetic relationships in the North American freshwater bivalve genus *Alasmidonta* (Bivalvia: Unionidae)

AE Bogan, JT Garner, JD Williams, N Johnson, B McLean & **ME Raley**. Recognition of *Utterbackiana* Frierson, 1927 for a clade of eastern North American freshwater mussel species (Mollusca: Bivalvia: Unionidae: Unioninae: Anodontini).