

## Bradley Michael Richardson

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### EDUCATION

**Doctor of Philosophy, Mississippi State University** **2016 - 2020**

*Major – Forest Resources (Wildlife, Fisheries, & Aquaculture)*

*Minor – Secondary Education*

*Advisors – Michael E. Colvin and David J. Wise*

*Dissertation – Improved monitoring and decision-making to manage atypical *Aeromonas hydrophila* (aAh) in catfish aquaculture ponds*

**Master of Science, Murray State University** **2013 - 2015**

*Major – Biology*

*Advisor – Michael B. Flinn*

*Thesis – A dietary comparison of the reintroduced alligator gar *Atractosteus spatula* and three sympatric gar relatives (family: Lepisosteidae) in the Clarks River, Kentucky*

**Bachelor of Science, Murray State University** **2010 - 2013**

*Major – Aquatic Biology/Fisheries*

*Minor – Chemistry*

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### TECHNICAL PUBLICATIONS

Armwood AR, Griffin MJ, **Richardson BM**, Wise DJ, Ware C, and Camus AC. 2022. *Pathology and virulence of *Edwardsiella tarda*, *Edwardsiella piscicida*, and *Edwardsiella anguillarum* in channel (*Ictalurus punctatus*), blue (*Ictalurus furcatus*), and channel x blue hybrid catfish*. Journal of Fish Diseases 00: 1-16. <https://doi.org/10.1111/jfd.13691>

López-Porras A, Griffin MJ, Ware C, **Richardson BM**, Greenway TE, Rosser TG, Aarattuthodiyi S, and Wise DJ. 2022. *Cross-protective efficacy of a live-attenuated *Edwardsiella ictaluri* vaccine against heterologous *Edwardsiella piscicida* isolates in channel and channel x blue catfish hybrids*. Journal of Fish Diseases 45: 1001-1010. <https://doi.org/10.1111/jfd.13623>

**Richardson BM**, Mischke CC, Rosser TG, Woodyard ET, Ware C, Wise DJ, and Griffin MJ. 2022. *Activation of *Henneguya ictaluri* Actinospores by Nonictalurid Fish Species, with Implications for Management of Proliferative Gill Disease in Catfish Aquaculture*. North American Journal of Aquaculture 84(3): 313-324. <https://doi.org/10.1002/naaq.10242>

Tumolo BB, **Richardson BM**, Labeda DM, and Flinn MB. *Phytoplankton survival in hindgut of invasive Silver Carp (*Hypophthalmichthys molitrix*)*. *The American Midland Naturalist* 187(1): 29-38. <https://doi.org/10.1674/0003-0031-187.1.29>

Stilwell JM, Rosser TG, Woodyard ET, **Richardson BM**, López-Porras A, Leary JH, Mischke CC, Camus AC, and Griffin MJ. 2021. *Characterisation of myxozoan fauna of western mosquitofish, *Gambusia affinis* (Baird and Gerard) (Cyprinodontiformes: Poeciliidae), inhabiting experimental catfish ponds in Mississippi, USA*. *Systematic Parasitology* 98(4): 423-41. <https://doi.org/10.1007/s11230-021-09987-z>

**Richardson BM**, Griffin MJ, Colvin ME, Wise DJ, Ware C, Mischke CC, Greenway TE, Byars TS, Hanson LA, and Lawrence ML. 2020. *Using quantitative polymerase chain reaction (qPCR) and occupancy models to estimate atypical *Aeromonas hydrophila* (aAh) prevalence in catfish*. *Aquaculture* 530: 735687. <https://doi.org/10.1016/j.aquaculture.2020.735687>

**Richardson BM**, Flinn MB. 2019. *Increased probability and efficiency of gar capture using multi- versus monofilament gill nets*. *Journal of Fish and Wildlife Management* 10(2): 551-562; e1944-687X. <https://doi.org/10.3996/112018-JFWM-101>

## MANUSCRIPTS IN PREPARATION

**Richardson BM**, Militello J, and Flinn MB. *An evaluation of diet composition and overlap in four sympatric gar species (family: Lepisosteidae)*. Target Journal: Southeastern Association of Fish and Wildlife Agencies.

Rosser TG, Woodyard E, and **Richardson BM**. *Morphometric and genetic analysis for evaluating taxonomic designations of the genus *Apharyngostrigea**. Target Journal: Journal of Parasitology.

## FUNDED PROJECTS

US Animal and Plant Health Inspection Service (APHIS). 2022. *Integrated Pest Management of Invasive Apple Snails in Rice/Crawfish Production Systems*. AL Roda (PI), BM Richardson (Co-PI), BE Wilson (Co-PI), TG Rosser (Co-PI), and MJ Griffin (Co-PI). \$423,670

US Environmental Protection Agency (EPA). 2019. *Developing Bankfull Regional Curves: A First Step to Restore Streams Functionality in Mississippi*. JJ Ramirez-Avila (PI), SL Ortega-Achury (Co-PI), JL Martin (Co-PI), and **BM Richardson** (Co-PI). \$259,043

## GRANTS AND AWARDS

|  |      |
|--|------|
| Research Achievement Award (\$2000) – USDA Agricultural Research Unit  | 2022 |
| 3 <sup>rd</sup> Place, Best Student Oral Presentation (\$100) – Mississippi Chapter, American Fisheries Society  | 2020 |
| Preparing Future Faculty Program Graduate – Mississippi State University   | 2019 |
| Ernest A. Gluesing Outstanding Wildlife and Fisheries Ph.D. Student (\$100) – Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University | 2019 |

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| David Nabi Memorial Award – Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University                               | 2019 |
| Mississippi AFS Excellence in Public Outreach – Mississippi Chapter, American Fisheries Society  | 2019 |
| 3-Minute Thesis Grand Champion Finalist (\$250) – Office of the Graduate School, Mississippi State University                              | 2018 |
| Best Student Abstract/Travel Award (\$400) – Fish Culture Section, American Fisheries Society  | 2018 |
| Best Doctoral Student Oral Presentation – Graduate Student Research Symposium, Office of the Graduate School, Mississippi State University | 2018 |
| Best Student Abstract/Travel Award (\$400) – Fish Culture Section, American Fisheries Society  | 2017 |
| Outstanding Graduate Researcher – Department of Biology, Murray State University   | 2015 |
| Innovative Graduate Research Assistantship (\$8,000) – Murray State University   | 2014 |
| Larry D. Pharris Memorial Wildlife Biology Scholarship (\$2,000) – Department of Biology, Murray State University                          | 2014 |
| Outstanding Graduate Poster – Murray State University Sigma Xi Chapter   | 2014 |
| Undergraduate Instars Fellowship – Society for Freshwater Science  | 2013 |
| Undergraduate Research Fellowship (\$2,000) – Office of Undergraduate Research and Scholarly Activities, Murray State University           | 2012 |
| Dr. Alfred M. Wolfson Memorial Scholarship (\$2,000) – Department of Biology, Murray State University                                      | 2012 |
| Undergraduate Research Grant (\$500) – Office of Undergraduate Research and Scholarly Activities, Murray State University                  | 2011 |

## TEACHING AND MENTORSHIP

### ***Teaching Assistantships***

WFA 4313 – Fisheries Management. Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University. 3 credit hours. (2019)

WFA 4133 – Fisheries Science. Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University. 3 credit hours. (2018)

WFA 3133 – Applied Aquatic and Terrestrial Ecology. Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University. 3 credit hours. (2017, 2018)

WFA 4173/6173 – Fish Physiology. Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University. 3 credit hours (2016)

BIO 101 – Introduction to Biology (Lab Instructor). Department of Biology, Murray State University. 4 credit hours (2014)

BIO 221 – Zoology. Department of Biology, Murray State University. 4 credit hours. (2013, 2014, 2015)

### ***Guest Lectures***

*R: Syntax and Applications* – College of Veterinary Medicine, Mississippi State University. Summer 2022

*Macroinvertebrate Function in Stream Health* – Stream Recon. Department of Civil and Environmental Engineering, Mississippi State University. Fall 2019

*Length-Weight Relationships* – Fisheries Science. Department of Wildlife, Fisheries, and Aquaculture, Mississippi State University. Spring 2019

*Hatchery Creek: Beyond Stream Restoration* – Hydro-environmental Analysis. Department of Civil and Environmental Engineering, Mississippi State University. Fall 2018

*Biological Indices: How, What, and Why Macroinvertebrates are Good Stream Indicators* – Hydro-environmental Analysis. Department of Civil and Environmental Engineering, Mississippi State University. Fall 2018

**Mentorships** (1 – graduate, 2 – undergraduate, 3 – high school)

|                                   |                              |           |
|-----------------------------------|------------------------------|-----------|
| Lorena Chavarro Chau <sup>1</sup> | Mississippi State University | 2019      |
| Iveth Navarro Torres <sup>1</sup> | Mississippi State University | 2019      |
| Shanika Musser <sup>2</sup>       | Mississippi State University | 2018-2019 |
| Taylor Noble <sup>2</sup>         | Mississippi State University | 2018      |
| Donavan McCranie <sup>3</sup>     | Columbus High School         | 2018      |
| Jeremiah Ramsey <sup>3</sup>      | Columbus High School         | 2018      |
| Miracle Watson <sup>3</sup>       | Columbus High School         | 2018      |
| Claire Ray <sup>2</sup>           | Mississippi State University | 2017      |
| Jennifer Deignan <sup>2</sup>     | Mississippi State University | 2017      |
| Tori Savors <sup>3</sup>          | Columbus High School         | 2017-2018 |
| Hunter Brooks <sup>3</sup>        | Columbus High School         | 2017-2018 |
| David Alavarez <sup>3</sup>       | Columbus High School         | 2017      |
| Wynter Brooks <sup>3</sup>        | Columbus High School         | 2017      |
| Amiyah Porter <sup>3</sup>        | Columbus High School         | 2017      |
| Nathan Tillotson <sup>2</sup>     | Murray State University      | 2014-2015 |

**Other Teaching Experience**

Substitute Teacher Century Jr./Sr. High School, Ullin, IL 62992 2016

**OUTREACH AND SERVICE**

9<sup>th</sup> International Symposium on Aquatic Animal Health (AFS-FHS)  
*Special Session Organizer – Modeling Applications in Aquatic Animal Health* 2022

46<sup>th</sup> Annual Meeting of the Mississippi Chapter of the American Fisheries Society  
*Student Moderator* 2020

Conference of Research Workers in Aquatic Diseases  
*Student Moderator* 2019

Mississippi State University Student Sub-unit of the American Fisheries Society  
*President* 2018-2019

Kidz Outdoor Zone – Jonesboro, IL  
*Presentation - Critters in the Creek* 2018

Department of Wildlife, Fisheries, and Aquaculture Graduate Student Association  
*Department Representative* 2018

Mississippi State University Student Sub-unit of the American Fisheries Society  
*Presentation - Three States and A Thousand Connections* 2017

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| Mississippi State University Student Sub-unit of the American Fisheries Society<br><i>President-elect</i>  | 2017-2018 |
| Mississippi Region V Science Fair<br><i>Judge</i>  | 2017-2020 |
| Mississippi State University Undergraduate Research Symposium<br><i>Judge</i>  | 2017-2020 |
| Land Between the Lakes “Cool and Crawly Critter Day”<br><i>Exhibit – “Fun Fishes of Kentucky”</i>  | 2014      |
| Murray State University Chapter of The Wildlife Society<br><i>Presentation - Searching for Morphological Differences in Four Sympatric Gar Species</i> | 2013      |

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## RESEARCH PRESENTATIONS

(\* indicates presenting author, if not first author; † indicates undergraduate student)

**Richardson BM**, Griffin MJ, Liles M, Lawrence M, and Wise DJ. Protective effects of vaccine and killed culture against atypical *Aeromonas hydrophila* (aAh) in *Ictalurus punctatus*. Conference of Research Workers in Animal Diseases, December 2020. (Virtual – COVID 19)

**Richardson BM**, Griffin MJ, Mischke CC, Greenway TE, Colvin ME, Waldbieser GC, Liles M, Hanson LA, Lawrence M, and Wise DJ. Haplotype and genomic variation in atypical *Aeromonas hydrophila* (aAh) of channel catfish aquaculture in the US. Conference of Research Workers in Animal Diseases, December 2020. (Virtual – COVID 19)

**Richardson BM**, Griffin MJ, Waldbieser GC, Mischke CC, Greenway TE, Colvin ME, Wise DJ, Khoo LH, Lawrence M, and Liles M. Genomic analysis of atypical *Aeromonas hydrophila* (aAh) from catfish aquaculture in the southeastern United States with evidence of haplotype shifts from diagnostic case submissions. AFS FHS Online Fish Health Seminar Series, May 2020. (Replaced 45<sup>th</sup> Annual Eastern Fish Health Symposium – COVID 19)

**Richardson BM**, Colvin ME, Griffin MJ, Mischke CC, Greenway TE, and Wise DJ. Leaving nothing on the table: using structured decision-making to evaluate management decisions in catfish aquaculture. Southern Division of the American Fisheries Society, Little Rock, Arkansas. February 2020.

**Richardson BM**, Mischke CC, Rosser TG, Woodyard ET, Khoo LH, Wise DJ, and Griffin MJ. Presence of non-ictalurid fish can reduce transmission of *Henneguya ictaluri* to channel catfish. Southern Division of the American Fisheries Society, Little Rock, Arkansas. February 2020. (Poster)

**Richardson, BM**, Colvin ME, Griffin MJ, Mischke CC, Greenway TE, and Wise DJ. They are the same, but different: comparative genomics of two atypical *Aeromonas hydrophila* pathotypes found in catfish aquaculture of the southeast. Mississippi Chapter of the American Fisheries Society, Gulf Port, Mississippi. February 2020.

**Richardson BM**, Colvin ME, Griffin MJ, Mischke CC, Wise DJ, and Greenway TE. Modeling atypical *Aeromonas hydrophila* (aAh) dynamics in catfish aquaculture ponds of the southeast. Conference of Research Workers in Aquatic Diseases, Chicago, Illinois. November 2019.

**Richardson BM**, Colvin ME, Griffin MJ, Mischke CC, Wise DJ, and Greenway TE. Atypical *Aeromonas hydrophila* (aAh) dynamics in catfish aquaculture ponds of the southeast. Eastern Fish Health Workshop, Lake Placid, New York. April 2019.

Wilmoth B<sup>†</sup>, Schumann DA, **Richardson BM**, Aldridge CA, and Colvin ME. Ontogeny of Southern Brook Lamprey, *Ichthyomyzon gagei*, with emphasis on abundance, distribution, and morphology in a small watershed. Shackouls Honors College 2019 Spring Undergraduate Research Symposium. April 2019. (Poster)

Wilmoth B<sup>†</sup>, Schumann DA, **Richardson BM**, Aldridge CA, and Colvin ME. Ontogeny of Southern Brook Lamprey, *Ichthyomyzon gagei*, with emphasis on abundance, distribution, and morphology in a small watershed. 45<sup>th</sup> Annual Meeting of the Mississippi Chapter of the American Fisheries Society, Jackson, Mississippi. February 2019. (Poster)

**Richardson BM**, Colvin ME, Wise DJ, Griffin MJ, Mischke CC, and Greenway TE. State boundaries draw hard lines in *Aeromonas hydrophila* disease strains of farm-raised channel catfish *Ictalurus punctatus*. 45<sup>th</sup> Annual Meeting of the Mississippi Chapter of the American Fisheries Society, Jackson, Mississippi. February 2019.

Aldridge CA, **Richardson BM**, Schumann DA, and Colvin ME. Identifying barriers to the use and detection of passive integrated transponder (PIT) tags in Southern Brook Lamprey ammocoetes (*Ichthyomyzon gagei*, Hubbs & Trautman, 1937). Southeastern Fishes Council 44<sup>th</sup> Annual Meeting, McCormick, South Carolina. November 2018.

**Richardson BM**, Colvin ME, Wise DJ, Griffin MJ, Mischke CC, and Greenway TE. Evaluating atypical *Aeromonas hydrophila* (aAh) in catfish aquaculture of the Mississippi delta region. 8<sup>th</sup> International Symposium on Aquatic Animal Health, Charlottetown, Prince Edward Island, Canada. September 2018.

**Richardson BM**, Aldridge CA, Schumann DA, and Colvin ME. Assessing viability of passive integrated transponder (PIT) tags for ecological studies of lamprey ammocoetes. 148<sup>th</sup> Annual Meeting of the American Fisheries Society, Atlantic City, New Jersey. August 2018. (Poster)

**Richardson BM**, Colvin ME, Wise DJ, Greenway TE, Griffin MJ, and Mischke CC. Status of Atypical *Aeromonas hydrophila* (aAh) in Mississippi. 148<sup>th</sup> Annual Meeting of the American Fisheries Society, Atlantic City, New Jersey. August 2018.

**Richardson BM**, Colvin ME, Wise DJ, Griffin MJ, Mischke CC, and Greenway TE. Using occupancy models to investigate atypical *Aeromonas hydrophila* (aAh) prevalence in cultured catfish. Graduate Student Research Symposium Hosted by the Mississippi State University Office of the Graduate School, Mississippi State, Mississippi. February 2018.

**Richardson BM**, Colvin ME, Wise DJ, Griffin MJ, Mischke CC, and Greenway TE. Occupancy modeling to assess atypical *Aeromonas hydrophila* (aAh) prevalence in farm-raised catfish. Meeting of the Mississippi Chapter of the American Fisheries Society, Jackson, Mississippi. February 2018.

**Richardson BM**, Colvin ME, Wise DJ, Greenway TE, Griffin MJ, and Mischke CC. Virulent *Aeromonas hydrophila* (vAh) – not just another “hole-in-the-head”. 147<sup>th</sup> Annual Meeting of the American Fisheries Society, Tampa, Florida. August 2017.

Tumolo BB, **Richardson BM**, Jackson N, and Flinn MB. Organismal response to human manipulated ecosystems: varying body condition in paddlefish (*Polyodon spathula*) across large river impoundments. Annual Meeting of the Society for Freshwater Science, Sacramento, California. May 2015. (Poster)

**Richardson BM** and Flinn MB. Diet ecology of four sympatric gar species (family Lepisosteidae) in Clarks River, Kentucky. Midwest Ecology and Evolution Conference, Bloomington, Indiana. March 2015.

**Richardson BM** and Flinn MB. 7 years later: ecology and population dynamics of the gar community within Clarks River, KY. Alligator Gar Technical Committee Meeting, Annual Meeting of the Southern Division of the American Fisheries Society, Savannah, Georgia. January 2015.

**Richardson BM** and Flinn MB. Strong diet overlap in four sympatric gar relatives (family Lepisosteidae): including reintroduced alligator gar (*Atractosteus spatula*) of western Kentucky. Annual Meeting of the Southern Division of the American Fisheries Society. Savannah, Georgia. January 2015.

**Richardson BM** and Flinn MB. Overlap in the diets of four sympatric gar species of western Kentucky. Society for Freshwater Science Annual Meeting, Milwaukee, Wisconsin. April 2015.

**Richardson BM** and Flinn MB. Investigating the diet ecology of four sympatric gar species (family Lepisosteidae) in western Kentucky. 6<sup>th</sup> Annual Research Symposium of the Watershed Studies Institute, Murray State University Scholars Week, Murray, Kentucky. April 2014.

**Richardson BM** and Flinn MB. A dietary comparison of four sympatric gar species: alligator gar (*Atractosteus spatula*), longnose gar (*Lepisosteus osseus*), shortnose gar (*L. platostomus*), and spotted gar (*L. oculatus*). Southeastern Ecology and Evolution Conference, Georgia Southern University, Statesboro, Georgia. October 2014. (Poster)

**Richardson BM** and Flinn MB\*. A dietary comparison of four sympatric relatives: alligator gar (*Atractosteus spatula*), longnose gar (*Lepisosteus osseus*), shortnose gar (*L. platostomus*), and spotted gar (*L. oculatus*). Joint Aquatic Sciences Meeting, Portland, Oregon. May 2014

**Richardson BM** and Flinn MB. New gar in town: diet overlap of reintroduced alligator gar with three sympatric relatives. 100<sup>th</sup> Annual Meeting of the Kentucky Academy of Science, Lexington, Kentucky. November 2014.

**Richardson BM** and Flinn MB. A dietary comparison of four sympatric gar species: alligator gar, longnose gar, shortnose gar, and spotted gar. Joint Meeting of Ichthyologists and Herpetologists, Hosted by the American Society of Ichthyologists and Herpetologists, Chattanooga, Tennessee. August 2014.

## PROFESSIONAL EXPERIENCE

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|--|--------------------|
| <b>Intermittent Worker (Researcher)</b><br><i>Mississippi State University</i><br><i>Supervisor: Michael E. Colvin and</i><br><i>David J. Wise</i> | <b>2020</b>        |
| <b>Graduate Teaching Assistant</b><br><i>Mississippi State University</i><br><i>Advisors: Michael E. Colvin and</i><br><i>David J. Wise</i>        | <b>2016 - 2020</b> |
| <b>Critical Species (Fisheries) Technician II</b><br><i>Kentucky Department of Fish and Wildlife Resources</i><br><i>Supervisor: Neal Jackson</i>  | <b>2015</b>        |
| <b>Graduate Teaching Assistant</b><br><i>Murray State University</i><br><i>Advisor: Michael B. Flinn</i>   | <b>2013-2015</b>   |
| <b>Project Manager</b><br><i>Droptine Management</i><br><i>Supervisor: Chris Hodges</i>  | <b>2007 - 2011</b> |

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## MEDIA APPEARANCES

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|---|-------------------|------|
| <a href="#">MSU Graduate School 3-Minute Thesis</a>       | Media Appearance  | 2018 |
| <a href="#">MSU FWRC Annual Report</a>                    | Student Spotlight | 2018 |
| <a href="#">For the Love of Animals – Gone Fishin’ II</a> | Media Appearance  | 2014 |
| <a href="#">For the Love of Animals – Gone Fishin’ I</a>  | Media Appearance  | 2013 |

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## OTHER PROFESSIONAL ACTIVITIES

### Working Groups

“Southern Brook Lamprey Research Group”. *Mississippi State University, Department of Wildlife, Fisheries, and Aquaculture.*

“Arthropod Genomics Group”. *USDA Agricultural Research Service*

“Joint Agency Microbiome Service”. *USDA*

### Professional Organization Membership

Ecological Society of America (ESA)

National Science Teachers Association (NSTA)

American Fisheries Society (AFS)

World Aquaculture Society (WAS)

Catfish Farmers of America (CFA)



## PROFESSIONAL REFERENCES

**Michael E. Colvin**, Research Ecologist

US Geological Survey  
Columbia, MO

**David J. Wise**, Research Professor & Coordinator of Delta Research and Extension Center

Department of Wildlife, Fisheries, and Aquaculture  
Mississippi State University  
Thad Cochran National Warmwater Aquaculture Center

**Matt Griffin**, Associate Research Professor

College of Veterinary Medicine  
Mississippi State University  
Aquatic Diagnostic Laboratory

**Michael B. Flinn**, Associate Professor & Director of Hancock Biological Station

Department of Biology  
Murray State University

**Chelsea Tucker**, Arkansas River Biologist

Arkansas Game and Fish Commission