

Shannon Lynn White

Pennsylvania Cooperative Fish and Wildlife Research Unit
Intercollege Graduate Degree Program in Ecology
The Pennsylvania State University
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Education

Doctor of Philosophy, Ecology, 2014-present

The Pennsylvania State University, University Park, Pennsylvania
National Science Foundation Graduate Research Fellow

Dissertation: Quantifying intraspecific diversity to assess the adaptive potential of an imperiled fish species: can improved understanding of local variation inform range-wide conservation?

Advisor: Dr. Tyler Wagner

Expected Completion: March 2019

Master of Science, Fisheries and Wildlife Science, 2010-2012

Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Thesis: Distribution and life history of *Chrosomus* sp. cf. *saylori* in the upper Clinch River watershed, Virginia. Advisor: Dr. Donald Orth

Future Professoriate Certificate, 2012

Bachelor of Science, magna cum laude, with honors, 2006-2010

Randolph-Macon College, Ashland, Virginia

Double Major: Environmental Studies and Biology

Honors Thesis: Brook trout use individual recognition and transitive inference to determine social rank. Advisor: Dr. Charles Gowan

Peer-Reviewed Publications

White, S.L., E. Faulk, C. Tzilkowski, A.S. Weber, M. Marshall, and T. Wagner. *In review*. Predicting fish species richness and habitat relationships in a disturbed landscape using Bayesian hierarchical multispecies occupancy models. *Freshwater Biology*.

White, S.L., W.L. Miller, S.A. Dowell, M.L. Barton, and T. Wagner. 2018. Limited hatchery introgression into wild brook trout (*Salvelinus fontinalis*) populations despite reoccurring stocking. *Evolutionary Applications*: 1567-1571.

White, S.L. 2017. In brook trout, sometimes the risk is worth the reward. *Fisheries* 42: 629.

White, S.L., T. Wagner, C. Gowan, and V.A. Braithwaite. 2017. Can personality predict individual differences in brook trout spatial learning ability? *Behavioural Processes* 141: 220-228.

Carlson, A.K., K.M. Dunmall, R.E. Boucek, N.W. Cole, J.A. Kerns, R.M. Krogman, M.C. Lloyd, V.M. Nguyen, T.R. Wendt, **S.L. White**, K.L. Wilson. 2015. How to navigate fisheries education and employment. *Fisheries* 40: 196-197.

White, S.L., and D.J. Orth. 2014. Reproductive biology of Clinch dace (*Chrosomus* sp. cf. *saylori*). *Southeastern Naturalist* 13: 735-743.

White, S.L., and D.J. Orth. 2014. Distribution and habitat correlations of Clinch dace (*Chrosomus* sp. cf. *saylori*). *American Midland Naturalist* 171: 311-320.

White, S.L., and C. Gowan. 2014. Social learning enhances search image acquisition in foraging brook trout. *Environmental Biology of Fishes* 97: 523-528.

White, S.L., and D.J. Orth. 2013. Ontogenetic and comparative morphology of Clinch dace (*Chrosomus* sp. cf. *saylori*). *Copeia* 2013: 750-756.

White, S.L., and C. Gowan. 2013. Brook trout use individual recognition and transitive inference to determine social rank. *Behavioral Ecology* 24: 63-69.

White, S.L., C. Gowan, K.D. Fausch, J.G. Harris, and W.C. Saunders. 2011. Response of trout populations in five Colorado streams two decades after habitat manipulation. *Canadian Journal of Fisheries and Aquatic Sciences* 68: 2057-2063.

Publications in Late-State Preparation (*denotes undergraduate coauthor)

White, S.L., B.K Kline*, N.P. Hitt, and T. Wagner. Is bigger always better? Individual behavior and resource use of thermally stressed brook trout *Salvelinus fontinalis* portend the conservation potential of thermal refugia. *To be submitted to Journal of Fish Biology*

Professional Presentations (*denotes undergraduate coauthor)

White, S.L., W.L. Miller, S.A. Dowell, M.L. Bartron, and T. Wagner. 2018. Limited hatchery introgression into wild brook trout populations despite reoccurring stocking. American Fisheries Society. Atlantic City, NJ.

Kline, B.*, **S.L. White**, T. Wagner, and N. Hitt. 2018. Resource use by brook trout (*Salvelinus fontinalis*) in a thermally complex environment. American Fisheries Society. Atlantic City, NJ.

White, S.L., W.L. Miller, S.A. Dowell, M. Bartron, and T. Wagner. 2018. Quantifying hatchery introgression in wild brook trout populations. Pennsylvania Chapter of the American Fisheries Society. Williamsport, PA.

Kline, B.*, **S.L. White**, T. Wagner, and N. Hitt. 2018. Individual behavior influences habitat use in a thermally diverse environment in brook trout (*Salvelinus fontinalis*). Pennsylvania Chapter of the American Fisheries Society. Williamsport, PA.

Rhoads, S.T.*, **S.L. White**, and J.M. Niles. 2018. Who will be the apex predator when climate change effects local streams? Pennsylvania Chapter of the American Fisheries Society. Williamsport, PA.

- White, S.L.**, S.A. Dowell, M. Bartron, and T. Wagner. 2017. Movers and stayers: can we predict individual movement behavior in brook trout. Wild Trout Symposium. West Yellowstone, MT.
- White, S.L.**, S.A. Dowell, M. Bartron, and T. Wagner. 2017. Movers and stayers: can we predict individual movement behavior in brook trout. American Fisheries Society. Tampa, FL.
- Frey, C.* , **S.L. White**, and T. Wagner. 2017. Personality predicts success at using thermal refugia in brook trout (*Salvelinus fontinalis*). Undergraduate Research Exhibition. Pennsylvania State University. University Park, PA.
- White, S.L.**, and T. Wagner. 2017. Movers and stayers: can we predict individual movement behavior in brook trout. Annual Meeting of the Virginia Chapter of the American Fisheries Society. Lexington, VA.
- White, S.L.**, and T. Wagner. 2017. Movers and stayers: can we predict individual movement behavior in brook trout. Joint Meeting of the West Virginia and Pennsylvania Chapters of the American Fisheries Society. California, PA.
- Rhoads, S.T.* , **S.L. White**, T. Wagner, and J.M. Niles. 2016. Movers and stayers: what factors influence brook trout movement behavior? Susquehanna River Symposium. Lewisburg, PA.
- White, S.L.**, L. Iwanowicz, and T. Wagner. 2016. Stream temperature and stress protein regulation in brook trout. Susquehanna River Symposium. Lewisburg, PA.
- White, S.L.**, T. Wagner, J.M. Niles, V.A. Braithwaite, and M. Bartron. 2015. Genetic structure of brook trout in Loyalsock Creek. Susquehanna River Symposium. Lewisburg, PA.
- White, S.L.**, T. Wagner, C. Gowan, and V.A. Braithwaite. 2015. Boldness impairs learning in brook trout. American Fisheries Society. Portland, OR.
- White, S.L.**, and D.J. Orth. 2013. The disappearing dace: Can Clinch dace survive in Virginia? American Fisheries Society. Little Rock, AR.
- White, S.L.**, and D.J. Orth. 2013. The disappearing dace: Can Clinch dace survive in Virginia? Virginia Chapter of the American Fisheries Society. Lexington, VA.
- White, S.L.**, and D.J. Orth. 2012. Distribution and life history of Clinch dace in the upper Clinch River watershed, Virginia. Southeastern Fishes Council. New Orleans, LA.
- White, S.L.**, and C. Gowan. 2012. Brook trout use individual recognition and transitive inference to determine social rank. American Fisheries Society. St. Paul, MN.
- White, S.L.**, and D.J. Orth. 2012. Distribution and life history of a new species of minnow (*Chrosomus* sp. cf. *saylori*) in Virginia. American Fisheries Society. St. Paul, MN.
- White, S.L.**, and D.J. Orth. 2012. Distribution of a new species of minnow (Clinch dace, *Chrosomus* sp. cf. *saylori*) in Virginia. Joint Meeting of the Virginia and Virginia Tech Chapters of the American Fisheries Society. Blacksburg, VA.

- White, S.L.**, and C. Gowan. 2011. Brook trout use individual recognition and transitive inference to determine social rank. Association of Southeastern Biologists. Huntsville, AL.
- White, S.L.**, and C. Gowan. 2011. Brook trout use individual recognition and transitive inference to determine social rank. Joint Annual Meeting of the Virginia and West Virginia Chapters of the American Fisheries Society, Berkeley Springs, WV.
- White, S.L.**, J.G. Harris, and C. Gowan. 2010. Demographic response of trout populations two decades after habitat manipulation in five Colorado streams. Association of Southeastern Biologists, Asheville, NC.
- White, S.L.**, J.G. Harris, and C. Gowan. 2010. Demographic response of trout populations two decades after habitat manipulation in five Colorado streams. Virginia Chapter of the American Fisheries Society, Wirtz, VA
- White, S.L.**, J.G. Harris, and C. Gowan. 2009. The role of transitive inference in the development of search images in foraging brook trout. Association of Southeastern Biologists, Birmingham, AL
- White, S.L.**, J.G. Harris, and C. Gowan. 2009. The role of transitive inference in the development of search images in foraging brook trout. Virginia Chapter of the American Fisheries Society, Lexington, VA
- White, S.L.**, A.G. Williamson, and C. Gowan. 2008. Understanding why stream trout move during summer. Virginia Chapter of the American Fisheries Society, Blacksburg, VA

Invited Presentations, Lectures, and Seminars

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| 2018 | <p>What happens when the hatchery truck leaves? Allegheny Mountain Chapter of Trout Unlimited</p> <p>It only takes one: the role of individual-level ecology in predicting brook trout response to climate change. Keynote address at the Susquehanna University Freshwater Research Institute</p> <p>What happens when the hatchery truck leaves? Susquehanna Chapter of Trout Unlimited</p> <p>Fish health starts on land: simple things you can do to improve stream health. Webinar series for the Penn State Center for Private Forests</p> |
| 2017 | <p>Assessing genetic purity in wild populations. Workshop for the Pennsylvania Game Commission.</p> <p>What can mazes teach us about fish conservation? Randolph-Macon College</p> <p>Life as a professional student. Randolph-Macon College</p> <p>Quantifying intraspecific variation to improve coldwater fish conservation. Susquehanna University</p> <p>Quantifying individual ecology to improve brook trout conservation. Cornplanter Chapter of Trout Unlimited</p> <p>Quantifying individual ecology to improve brook trout conservation. Allegheny Mountain Chapter of Trout Unlimited</p> <p>Genes in streams: Molecular warning signs of climate change and in fish populations. Lycoming College</p> <p>Do individuals matter? Neshannock Chapter of Trout Unlimited</p> |
| 2016 | <p>Using individual ecology to improve brook trout conservation. Susquehanna Chapter of Trout Unlimited</p> <p>Do individuals matter? Annual Meeting of the Pennsylvania Council of Trout Unlimited</p> |

- 2015 Personality, plasticity, and brook trout conservation. Tyrone Rotary Club
- 2014 Fish may be smarter than you think. Spring Creek Chapter of Trout Unlimited
Brook trout cognition. Tyrone Rotary Club
- 2012 Introduction to GIS for fisheries scientists. Workshop at the Joint Meeting of the Virginia and Virginia Tech Chapters of the American Fisheries Society
- 2009 Biology of the bite: where trout live and how they feed. Plenary speaker at the Trout Unlimited Southeast Rally

Funded Grant Proposals

- 2017 RK Mellon Foundation, MicroRNA profiles of brook trout in response to thermal stress (\$10,000)
- 2016 Susquehanna Collaborative Research Initiative, Phenotypic-specific gene expression in brook trout in the Loyalsock Creek watershed (\$17,500)
- 2015 National Science Foundation Graduate Research Fellowship, Can plasticity protect populations from rapid environmental fluctuation? (\$136,000)
Susquehanna Collaborative Research Initiative, Population genetic structure of brook trout in the Loyalsock Creek watershed (\$12,500)
- 2014 Pennsylvania Water Resources Research Center, Determining how fish populations cope with rapid environmental fluctuation: a cast study in Pennsylvania streams (\$17,950)
- 2011 Edna Bailey Sussman Fund, Distribution of Clinch dace in Virginia (\$5,106)
- 2009 Schapiro Undergraduate Research Fellowship, Demographic response of trout populations two decades after habitat manipulation in five Colorado streams (\$3,500)
- 2008 Schapiro Undergraduate Research Fellowship, The use of transitive inference in the formation of search images in foraging brook trout (\$3,500)
- 2007 Schapiro Undergraduate Research Fellowship, Why do brook trout move during summer? (\$3,500)

Awards and Distinctions

- 2018 John Moring Award, Northeast Division of the American Fisheries Society
James Wright Award, Genetics Subsection of the American Fisheries Society
Best Student Paper, Pennsylvania Chapter of the American Fisheries Society
J. Brian Horton Award for Achievement and Service, Penn State Ecology Program
- 2017 Marty Seldon Graduate Scholarship, Wild Trout Symposium
Best Student Writing Award, National Chapter of the American Fisheries Society
Andersen Award, Ecology Program, Pennsylvania State University
Sahakian Family Endowment, College of Agricultural Sciences, Pennsylvania State University

- Best Student Paper, Virginia Chapter of the American Fisheries Society
Cooper Award for Exemplary Fisheries Research, Pennsylvania Chapter of the American Fisheries Society
- 2016 Roger Latham Memorial Fellowship for Scientific Communication, Penn State University
- 2015 Graduate Research Fellow, National Science Foundation
- 2014 University Graduate Fellow, Penn State University
Herbert J. Bailey Endowed Graduate Fellowship, Penn State University
Robert W. Graham Endowed Graduate Fellowship, Penn State University
- 2013 Outstanding Master's Student, Virginia Tech College of Natural Resources and Environment
Outstanding Master's Student, Virginia Tech Department of Fish and Wildlife Conservation
- 2012 John Skinner Memorial Award, National Chapter of the American Fisheries Society
Burd Sheldon McGinnes Graduate Fellowship, Virginia Tech
Robert Ross Graduate Scholarship, Virginia Chapter of the American Fisheries Society
Most Outstanding Member, Virginia Tech Chapter of the American Fisheries Society
- 2011 John Skinner Memorial Award Honorable Mention, National Chapter of the American Fisheries Society
Best Student Paper, Virginia Chapter of the American Fisheries Society
- 2010 William Neal Cunningham Memorial Scholarship for Field Biology, Randolph-Macon College
John Werner Phi Beta Kappa Scholarship, Randolph-Macon College
Robert Jenkins Undergraduate Scholarship, Virginia Chapter of the American Fisheries Society
Phi Beta Kappa (Academic Honor Society)
Omicron Delta Kappa (Leadership Honor Society)
Best Student Paper, Virginia Chapter of the American Fisheries Society
- 2009 Excellence in Biological Research, Randolph-Macon College
Chi Beta Phi (Science Honor Society)
Beta Beta Beta (Biological Honor Society)
Robert Jenkins Undergraduate Scholarship, Virginia Chapter of the American Fisheries Society
Best Student Paper, Virginia Chapter of the American Fisheries Society
- 2008 Best Student Paper, Virginia Chapter of the American Fisheries Society

Teaching Experience

- 2016-present Research Scientist: Susquehanna University Freshwater Research Institute. Advise undergraduate research projects and independent study students
- 2013 Teaching Assistant: Randolph-Macon College Environmental Problem Solving II/III. Provided guest lectures and training in GIS, groundwater sampling, and differential leveling.

- 2012 Teaching Assistant: Randolph-Macon College Environmental Problem Solving I. Provided guest lectures and training in GIS, public speaking, and data analysis.
- 2011, 2012 Graduate Teaching Assistant: Virginia Tech Ichthyology. Responsible for planning and executing six hours of laboratory per week for over 30 undergraduate students.

Professional Affiliations and Service

- 2014-present Ecology Graduate Student Organization, Penn State
2017-2018: President
2016-2017: Curriculum Committee Student Representative
2016: Spring Seminar Series Co-Chair
2014-2016: Andersen Award Committee Chair
- 2014-present Ecosystem Science and Management Graduate Student Organization, Penn State
 2017-present: Faculty Social Committee Liaison
- 2011-present Southern Division of the American Fisheries Society
2011-2012: Newsletter Editor
- 2010-2012 Virginia Tech Chapter of the American Fisheries Society
2011-2012: President
2010-2011: Chair, Education and Outreach Committee
- 2009-present National Chapter of the American Fisheries Society
2015-2016: Northeastern Division Representative, Student Subsection
2014-2016: Social Media Coordinator, Student Subsection
- 2008-present Virginia Chapter of the American Fisheries Society
2011-present: Member, Education Committee
2013-2015: Chair, Membership Committee
- 2010-2011 Virginia Tech College of Natural Resources and Environment Dean's Council
- 2008-2012 Randolph-Macon College Academic Integrity Council
2009-2010: Chair
- 2006-2010 Randolph-Macon College Students for Environmental Action
2008-2009: President
2007-2008: Vice President

Media Coverage

News articles, stories, and press releases

["The brookies are back"](#): Blue Ridge Outdoor Magazine

["Fisheries scientists are probing ways that wild brook trout adapt to a changing world"](#): Pittsburgh Post-Gazette

[“Brook trout behavior and genetics could help populations adapt to habitat change”](#) : Pennsylvania Angler and Boater Magazine

[“Brook trout personality, genetics could help populations adapt to habitat change”](#) : Penn State News

“A race against the clock for brook trout conservation”: [The Wildlife Management Institute](#) and [The Wildlife Society](#)

Television and cinematographic appearances

Featured in [Expedition Chesapeake](#), an IMAX movie that will be released in March 2019

[Hour-long appearance](#) on local ABC TV affiliate program, PA Outdoor Life.