Edwards Aquifer Habitat Conservation Plan

Report of the 2026 Science Committee Vacancy Work Group

Overview

The Edwards Aquifer Habitat Conservation Plan (EAHCP) Program Adaptive Management Stakeholder Committee (SH) approved the creation of the Science Committee Vacancy Work Group at their meeting on December 18, 2025.

The Work Group was established to address a vacancy in the Adaptive Management Science Committee (SC). The SC comprises members with technical expertise in the Edwards Aquifer, the Comal or San Marcos springs systems, or the Covered Species, as outlined in the EAHCP Funding and Management Agreement (§ 7.9). The EAHCP Implementing Committee (IC) and SH each select an equal number of members for the SC, with one additional member selected jointly. The SC vacancy arose due to the resignation of Dr. Butch Weckerly, who was appointed by the Stakeholder Committee.

Charge of the Science Committee Vacancy Work Group

The Work Group was charged with identifying and discussing individuals to fill the vacancy for Stakeholder-Committee-appointed positions on the Science Committee and presenting a recommendation to the Stakeholder Committee for filling the vacancy. See **Appendix A** – Science Committee Vacancy Work Group Charge.

Members of the Science Committee Vacancy Work Group

Members of the Work Group met once on January 7, 2026, to discuss procedures and potential nominations. This was intended to serve as an introductory meeting; however this materialized as the only meeting of Work Group. Meeting minutes from the discussion are available in **Appendix B**. There was no formal agenda distributed for this meeting. Members of the Work Group included:

- Kimberly Meitzen – Texas State University
- Myron Hess – Texas Living Waters
- Patrick Shriver – San Antonio Water System
- Marty Kelly – Texas Parks and Wildlife Department
- Shaun Donovan – San Antonio River Authority

Nominations to the Science Committee Vacancy Work Group

The Work Group did not receive any nominations from the broader SH and internally identified and discussed a few qualified individuals. The Work Group agreed by consensus to first pursue Dr. Ryan McManamay, Ph.D., an Associate Professor in the Department of Environmental Sciences at Baylor University. Dr. McManamay's research and teaching are varied, but he could be categorized as a spatial ecologist studying human-environmental systems, particularly aquatic ecosystems, with the goal of balancing ecosystem and societal needs. Dr. McManamay indicated his willingness to serve on the Science Committee. His curriculum vitae is included in **Appendix C.**

Recommendations of the Science Committee Vacancy Work Group

The Work Group recommends, by consensus, that the SH appoints Dr. Ryan McManamay to the Science Committee. All work group members confirmed, via email, approval of this report and support for recommending that Dr. McManamay be appointed by the Stakeholder Committee to fill the vacancy on the Science Committee.

Appendix A

2026 Science Committee Vacancy Work Group Charge

Science Committee Vacancy Work Group Charge

Background: The Stakeholder Committee and the Implementing Committee each are charged, pursuant to Subsection 7.9.1 of the FMA, with appointing an equal number of members to the Science Committee, with one appointment made jointly. Presently, because of the resignation of Dr. Butch Weckerly, there is a vacancy on the Science Committee for a position that was appointed by the Stakeholder Committee. This Science Committee Vacancy Work Group (Work Group) will seek to recommend a candidate to fill the current vacancy.

Charge: The Work Group is charged with reviewing nominations to fill the vacancy for a Stakeholder Committee-appointed position on the Science Committee and with presenting a recommendation to the Stakeholder Committee, preferably at the March 26, 2026, meeting, for filling the vacancy. Everyone is encouraged to submit nominations by providing relevant information about the nominee, including contact information and confirmation of the nominee's willingness to serve, to EAHCP staff at eahcp@edwardsaquifer.org, preferably by Friday, January 16, 2026. In recognition of the impending significant transition as the EAHCP nears a new permit term, the issue of the appropriate area of expertise for the recommended appointee is included within the scope of the Work Group's deliberations.

Work Group Membership: proposed members, who have agreed to serve, are listed below. The actual membership will be as determined by the Stakeholder Committee at the December 18, 2025, meeting after considering any changes to the proposed membership.

- Kimberly Meitzen – Texas State University
- Myron Hess – Texas Living Waters
- Patrick Shriver – San Antonio Water System
- Marty Kelly – Texas Parks and Wildlife Department
- Shaun Donovan – San Antonio River Authority

Term: The term of membership on the Work Group is set to extend until the Science Committee vacancy has been filled and the Work Group will cease to exist at that time.

Procedures: Pursuant to Subsections 8.1 and 8.7 of the Stakeholder Committee Program Operational Rules, the Work Group is authorized to conduct its business and hold meetings, with appropriate notice and opportunity for public input, entirely through virtual communication channels, including, but not limited to, Zoom or Microsoft Teams. For purposes of approving the final text of a Work Group report and/or approving meeting minutes, the Work Group also is authorized to rely solely on email communications or individual conversations, including by phone call, in lieu of a meeting. Members will choose a chair from among the membership, ideally through unanimity or, if necessary, majority vote.

Adopted by the EAHCP Stakeholder Committee on December 18, 2025.

Appendix B

Meeting Minutes from January 7, 2026 Work Group Meeting

Science Committee Vacancy Work Group Meeting Summary

Date: January 7, 2026
Time: 3:00–3:45 PM
Format: Virtual (Microsoft Teams)

Work Group Members

- Kimberly Meitzen – Texas State University

- Myron Hess – Texas Living Waters

- Marty Kelly – Texas Parks and Wildlife Department

- Shaun Donovan – San Antonio River Authority

- Patrick Shriver – San Antonio Water System *(not present)*

The purpose of the meeting was to discuss potential candidates to fill a vacancy on the Edwards Aquifer Habitat Conservation Plan (EAHCP) Science Committee and to identify preferred qualifications and next steps for recruitment. All Work Group members were present with the exception of Patrick Shriver.

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1. Work Group Discussion of Potential Member Criteria and Expertise Preferences

Work group members discussed general characteristics and areas of expertise that would be desirable for a new Science Committee member. The following criteria were identified:

- The candidate should have general knowledge of the Edwards Aquifer region and associated water resource issues.

- The candidate should be willing to make a long-term commitment to the program.

- Potential representation could include state agency personnel (e.g., Texas Parks and Wildlife Department or Texas Commission on Environmental Quality) or academic researchers from Texas universities.

- Hydrologic or ecological modeling expertise was identified as a particularly valuable skill set for the Science Committee.

Additional discussion noted that candidates should have the ability to commit time to periodic meetings and reviews, and that in some cases supervisory approval may be necessary for participation.

The workload associated with Science Committee service was also discussed. The committee typically meets twice per year, with occasional additional commitments related to permit renewal activities and review of applied research proposals. Non-state agency members may receive a small stipend ($300) to offset time associated with participation.

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2. Discussion of Potential Candidates

Work group members discussed several potential candidates with relevant expertise.

Dr. Ryan McManamay (Baylor University)

- Hydrologic modeler with expertise in flow-ecology relationships.

- Widely respected in the field; however, there was some concern that his schedule may limit availability.

- Has already collaborated with other SC members, e.g. Dr. Josh Perkin

- Marty Kelly noted he would be meeting with Dr. McManamay the following day regarding modeling work and could informally inquire about his potential interest.

Clint Robertson (Texas Parks and Wildlife Department)

- Inland Fisheries Department, based at the Heart of the Hills Fisheries Science Center.

- Strong regional knowledge and experience with instream flow studies and freshwater mussels.

- Considered a well-rounded candidate with strong familiarity with regional resource issues.

David Young (Texas Parks and Wildlife Department)

- Works in River Studies / Water Resources.

- Background in hydrology and currently involved in evaluating climate change science related to water resources.

- Marty Kelly noted he had previously discussed the Science Committee with Young and that Young appeared interested in the program.

Travis Tidwell (Texas Parks and Wildlife Department)

- Member of the Kills and Spills Team.

- Currently collaborating with MCWE-ERG on HAAP restoration work in the lower river reaches below IH-35.

- Familiar with freshwater fish and mussel issues, and regional ecological conditions.

Work group members also discussed the importance of being deliberate about outreach to candidates and avoiding simultaneous contact with multiple individuals until a preferred candidate is identified.

Following discussion, the group reached consensus on the preferred order of candidates:

1. Dr. Ryan McManamay

2. Clint Robertson

3. David Young

4. Travis Tidwell

3. Identification of Next Steps

The work group agreed on the following actions:

- Marty Kelly will speak with Dr. Ryan McManamay during a previously scheduled meeting to determine whether he may be interested in and willing to serve on the Science Committee.

- Marty will report back to the work group regarding Dr. McManamay's response.

- If Dr. McManamay is not interested or available, the work group will proceed with outreach to the next candidates in the agreed-upon order (Clint Robertson, followed by David Young).

Adjournment: The meeting concluded at 3:45 PM.

Appendix C

Curriculum Vitae

RYAN A. McMANAMAY, Ph.D.

Associate Professor
Department of Environmental Science
Baylor University
Building, BSB Room A.409
One Bear Place #97266
Waco, TX 76798-7266
Ryan_McManamay@baylor.edu
(254)-710-3451
https://mcmanamaylab.weebly.com/
https://orcid.org/0000-0002-5551-3140

Education:

Ph.D. Fisheries and Wildlife Conservation, Virginia Tech, 2011
M.S.   Biological Sciences (Stream Ecology), Virginia Tech, 2007
B.S.   Biological Sciences, Clemson University, 2004

Fields of Interest:

human-environmental systems, stream and river ecosystems, urban dynamics, renewable energy, energy-water nexus, ecohydrology, hydrography, environmental flow management, water policy, classification systems, biogeography, landscape ecology

Fellowships/Professional Society Memberships:

- American Geophysical Union
- Ecological Society of America
- Sigma Xi
- AAAS
- Emerging Leaders in Environmental and Energy Policy Network Fellow http://eleep.eu/

Professional Experience:

2023-Current	Associate Professor, Department of Environmental Science, Baylor University, Waco, TX
2024:	Research Advisor, City of Waco Metropolitan Planning Organization, Waco, TX
2019-2023:	Assistant Professor, Department of Environmental Science, Baylor University, Waco, TX
2017-2019:	Energy-Water-Nexus Theme Lead, Urban Dynamics Institute, Oak Ridge Natl Lab, TN
2016-2019:	Team Lead, Integrated Water-Energy-Ecosystems, Oak Ridge Natl Lab, TN

2016-2019:	Joint Faculty, Bredesen Center, University of Tennessee Knoxville, TN
2016-2019:	Research Scientist, Oak Ridge National Lab, Oak Ridge, TN
2013-2016:	Research Associate, Oak Ridge National Lab, Oak Ridge, TN
2011- 2013:	Postdoctoral Research Associate, Oak Ridge National Lab, Oak Ridge, TN
2011	Environmental Flow Consultant, Contract with Southeastern Aquatic Resources Partnership (SARP), St. Marys, GA
2007 – 2011	Research Assistant, Fish and Wildlife Cons, Virginia Tech, Blacksburg, VA
2009	Sussman Fund Internship, US Fish and Wildlife Service, Asheville, NC
2006 – 2007	Research Assistant, Biological Sciences, Virginia Tech, Blacksburg, VA
2004 – 2005	Hemlock Wooly Adelgid Field & Lab Tech, Entomology, Clemson Univ., SC
2003 – 2004	Fish Ecology Field and Lab Tech, Biological Sciences, Clemson Univ., SC
2003	USDA Forest Service Technician, Stumphouse Ranger Station, SC

Editorial Service:
Baylor University Affiliation**

Edited Books
**2026   Co-editor, "Climate Change Impacts in Texas: Integrated Analysis and Adaptation". Eds, Wells, M., McManamay, R.A. CRC Press – Taylor & Francis Group. 508 pages, 23 chapters. https://www.taylorfrancis.com/books/edit/10.1201/9781003406600/climate-change-impacts-texas-mona-wells-ryan-mcmanamay

Associate Editor and Guest Editor Roles

**2023   Associate Editor, Earth's Future.
https://agupubs.onlinelibrary.wiley.com/hub/journal/23284277/associate-editorials.html

**2020   Guest Editor, Biological Conservation, eds. H.I. Jager, R. Efroymson, R. A. McManamay. *Special Issue on Renewable Energy and Biological Conservation in a Changing World,* https://www.journals.elsevier.com/biological-conservation/call-for-papers/renewable-energy-and-biological-conservation

Guest Editor, Frontiers in Earth Science. Eds, F. Nardi, R. Morrison, P. Passalacqua, R.A. McManamay. Special Issue: Hydrological, Geomorphic, Ecological and Transdisciplinary Studies of Floodplains, https://www.frontiersin.org/research-topics/16415/understanding-human-fluvial-ecosystem- interactions-advances-in-hydrological-geomorphic-ecological-an

**2018-2021 Associate Editor, Transactions of the American Fisheries Society

Please see reviewer experience in later section

Teaching Experience:

Course Instructor & Curriculum Development
2022-Current   *Watershed Assessment,* ENV 3333, Baylor University, Waco, TX (4 semesters)

- The course includes three main components: 1) a foundation in understanding watershed processes, 2) conducting assessments of impaired processes, and 3) management approaches. The course provides a hybrid structure aimed at understanding the basis for watershed assessments while also providing a "how-to" guide in a series of lectures and labs. An optional certification training course is integrated in the course and provided as a way for students to augment their resumes.

2021-Current *Ecology in a Changing World*, ENV 2307, Baylor University, Waco, TX (3 semesters)
- Expose students to the concepts and theories of ecology, being ecologically literate, thinking critically, and the basics of hypothesis development, scientific data analysis, interpretation.

2020-2023 *The Environment and Energy*, ENV 4365, Baylor University, Waco, TX (3 semesters)
- Approached from three dimensions: the fundamental concepts of energy from a quantitative and physics perspective (energy literacy and physical constraints to extract and harness energy), physical relationships with the environment, and the humanities side of energy

2021-2022 *Current Advances in Environmental Science Seminar*, ENV 4102/5102 (2 semesters)
- Invited and organized seminar speakers for Environmental Science Department

2020 *Field Techniques*, ENV 3210, Baylor University, Waco, TX (2 semesters)
- Provides significant experience with environmental field sampling methods and an introduction to sample processing, data collection, and data analysis

2008 *Stream Restoration Service Learning*, Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA (1 semester)
- Provides background of stream restoration approaches, along with hands on field experience with restoration applications

Laboratories & Teaching Assistantships

2008 – 2010 Lab Instructor (3 semesters), *Ichthyology Lab*, Fisheries and Wildlife Sci, Virginia Tech, Blacksburg, VA

2007 Teaching Assistant (1 semester), *Fisheries Techniques*, Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA

2005 - 2007 Lab Instructor (4 semesters, 2 sections), *Majors Biology Lab*, Biological Sciences, Virginia Tech, Blacksburg, VA

Workshops and Training Sessions

**Guest lectures later in Presentations Section

2018 Workshop Lead/Instructor, Advanced preparation for instream flow determination in Federal Energy Regulatory Commission hydropower licensing in light of future environmental uncertainty, FLOW 2018 Conference, Apr. 24, 2018

2018 Instructor, US Forest Service Instream Flow Training Course, Fort Collins, CO. Jan 10-11, 2018

2013 Instructor, American Fisheries Society, Continuing Education Workshop, Instream Flow – what it is and why it matters, Virginia Chapter American fisheries Society Meeting, Lexington, VA. February 2013

Training and Certification

2023-curr Texas Stream Team Trainer, Standard Core Water Quality Monitoring – Voluntary Water Quality Monitoring Program.
https://www.meadowscenter.txst.edu/Leadership/TexasStreamTeam/Trainers.html

Total Career Publications (136 total)

Career Metrics:

Google Scholar
- Citations: 3176
- H-index: 34

Scopus
- Citations: 2109
- H-index: 26

Research Gate
- Research Interest Score: 1781, top 95th %'tile of all researchers on Research Gate
- Citations: 2594
- H-index: 30

Peer-reviewed Journal and Book Chapter Publications (110 total)
Baylor University Affiliation (58 total)**
Student Mentee-led paper†, Post-doc Mentee-led paper §
Invited contribution‡

Edited Book chapters (12):

2026

12. **McManamay, R.A. 2026. Key Principles of River Systems, *In* eds. M. Thoms and D. Perry, *The Routledge Handbook of Rivers*.

11. **McManamay, R.A. 2026. Why Texas? *In* eds. M. Wells, R.A. McManamay. *Climate Change Impacts in Texas: Integrated Analysis and Adaptation*, CRC Press, 508pg.

10. **McManamay, R.A. 2026. Extending the Planetary Boundaries Framework to Texas: Are We Beyond the Safe Operating Space? *In* eds. M. Wells, R.A. McManamay. *Climate Change Impacts in Texas: Integrated Analysis and Adaptation*, CRC Press, 508pg.

9. **McManamay, R.A. 2026. The Great Texas Energy Experiment: The Uncertain Road to Electricity Decarbonization in the Lone Star State, *In* eds. M. Wells, R.A. McManamay. *Climate Change Impacts in Texas: Integrated Analysis and Adaptation*, CRC Press, 508pg.

8. **† Jatko, J.T, L. Sweet-Breu, **R.A. McManamay**. 2026. Climate Change and the Living Planet: Impacts on the Biosphere and Consequences to Ecosystem Services, *In* eds. M. Wells, R.A. McManamay. *Climate Change Impacts in Texas: Integrated Analysis and Adaptation*, CRC Press, 508pg.

7. **§ Okoye, P.I., J.T. Jatko, **R.A. McManamay**. 2026. Water Supply and Wastewater Infrastructure System Challenges Under Climate Uncertainty, *In* eds. M. Wells, R.A. McManamay. *Climate Change Impacts in Texas: Integrated Analysis and Adaptation*, CRC Press, 508pg.

6. **Kumar, M., M. Keeley, **R.A. McManamay**. 2026. Climate Adaptation from the Regional Planning Perspective: Notes on Institutional Reality, Anthropogenic Responses, Phronesis, and Incremental Pragmatism, *In* eds. M. Wells, R.A. McManamay. *Climate Change Impacts in Texas: Integrated Analysis and Adaptation*, CRC Press, 508pg.

2022

5. **‡McManamay, R.A. 2022. Hydrology and classification of rivers for management. In (Poff, L. ed), *Encyclopedia of Inland Waters, Reference Module in Earth Systems and Environmental Sciences*, Elsevier, ISBN 9780124095489, https://doi.org/10.1016/B978-0-12-819166-8.00080-3.

2021
4. **†‡George, R.N., M.B. Lueders, B.L. Ruddell, **R.A. McManamay**. 2021. Earth's Imperiled Rivers. *Reference Module in Earth Systems and Environmental Sciences*. DOI: 10.1016/B978-0-12-821139-7.00066-0.
3. **‡Bhaduri, B., **R. McManamay**, O. Omitaomu, J. Sanyal, A. Rose. 2021. Urban energy systems: Research at Oak Ridge National Laboratory, pgs 281-308, *In* Shi, W., M.F. Goodchild, M. Batty, M-P. Kwan, A Zhang (Ed.) *Urban Informatics*, The Urban Book Series, Springer DOI: 10.1007/978-981-15-8983-6

2019
2. **‡McManamay, R.A., H.I. Jager. 2019. Stream Biomes of the World. Reference Module in Earth Systems and Environmental Sciences, Elsevier. ISBN 9780124095489, https://doi.org/10.1016/B978-0-12-409548-9.12047-0.

2017
1. McManamay, R.A., N. Griffiths, C.R. DeRolph, B.M Pracheil. 2017. A synopsis of global mapping of freshwater habitats and biodiversity: Implications for conservation, in Hufnagel, L. (ed) *Pure and Applied Biogeography*, InTechOpen, Rijeka, Croatia. ISBN 978-953-51-5222-4.

Journal articles (98):

2026
98. **†Bowman, M. N., **R. A. McManamay**, K. Kramer, W. Arnold, M. Dean, D. Prangnell, M. Matthews. 2026. Optical imaging and machine learning to identify and enumerate early developmental stages of fish species. Ecological Informatics, 103643.
97. **†Sweet-Breu, L. T., **R. A. McManamay**, C.R. DeRolph, D.M. Perry. 2026. Protection of US streams is insufficient to safeguard stream diversity and prevent habitat impairment. Communications Sustainability, 1(1), 27.

2025
96. **†Sturtevant, J., **R.A. McManamay**, A. Corry-Roberts, S. Nguyen. 2025. Re-analysis of land used for energy: Comparison of spatially explicit observations and literature sources. Cleaner Energy Systems 12: 100211. https://doi.org/10.1016/j.cles.2025.100211
95. **†Sturtevant, J., **R.A. McManamay**, M.R. Allen-Dumas, J.R. New. 2025. Urban Morphology from a Landscape Perspective: How Building Morphology Distribution Land Models (BMDLM) Emulate Pattern and Process. Human Settlements and Sustainability.
94. **§Okoye, P., **R.A. McManamay**. 2025. Extending shared socioeconomic pathways to future water supply infrastructure scenarios: a case study of San Antonio, TX. *Environmental Research Communications,* 7, 065012. https://doi.org/10.1088/2515-7620/addeaa
93.**§Oliver, J., **R.A. McManamay**. 2025. United States multi-sector land use and land cover base

maps to support human and Earth system models. *Scientific Data*, 12(1), p.455.

92. **†Lueders, M.B., **R.A. McManamay**, D. Le Bouille, K. Garrett, L. Roush, S. Powers, D. Young, P. Bean, K. Mayes, R. Smith, J.F. Trungale. 2025. BBEST practices: Intentional efforts to identify elusive flow-ecology thresholds. *Ecological Indicators*, 172, p.113311.

91. **Sjöstedt E., R. Rushforth, V. Tidwell, M. Harris, **R.A. McManamay**, L. Marston. 2025. Impact of thermoelectric power plant operations and water use reporting methods on thermoelectric power plant water use. *Environmental Science & Technology*, 11;59(9):4482-4492. doi: 10.1021/acs.est.4c02024.

90. **Sjostedt, E.C., K.F. Folwer, R.R. Rushforth, **R.A. McManamay**, B.L. Ruddell. 2025. Sustainability and resilience through connection: the economic metacommunities of the Western USA. *Ecology and Society* 30 (1): 4. https://doi.org/10.5751/ES-15676-300104

89. **Ferencz, S.B., J. Yoon, J. Capone, and R.A. McManamay. 2025. Urban morphology and urban water demand: a case study in the land constrained Los Angeles region using urban growth modeling. *Environmental Research Letters*, 20(1), p.014048.

2024

88. ** McManamay, R. A., J. Sturtevant, J. Jatko, T. Petcoff, B. Ryan, J.L. Dixon, R.R. Morrison. 2024. Multifaceted economic impacts of a 500-year flood on gateway communities of Yellowstone National Park. *International Journal of Disaster Risk Reduction*, 113: 104827. https://doi.org/10.1016/j.ijdrr.2024.104827

87. **Calder, R., E. Dimanchev, S., Cohen, **R.A. McManamay**. 2024. Decision support for US–Canada energy integration is impaired by fragmentary environmental and electricity system modeling capacity. *Environmental Research: Infrastructure and Sustainability* 4 (2024): 033002. https://doi.org/10.1088/2634-4505/ad763e

86. ** Perry, D., S. Praskievicz, S., **R.A. McManamay**, A. Saxena, A., K. Grinm, N. Zegre, L. Bair, B.L. Ruddell, R. Rushforth. 2024. Resilient riverine social–ecological systems: A new paradigm to meet global conservation targets. WIREs Water, e1753. https://doi.org/10.1002/wat2.1753

85. **McManamay, R.A., A. Raad, C.R. Vernon, T. Thurber, J. Gao, S. Powers, B.C. O'Neill. 2024. Divergent urban land trajectories under alternative population projections within the shared socioeconomic pathways. *Environmental Research Letters* DOI 10.1088/1748-9326/ad2eec

84. **Jager, H.I., K. Manning, J.N. Welch, F. Corsi, A. Miara, H.S. Yoon, **R.A. McManamay**, S.-C. Kao, P.C. Kusnierz, S. Gangrade. 2024. Indicators of thermal alteration in US waters reveal patterns of climate risk at the energy-water nexus. *Ecological Indicators* 159, 111755.

83. **McManamay, R.A., C. Vernon, M. Chen, I. Thompson, Z. Khan, K. Narayan. 2024. Dynamic urban land extensification is projected to lead to imbalances in the global land-carbon equilibrium. *Nature Communications Earth and Environment* 5, 70.

82. **†Garret, K., **R.A. McManamay**, C.R. DeRolph. 2024. When energy doesn't add up: Use of an energyshed framework in assessing progress towards renewable energy transitions. *Environmental Research: Infrastructure and Sustainability* 4 015004. DOI 10.1088/2634-4505/ad0fef

81. **†Bowman, M.N., **R.A. McManamay**, A. Rodriguez Perez, G. Hamerly, W. Arnold, E. Steimle, K. Kramer, B. Norris, D. Prangnell, M. Matthews. 2024. Analysis of an optical imaging system prototype for autonomously monitoring zooplankton in an aquaculture facility. *Aquaculture Engineering* 104: 102389.

80. **†Jatko, J., **R.A. McManamay**, M.T. Woodyard, L.K. Roush, J.A. Back, R.S. King, C.W. Matson. 2024. Differentiating between point and non-point source nutrient loadings of

wastewater in an agriculturally impacted area using a hybrid statistical model. *Science of the Total Environment* 912: 169553

2023
79. **†Sako, M., **R.A. McManamay**. 2023. Balancing development and sustainability: assessing risks and protecting aquatic biodiversity on U.S. college and university campuses. *Conservation Science and Practice* e13039. https://doi.org/10.1111/csp2.13039
78. **McManamay, R.A., K. Larson, J. Tagestad, H.I. Jager, C.R. DeRolph, M.S. Bevelhimer. 2023. Mutually beneficial outcomes for hydropower expansion and environmental protection at a basin scale. *Science of the Total Environment* 165298. https://doi.org/10.1016/j.scitotenv.2023.165298
77. **Morrison, R.R., K. Simonson, **R.A. McManamay**, D. Carver. 2023. Degradation of floodplain integrity within the contiguous United States. *Nature Communications Earth & Environment* https://doi.org/10.1038/s43247-023-00877-4
76. **†Garrett, K.P., K.S. Rose, **R.A. McManamay**. 2023. Ready or not, here it comes: Assessing the gaps in community plans for renewable energy transitions within the United States. Energy Research and Social Science 102: 103164.
75. **†Lueders, M.B., **R.A. McManamay**. 2023. Species depletion profiles as an alternative to streamflow alteration thresholds in a hydroecological risk assessment. Ecological Indicators 147: 109989

2022
74. **†Garrett, K., **R.A. McManamay**, A. Witt. 2022. Harnessing the power of environmental flows: sustaining river ecosystem integrity while increasing energy potential at hydropower dams. *Renewable and Sustainable Energy Reviews* 173: 113049
73. **Khan, Z., E. Abraham, S. Aggarwal, M. A. Khan, R. Arguello, et al. (**R. A. McManamay** 44th Author). 2022. Emerging themes and future directions of multi-sector nexus research and implementation. *Frontiers in Environmental Science* 10: 918085. doi: 10.3389/fenvs.2022.918085
72.**McManamay, R.A., R. George, R.R. Morrison, B. L. Ruddell. 2022. Mapping hydrologic alteration and ecological consequences in stream reaches of the conterminous United States. *Scientific Data* 9:450 | https://doi.org/10.1038/s41597-022-01566-1
71. **Pilla, R.M., N. A. Griffiths, L. Gu, S-C. Kao, **R. McManamay**, D.M. Ricciuto, X. Shi. 2022. Anthropogenically driven climate and landscape change effects on inland water carbon dynamics: What have we learned and where are we going? *Global Change Biology* DOI: 10.1111/gcb.16324
70. **McManamay, R.A., C. Brinkley, C.R. Vernon, S. Raj, J.S. Rice. 2022. Urban land teleconnections in the United States: A graphical network approach. *Computers, Environment and Urban Systems* 95 (2022) 101822 https://doi.org/10.1016/j.compenvurbsys.2022.101822
69. **†Sturtevant, J., **R.A. McManamay**, C.R. DeRolph. 2022. U.S. national water and energy land dataset for integrated multisector dynamics research. *Scientific Data.* 9:183 | https://doi.org/10.1038/s41597-022-01290-w
68. **†Fork, M.L., **R.A. McManamay**, J.B. Heffernan. 2022. Propagation of inflowing urban stormwater pulses through reservoir embayments. *Urban Ecosystems* https://doi.org/10.1007/s11252-022-01218-7
67. **Woodyard, M., B.A. Polidoro, C.W. Matson, **R.A. McManamay**, S. Saul, K.E. Carpenter, T.K. Collier, R. Di Giulio, R. Grubbs, C. Linardich, J.A. Moore, I.C. Romero, D.

Schlenk, K. Strongin. 2022. A comprehensive petrochemical vulnerability index for marine fishes in the Gulf of Mexico. *Science of the Total Environment* 820: 152892.
66. **Surendran Nair, S., C. DeRolph, M.J. Peterson, **R.A. McManamay**, T. Mathews. 2022. Integrated watershed process model for evaluating mercury sources, transport, and future remediation scenarios in an industrially contaminated site. *Journal of Hazardous Materials* 423: 127049.

2021
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Intellectual Property

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News Highlights
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- https://research.baylor.edu/water-and-health
- **2023 – Biodiversity & Global Health: Q&A with Ryan McManamay, Ph.D.. Baylor News. April 19, 2023. https://bn.web.baylor.edu/news/story/2023/biodiversity-global-health-qa-ryan-mcmanamay-phd?_ga=2.165656703.1934897443.1681764922-331884019.1670467814
- **2023 – Yellowstone. Baylor Magazine – Spring 2023. https://www.baylor.edu/alumni/magazine/2103/index.php?id=987585
- **2021 - Ecological Society of America Honors Baylor Environmental Science Researcher with Sustainability Science Award. Baylor University Media and Public Relations (Front page): https://www.baylor.edu/mediacommunications/news.php?action=story&story=222875
- **2021 - Ecological Society of America announces 2021 award recipients. https://www.esa.org/blog/2021/04/06/ecological-society-of-america-announces-2021-award-recipients/
- **2020 – Expert comment on Nature Communications article, related to Solar and Wind Energy: https://thehill.com/changing-america/sustainability/energy/470280-solar-and-wind-energy-a-secret-weapon-for-keeping
- 2017 – "Ryan McManamay: An Aquatic Outlook on Future Energy": https://www.ornl.gov/blog/eesd-review/ryan-mcmanamay-aquatic-outlook-future-energy
- 2010 – "Fisheries and wildlife sciences student receives Outstanding Student Achievement Award": https://vtnews.vt.edu/articles/ds2010/03/2010-168.html

Papers and Products:
- **Renewable Energy Goals Are Unattainable by 2050. Baylor University, Media and Public Relations. Feb 12, 2024:
  - https://news.web.baylor.edu/news/story/2024/renewable-energy-goals-are-unattainable-2050
  - Based on Environmental Research Letters paper (Garrett et al. 2024)
- **Mapping hydrologic alteration (McManamay et al. 2022, Scientific Data)
  - 9 News outlets
  - https://www.nature.com/articles/s41597-022-01566-1/metrics
  - *Researchers map streamflow alterations to gauge human impact on ecosystems.* Colorado State University's Civil and Environmental Engineering media coverage: https://engr.source.colostate.edu/researchers-map-streamflow-alterations-to-gauge-human-impact-on-ecosystems/
  - *Phys*.org, Mirage News, Science Daily, Verve times, Sift Telecast, Latestly, The Statesman, Smart Water Magazine
- **Anthropogenically driven climate and landscape change effects on inland water carbon dynamics (Pilla et al. 2022, Global Change Biology)
  - 7 outlets: https://wiley.altmetric.com/details/132885396/news
  - Phys.org: *Study finds inland water carbon emissions are being undercounted.* https://phys.org/news/2022-09-inland-carbon-emissions-undercounted.html
- **Key Findings about potential drinking water contamination (Turner et al. 2021, Nature Communications)
  - 3 News Outlets: https://www.nature.com/articles/s41467-021-27509-9/metrics
  - A watershed moment: Key Findings about potential drinking water contamination: https://phys.org/news/2022-04-watershed-moment-key-potential-contamination.html

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- ****Global hydropower expansion without building new dams** (Garrett et al. 2021, Environmental Research Letters)
  - 4 news outlets: https://iop.altmetric.com/details/115489378/news
  - Forbes: *Significant Global Potential To Increase Generation From Hydropower Projects Without Adding New Dams*: https://www.forbes.com/sites/jeffopperman/2022/10/06/significant-global-potential-to-increase-generation-from-hydropower-projects-without-adding-new-dams/?sh=546bc8854a0d
  - Wired: *Retrofitting dams for Green Energy*: https://www.wired.com/story/retrofitting-dams-green-energy/
- ****Biodiversity impacts of alternative energy strategies** (McManamay et al., Biological Conservation)
  - 3 News Outlets (including Science Daily, Newswise, and Phys.org): https://www.sciencedaily.com/releases/2021/07/210713184401.htm
  - KXXV interview: https://app.criticalmention.com/app/#/report/8ab88c0f-5da1-421f-b081-61afe52662ca
- ****Water Scarcity and Beef Production** (Richter et al, Nature Sustainability):
  - Nature Highlight: https://www.nature.com/articles/d41586-020-00607-2
  - 24 News Outlets: https://www.nature.com/articles/s41893-020-0483-z/metrics
- "Hydropower—A river of data" (2018): https://www.ornl.gov/news/hydropower-river-data-0
- McManamay et al. 2018 (PLoS ONE): "ORNL develops new capability to evaluate human-driven change in Eastern U.S. streams": https://www.ornl.gov/news/ornl-develops-new-capability-evaluate-human-driven-change-eastern-us-streams
- McManamay et al. 2017 (PNAS): 8 News Highlights (Physorg.com, Science Daily, Science Newsline, Health Medicine Network, ENN, newswise, Long Room, ORNL news, EurekAlert!): https://pnas.altmetric.com/details/24225782/news
  - High-resolution modeling assesses impact of cities on river ecosystems: https://www.ornl.gov/news/high-resolution-modeling-assesses-impact-cities-river-ecosystems
- McManamay et al. 2016 (Hydrobiologia): 3 News Highlights –
  - EurekAlert! - https://www.eurekalert.org/pub_releases/2016-04/drnl-stf040516.php
  - "Aquatic Obstacles"- ORNL news desk: https://www.ornl.gov/news/environment-%E2%80%93-aquatic-obstacles
  - "Reviving fish population at White Oak Creek faces barriers" - Knoxville news sentinel - http://archive.knoxnews.com/news/columnists/frank-munger/reviving-fish-population-at-white-oak-creek-faces-barriers--2fe61b83-e087-792b-e053-0100007f4aad-374956671.html

Conservation Work/Outreach:
- "Clearwater revival" (Roanoke Times) 2006: https://www.roanoke.com/sports/outdoors/clearwater-revival/article_0df1b1f0-4361-5f6c-94de-24763086c350.html
- "Trout group focuses on conservation" (Roanoke Times, February 5, 2008, Mark Taylor)

Students/STEM outreach:
- "Recent graduate promotes aquatic environmental restoration" (Oak Ridge Institute for

Science and Education) 2016: https://orise.orau.gov/stem/success-stories/archive/eisinger.html

- "SULI Program: Joseph Famularo - Recent graduate contributes to aquatic habitat restoration efforts" 2017 - https://orise.orau.gov/ornl/experiences/recent-bachelors-associates/famularo.html

Grants and Research Projects (as PI, Co-PI, or Co-I)

Baylor University Affiliation**

Career Total Acquired and Managed Funds ($7,317,144):

Funds to Baylor ($2,514,992):

McManamay, R.A., K.G. Garrett, A. Yokochi, B. Thomas, F. Stover, L. Roswell, T. Magesh, D. Allred, N. Carpenter. 2026. Department of Energy Hydropower Collegiate Competition. **$5K

McManamay, R.A., J. Dixon, S. Church, B. Ruddell. SCC-PG: Coupling Digital Twins with Multisector Models to Build Economic and Infrastructure Resilience in Smart and Connected Gateway Communities of Yellowstone National Park. National Science Foundation 22-529 Smart and Connected Communities. Award ID 2426442. Computer and Information Science and Engineering. **$149,983

** Apodoca, JJ., **R.A. McManamay**. Transformative Monitoring Solutions for Aquatic Restoration under USDA's Working Lands For Wildlife Aquatic Connectivity Framework. USDA FSA Conservation Reserve Program (CRP) FY24 Monitoring, Assessment, and Evaluation (MAE) Opportunity. August 2024-2027. Total award: **$750,000 ($180,000** to Baylor).

Apodoca, JJ., **R.A. McManamay. Combining e-DNA and optical imaging as an innovative framework for water quality monitoring in watersheds using benthic invertebrates. Pheasants Forever. August 2024. Total award **$750,000 ($149,224** to Baylor).

Hamerly, G., **R.A. McManamay. Automated veliger detection. US Bureau of Reclamation. Grant No. R24AP00565-00. July 2024. **$71,439**.

Garrett, K.P, **R.A. McManamay, B. Thomas. RED HOT: Rural Energy Development in the Heart of Texas. Department of Energy, Office of Clean Energy Demonstrations. Energizing Rural Communities Prize. **$100,000**. https://americanmadechallenges.org/challenges/rural-energy/results

McManamay, R.A., Benjamin Ryan. Supplement, NSF INTERN Program: Collaborative Research: RAPID: The 2022 Yellowstone Flood: Evaluating national parks as critical infrastructures to the US ecotourism economy. National Science Foundation, Humans, Disasters, and the Built Environment (HDBE) PD 19-1638. Award ID 2241213. CMMI Research and Development Award **$33,867

**McManamay, R.A., Benjamin Ryan, Jean Dixon. Collaborative Research: RAPID: The 2022 Yellowstone Flood: Evaluating national parks as critical infrastructures to the US ecotourism economy. National Science Foundation, Humans, Disasters, and the Built Environment (HDBE) PD 19-1638. Award ID 2241213. CMMI Research and

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Development Award **$50,000** ($30,000 to Baylor, $20,000 to Montana State University)

McManamay, R.A. Integrated Coastal Modeling. Department of Energy, Office of Science. Subaward through Pacific Northwest National Laboratory. PNNL Contract/Proposal No. 677716. Baylor Contract 102770. Jan. 2022 – March 2025. **$265,000**

McManamay, R.A., C. Matson. Bullhide Creek Monitoring Fund. Donation from Clean Water Alliance, Lorena, TX. **$ 42,609**

Arnold, W. et al. (OceanSpace LLC), R.A. McManamay (Co-I). Advancing Optical Imaging and Classification to Enhance Biodiversity Monitoring. Department of Energy, Office of Efficiency and Renewable Energy. Small Business Innovation Research. DE-FOA-0002381. Contract/Order No. DOE-20144. **$1,119,242** (**$330,000** to Baylor-McManamay).

Hamerly, G., R.A. McManamay (Co-PI), J. Brubacher. Near real-time detection and monitoring of invasive mussel species in Texas waterways. Texas Parks and Wildlife Department Aquatic Invasive Research [(AIS) Proposals](). TPWD Contract No. CA – 0000707. Sept 2021-August 2023. **$100,000.**

McManamay, R.A. Dynamic land modeling for the COMPASS Project. Department of Energy, Office of Science. Subaward through Pacific Northwest National Laboratory (PNNL). October 2023-Sept 2024. Contract No. 592713. **$88,222.**

McManamay, R.A. Dynamic land modeling for the COMPASS Project. Department of Energy, Office of Science. Subaward through Pacific Northwest National Laboratory (PNNL). October 2021-Sept 2023. Contract No. 592713. **$39,764.**

McManamay, R.A., K. Mayes, D. Young. Geospatial analysis identifying environmental flow thresholds for fish species and communities in Texas. Texas Parks and Wildlife State Wildlife Grant. TPWD Contract No. CA-0002585. July 2021 to August 2023. **$66,584**

McManamay, R.A. Integrated Multisector, Multiscale Modeling (IM3) Science Focus Area, Phase 2. Department of Energy, Office of Science. Subaward through Pacific Northwest National Laboratory (PNNL). October 2020 – Sept 2024. PNNL Contract No. 540765. Baylor Contract 102610. **$475K**

Arnold, B., M. Dean, E. Steimle, R.A. McManamay (Co-I). Advancing optical imaging and classification to enhance biodiversity monitoring. Department of Energy, Office of Science. Small Business Innovation Research Grant. Award No. DE-SC0020881. **$250K** (**$69.5K** Subaward to Baylor-McManamay)

McManamay, R.A., D. Young, K. Mayes, R. Smith. Literature Review of Flow-ecology Relationships for SGCN Fishes in Texas. June 2020. Texas Parks and Wildlife State Wildlife Grant, US Fish and Wildlife Service. TPWD Contract No. CA – 0000707. **$43.3K**

McManamay, R.A. Urban Dynamics for Integrated Multi-Sector Multi-Scale Modeling. Department of Energy, Office of Science. Subaward through Pacific Northwest National Laboratory. September 2019. Contract No. 490320. **$75K**

Prior to Baylor ($4,837,000):
Dumas-Allen, M., **R.A. McManamay**, C. Brelsford. Urban Scale Modeling for Integrated Multi-Sector Multi-Scale Modeling. Pacific Northwest National Laboratory. March 2019. **$165K**

McManamay, R.A., T.J. Mathews, P. Bingham. Autonomous Benthic Macroinvertebrate and Fish Imaging and Identification System. Department of Energy, Office of Technology Transitions, Technology Commercialization Fund, July 2019. TCF-19-17761. **$225K**

Peterson, M.J., **R.A. McManamay (Co-PI).** Biological Monitoring and Abatement Program, Instream Communities and Limnological Studies. Y12 National Security Complex, East

Tennessee Technology Park, and UCOR. October 2018. **$660K**

Levine, A., **R.A. McManamay** (Co-PI). A Holistic Examination of the FERC Hydropower Licensing Process to Enable Regulatory Optimization. Department of Energy Water Power Program. FY19 Annual Operating Program. October 2018. **$1.4M**

McManamay,R.A. Biological Monitoring and Abatement Program, Invertebrate Community Monitoring. UCOR. October 2017. **$435K.**

McManamay, R.A. Uptake and Distribution of Potential Fly Ash Contaminants in Emory River Invertebrates. Tennessee Valley Authority. September 2017. **$150K**

McManamay, R.A., M. J. Peterson. Mercury Technology Development. Water Resources Restoration Program. Department of Energy, Office of Environmental Management. UCOR|RSI. **$75K.**

McManamay, R.A., B. Preston. Regional Integrated Assessment Modeling (RIAM) Program. Department of Energy, Office of Science, Biological and Environmental Research. **$150K.**

McManamay, R.A. US Stream Classification System. Department of Energy Water Power Program. FY14 Annual Operating Program. October 2016. **$250K**

Tran, L.T., H. Kim, **R.A. McManamay** (Co-PI). Examining the Energy-Water Nexus through the Lens of the Super-Network: Combining Water Routing Networks with Energy Production-Consumption Networks. Joint Directed Research and Development Program. University of Tennessee Knoxville. January 2016. **$50K**

McManamay, R.A., S. Surendran Nair, R.N. Stewart, S-C Kao, B.T. Smith. Fine-resolution Modeling of Urban-Energy Systems' Water Footprint in River Networks. Oak Ridge National Laboratory Director's Research and Development Proposal. October 2015-2016. **$325K**

McManamay, R.A., M. Doyle, M. Fork, J. Heffernan. Enriching the spatial and temporal resolution of water quality sensor networks in urban environments. Oak Ridge National Laboratory GO! Program Supplemental Funding. November 2014. **$50K**

McManamay, R.A., S. Surendran Nair, R.N. Stewart, S-C Kao, B.T. Smith. Fine-resolution Modeling of Urban-Energy Systems' Water Footprint in River Networks. Oak Ridge National Laboratory Director's Research and Development Proposal. October 2014-2015. **$325K**

McManamay, R.A. Stream Classification Tool. Department of Energy Water Power Program. FY14 Annual Operating Program. October 2014. **$175K**

McManamay, R.A. Stream Classification Tool. Department of Energy Water Power Program. FY14 Annual Operating Program. October 2013. **$250K**

Anderson, M. G., A. Olivero, **R. A. McManamay**. A stream classification system for the Appalachian Landscape Conservation Cooperative. Appalachian Landscape Conservation Cooperative RFP. November 2012. http://applcc.org/projects/stream-classification. **$90K**

Orth, D.J., **R.A. McManamay**, and J. Kauffman. Ecological responses to flow alteration in the South Atlantic Region: Literature review. Southeastern Aquatic Resources Partnership, May 2011. **$16K**

Orth, D. J., **R. A. McManamay**, J. Henriksen, and J. Heasley. Stream flow classification for environmental flow standards and analysis. Virginia Department of Game and Inland Fisheries. 2010. **$31K**

McManamay, R.A., T. Lowe, J. Williams, and B. Pierce. Riparian restoration of Wright Branch, an extirpated headwaters stream, for reintroduction of Eastern brook trout through the Trout in the Classroom program. (Embrace-A-Stream Grants, Trout Unlimited, 2010). **$8K**

Lowe, T., **R.A. McManamay**, D. Kirk, J. Williams, and J. Ross. Stony Creek within the Glen

Alton Tract (Giles County, VA): Stream and Riparian Habitat Restoration, Stabilization, and Reconnection. Awarded (Embrace-A-Stream Grants, Trout Unlimited; Southeastern Aquatic Resources Partnership; National Forest Foundation). February 2008. **$6K**

McManamay, R.A. The effect of morphological restoration of the fish and macroinvertebrate assemblage structure in a fragmented river system.Sigma Xi, Scientific Research Society, January 2008. **$1K**

Baylor Internal Funding (not included in total managed fund figures above).

McManamay, R.A. Scenario Development Learning in complex natural systems: Instructing the art of future scenario construction to enable decision-support for interdisciplinary sciences. Baylor Academy for Teaching and Learning Teaching Exploration Fund. October 2023. **$5,000**

McManamay, R.A. City Energyshed Management for Renewable Energy Transitions, Infrastructure Resilience, and Energy Equity. Baylor University College of Arts and Sciences. Summer Research Fund. June 2022. **$14,912**.

Synergistic Activities – Project Advisement & Collaboration

Baylor University Affiliation**

***Rethinking hydropower to satisfy energy, climate, and biodiversity goals.* Team Participant and Collaborator**. Cornell University Atkinson Center for Sustainability. Cornell University, Ithaca, NY and Indiana University, Bloomington, Indiana. March 19-21, 2025; April 14-16, 2026. https://rethinkinghydropower.wixstudio.com/workshop

***Department of Energy, Hydropower Collegiate Competition.* Faculty Advisor and Team Participant.** https://www.herox.com/hydropower-collegiate-competition/team/29216. . $5K award.

***Department of Energy Solar District Cup*, Faculty Advisor and Team Participant.** https://www.herox.com/SolarDistrictCup2024/teamsTeam was awarded 5th division.

*** National Science Foundation INTERN Program.* Supplemental funding to support Jillian Sturtevant on research internship at Oak Ridge National Laboratory. July – December 2023.

***Energy Modeling Forum, U.S. Department of Energy, Multisector Dynamics Modeling Workshops.* Participant and presenter.** Topics:
- June 2023: Uncertainty Methods for Multi-Sector Dynamics Modeling.
- June 2024: Impacts of Extreme Events on Coastal and Urban Systems in multi-sectoral dynamics (MSD) modeling
- Top of the Village, Snowmass, Colorado. June 2023, 2024.
-

***Oak Ridge National Laboratory Research Internships.* Collaboration with Dr. Teresa Mathews

and Dr. Paul Matson. Research internships for multiple graduate students (Jordan Jatko, Micah Bowman, Mark Lueders). June 2023-Current.

* *MultiSector Urban Interactions: Fundamental Science Needs to Inform Pathways to More Resilient Communities in a Changing Climate. **Workshop Break-out Facilitator.** July 21-23, 2021.

* *From Watershed to Energysheds: **Workshop Advisor and Participant.** Department of Energy, Energy Efficiency and Renewable Energy. 132 attendees. July 13-214, 2021. Workshop and Background information.

* * Energyshed Management System, **Concept Origination for Congressional Funding Allocation.** Congress directed **$10 Million** (Jan 2021) to the Department of Energy (DOE), Efficiency and Renewable Energy (EERE) for: "the development and demonstration of an "energyshed" management system....". McManamay was PI of a large research project resulting in seminal work on defining energysheds (see DeRolph et al. 2019, McManamay et al. 2017; 2019). Energysheds was a relatively new concept to DOE, therefore McManamay was requested to advise EERE (via two sessions) in 2021 to inform the scope, and focus of a >100-participant workshop and research needs for an FOA: Energsyhed-Exploring Place-Based Generation.

* * Integrated Coastal Modeling (ICoM). **Team Member, Baylor Lead.** Ian Kraucunas (PI), Pacific Northwest National Lab, Department of Energy, Office of Science – Biological and Environmental Research, 2021-Current. https://climatemodeling.science.energy.gov/projects/integrated-coastal-modeling-icom

* *Coastal Observations, Mechanisms, and Predictions Across Systems and Scales (COMPASS). Great Lakes Modeling – **Team Member, Baylor Lead** Robert Hetland (PI), Pacific Northwest National Lab, Department of Energy, Office of Science – Biological and Environmental Research, 2021-Current. https://compass.pnnl.gov/GLM/Team

* *US Geological Survey, Powell Research Group – Water Reanalysis – **Participant** (2021-Current) Reanalyzing and Predicting U.S. Water Use using Economic History and Forecast Data; an experiment in short-range national hydro-economic data synthesis. Ruddell, B., Marston, L., Maupin, M., Bagstad, K. (PIs). https://www.usgs.gov/centers/powell-ctr/science/reanalyzing-and-predicting-us-water-use-using-economic-history-and?qt-science_center_objects=0#qt-science_center_objects

* *Integrated Multisector Multiscale Modeling (IM3) – **Team Member, Baylor Lead** Jennie Rice (PI), Pacific Northwest National Lab, Department of Energy, Office of Science – Biological and Environmental Research 2019-Current. https://im3.pnnl.gov/people

FEWSION Project **Advisory Board Member** FEWSION: Mesoscale Data Fusion to Map and Model the U.S. Food, Energy and Water (FEW) System. Ruddell, B. (PI). National Science Foundation ACI-1639529. (Project Advisory Board Member): http://fewsion.us/team/

Energy-Water Nexus Knowledge Discovery Team - **Collaborator**
> Energy-Water-Nexus Knowledge Discovery Framework, Bhaduri, B. (PI). Department of Energy, Office of Science - Biological and Environmental Research. 2017-2019

Department of Energy Water Power Environmental Summit, **Workshop Presenter**
> Water Management: Laboratory Response. Department of Energy Hydropower Environmental Summit, Washington DC, April 2018.

Hydropower Environmental Metrics - **Collaborator and Team Member**
> Environmental Metrics for Hydropower, Smith, B.T. (PI). Department of Energy Water Power Program. 2016-2018

Mentored Students, Post-Docs, and Graduate Committees:

Baylor University Affiliation**
Completed degree §

Mentored Post-Docs:
**2025-Curr: Abhiram Pamula, Baylor University
- Using remote sensing for monitoring surface waters

**2023-Curr: Perpetua Okoye, Baylor University
- Surface water intake infrastructure expansion scenarios

**2022-2023: Ali Raufi, Baylor University (co-advised with Stephen Powers)
- Nighttime light and reservoir analysis
- Urban land scenario modeling

**2020-2022: Diane Le Bouille, Baylor University (co-advised with Stephen Powers, Baylor)
- Environmental Flow Metanalyses
- Current Position: Postdoc, Texas Tech University, Lubbock

2014-2015: Matthew J. Troia, Oak Ridge National Laboratory
- Stream Classifications, Macroecology, Fish Life-History Traits
- Current Position: Assistant Professor, University of Texas San Antonio

Mentored Technicians and Post-Masters:
Baylor University
2025: Epiphany Velasco, Lab Technician
- Autonomous optical imaging for aquatic invertebrates

2021-2024: Jay Oliver, M.S., Data Specialist, Baylor University
- Geospatial analysis, hydrogeography, land use modeling

2023: Josh Godwin, B.S., Lab and Field Technician
- Autonomous Biological Sampling

2023: Ethan Agnew, B.S. Lab and Field technician
- Autonomous Biological Sampling

2023: Skylar Nguyen (Biology, Baylor University, TX)

- Yellowstone National Park Flood impacts on infrastructure

2022: Ava Corry-Roberts, B.A., GIS and Data Technician, Baylor University
- Energy land footprint analysis, Water infrastructure mapping

Primary Advisor, Graduate Students:

Baylor University

2025-Current: Brian Sasaki, Ph.D. Student, Department of Environmental Science, Baylor U. TX
- Modeling future urban infrastructure and transportation development stressors on aquatic ecosystems and wildlife

2024-Current: Emeka Orji, Ph.D. Student, Department of Environmental Science, Baylor U. TX
- Incorporating energy development into land use and land cover analysis

2024-Current: Sayeed Ahmed, Ph.D. Student, Department of Environmental Science, Baylor U. TX
- Building a nationwide index of biotic integrity by combining eDNA, optical imaging and machine learning

2024-Current: Susmita Paudel, Ph.D. Student, Department of Environmental Science, Baylor U. TX
- Linking farmer agents to land use and land cover models through an integrated assessment model

2023-Current: Levi Sweet-Breu, Ph.D. Student, Department of Environmental Science, Baylor U. TX
- Valuating natural capital from landscapes

2021-Current: Jordan Jatko, Ph.D. Student, Dept of Environmental Science, Baylor U. TX
- Ecosystem service tradeoff of wastewater treatment and stormwater runoff

2021-Current: Micah Bowman, Ph.D. Student, Dept of Environmental Science, Baylor U. TX
- Autonomous biological monitoring using artificial intelligence
- Fall 2024 Outstanding Graduate Student Instructor Award Nominee

§2020-2025: Jillian Sturtevant, Ph.D. Candidate, Dept of Environmental Science, Baylor U., TX
- Representing Complex Multisector, Human Systems into Land Use and Land Cover Mapping to Inform Sustainability and Future Societal Development
- Completed August 19, 2025
- Current Position: Postdoctoral Associate, University of Maryland

§2020-2025: Mark Lueders, Ph.D., Dept of Environmental Science, Baylor U. TX
- Ecological Implications of Hydrologic Alteration: Patterns, Processes, and Predictions
- Completed March 28, 2025
- Current Position: Assistant Professor, Minot State University, ND

§2019-2023: Kayla Garrett, Ph.D., Dept of Environmental Science, Baylor U., TX
- Overcoming social, technological, and environmental obstacles in regional-to-global renewable energy transitions
- Completed May 1, 2023
- Current Position: Instructional Faculty, Baylor University, TX

§2019-2021: Lydia Roush, M.E.S. Student, Dept of Environmental Science, Baylor U., TX
- Water quality implications of waste-water treatment facility
- Completed December 2021

- Current

University of Tennessee-Knoxville

2018-2019: Diliya Murtazina, Ph.D. student, Bredesen Center, University of Tennessee Knoxville
- Global hydropower assessment and impacts to biodiversity

§2016- 2017: Mariya Absar, Ph.D., Bredesen Center, University of Tennessee Knoxville
- Coupling Life Cycle Assessment and Socioeconomic Scenarios for Climate Change Adaptation of the Energy-Water Nexus
- Current position: ERG (Eastern Research Group), Life Cycle Services, Boston, MA

Mentored Graduate Student Interns:

2015-2017: Megan L. Fork (PhD Candidate, Duke University), Oak Ridge National Lab
- Urban-generated sources of DOC in reservoirs. Graduate Advisor – Dr. Jim Heffernan

Mentored Undergraduates and Post-Bachelor Interns and Researchers:

Baylor University

2025-26:

USDA – Combining Optical Imaging of Aquatic Invertebrates with e-DNA
- Anna Barrett (Environmental Science, Baylor University, TX)
- Jillian Herman (Environmental Science, Baylor University, TX)
- Breece Benline (Environmental Science, Baylor University, TX)
- Schi Reeves (Environmental Science, Baylor University, TX)

3V9R Research: Hydropower Resource Siting Assessment
- Frankie Stover (Environmental Studies, Baylor University, TX)

3V9R Research: Social aspects of recycling and renewable energy in Waco
- Mackenzy Sweet (Environmental Studies, Baylor University, TX)

3V9R Research: Yellowstone National Park Flood Impact Monitoring
- Brady Connor (Environmental Science, Baylor University, TX)

3V9R Research: Solar Farm Watershed Study
- Connor Bennet (Biology, Baylor University, TX)

3V9R Research: National Parks Economic Study
- Anneli Hellgren (Honors College, Baylor University, TX)

2024-25:

Honors Thesis Committee Member:
- Grace Malone(Environmental Science, Baylor University, TX)
- Thesis: Hydropower Modes of Operation and Methane: A Scoping Review of Research Practices and a Framework for Future Study

3V9R Research: Advancing autonomous biomonitoring
- Ben Trotter (Biology, Baylor University, TX)
- Epiphany Velasco (Biology, Baylor University, TX0

3V9R Research: Scenario Development Learning Study
- Abbie Wickham (Environmental Science, Baylor University, TX)

2023-24:

3V9R Research: Solar Farm Watershed Study
- Ben Trotter (Biology, Baylor University, TX)

- Abbie Wickham (Environmental Science, Baylor University, TX)
- Samuel Rivera (Biology, Baylor University, TX) – unofficial internship

3V9R Research: Threat compilation for freshwater fish fauna
- Dylan Kim (Biology, Baylor University, TX)

3V9R Research: Yellowstone National Park Flood Impact Monitoring
- Skylar Nguyen (Biology, Baylor University, TX)

2022-23:

3V9R Research: Invertebrate and larval fish biomonitoring
- Petyon Abney (Environmental Science, Baylor University, TX)
- Josh Godwin (Environmental Science, Baylor University, TX)
- Jiaqi Ma (Biology, Baylor University, TX)
- Hanna (Nhu) Mai (Biology, Baylor University, TX)
- Gabriela Perales (Biology, Baylor University, TX)
- Leighton Petty (Biology, Baylor University, TX)
- Thu Pham (Biology, Baylor University, TX)
- Swetha Ravisankar (Biology, Baylor University, TX)
- Shahrez Shaban (Biology, Baylor University, TX)
- Ben Trotter (Biology, Baylor University, TX)
- Emily York (Biology, Baylor University, TX)

Yellowstone National Park Flood Impact Monitoring
- Mariam Eid (Biology, Baylor University, TX)
- Hannah Fisher (Biology, Baylor University, TX)
- Skylar Nguyen (Biology, Baylor University, TX)
- Megha Yengoti (Biology, Baylor University, TX)

Environmental flows and fish imperilment
- Zuzu Hileman (Biology, Baylor University, TX)
- Dylan Kim (Biology, Baylor University, TX)
- Alyssa Vasquez (Biology, Baylor University, TX)

Renewable energy in cities
- Guilia Ishi (Biology, Baylor University, TX)

2021-22:

3V90 Research: Autonomous biological monitoring applications
- Jack Charles (Environmental Science, Baylor University, TX)
- Christian Schultz (Environmental Science, Baylor University, TX)

2V99 Research: City renewable energy goals
- Kyra Rose (General Engineering, Baylor University, TX)

2020-22:

3V90 Research: GIS applications in the land-energy-water nexus
- Ava Corry-Roberts (Environmental Studies, Baylor University, TX)
- 3V90 Research: Water Quality Dynamics in Bullhide Creek, Lorena, TX
- Raegan Turner (Environmental Science, Baylor University, TX).
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Oak Ridge National Laboratory

2019: Jillian Sturtevant (Biology and Mathematics, Lee University, TN). SULI internships (ORNL)
- Land socioeconomic sector mapping

Molly Landon (University of Tennessee-Knoxville). SULI internships (ORNL)
- Identification of invertebrate taxa using imaging and artificial intelligence

2018: Elizabeth Prior (Auburn University). SULI internships (ORNL)
- US dam fish passage database

Charles Cianciolo (University of Tennessee-Knoxville). SULI internships (ORNL)
- Synthesis of restoration and remediation activities on the Oak Ridge Reservation

2017: Joseph Famularo (Virginia Tech). SULI internships (ORNL)
- High-resolution stream habitat mapping

Franklin Linam (Texas A&M). SULI internships (ORNL)
- Mercury contamination in fish populations

Xiomara Correa (University of Puerto Rico at Arecibo, PR). SULI internships (ORNL)
- Visualizing future energy and water scenarios for cities

2016: Joseph Eisinger (Purdue University). SULI internships (ORNL)
- High-resolution stream habitat mapping

2013-14: Clement O. Oigbokie II. (HERE program). HERE internships (ORNL)
- Building Hydropower Dam and Operation Database.

2013 Peter Bonsall (National Park Service Intern). Visiting student (ORNL)
- Digital mapping and environmental characterization of Wild and Scenic Rivers

2012 Evan B. Robinson (Morris College, SC), HERE internships (ORNL)
- Instream Flow Requirements for Hydropower Developments.

2010 James T. Young (Virginia Tech).
- Observations of White Sucker Spawning.
- Journal article: See McManamay et al. (2013) Am Midl Nat

Graduate committees:

Baylor University

**2024-Curr: Eric Sjöstedt (Ph.D. Student), Northern Arizona University, School of Informatics Computing and Cyber System, Advisor: Dr. Benjamin Ruddell.

**2024-Curr: Hunter Privett (Ph.D. Student), Baylor University, Department of Statistical Science, Advisor, Dr. Amanda Herring.

**2022-Curr: Malcom Macleod (Ph.D. Candidate), Baylor University, Biology. Advisor. Dr. Stephen Powers
- Dissolved oxygen and dissolved organic carbon in Texas reservoirs

**§2021-2025 Alix Fournier (Ph.D), Baylor University, GeoSciences. Advisor, Dr. Steve Forman
- Quaternary geomorphic and hydrologic processes for the evolution of dune fields

**§2022-2023: Malcolm Barnard (M.S.), Baylor University, Biology, Advisor, Dr. Thad Scott
- Extreme stoichiometric gradients and B-vitamin effects on phytoplankton communities

**§2020-2021: Lauren Lubianski (M.S.), Baylor University, GeoSciences
- Contribution of tributaries to alluvium aquifer recharge. Advisor, Dr. Joe Yelderman

University of Tennessee

§2018-2021: Ryan Saylor (Ph.D.), University of Tennessee Bredesen Center

- Biological design criteria for hydropower turbines. Graduate Advisor – Dr. Mark S. Bevelhimer

§2019-2020: James Major (M.S.), Northern Arizona University, Geography

- River conservation under the Wild and Scenic River System. Graduate Advisor, Dr. Denielle M. Perry

§2017-2019: Rob George (M.S.), Northern Arizona University

- Examining flow-ecology relationships and building hydrologic alteration models. Graduate Advisor – Dr. Benjamin L. Ruddell
- Current Position: Research Associate, NAU

§2017-2019: Sudershan Grangrade, Ph.D., University of Tennessee Bredesen Center

- Comparing Hydrologic Models under Climate Change. Advisor – Dr. Shih-Chieh Kao
- Current Position: Research Scientist, Oak Ridge National Laboratory

§2013- 2015: Ryan Hathaway (M.S.) Virginia Tech National Capital Region

- Temperature Regimes in Regulated Rivers. Advisor - Dr. Donald J. Orth
- Current Position: Bureau of Reclamation

Presentations (†† invited) – Lead Author Only

Baylor University affiliation**

Guest Lectures

2024

** "Alternative Energy", Geography/Integrated Science and Technologies 429 (Sustainability: An Ecological Perspective). James Madison University, February 2, 2024.

2021

**Guest Lecture: The Global Energy Problem, ENV 1301 (Introduction to Environmental Science). December 2, 2021.

2017

(Several lectures): Northern Pike YOY recruitment, statistical analysis, Special Study. University of Wisconsin – Green Bay. Jan/Feb 2017. Instructor (Dr. Patrick Forsythe)

2016

"Biological Monitoring" in Watershed Monitoring Graduate Course, University of Tennessee Knoxville. October 2016. Instructor (Dr. Jon Hathaway)

2009

"Regulated River Restoration". Stream Habitat Management, Virginia Tech, Blacksburg, VA. Instructor (Dr. Don Orth)

Conference Presentations and Invited Seminars

2025

* * U.S. FISHPAD (FISH Passage At Dams) dataset to support river network sustainability studies. *American Geophysical Union 2025 Annual Meeting. H44I: Water and Society: Interdisciplinary Approaches Toward Sustainable Infrastructure Across the Water-Energy-Food Nexus II Oral*. December 18, 2025.

**Infrastructure Decisions, Myths, and Tradeoffs in Creating an Uncertain Future for Freshwater Ecosystems, *Environmental Science Department Seminar*. Tarleton State University, Stephensville, TX. Nov. 4, 2025.

**Panelist, Nature in the Network: Air, Water, and Public Health. *Waco Metropolitan Planning Organization, Symposium Convey 2050*, Waco, TX. September 26, 2025.

**Using AI for aquatic biomonitoring: An overview of research combining optical imaging, machine learning, and automation to advance freshwater science. Special Session: AI in freshwater science: Transforming aquatic ecology and sustainability with artificial intelligence. *Society of Freshwater Science 2025 Annual Meeting*. San Juan, PR. May 19, 2025.

2024

**Urban morphology evolution under uncertain land constraints and climate extremes. *American Geophysical Union 2024 Annual Meeting*. Poster. Washington, D.C. December 11, 2024.

**SSOLAR – Water Quality Monitoring. *Texas Watershed Coordinator Roundable, Texas Water Resources Institute.* Texas Farm Bureau Convention Center, November 7, 2024. Waco, TX.

**Multifaceted economic impacts of a 500-year flood on gateway communities of Yellowstone National Park. *16th Biennial Scientific Conference on the Greater Yellowstone Ecosystem.* Big Sky, MT. Sept 3, 2024.

***Urban morphology evolution under uncertain land constraints and climate extremes. *Earth and Environmental Science Modeling (EESM) PI meeting*. Poster. Bethesda, MD. August 8, 2024.

**Impacts of Coastal Extremes on Urban Evolution. *U.S. Department of Energy, Energy Modeling Forum*, Snowmass, CO. June 2024.

***††Energy and Urban Infrastructures of the Future. *Iowa State University Environmental Science Seminar Series*. DeMoines, IA. April 22, 2024.

***††Infrastructure Sustainability: human-environmental systems. *James Madison University Integrated Science and Technology Program Seminar*. Harrisonburg, VA. February 1, 2024.

2023

***††Dynamic urban land extensification and imbalances to the global land-carbon equilibrium. *American Geophysical Union 2023 Annual Meeting, Urban Areas and Global Change*. San Francisco, CA. December 13, 2023.

***†† Strategies to increase hydropower and benefit the environment at local-to-global scales *American Geophysical Union 2023 Annual Meeting, Water and Society: Interdisciplinary Infrastructure Planning Toward Sustainable Water-Energy-Food Systems.* San Francisco, CA. December 12, 2023.

***††Global solutions to meeting growing renewable energy demands while protected biodiversity. Texas Christian University *Department of Biology Seminar Series*. September 15, 2023.

***†† Energy and Urban Infrastructures of the Future. Texas State University Meadows Center, *Climate Science: The Good, The Bad, and The Wicked*. September 7, 2023.

2022

**Machine Learning Applications to Understand Human Impacts on Water Resources. *American Statistical Association ENVR workshop.* Provo, Utah. October 2022

** Moving Towards Autonomous Biomonitoring for Small Aquatic Organisms Using Artificial Intelligence and Novel Collection Designs. *Joint Aquatic Sciences Meeting.* Grand Rapids, MI. May 2022.

**Finding convergent solutions between global sustainability objectives and reality in energy futures. *Baylor Department of Environmental Science Seminar Series.* Jan 2022

2021

**Global decarbonization-biodiversity tradeoffs of future alternative electrification strategies. *Ecological Society of America.* Virtual. July 2021.

**A meta-analysis of environmental flow standards and thresholds in Texas rivers. *Southern Division American Fisheries Society.* Virtual. April 2021.

2020

**Urban-rural land teleconnections in the United States. *American Geophysical Union.* December 2020.

**Application of a Hierarchical Spatial Framework to Prioritize Stream Restoration for an Endemic Fish. *Texas Chapter of the American Fisheries Society.* Waco, TX. Jan 2020.

2019

**††Designing sustainable future land-energy-water infrastructures for cities. *American Geophysical Union.* December 2019.

**††U.S. Department of Energy (DOE) Programs and Tools to Support Sustainable Hydropower. *US Fish and Wildlife Service Hydrology and Aquatic Resources Conservation Webinar Series.* November 2019.

**††A new water use dataset for the United States. *Pacific Northwest National Laboratory Land Use and Land Cover Change Seminar Series.* October 2019.

**††The Carbon-Energy-Water Nexus in Texas: From Texas to Lancaster: Challenges with Food, Water, and Fracking". *Ecology and Religion in 19th Century Studies.* Armstrong Library, Baylor University. September 2019.

2018

††Water Management: Laboratory Response. *Department of Energy Hydropower Environmental Summit,* Washington DC, April 2018.

The Current and Future US Energy Profile and Implications for Fisheries. *Southern Division American Fisheries Society,* San Juan Puerto Rico, March 2018.

A US Stream Classification to Support Habitat Restoration for Fisheries. *Southern Division American Fisheries Society,* San Juan Puerto Rico, March 2018.

Does somatic growth dilution lead to less methylmercury flux in fish populations? *Southern Division American Fisheries Society,* San Juan Puerto Rico, March 2018.

2017

Using dynamic time warping and data forensics to examine tradeoffs among land-energy-water networks across the conterminous United States. Poster. *American Geophysical Union,* New Orleans, LA. December 2017.

A Stream Classification System for the Conterminous US. *American Fisheries Society Annual*

Meeting, Tampa, FL. August 24, 2017.

††Cities can choose their future water sustainability. *Friends of Oak Ridge National Laboratory*, Oak Ridge, TN. September 12, 2017.

††Using Stream Networks to Address Conservation Challenges in Aquatic Systems. Clemson University. Clemson University Natural Resources *Graduate Student Association Seminar Series*. March 2, 2017.

A simple optimization tool to prioritize barrier removal in streams: implications for convergence among divergent conservation objectives. *Southern Division American Fisheries Society Annual Meeting,* Oklahoma City, OK. February 2017.

††The Role of Spatial Analytics in the Energy-Water-Nexus. *University of Tennessee, Knoxville, Bredesen Center Seminar*. February 2, 2017.

2015

Fine-resolution Modeling of Urban-Energy Systems' Water Footprint in River Networks. *American Geophysical Union*, San Franciso, CA. December 2015.

Prioritzing Streams as Hydrologic Reserves in the Eastern US. *Southern Division American Fisheries Society Annual Meeting*, Savannah, GA. January 2015.

2014

Optimizing Win-Win Scenarios Between Hydropower Development and Environmental Improvements by Thinking Outside the Project Boundary. *American Fisheries Society Annual Meeting*, Quebec, Canada. August 20, 2014

The Basin Scale Opportunity Assessment: Finding win/win scenarios in improving the environment while increasing hydropower energy. *Western Division American Fisheries Society Annual Meeting*, Mazatlan, Mexico. April 10, 2014.

Hydrologic structuring of fish life history strategies across the US: Implications of losses in flow variation on fish assemblages. *Southern Division American Fisheries Society Annual Meeting*, Charleston, SC. January 2014.

2013

††The complicated nature of dams: Is a general framework for ecologically sustainable instream flow protection possible? *Virginia Chapter American Fisheries Society Annual Meeting, Continuing Education Workshop, Instream Flow – What it is and why it matters, Virginia* February 27, 2013.

††US hydrologic classification applied to fish traits: A framework for developing flow-ecology hypotheses.*Virginia Chapter American Fisheries Society Annual Meeting, Continuing Education Workshop,Instream Flow – What it is and why it matters, Virginia* February 27, 2013.

2012

Environmental attribution for the National Hydropower Assess Assessment Program. 2012. *American Fisheries Society, Annual Meeting*, St. Paul, MN. August, 2012.

††Methodology Review: Environmental attribution for the National Hydropower Assess Assessment Program. *Department of Energy Peer Review Panel*, Washington D.C., June 18-19, 2012.

Sampling considerations: difficulties detecting fish responses to flow restoration. *Tennessee Chapter American Fisheries Society Annual Meeting*. March 13, 2012. Fall Creek Falls State Park, TN.

††Ecological responses to flow alteration in the South Atlantic region: a literature review and meta-analysis. *Southern Division American Fisheries Society Annual Meeting*, Biloxi, MS. January 2012.

2011

A tail of two tailwaters: Constraints to effective mitigation with environmental flow restoration. *Ecological Society of America Annual Meeting*, Austin, TX. August, 2011.

Do dams affect streams the same? A step towards generalizing regulated stream flow patterns." *North American Benthological Society Annual Meeting*, Providence, RI, May, 2011.

††Providing a restoration template for regulated rivers. 2011. *Seminar, Oak Ridge National Laboratory*, Oak Ridge, TN. March 2011.

2010

Fish Community Restoration in a Regulated River. When Reality Hurts. 2010 *Southeastern Fishes Council Annual Meeting*, Athens, GA, November, 2010.

Classifying flow regimes in seven states: Implications for regional environmental flow standards and management. *American Fisheries Society Annual Meeting*, Pittsburg, PA, September, 2010.

Classifying flow regimes: Implications for regional environmental flow standards and management. *Virginia Chapter American Fisheries Society Annual Meeting*, Pittsburg, PA, September, 2010.

Investigating Fish Responses to Flow Restoration in the Cheoah River: Implications of Detection Probability on Conclusions. *Southern Division of the American Fisheries Society Annual Meeting*, Asheville, NC. February 2010.

2009

Stony Creek Restoration Project: A Collaboration and Success. Poster. *Virginia Chapter American Fisheries Society Annual Meeting*, Lexington, VA. March, 2009.

2008

Cheoah River Flow Restoration and Gravel Addition. *Stream Restoration Conference*, Asheville, NC. November 2008.

2007

The Effects of Nutrient Availability on Fish Nutrient Excretion. *North American Benthological Society Annual Meeting,* Columbia, SC. June 2007.

The Effects of Stream Resources on Macroinvertebrate and Fish Composition and Nutrient Cycling. *Virginia and North Carolina Joint Chapter American Fisheries Society Meeting*. February 2007.

Professional Service and Outreach:
Baylor University affiliation**
**2023-Curr: Associate Editor, Earth's Future

**2025: Expert Consultant and Testimony, Southern Environmental Law Center, Charleston, SC

**2025: World Water Day STEM demonstration, LaVega High School, Waco, TX. March 17, 2025

**2024: Symposium Convener (Chair) – Multisector Dynamics: Advances in Global-to-Regional Land Use and Land Cover Change Modeling. American Geophysical Union 2024 Annual Meeting, Washington, DC. December 2024.

**2024: Consultant/Advisor, Air and Water Quality Considerations – Waco Metropolitan Planning District Organization Meetings, March 2024.

**2023-24: Search Committee Chair, Assistant Professor (Tenure Track) in Resiliency of Environmental Systems, Department of Environmental Science, Baylor University

**2023: Undergraduate Poster Presentation Judge, Baylor Undergraduate Research in Science and Technology (BURST). November 3, 2023.

**2021-22: Facilitator and Organizer, Baylor University Department of Environmental Science Fall Seminar Series

**2020: Search Committee Member, Assistant Professor Climate Science, Baylor University

**2018-2021: Associate Editor, Transactions of the American Fisheries Society

2018: Laboratory Tours and Outreach, Oak Ridge National Laboratory, June 8, 2018

2016: Mentor at Career Link: Oak Ridge National Lab – Event to support networking, recruiting, and mentoring of students at HBCU and MIE institutions

2013-2019: Aquatic Ecology Laboratory Tours (Elementary – College Age)

2014: Symposium Organization (Chair) – Sustainable solutions to benefit fisheries and hydropower at a basin scale. American Fisheries Society 2014 Annual Meeting, Quebec, Canada. August 2014.

2014: Student Oral Presentation Judge, Southern Division American Fisheries Society Meeting 2014 Annual Meeting, Charleston, SC

2013: Professional Meeting Organization and Planning - Southern Division American Fisheries Society Meeting 2013 Annual Meeting, Nashville, TN

2012: Symposium organization (with Ryan Utz) – Open Access Databases to Benefit Fisheries American Fisheries Society 2012 Annual Meeting St. Paul, MN

2010: Trout Stream Sensitivity Study Director, New River Valley Chapter, Trout Unlimited, VA

2009: Southern Instream Flow Network Research Agenda Development, Nashville, TN

2009-2010: Vice President, Fisheries and Wildlife Graduate Student Association, Virginia Tech, Blacksburg, VA

2008-2010: Conservation Director, New River Valley Chapter, Trout Unlimited, VA

2007-2008: Outreach Committee, American Fisheries Society, VA chapter

2006-2008: President New River Valley Chapter, Trout Unlimited, VA

Proposal Reviews:

- **2025: Department of Defense - Strategic Environmental Research and Development Program (SERDP). Core FY 2026 Solicitation. Mechanisms, Pathways, and Outcomes of Ecosystem Transformation. Resource Conservation and Resilience Program Area.

- **2024: National Science Foundation – Hydrologic Sciences Program 22-540. FY 2024 Solicitation.

Reviewer for Journals (32):

- Nature Communications Earth and Environment; Earth's Future; Environmental Science & Technology; Bioscience; Global Change Biology; Methods in Ecology and Evolution;

Nature Cities; Ecological Applications; Ecological Indicators; Scientific Data; Science of the Total Environment; Scientific Reports; Water Resources Research; Journal of the American Water Resources Association; Freshwater Biology; PloS ONE; Climate Policy; Environmental Management; Springer Plus; Water; Canadian Journal of Fisheries and Aquatic Sciences; Data in Brief; Ecohydrology; Journal of Fish and Wildlife Management; Journal of Fish Biology; Journal of Hydrology; Marine and Coastal Fisheries; North American Journal of Fisheries Management; River Research and Applications; Transactions of the American Fisheries Society

Honors and Awards:

Baylor University affiliation**

**2024: Baylor College of Arts and Sciences, Summer Research Fund Award ($15k). June 2024.

**2023: Baylor Academy for Teaching and Learning Teaching Exploration Fund Award ($5K), October 2023.

**2023: Elizabeth Vardaman Award for Excellence in Mentoring Undergraduates, April 2023. Baylor University.

**2022: Baylor College of Arts and Sciences, Summer Research Fund Award ($15k). June 2022.

**2021: Ecological Society of America, Sustainability Science Award (Virtual meeting) August 2021

- o Awarded for contribution: McManamay et al. (2017) US cities can manage national hydrology and biodiversity using local infrastructure policy. *PNAS* 114: 9581–9586.

2017: Distinguished Contribution Performance, Oak Ridge National Laboratory, Jan 2017

2016: Stanley I. Auerbach Award for Excellence in Environmental Sciences, Environmental Sciences Division, Oak Ridge National Laboratory, May 2016

2015: Emerging Leaders in Environmental and Energy Policy Network Fellow, Sep 2015

2015-2016: Outstanding Contribution Performance, Oak Ridge National Laboratory, Jan 2015

2014: Incentive Performance Award, Oak Ridge National Laboratory, December 2014

2014: Oak Ridge National Laboratory Significant Event Award (SEA)---Team Award, April 2014

2010: Jimmie Pigg Outstanding Student Achievement Award, Southern Division of the American Fisheries Society, Annual Meeting, Asheville, NC, Feb. 26, 2010.

2009: Sussman Fund Internship, US Fish and Wildlife Service, May – August 2009.

2007: American Fisheries Society Student Presentation Award: Virginia Chapter Meeting, Danville, VA, February 2007.

2006: VA Council of Trout Unlimited Certificate of Appreciation for New River Valley Chapter, Graves Mountain Lodge, Syria, VA, November 2006.

Software, Code, and Data Products:

Will update soon.