

# RACHEL E. BOWES

Assistant Professor of Biology, Jones Endowed Professor of Aquatic Sciences  
Research Director, Prophet Aquatic Research and Outreach Center (PAROC)  
School of Science and Mathematics, Emporia State University  
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## EDUCATION

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2011-2016 Ph.D. Department of Ecology and Evolutionary Biology  
University of Kansas (KU), Lawrence, KS  
Dissertation with Honors: Temporal analysis of river food webs  
Advisor: James H. Thorp

2007-2011 B.A. Honors Pre-Professional Zoology, Chemistry  
Ohio Wesleyan University (OWU), Delaware, OH

## PROFESSIONAL APPOINTMENTS, TRAINING, AND EMPLOYMENT

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2021-current Assistant Professor of Biology, Emporia State University (ESU), KS  
Jones Endowed Professor of Aquatic Sciences  
Research Director, Prophet Aquatic Research and Outreach Center

2022-2025 Adjunct Researcher, Biodiversity Institute Department, University of Kansas (KU)

2019-2021 Post-doctoral Researcher, Karlstad University, Sweden  
Evaluation and Improvement of Connectivity and Habitat in Swedish Rivers

2017-2019 Post-doctoral Research Fellow, Karlstad University, Sweden  
Ecology of River Connectivity

2016-2017 Post-doctoral Researcher, KU and Kansas Biological Survey  
NSF Macrosystem Biology: Hierarchical Functioning of River Macrosystems in  
Temperate Steppes – From Continental to Hydrogeomorphic Patch Scales

2011-2016 Graduate Teaching and Research Assistant, KU and Kansas Biological Survey

2007-2011 Secretary assistant and librarian, OWU Music Department

2010 Research Assistant, Summer Science Research Program, OWU

2009 Seasonal Forest Ranger, DuPage County Forest Preserve District, IL

## PUBLICATIONS

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Jones T. and **Bowes R.E.** (2025). Carpocalypse now: a morphological assessment of native fish response to invasive carp presence in the Kansas River. *In review*.

Stoilova V., Bergman E., Aldvén D., **Bowes R.E.**, Calles O., Nyquist, N., Nyqvist D., Rowinski P., and Greenberg L. (2025). Downstream guidance performance of a bubble curtain and a net barrier for the European eel, *Anguilla anguilla*, in an experimental flume. *Ecological Engineering*, doi.org/10.1016/j.ecoleng.2025.107599.

Marker, J., E. Bergman, **R.E. Bowes**, and D. Lafage (2023). Small stream predators rely heavily on terrestrial matter energy input in the fall, regardless of riparian buffer size. *Food Webs*, e00302.

Turner, T.F., H.L. Bart Jr., F.H. McCormick, A.C. Besser, **R.E. Bowes**, K.A. Capps, E.S. Dearmon, C.B. Dillman, K.P. Driscoll, A. Dugger, G.L. Hamilton, P.M. Harris, D.A. Hendrickson, J. Hoffman, J.H. Krouft, R.F. Lepak, H. López-Fernández, C.G. Montaña, S.D. Newsome,



A.A. Pease, W.L. Smith, C.A. Taylor, and R.L. Welicky. Biodiversity Collections and Freshwater Ecology Working Group (2023). Long-term ecological research in freshwaters enabled by regional biodiversity collections, stable isotope analysis, and environmental informatics. *Bioscience*, DOI: 10.1093/biosci/biad039.

**Bowes, R.**, E. Bergman, S. Donadi, L. Greenberg, L. Sandin, and L. Lind (2023). Landscape features control river's confluences water quality and tributary fish composition. *River Research and Applications*, DOI: 10.1002/RRA.4133.

Näslund, J., **R. Bowes**, L. Sandin, E. Bergman, and L. Greenberg (2022). Fish biodiversity in different types of tributary mouths located within impounded sections of Swedish boreal rivers. *Ecohydrology & Hydrobiology*, doi.org/10.1101/2022.06.30.498239.

Näslund, J., **R.E. Bowes**, L. Greenberg, and E. Bergman (2022). Downstream bypass efficiency of Atlantic salmon *Salmo salar* smolts in relation to bypass cobble substrate and flow velocity. *Ecological Engineering*, DOI: 10.1016/j.ecoleng.2022.106695.

Marker, J., D. Lafage, E. Bergman, and **R.E. Bowes** (2022). Greater than the sum of your parts: non-lethal stable isotope sampling methods in spiders. *Ecosphere*, DOI: 10.1002/ecs2.3903.

**Bowes, R.E.**, J. Näslund, L. Greenberg, and E. Bergman (2021). Cobble substrate in a surface bypass reduces bypass acceptance by common roach *Rutilus rutilus*. *Ecological Engineering*, DOI: 10.1016/j.ecoleng.2021.106402.

**Bowes, R.E.**, J.H. Thorp, and M. Delong (2019). Reweaving river food webs through time. *Freshwater Biology*. DOI: 10.1111/fwb.13432.

**Bowes, R.E.**, J.H. Thorp, and D.C. Reuman (2017). Multidimensional metrics of niche space for use with diverse analytical techniques. *Nature Scientific Reports*, DOI: 10.1038/srep41599.

Thorp, J.H., and **R.E. Bowes** (2017). Carbon sources in riverine food webs — new evidence from amino acid isotopic techniques. *Ecosystems*, DOI: 10.1007/s10021-016-0091-y.

**Bowes, R.E.**, and J.H. Thorp (2015). Consequences of employing amino acid vs bulk-tissue, stable isotope analysis: a laboratory trophic position experiment. *Ecosphere*, 6 (Issue #1; Article 14): 1-12.

**Bowes, R.E.**, M.H. Lafferty, and J.H. Thorp (2014). Less means more: nutrient stress leads to higher  $\delta^{15}\text{N}$  ratios in fish. *Freshwater Biology*, 59: 1926-1931.

## GRANTS

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Bowes (2025). Kansas Department of Wildlife and Parks, 2024 Recreational Trails Program. Shoreline Haven: Accessible Adventures for All. (\$256,828.90 from Dept. of Transportation, \$64,207.23 from ESU Foundation).

Wong, Bowes (2025). Emporia State Undergraduate Summer Research (ESURP). Hanging Around in Their Bat-tastic Golden Years: Investigating How Aging Indian Flying Foxes Utilize Space at Sedgwick County Zoo. (\$6500): ***Undergraduate student proposal***

Valdez Saravia, Bowes, Rebar (2024). NASA Student Research Award. Advancing the use of eDNA to monitor plant-pollinator communities: DNA Extraction Kit Comparison (\$2000): ***Undergraduate student proposal***

Koch, Bowes, Rebar (2024). NASA Student Research Award. Using eDNA to characterize pollinators in a prairie undergoing active restoration (\$2000): ***Undergraduate student proposal***

Jones & Bowes (2024). NASA Student Research Award. Using Ribonucleic acid (RNA) to assess the native fishes response to presence/absence of Silver and bighead carp (*Hypophthalmichthys molitrix* & *nobilis*) in the Kansas River (\$2000): ***Graduate student proposal***

Bowes, Rebar (2024). NASA Faculty Research Award. Advancing the use of eDNA to monitor plant-pollinator communities (\$3000).



Bowes (2024). ESU Assistance for Faculty Research and Creative Activities. Bluegill in the Spotlight: Shedding Light on the Impacts of ALAN (\$1500).

Jones, Bowes (2024). Assessing Fish Communities on the Kansas River. Emporia State Undergraduate Summer Research (ESURP) (\$6500): ***Undergraduate student proposal***

Bowes, Valdez Saravia (2024). Kansas Idea Network of Biomedical Research Excellence (K-INBRE) Data Science Scholar Award. Buzzing with Potential: Refining Methods for Pollinator eDNA Detection. (\$5000): ***Undergraduate student proposal***

Murdock, Bowes (2024). NASA Student Research Award. What's the big gill? Environmental effects on wild and lab populations of bluegill (*Lepomis macrochirus*) (\$2000): ***Graduate student proposal***

Lupkes, Bowes (2024). NASA Student Research Award. Fipronil presence in Kansas waterways and its impact on aquatic life (\$2000): ***Undergraduate student proposal***

Jones, Bowes (2024). NASA Student Research Award. Not set in stone: Morphometric and Gene Expression Assessment of Native Fishes in the Kansas River due to Carp Presence (\$2000): ***Graduate student proposal***

Bowes, Martin (2024). Kansas Department of Health and Environment. Regional KS Stream E.coli sampling. (\$106,471.73)

Bowes (2023). ESU Assistance for Faculty Research and Creative Activities. Tools of the Trade: ESU Boat Electrofishing System (\$1248.49)

Cartwright, Jensen, Denning (2023). NSF DBI - RaMP-Res & Mentoring Postbac. RaMP: Making meaningful connections: Fostering the Integration of Biodiversity Patterns with Genetic Evolutionary Mechanisms (BioGEM). (\$2,986,439 Total; \$41,361 to Bowes)

Mayes, Jensen, Martin, Bowes (2022). Kansas Department of Wildlife & Parks Recreational Trails Grant. Dale Greiner Nature Trail extension and ADA compliant improvements (\$263,196.88)

Bowes (2023). Emporia State Undergraduate Summer Research (ESURP). Just around the riverbend: Introduction of a meander and the effects on biotic and abiotic components (\$6500): ***Undergraduate student proposal***

Bowes (2023). Emporia State Undergraduate Summer Research (ESURP) Using eDNA to detect *Craspedacusta sowerbii* (freshwater jellyfish) in aquatic ecosystems (\$6500): ***Undergraduate student proposal***

Bowes (2022). Emporia State Undergraduate Summer Research (ESURP). How Rearing Conditions Influence Hatchery Trout (\$6500): ***Undergraduate student proposal***

Bowes (2022). Emporia State University Faculty Research and Creativity Award (FRC). Kansas River Asian Carp Food Web Study (\$8,812.80)

Bowes, Steffen (2022). US Fish and Wildlife Service (USFWS) (The Missouri River Basin Invasive Carp Partnership), Kansas Department of Wildlife and Parks (KDWP). Kansas River Asian Carp Food Web Study (\$105,000)

Bowes, Thorp (2015-2017). NSF Doctoral Dissertation Improvement Grant (DDIG). Dissertation Research: Historical Changes in Food Web Structure of Large Rivers (\$17,427)

Bowes (2014). University of Kansas Field Station Grant. Benthic invertebrate depth distribution in lake with a deep metalimnetic photosynthetic community (\$500)

Bowes, Thorp (2012-2014). NSF Early-Concept Grants for Exploratory Research (EAGER). Comparison of Amino-Acid and Bulk-Tissue Stable Isotope Techniques for Analyzing Current and Historical Food Webs (\$124,000)

Bowes, Hankison (2010). Ohio Wesleyan University Theory to Practice Grant Program. Mate preferences associated with MHC alleles in the sailfin molly, *Poecilia Latipinna* (\$2000)



## **MENTORSHIP**

The emphasis in my mentorship is on students designing and implementing their own research projects. Additionally, developing writing skills, scientific inquiry frameworks, fundamental research techniques, and dissemination abilities is also important. I work closely with the students I mentor in all areas, including writing personal statements and curriculum vitae, reading and discussing primary literature, teaching field and laboratory techniques, and exploring and applying for graduate schools, grants, and internships.

### Ph.D. Students (1)

Jeffery Marker (Karlstad University, 2019-2023)

### Masters Students (7)

Kegan Morrow (ESU, 2025-current)

Elizabeth (Lizzy) Murdock (ESU, 2024-current)  
NASA Student Research Award (2024)

Ryan Olsen (ESU, 2024-current)

Trevor Jones (ESU, 2023-2025)

Harold Durst Research Award (2024)

NASA Student Research Award (2024)

Robert F. Clarke Memorial Biology Scholarship (2023)

Austin Smith (ESU, 2022-2025)

Harold Durst Research Award (2022)

Ranja Risberg (Karlstad University, 2019-2020)

Elio Bottagisio (Karlstad University, 2018-2019)

### Undergraduate Students (29)

Jayla Gore (ESU, 2025)

Cai Balocca (ESU, 2025)

Bailey Wong (ESU, 2025)

Emporia State University Undergraduate Summer Research Program (ESURP 2025)

Jacob Griffiths (ESU, 2024)

Laura Koch (ESU, 2024)

NASA Student Research Award (2024)

Anna Hovious (ESU, 2024)

Grace Higgins (ESU, 2024)

Michael "Joe" Petty (ESU, 2024)

Avery Lupkes (ESU, 2024)

NASA Student Research Award (2024)

Nadia Valdez Saravia (ESU, 2023-current)

NASA Student Research Award (2024)

K-INBRE Data Scholar (Summer 2024)

Emporia State University Undergraduate Summer Research Program (ESURP 2023)

Lenia Crouch (ESU, 2023)

Jae Horn (ESU, 2023)

Kaden Fields (ESU, 2022)

Elizabeth (Lizzy) Murdock (ESU, 2022-2023)

Emporia State University Undergraduate Summer Research Program (ESURP 2023);

Kansas Department of Wildlife & Parks: Fisheries Technician Internship (Summer 2023)

Caitlyn Reynolds (ESU, 2022-2023)

Thaid Timblin (ESU, 2023)

Haylee Weiss (ESU, 2023)



Alexzandrea Greene (ESU, 2023)  
Jolie Huenink Gann (ESU, 2022)  
Brianna Jones (ESU, 2021-current)  
    Emporia State University Undergraduate Summer Research Program (ESURP 2024)  
    Emporia State University Undergraduate Summer Research Program (ESURP 2022);  
    Kansas Department of Wildlife & Parks: Fisheries Technician Internship (Summer 2022)  
Björn Borgiel (Karlstad University, 2018)  
Tamara Tynor (University of Kansas (KU), 2016-2018)  
    KU Biology Undergraduate Research and Travel Fund Awardee; KU Department of  
    Ecology and Evolutionary Biology and University Honors  
Sydney Bolin (KU, 2015-2016)  
    Governor's Conference on the Future of Water in Kansas, Outstanding Undergraduate  
    Poster Award; AWG Undergraduate Research Scholarship; KU Undergraduate  
    Research Award; KU Undergraduate Biology Research Award  
Rachel Watson (KU, 2015)  
    KU BioScholar  
Brendan Martin (KU, 2014-2015)  
    KU Department of Ecology and Evolutionary Biology and University Honors; KU  
    Undergraduate Travel Award; Howieson Opportunity Fund Awardee; KU Undergraduate  
    Research Award  
Valerie Paul (KU, 2013-2015)  
M. Holliday Lafferty (KU, 2012-2014)  
    KU Department of Ecology and Evolutionary Biology and University Honors; Governor's  
    Conference on the Future of Water in Kansas, Outstanding Undergraduate Poster Award;  
    KU Undergraduate Research Award  
John Millsap (KU, 2012-2013)  
Morgan Manger (KU, 2013)

## **TEACHING EXPERIENCE AND GUEST LECTURES**

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### Course Instructor

Fish Management and Lab, Emporia State University (ESU)  
Ichthyology, ESU  
Marine Biology, ESU  
Principles of Organismal Biology, Lecture and Lab, ESU  
Biology of Animals, Lecture and Lab, ESU  
Fish Ecology and Lab, ESU  
Ecology & Biodiversity Independent Projects, ESU  
Internship: Biological Sciences, ESU  
Grant Writing, ESU  
Natural History Field Studies – Florida, ESU  
Tropical Forest and Marine Ecology in Dominica, University of Kansas (KU)  
Laboratory and Field Methods in Ecology, KU

### Graduate Teaching Assistant

Marine Biology in Bonaire, KU  
Introductory Organismal Biology, KU  
Introductory Organismal Biology (Honors), KU  
Introductory Cell Biology (Honors), KU  
Introductory Cell Biology, KU



### Guest lecturer

Natural History Field Studies – Bahamas, ESU  
Aquatic Invertebrate Ecology, KU  
Marine Biology, KU  
Introductory Organismal Biology, KU

## **PRESENTATIONS**

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### Seminars and Keynote Presentations (Selected List)

**Bowes, R.E.** (2025). Navigating the Flow: Charting an Adventure into Aquatic Ecology Research in Kansas. Iowa State University. (*Invited Seminar*)

**Bowes, R.E.** (2024). Tales of Viking Rivers: A Myriad of Swedish River Connectivity Studies. Emporia State University. (*Invited Seminar*)

**Bowes, R.E.** (2023). Tales of Viking Rivers: A Myriad of Swedish River Connectivity Studies. Marist College. (*Invited Seminar*)

**Bowes, R.E.** (2023). Tales of Viking Rivers: A Myriad of Swedish River Connectivity Studies. Biology Seminar Series, Pittsburg State University. (*Invited Seminar*)

**Bowes, R.E.** (2022). Tales of Prairie Hills, Caribbean Beaches, and Viking Rivers. Enhancing Your Future with Mathematics and Science Conference. Emporia State University. (*Keynote Speaker*)

**Bowes, R.E.** (2022). Tales of Viking Rivers: A Myriad of Swedish River Connectivity Studies. Ecology and Evolutionary Biology (EEB) Seminar Series, Kansas State University. (*Invited Seminar*)

**Bowes, R.E.** (2018). Too many dammed rivers: Dam removal in Scandinavia. International Research School in Applied Ecology (IRSAE), Freshwater. (*Keynote Speaker*)

**Bowes, R.E.** and O. Calles (2018). Too many dammed rivers: Dam removal in Sweden. Dam Removal Europe Workshop. Vilnius, Lithuania. (*Keynote Speaker*)

**Bowes, R.E.** (2017). Temporally analyzing river food webs. Dept. of Biology Seminar Series, Karlstad University.

**Bowes, R.E.** (2017). Temporal changes in river food webs. Ecology and Evolutionary Biology (EEB) Seminar Series, Kansas State University.

**Bowes, R.E.** (2016). Dissertation Defense: Temporal analysis of river food webs. Department of Ecology and Evolutionary Biology, University of Kansas.

**Bowes, R.E.**, J.H. Thorp, and M. Delong (2016). Historical alterations in river hydrogeomorphic structure and the effects on food web structure. Department of Geology Colloquium Series, University of Kansas.

**Bowes, R.E.**, B. Martin, F. deNoyelles, and J.H. Thorp (2015). Benthic invertebrate depth distribution in lake with a deep metalimnetic photosynthetic community (DCM). Ecology Seminar Series, University of Kansas.

**Bowes, R.E.** and B.J. O'Neill (2012). Rectification of stable isotopes in an ecological context: Synthesizing various approaches to problems when using different tissues and life stages. Ecology and Evolutionary Biology Graduate Student Retreat, University of Kansas: Third Place Recipient.

### Conference Presentations (Selected List; \*= undergraduate presentation)

Jones, T., T. Burnett, C. Steffen, and **R.E. Bowes** (2024). Carpocalypse Now: Assessing the Impact of Invasive Carp on Native Planktivores. Kansas Natural Resource Conference 2025. Manhattan, KS.

Smith, A., C. Steffen, and **R.E. Bowes** (2024). Carp in the Kansas River: The Trophic Tango of Invasion. American Fisheries Society Annual Meeting (AFS 2024). Honolulu, HI.



Jones, T., T. Burnett, C. Steffen, and **R.E. Bowes** (2024). Carpocalypse Now: Assessing the Impact of Invasive Carp on Native Planktivores. American Fisheries Society Annual Meeting (AFS 2024). Honolulu, HI.

Smith, A., C. Steffen, and R.E. Bowes (2024). Carping the Diem: a look at the impact of invasive carp on the Kansas River using stable isotopes. ESU Research and Creativity Day 2024. 3rd place 3-minute thesis contest winner

Jones, T., T. Burnett, C. Steffen, and **R.E. Bowes** (2024). Not Set in Stone: Phenotypic plasticity and Morphometric Response of Native Fish Due to Invasive Carp Presence in the Kansas River. ESU Research and Creativity Day 2024.

Jones, T., T. Burnett, C. Steffen, and **R.E. Bowes** (2024). Not Set in Stone: Phenotypic plasticity and Morphometric Response of Native Fish Due to Invasive Carp Presence in the Kansas River. ESU Research and Creativity Day 2024. (Poster)

Olsen, R., Martin, E., Sleezer, R. Goodrich, C., and **R.E. Bowes** (2024). Where did all this stuff come from? ESU Research and Creativity Day 2024. (Poster)

\*Lupkes, A. and **R.E. Bowes** (2024). Dilution is not the solution to pollution. ESU Research and Creativity Day 2024.

Smith, A., C. Steffen, and **R.E. Bowes** (2024). Carping the Diem: a look at the impact of invasive carp on the Kansas River using stable isotopes. Kansas Academy of Sciences 2024. (Poster)

Jones, T., T. Burnett, C. Steffen, and **R.E. Bowes** (2024). Not Set in Stone: Phenotypic plasticity in native fishes in response to invasive carp and competition in the Kansas River. Kansas Academy of Sciences 2024. 3rd place oral graduate presentation

Jones, T., T. Burnett, C. Steffen, and **R.E. Bowes** (2024). Not Set in Stone: Phenotypic plasticity in native fishes in response to invasive carp and competition in the Kansas River. Kansas Natural Resource Conference 2024.

Smith, A., C. Steffen, and **R.E. Bowes** (2024). Risk Assessment Meets Damage Report: A Look into the Impact of Invasive Carp on the Kansas River Using Stable Isotopes. Kansas Natural Resource Conference 2024.

Murdock, E. and **R.E. Bowes** (2024). Just Around the River Bend: Introduction of a Meander and the Effects on Biotic and Abiotic Components. Kansas Natural Resource Conference 2024. (Poster)

Smith, A., C. Steffen, and **R.E. Bowes** (2024). Risk Assessment Meets Damage Report: A Look into the Impact of Invasive Carp on the Kansas River Using Stable Isotopes. Kansas Natural Resource Conference 2024. (Poster)

**Bowes, R.E.**, J. Marker, E. Bergman, and D. Lafage (2023). Small stream predators rely heavily on terrestrial matter energy input in the fall, regardless of riparian buffer size. Ecological Society of America Meeting (ESA 2023), Portland, OR.

Jones, T., T. Burnett, C. Steffen, and **R.E. Bowes** (2023). Not Set in Stone: Phenotypic plasticity in native fishes in response to invasive carp density and competition in the Kansas River. Ecological Society of America Meeting (ESA 2023), Portland, OR.

Smith, A., C. Steffen, and **R.E. Bowes** (2023). Risk Assessment Meets Damage Report: A Look into the Impact of Invasive Carp on the Kansas River Using Stable Isotopes. Ecological Society of America Meeting (ESA 2023), Portland, OR.

\*Murdock, E. and **R.E. Bowes** (2023). Just Around the River Bend: Introduction of a Meander and the Effects on Biotic and Abiotic Components. Ecological Society of America Meeting (ESA 2023), Portland, OR. (Poster)

**Bowes, R.E.**, J. Naslund, V. Stoilova, L. Greenberg, and E. Bergman (2022). Downstream Passage of Roach, Salmon Smolts, and European Eel: Effects of Local Conditions on Passage Success. Joint Aquatic Science Meeting (JASM 2022), Grand Rapids, MI.

Tromboni, F., Arsenault, E., Boldgiv, B., **Bowes, R.E.**, Chandra, S., Costello, J., Dash, T.R., Dodds, W.K., Erdenee, B., Gelhaus, G., Hayford, B., Kenner, S.K., Maasri, A., Pyron, M.,



Schechner, S., and Thorp, J.H. (2022). Hierarchical functioning of river macrosystems in temperate steppes: from continents to hydrogeomorphic patch scales. Joint Aquatic Science Meeting (JASM 2022), Grand Rapids, MI.

Marker, J., D. LaFage, E. Bergman, and **R.E. Bowes**. (2021). Greater than the sum of your parts: Non-lethal stable isotope sampling methods in spiders. 11.5<sup>th</sup> International Conference on the Applications of Stable Isotope Techniques to Ecological Studies (IsoEcol 2021) Gaming, Austria.

**Bowes, R.E.** (2019). Swedish nature survey. International Congress on Conservation Biology (ICCB2019), Kuala Lumpur, Malaysia.

**Bowes, R.E.** (2018). Social perspectives on dam removal. To be or not to be... Removed: Dam Removal Europe Conference, Hudiksvall, Sweden.

**Bowes, R.E.** (2018). Stabila isotoper, dammar och dammutrivning. Arbetsmöte FUG i Älvkarleby på temat: Fiskvägars funktion, Älvkarleby, Sweden.

\*Tyner, T.L., **R.E. Bowes**, E.R. Arsenault, and J.H. Thorp (2017). Carbon Sources in Lake Zooplankton. Governor's Conference on the Future of Water in Kansas, Manhattan, KS. (Poster): Outstanding Undergraduate Poster Award

**Bowes, R.E.** (2017). Using stable isotopes and system metabolism to assess river connectivity. International Freshwater Workshop, Karlstad University, Sweden.

**Bowes, R.E.**, and J.H. Thorp (2017). Carbon Sources in Riverine Food Webs: New Evidence from Amino Acid Isotope Techniques. Society for Freshwater Science Annual Meeting, Raleigh, NC.

**Bowes, R.E.**, and J.H. Thorp (2016). Hierarchical functioning of river macrosystems in temperate steppes – from continental to hydrogeomorphic patch scales. NSF Macrosystems Biology PI Meeting, Arlington, VA.

**Bowes, R.E.**, J.H. Thorp, and D.C. Reuman (2016). Multidimensional metrics for analyzing community properties. Association for the Sciences of Limnology and Oceanography Annual Meeting, Santa Fey, NM.

\*Bolin, S.L., **R.E. Bowes**, and J.H. Thorp (2015). Toxic microplastic pollution: how much is ingested by aquatic invertebrates. Governor's Conference on the Future of Water in Kansas, Manhattan, KS. (Poster): Outstanding Undergraduate Poster Award

**Bowes, R.E.**, J.H. Thorp, and M. Delong (2015). Historical changes in food web structure of the Mississippi and Ohio rivers in response to damming. Society for Freshwater Science Annual Meeting, Milwaukee, WI.

\*Martin, B., **R.E. Bowes**, F. deNoyelles, and J.H. Thorp (2015). Benthic invertebrate depth distribution in lake with a deep metalimnetic photosynthetic community (DCM). Society for Freshwater Science Annual Meeting, Milwaukee, WI. (Poster)

\*Martin, B., **R.E. Bowes**, F. deNoyelles, and J.H. Thorp (2015). Benthic invertebrate depth distribution in lake with a deep metalimnetic photosynthetic community (DCM). Governor's Conference on the Future of Water in Kansas, Manhattan, KS. (Poster): Outstanding Undergraduate Poster Award

**Bowes, R.E.** and J.H. Thorp (2014). Costs and benefits of amino-acid vs bulk-tissue isotope analysis: A laboratory food web experiment. Joint Aquatic Science Meeting, Portland, OR.

\*Lafferty, M.H., **Bowes, R.E.**, and J.H. Thorp (2014). Hunger Games: Isotope ratios in nutrient stressed fish. Joint Aquatic Science Meeting, Portland, OR. (Poster)

\*Lafferty, M.H., **Bowes, R.E.**, and J.H. Thorp (2014). Hunger Games: Isotope ratios in nutrient stressed fish. Governor's Conference on the Future of Water in Kansas, Manhattan, KS. (Poster): Outstanding Undergraduate Poster Award



## **AWARDS AND FELLOWSHIPS**

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Distinguished Dissertation Awards Nomination (2017), Council of Graduate Schools and ProQuest Dissertations Publishing

Argersinger Prize for Outstanding Doctoral Dissertation in Science, Technology, Engineering, and Math (2017), KU Endowment Association, Graduate Studies

KU Women of Distinction Award (2016), Humanitarian in Science, KU

Outstanding Undergraduate Poster Award: Sydney Bolin (2015), Governor's Conference on the Future of Water in Kansas, Manhattan, KS (\$250)

Graduate Research Award (2015), Association of Women Geoscientists, (\$1000)

Depart. Ecology and Evolutionary Biology Summer Fellowship (2015), KU (\$3000)

Undergraduate Research Mentor Award, Honorable Mention (2015), Center for Undergraduate Research, KU

Graduate Scholarly Presentation Travel Fund Award (2015), KU (\$500)

Graduate Research Consultant (2014), Center for Undergraduate Research, KU (\$500)

Depart. Ecology and Evolutionary Biology Summer Fellowship (2014), KU (\$2000)

Undergraduate Research Mentor Award (2014), Center for Undergraduate Research, KU (\$500)

Outstanding Undergraduate Poster Award: Holly Lafferty (2013), Governor's Conference on the Future of Water in Kansas, Manhattan, KS (\$500)

Graduate Research Fellowship, Honorable Mention (2013), National Science Foundation

Outstanding Presentation (2012), Dept. of Ecology and Evolutionary Biology, Univ. of Kansas

Graduate Research Fellowship, Honorable Mention (2012), National Science Foundation

Elizabeth Cass Wills Prize for Graduate Study in Zoology (2011), Ohio Wesleyan University

Charles Turner Award (2011), National Science Foundation and Animal Behavior Society

## **PROFESSIONAL ACTIVITIES AND AFFILIATIONS**

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### Committees and Working Groups

2025-current Biota Awards Advisory Committee, Walder Foundation

2025-2026 Ecological Society of America (ESA), Governing Board

2025-2026 Ecological Society of America (ESA), Leadership Council, Speaker

2024-2025 Ecological Society of America (ESA), Leadership Council, Speaker-Elect

2023-current Kansas Water Resources Institute (KWRI) Advisory Committee

2023-2025 Ecological Society of America (ESA), Aquatic Ecology Section, Chair

2023-2025 Ecological Society of America (ESA), Leadership Council

2022-2024 Ecological Society of America (ESA), Aquatic Ecology Section, Vice Chair

2018-2024 Society for Freshwater Science, International Coordination Committee

2021-2024 Kansas Natural Resources Conference; Conservation Champion Committee

2020-2021 Society for Conservation Biology, Freshwater Working Group, President

2018-2022 Society for Conservation Biology Freshwater Working Group. Board Member, At-Large Representative

2018 To be or not to be... Removed: Dam Removal Europe Conference. Hudiksvall, Sweden. Moderator and Conference Organizing Committee

2017 International Freshwater Workshop and PhD Course, Karlstad University, Sweden.

2017 Organizing Committee

2017 Society for Freshwater Sciences Annual Meeting, Macrosystem Ecology Symposium and Special Session. Raleigh, North Carolina, USA. Moderator and Organizing Committee



### Symposiums, Workshops and Conferences

2025	Workshop: Aquatic Ecology Open-Source Textbook. Ecological Society of America Meeting (ESA 2025), Baltimore, MA.
2025	Workshop: Water Regional Planning Workshop, University of Kansas
2024	Workshop: Using eDNA to detect rare and cryptic species, NSF BioGEM Program
2023	Gameful Learning and Games in Ecology Education. Ecological Society of America Meeting (ESA 2023), Portland, OR. Short Course (In-Person)
2023	Enhancing Your Future with Mathematics and Science Conference: We all live downstream. Emporia State University. Workshop
2022	Hierarchical functioning of river macrosystems in temperate steppes: from continents to hydrogeomorphic patch scales. Joint Aquatic Science Meeting (JASM 2022), Grand Rapids, MI. Workshop
2022	Enhancing Your Future with Mathematics and Science Conference: We all live downstream. Emporia State University. Workshop
2019	National Science Foundation, Workshop: Understanding Freshwater Ecosystem Change through Analysis of Long-term Samples from Regional U.S. Fish Collections. Rocky Mountain Research Station, CO, USA. Invited Presentation and Participant
2018	To be or not to be... Removed: Dam Removal Europe Conference. Hudiksvall, Sweden. Moderator and Conference Organizing Committee
2018	International Research School in Applied Ecology (IRSAE), Freshwater. Evenstad, Norway. Summer School Field Trip Organizer and Keynote Speaker
2017	International Freshwater Workshop and PhD Course, Karlstad University, Sweden. Organizing Committee
2017	Society for Freshwater Sciences Annual Meeting, Macrosystem Ecology Symposium and Special Session. Raleigh, North Carolina, USA. Moderator and Organizing Committee
2016	National Science Foundation, Macrosystems Biology Principle Investigator Meeting. Washington D.C., USA. Invited Presentation and Participant
2015	National Science Foundation, Workshop on Rivers as Macrosystems. University of Kansas, KS, USA. Invited Presentation and Participant

### Synergistic Activities

2025	Biota Awards Advisory Committee, Walder Foundation
2024	Kickapoo Tribal pond fish community surveys
2022-current	Supervisor of live animal displays for ESU Science Hall
2022-current	Help establish and oversee the development of the 6-acre prairie reconstruction on ESU's campus (Campus Prairie), as well as the building of an ADA pathway throughout.
2022-current	Ditch to stream reconstruction: introduce meander with beaver dam analogs, Zuni bowl waterfall feature and native plantings for ESU's PAROC
2021-current	King and Trusler Lake Management, Cooperative Fishing Assistance Program. Creation of a public fishing lake on ESU's campus, fish stockings, habitat management
2021-current	Faculty Representative: Wildlife and Fisheries Club (Student Chapter of the Wildlife Society and Student Sub-Unit of the American Fisheries Society)
2021-current	Research Director: Prophet Aquatic Research & Outreach Center (PAROC)
2015-2017	KU Aquatic Ecology Lab website designer and content manager
2014-2017	Head Judge, KU Undergraduate Research Symposium, Lawrence, KS
2016	Undergraduate Research Mentor Award Committee
2011-2015	EEB Graduate Student Organization, member



2014	Graduate Research Consultant, Center for Undergraduate Research, KU
2014	SSI Open Water Scuba Diver Certified

*Editorial Board*

The Kansas School Naturalist

*Memberships*

American Association for the Advancement of Science  
 Association for the Sciences of Limnology and Oceanography  
 American Fisheries Society  
 Ecological Society of America  
 Society for Freshwater Science  
 Society for Conservation Biology  
 RIVER Field Studies Network  
 Dam Removal Europe

*Reviewer*

National Science Foundation: Division of Environmental Biology (ad-hoc reviewer and panelist 2025), NC Water Resources Research Institute, Marine Ecology Progress Series, Journal of Applied Ecology, Ecosphere, Freshwater Science, Hydrobiologia, Journal of Experimental Marine Biology and Ecology, Oecologia, Water, Aquatic Science, Transaction for the Kansas Academy of Sciences

**OUTREACH AND COMMUNITY SERVICE**

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Volunteer, Lyon County Jail, Emporia, KS (2025)  
 Kickapoo Tribal pond fish community surveys (2024)  
 ESU Campus Prairie (2022-current)

Help establish and oversee the development of the 6-acre prairie reconstruction on ESU's campus (Campus Prairie), as well as the building of an ADA pathway throughout. Ditch to stream reconstruction: introduce meander with beaver dam analogs, Zuni bowl waterfall feature and native plantings for ESU's PAROC

Supervisor of live animal displays for ESU Science Hall (2022-current)

King and Trusler Lake Management (2021-current)

Kansas Cooperative Fishing Assistance Program, Creation of a public fishing lake on ESU's campus, fish stockings, habitat management

Prophet Aquatic Research & Outreach Center (PAROC), Research Director (2021-current)  
[emporia.edu/paroc](http://emporia.edu/paroc). Plan and help with various public outreach events for the community (i.e. summer camps, workshops, science and arts events for children, Science Saturdays, etc...)

Faculty Representative: Wildlife and Fisheries Club (Student Chapter of the Wildlife Society and Student Sub-Unit of the American Fisheries Society) (2021-current)

Vamos a Pescar, annual event, fish demonstrations and fish prints (2022-current)

Spring Break Trip to volunteer at Sea Turtle Inc., South Padre Island, TX; annual (2022-current)

Party for the Planet on Earth Day, annual event at PAROC and the David Taylor Zoo in Emporia, KS; fish demonstration, bake sale, raffle fundraiser (2022-current)

Prophet Aquatic Research & Outreach Center (PAROC), Summer Science Camps, annual (2022-current)

YouTube Channel: SCB FWWG. Educational videos for general public (2018)

Webinar Producer and Creator, Dam Removal Europe: Sweden (2018)

Judge, Undergraduate Research Presentations, Society for Freshwater Science (2017)

Volunteer, Jefferson County Jail, Oskaloosa, KS (2017)



Prairie Park Elementary Science Discovery Day (2016-2017)  
Science Saturday, University of Kansas Biodiversity Institute and Natural History Museum,  
Lawrence, KS (2015-2017)  
Head Judge, KU Undergraduate Research Symposium, Lawrence, KS (2014-2017)  
Volunteer, First Step at Lake View (DCCCA), Lawrence, KS (2014-2017)  
Volunteer, Douglas County Jail, Lawrence, KS (2013-2017)  
KAW Eagle Valley Day, Lawrence, KS (2016)  
Judge, Hillcrest Elementary School Science Fair, Lawrence, KS (2014-2015)  
Judge, KU Undergraduate Research Symposium, Lawrence, KS (2013)  
Women in science, Topeka, KS (2011-2015)  
Environment and Wildlife Outreach, Ohio Wesleyan University, Delaware, OH (2008-2011)

