Walter K. Dodds

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Education:

Ph.D.	1986 University of Oregon, Biology
B.S.	1980 University of Denver, cum laude, Biology and Chemistry
Advisors**:**	Ph.D., Dr. Richard Castenholz, University of Oregon
	Post-Doctoral, Dr. John Priscu, Montana State University

Professional Experience and Appointments:

2017-present	Edwin G. and Lillian J. Brychta Chair in Biology, Kansas State University
2009-present	University Distinguished Professor, Kansas State University
2002-2009	Professor, Division of Biology, Kansas State University
1995-2002	Associate Professor, Division of Biology, Kansas State University
1990-1995	Assistant Professor, Division of Biology, Kansas State University
1990	Adjunct Assistant Professor, Department of Biology, Montana State University
1988-1990	NSF Postdoctoral Fellow, Department of Biology, Montana State University
1987-1988	Postdoctoral Research Associate, Department of Biology, Montana State University
1986-1987	Visiting Assistant Professor, University of Oregon
1985-1986	Research Assistant, University of Oregon
1981-1985	Teaching Assistant, University of Oregon

Research Goals:

My overarching goal is to provide a general and predictive understanding of aquatic ecology, and to promote the application of basic ecological science to water quality and conservation. A central focus of my research has been on river and stream ecosystems and how human influences affect water quality and biological integrity. Nutrient dynamics, especially nitrogen, and eutrophication are major highlights of my program, as are scaling and metabolism in flowing waters. I have also emphasized valuation of aquatic ecosystem services.

Professional Memberships:

American Association for the Advancement of Science
American Geophysical Union
American Institute of Biological Sciences
Association for the Sciences of Limnology and Oceanography
Ecological Society of America
Society for Freshwater Science (North American Benthological Society)
Sigma Xi

Awards and Professional Recognition:

2020	2020 Textbook Excellence Award Textbooks and Academic Authors Association. Freshwater Ecology: Concepts and Environmental Applications of Limnology, 3rd Edition Walter Dodds and Matt Whiles
2018	Karen Ann Griffith Research Award, Kansas State University
2017	Excellence in Reviewing Award, Biogeochemistry
2017	Award of Excellence, Society of Freshwater Science

2017 Fellow, Society of Freshwater Science

2016 Fellow, Association for the Sciences of Limnology and Oceanography

2015 Society of Freshwater Science. Board of Directors (3 years)

2014 Kansas State University Sigma Xi Outstanding Senior Scientist

2013 Fellow, American Association for the Advancement of Science

2009 University Distinguished Professor of Biology, Kansas State University

2008 Commerce Bank Distinguished Graduate Faculty Member Award, KSU Graduate School

2007 Outstanding Graduate Faculty Award, Biology Graduate Student Association, Kansas State University. Featured in Mentors and Protégés, Award Winning Commitment. *Nature* 447:610 (www.nature.com/naturejobs/2007/070531/pdf/nj7144-610b.pdf)

2006 Best Paper Award, North American Lake Management Society. Dodds, W.K., E. Carney and R.T. Angelo. 2006. Determining ecoregional reference conditions for nutrients, Secchi depth and chlorophyll *a* in Kansas lakes and reservoirs. Lake and Reservoir Management 22:151-159

Teaching Experience:

2014	Escola de Engenharia de São Carlos. Universidade de São Paulo: Value of Freshwater in Brazil (short course)
1990-present	Kansas State University: Fresh Water Ecology (BIOL 612), Principles of Biology (BIOL 198), Conservation Biology (BIOL 642), Environmental Problems (BIOL 303), Microbial Ecology (BIOL 687), Origins of Life (BIOL 620), Herbivory (BIOL 890), Presentations in Ecology (BIOL 862), Advanced Aquatic Ecology (BIOL 812), Stream Ecology, Algal Identification (BIOL 890), Professional Skills in Biology (BIOL 890), Microbiomes of Aquatic, Plant, and Soil Systems (joint with University of Kansas BIOL 890), Ecology (BIOL 529), Advanced Environmental Issues (BIOL890), Environmental Biology (BIOL 435)
1994, 1996	Flathead Lake Biological Station: Algal Ecology
1990	Montana State University: Algal Ecology
1986-1987	University of Oregon: Bacteriology, Origins of Life, Freshwater Biology
1985	Oregon Institute of Marine Biology: Measuring Primary Production
1981-1985	University of Oregon: Teaching Assistant in laboratory and field courses

Graduate Students Supervised:

Student	Degree	Year	Current Position	Location
Chris Edler	Ph. D.	deceased		
Eric Strauss	MS.	1995	Professor	University of Wisconsin, LaCrosse
Ken Fritz	M.S.	1997	Research Ecologist	US EPA
Michelle Evans-White	M.S.	2000	Professor	University of Arkansas
Melody Bernot	Ph.D.	2001	Biologist	US EPA
Randall Bernot	Ph.D.	2003	Associate Professor	Ball State University
Robert Oakes	M.S.	2003	Lawyer	Fish & Richardson
Nicole Gerlanc	Ph.D.	2004	Consultant	Clever Girl Consulting
Kymberly Wilson	M.S.	2005	Laboratory Manager	Arizona Department of Water Resources
Jonathan O'Brien	Ph.D.	2006	Associate Professor	Canisius College
Jessica Eichmiller	M.S.	2007	Representative	Thermo Fisher Scientific
Justin Murdock	Ph.D.	2008	Associate Professor	Tennessee Tech University
Alex Reisinger	M.S.	2010	Assistant Professor	University of Florida
Kyle Winders	M.S.	2010	Research Scientist	Missouri Department of Conservation

Alyssa Riley	Ph.D.	2011	Environmental Quality Analyst	Michigan Department of Environmental Quality
Danelle Larson	Ph.D	2014	Research Scientist	United States Geological Survey
Allison Veach	Ph.D	2015	Assistant Professor	University Texas Austin
Matthew Trentman	M.S.	2015	Postdoc	University of Montana
Sophie Higgs	M.S.	2018	Education	Boston MA
Anne Shechner	Ph.D	2021	Data researcher	Ruumi Berlin
James Guinnip	Ph.D		In progress	Kansas State University
Molly Fisher	M.S.	2022	In progress	Kansas State University
Md. Abu Raihan	Ph.D		In progress	Kansas State University

Postdoctoral Associates:

Wilfred Singogo 1992-1994
Francisco Costa 1994-1995
Yiyong Zhou 1995-1996
Deb Walks 2006-2007
Michelle Evans-White 2006-2007
David Hoeinghaus 2006-2009
Justin Murdock 2008-2009
Janine Rüegg 2011-2014

Undergraduate Students Mentored:

Brooke Bookout (2023)
Vanessa Carlson (2022)
Emily Burnett (REU) 2022
Shaun Baughman (REU) 2021
Lane Lundeen (REU) 2021
Gretchen Wicham (REU) 2020
Jacqueline Lopez (REI-LSAMP) 2019
Molly Fisher (REU) 2018-2019
Molly Bassette, 2015
Katherine Culbertson 2014
Margaret Spangler 2013-2016
John Brant (REU) 2013, 2014
Taylor Laskowski 2013, 2014
Adam Siders (REU) 2012, 2013
Lauren Bansbach (REU) 2011
Anika Bratt (REU) 2010
Dumi Presuma (REU) 2009
Sarah Mueting 2006, 2007
Loren Reinhardt (REU) 2006
Alyssa Standorf (REU) 2005
Eric Banner (REU) 2002, 2003
Amy Junglass 2001
Kajsa Stromberg 2000
Alex Corum, 2000
Janelle Riger 2000
Amanda López (REU) 1999
Molly McGill (REU) 1999
Jennifer Nelson (REU) 1998
Michelle Evans 1995-1997
Britta Culbertson 1995
Esra Aksoy 1995
Jeannie Skalsky 1993-1994
Angie Eichem 1991-1993
Eric Strauss 1991-1992
Clay Randel 1991-1992
Ruth Lehmann 1991-1992

Editorial positions:

2018- present	Subject Matter Editor Macrosystems: Ecosphere
2010 – present	Editorial Board: Freshwater Biology
2003-2005	Associate Editor: Journal of the North American Benthological Society
1999-2001	Associate Editor: Journal of Phycology

Publications

Books Authored:

Dodds, W.K. and M.R. Whiles. 2019. *Freshwater Ecology: Concepts and Environmental Applications of Limnology* (3rd ed.). Academic Press. 998 pp

Dodds, W. K. 2019. *The World's Worst Problems.* Springer.

Dodds, W.K. and M.R. Whiles. 2010. *Freshwater Ecology: Concepts and Environmental Applications of Limnology* (2nd ed.). Academic Press. 839 pp

Dodds, W.K. 2009. *Laws, Theories and Patterns in Ecology*. University of California Press. 232 pp

Dodds, W.K. 2008. *Humanity's Footprint: Momentum, Impact and Our Global Environment*. University of Columbia Press. 270 pp

Dodds, W.K. 2002. *Freshwater Ecology: Concepts and Environmental Applications*. Academic Press. 569 pp

Peer-reviewed articles:

Arsenault, E. R., J. H. Thorp, M. J. Polito, M. Minder, W. K. Dodds, F. Tromboni, A. Maasri, M. Pyron, B. Mendsaikhan, A. Otgonganbat, S. Altangerel, S. Chandra, R. Shields, C. Artz, and H. Bennadji. 2022. Intercontinental analysis of temperate steppe stream food webs reveals consistent autochthonous support of fishes. Ecology Letters 25:2624-2636. https://doi.org/10.1111/ele.14113

Cunha, D. G. F., W. A. Saltarelli, J. M. M. Bega, N. R. Finkler, M. de Souza Ferreira, T. H. Furley, D. von Schiller, and W. K. Dodds. 2022. Assessing Restoration of Ecosystem Functioning in Brazilian Subtropical and Tropical Streams. Limnology and Oceanography Bulletin 31:6-11.

Datry, T., A. Truchy, J. D. Olden, M. H. Busch, R. Stubbington, W. K. Dodds, S. Zipper, S. Yu, M. L. Messager, J. D. Tonkin, K. E. Kaiser, J. C. Hammond, E. K. Moody, R. M. Burrows, R. Sarremejane, A. G. DelVecchia, M. L. Fork, C. J. Little, R. H. Walker, A. W. Walters, and D. Allen. 2022. Causes, Responses, and Implications of Anthropogenic versus Natural Flow Intermittence in River Networks. Bioscience. https://doi.org/10.1093/biosci/biac098

de Almeida, R. G. B., M. C. Lamparelli, W. K. Dodds, and D. G. F. Cunha. 2022. Spatial optimization of the water quality monitoring network in São Paulo State (Brazil) to improve sampling efficiency and reduce bias in a developing sub-tropical region. Environmental Science and Pollution Research 29:11374-11392.

Dodds, W. K., and A. Maasri. 2022. The River Continuum Concept. Pages 237-243 in K. Tockner and T. Mehner, editors. Encylopedia of Inland Waters. Elsevier.

Dodds, W. K., G. Wichman, J. P. Guinnip, J. R. Corman, and J. M. Blair. 2022. Assessing transport and retention of nitrate and other materials through the riparian zone and stream channel with simulated precipitation. Methods in Ecology and Evolution 13:757-766.

Keen, R. M., J. B. Nippert, P. L. Sullivan, Z. Ratajczak, B. Ritchey, K. O'Keefe, and W. K. Dodds. 2022. Impacts of riparian and non-riparian woody encroachment on tallgrass prairie Ecohydrology. Ecosystems. https://doi.org/10.1007/s10021-022-00756-7

Krabbenhoft, C. A., G. H. Allen, P. Lin, S. E. Godsey, D. C. Allen, R. M. Burrows, A. G. DelVecchia, K. M. Fritz, M. Shanafield, A. J. Burgin, M. A. Zimmer, T. Datry, W. K. Dodds, C. N. Jones, M. C. Mims, C. Franklin, J. C. Hammond, S. Zipper, A. S. Ward, K. H. Costigan, H. E. Beck, and J. D. Olden. 2022. Assessing placement bias of the global river gauge network. Nature Sustainability. DOI: 10.1038/s41893-022-00873-0

Rodríguez-Cardona, B. M., A. S. Wymore, A. Argerich, R. T. Barnes, S. Bernal, E. N. J. Brookshire, A. A. Coble, W. K. Dodds, H. M. Fazekas, A. M. Helton, P. J. Johnes, S. L. Johnson, J. B. Jones, S. S. Kaushal, P. Kortelainen, C. López-Lloreda, R. G. M. Spencer, and W. H. McDowell. 2022. Shifting stoichiometry: Long-term trends in stream-dissolved organic matter reveal altered C:N ratios due to history of atmospheric acid deposition. Global Change Biology 28:98-114. https://doi.org/10.1111/gcb.15965

Ruffing, C. M., A. M. Veach, A. Schechner, J. Rüegg, M. T. Trentman, and W. K. Dodds. 2022. Prairie stream metabolism recovery varies based on antecedent hydrology across a stream network after a bank-full flood. Limnology and Oceanography 67:1986-1999. https://doi.org/10.1002/lno.12182

Templer, P. H., J. L. Harrison, F. Pilotto, A. Flores-Díaz, P. Haase, W. H. McDowell, R. Sharif, H. Shibata, D. Blankman, A. Avila, U. Baatar, H. R. Bogena, I. Bourgeois, J. Campbell, T. Dirnböck, W. K. Dodds, M. Hauken, I. Kokorite, K. Lajtha, I. L. Lai, H. Laudon, T. C. Lin, S. R. M. Lins, H. Meesenburg, P. Pinho, A. Robison, M. Rogora, B. Scheler, P. Schleppi, R. Sommaruga, T. Staszewski, and M. Taka. 2022. Atmospheric deposition and precipitation are important predictors of inorganic nitrogen export to streams from forest and grassland watersheds: a large-scale data synthesis. Biogeochemistry. DOI: 10.1007/s10533-022-00951-7

Tromboni, F., E. R. Hotchkiss, A. E. Schechner, W. K. Dodds, S. R. Poulson, and S. Chandra. 2022. High rates of daytime river metabolism are an underestimated component of carbon cycling. Communications Earth & Environment 3:270. DOI: 10.1038/s43247-022-00607-2

Ardón, M., L. H. Zeglin, R. M. Utz, S. D. Cooper, W. K. Dodds, R. J. Bixby, A. S. Burdett, J. Follstad Shah, N. A. Griffiths, T. K. Harms, S. L. Johnson, J. B. Jones, J. S. Kominoski, W. H. McDowell, A. D. Rosemond, M. T. Trentman, D. Van Horn, and A. Ward. 2021. Experimental nitrogen and phosphorus enrichment stimulates multiple trophic levels of algal and detrital-based food webs: a global meta-analysis from streams and rivers. Biological Reviews 96:692-715.

Cunha, D. G. F., N. R. Finkler, M. C. Lamparelli, M. d. C. Calijuri, W. K. Dodds, and R. E. Carlson. 2021. Correction to: Characterizing Trophic State in Tropical/Subtropical Reservoirs: Deviations among Indexes in the Lower Latitudes. Environmental Management 68:954-954.

Cunha, D. G. F., N. R. Finkler, M. C. Lamparelli, M. d. C. Calijuri, W. K. Dodds, and R. E. Carlson. 2021. Characterizing Trophic State in Tropical/Subtropical Reservoirs: Deviations among Indexes in the Lower Latitudes. Environmental Management 68:491-504. 10.1007/s00267-021-01521-7

Dodds, W. K., J. P. Guinnip, A. E. Schechner, P. J. Pfaff, and D. J. Smith. 2021. Fate and toxicity of engineered nanomaterials in the environment: A meta-analysis. Science of The Total Environment 796:148843. https://doi.org/10.1016/j.scitotenv.2021.148843

Dodds, W. K., K. C. Rose, S. Fei, and S. Chandra. 2021. Macrosystems revisited: challenges and successes in a new subdiscipline of ecology. Frontiers in Ecology and the Environment 19:4-10.

Hammond, J. C., M. Zimmer, M. Shanafield, K. Kaiser, S. E. Godsey, M. C. Mims, S. C. Zipper, R. M. Burrows, S. K. Kampf, W. Dodds, C. N. Jones, C. A. Krabbenhoft, K. S. Boersma, T. Datry, J. D. Olden, G. H. Allen, A. N. Price, K. Costigan, R. Hale, A. S. Ward, and D. C. Allen. 2021. Spatial Patterns and Drivers of Nonperennial Flow Regimes in the Contiguous United States. Geophysical Research Letters 48:e2020GL090794. https://doi.org/10.1029/2020GL090794

LaRue, E. A., J. Rohr, J. Knott, W. K. Dodds, K. M. Dahlin, J. H. Thorp, J. S. Johnson, M. I. Rodríguez González, B. S. Hardiman, M. Keller, R. T. Fahey, J. W. Atkins, F. Tromboni, M. D. SanClements, G. Parker, J. Liu, and S. Fei. 2021. The evolution of macrosystems biology. Frontiers in Ecology and the Environment 19:11-19.

Schechner, A. E., W. K. Dodds, F. Tromboni, S. Chandra, and A. Maasri. How do methodological choices influence estimation of river metabolism? Limnology and Oceanography: Methods. https://doi.org/10.1002/lom3.10451

Thorp, J. H., W. K. Dodds, C. J. Robbins, A. Maasri, E. R. Arsenault, J. A. Lutchen, F. Tromboni, B. Hayford, M. Pyron, G. S. Mathews, A. Schechner, and S. Chandra. 2021. A framework for lotic macrosystem research. Ecosphere 12:e03342.

Tromboni, F., J. Liu, E. Ziaco, D. D. Breshears, K. L. Thompson, W. K. Dodds, K. M. Dahlin, E. A. LaRue, J. H. Thorp, A. Viña, M. M. Laguë, A. Maasri, H. Yang, S. Chandra, and S. Fei. 2021. Macrosystems as metacoupled human and natural systems. Frontiers in Ecology and the Environment 19:20-29.

Wymore, A. S., P. J. Johnes, S. Bernal, E. N. J. Brookshire, H. M. Fazekas, A. M. Helton, A. Argerich, R. T. Barnes, A. A. Coble, W. K. Dodds, S. Haq, S. L. Johnson, J. B. Jones, S. S. Kaushal, P.

Kortelainen, C. López-Lloreda, B. M. Rodríguez-Cardona, R. G. M. Spencer, P. L. Sullivan, C. A. Yates, and W. H. McDowell. 2021. Gradients of Anthropogenic Nutrient Enrichment Alter N Composition and DOM Stoichiometry in Freshwater Ecosystems. Global Biogeochemical Cycles 35:e2021GB006953. https://doi.org/10.1029/2021GB006953

Zinnert, J. C., J. B. Nippert, J. A. Rudgers, S. C. Pennings, G. González, M. Alber, S. G. Baer, J. M. Blair, A. Burd, S. L. Collins, C. Craft, D. Di Iorio, W. K. Dodds, P. M. Groffman, E. Herbert, C. Hladik, F. Li, M. E. Litvak, S. Newsome, J. O'Donnell, W. T. Pockman, J. Schalles, and D. R. Young. 2021. State changes: insights from the U.S. Long Term Ecological Research Network. Ecosphere 12:e03433.

Zipper, S. C., J. C. Hammond, M. Shanafield, M. Zimmer, T. Datry, C. N. Jones, K. E. Kaiser, S. E. Godsey, R. M. Burrows, J. R. Blaszczak, M. H. Busch, A. N. Price, K. S. Boersma, A. S. Ward, K. Costigan, G. H. Allen, C. A. Krabbenhoft, W. K. Dodds, M. C. Mims, J. D. Olden, S. K. Kampf, A. J. Burgin, and D. C. Allen. 2021. Pervasive changes in stream intermittency across the United States. Environmental Research Letters 16:084033. http://dx.doi.org/10.1088/1748-9326/ac14ec

Allen, D. C., T. Datry, K. S. Boersma, M. T. Bogan, A. J. Boulton, D. Bruno, M. H. Busch, K. H. Costigan, W. K. Dodds, K. M. Fritz, S. E. Godsey, J. B. Jones, T. Kaletova, S. K. Kampf, M. C. Mims, T. M. Neeson, J. D. Olden, A. V. Pastor, N. L. Poff, B. L. Ruddell, A. Ruhi, G. Singer, P. Vezza, A. S. Ward, and M. Zimmer. 2020. River ecosystem conceptual models and non-perennial rivers: A critical review. WIREs Water 7:e1473.

Busch, M. H., K. H. Costigan, K. M. Fritz, T. Datry, C. A. Krabbenhoft, J. C. Hammond, M. Zimmer, J. D. Olden, R. M. Burrows, W. K. Dodds, K. S. Boersma, M. Shanafield, S. K. Kampf, M. C. Mims, M. T. Bogan, A. S. Ward, M. Perez Rocha, S. Godsey, G. H. Allen, J. R. Blaszczak, C. N. Jones, and D. C. Allen. 2020. What's in a Name? Patterns, Trends, and Suggestions for Defining Non-Perennial Rivers and Streams. Water 12:1980.

Cunha, D. G. F., N. R. Finkler, N. Gómez, J. Cochero, J. L. Donadelli, W. A. Saltarelli, M. d. C. Calijuri, A. C. P. Miwa, F. Tromboni, W. K. Dodds, I. G. Boëchat, B. Gücker, and S. A. Thomas. 2020. Agriculture influences ammonium and soluble reactive phosphorus retention in South American headwater streams. Ecohydrology 13:e2184. https://doi.org/10.1002/eco.2184

de Souza Ferreira, M., C. E. de Campos Jordão, J. C. de Souza Inácio Gonçalves, W. K. Dodds, and D. G. F. Cunha. 2020. Surface Reaeration in Tropical Headwater Streams: the Dissolution Rate of a Soluble Floating Probe as a New Variable for Reaeration Coefficient Prediction. Water, Air, & Soil Pollution 231:58.

Dodds, W. K., L. H. Zeglin, R. J. Ramos, T. G. Platt, A. Pandey, T. Michaels, M. Masigol, A. M. L. Klompen, M. C. Kelly, A. Jumpponen, E. Hauser, P. M. Hansen, M. J. Greer, N. Fattahi, C. S. Delavaux, R. K. Connell, S. Billings, J. D. Bever, N. Barua, and F. B. Agusto. 2020. Connections and Feedback: Aquatic, Plant, and Soil Microbiomes in Heterogeneous and Changing Environments. Bioscience 70:548-562. https://doi.org/10.1093/biosci/biaa046

Fulgoni, J. N., M. R. Whiles, W. K. Dodds, D. M. Larson, K. E. Jackson, and B. P. Grudzinski. 2020. Responses and resilience of tallgrass prairie streams to patch-burn grazing. Journal of Applied Ecology 57:1303-1313.

Grudzinski, B., K. Fritz, and W. Dodds. 2020. Does Riparian Fencing Protect Stream Water Quality in Cattle-Grazed Lands? Environmental Management 66:121-135.

LeRoy, C., Hipp, A, Lueders, K, Follstad-Shah, J, Kominoski, K, Ardon Sayao, M, Dodds, W, Gessner, M, Griffiths, N, Lecerf, A, Manning, D, Sinsabaugh, R, Webster, J. 2020. Plant phylogenetic history explains in-stream decomposition at a global scale. Journal of Ecology 108:17-35 doi.org/10.1111/1365-2745.13262

Mello, J. L., D. P. Abrahão, W. A. Saltarelli, M. R. Whiles, W. K. Dodds, C. Colón-Gaud, V. Neres-Lima, D. G. Cunha, and J. J. Corbi. 2020. Patterns of macroinvertebrate production and energy flow in headwater streams of the Brazilian Savanna. Freshwater Science 39:848-859.

Trentman, M. T., W. K. Dodds, K. B. Gido, J. Rüegg, and C. M. Ruffing. 2020. Using path analysis to determine interacting effects of biotic and abiotic factors on patch-scale biogeochemical rates in a prairie stream. Aquatic Sciences 82:26. DOI:10.1007/s00027-020-0702-8

Tromboni, F., W. K. Dodds, S. Chandra, S. R. Poulson, A. Pandey, and A. Schechner. 2020. Respiration in rivers fractionates stable isotopes of dissolved oxygen; a global investigation on the influences of temperature and flow. Biogeochemistry 147:199-210.

Zimmer, M. A., K. E. Kaiser, J. R. Blaszczak, S. C. Zipper, J. C. Hammond, K. M. Fritz, K. H. Costigan, J. Hosen, S. E. Godsey, G. H. Allen, S. Kampf, R. M. Burrows, C. A. Krabbenhoft, W. Dodds, R. Hale, J. D. Olden, M. Shanafield, A. G. DelVecchia, A. S. Ward, M. C. Mims, T. Datry, M. T. Bogan, K. S. Boersma, M. H. Busch, C. N. Jones, A. J. Burgin, and D. C. Allen. 2020. Zero or not? Causes and consequences of zero-flow stream gage readings. WIREs Water 7:e1436.

Cunha, D., N. R. Finkler, M.do Carmo Calijuri, T. P. Covino, F. Tromboni, and W. K. Dodds 2019. Nutrient uptake in a simplified homogeneous stream channel: experimental manipulation of residence time and transient storage. Ecohydrology 11: UNSP e2012 DOI: 10.1002/eco.2012

Dodds WK, Bruckerhoff L, Batzer D, Schechner A, Pennock C, Renner E, Tromboni F, Bigham K, Grieger S. 2019. The freshwater biome gradient framework: predicting macroscale properties based on latitude, altitude, and precipitation. Ecosphere 10:e02786.

Larson, D. M., W. K. Dodds, and A. M. Veach. 2019. Riparian tree removal substantially altered streams in an otherwise undisturbed grassland watershed. Ecosystems 22:64-76. https://doi.org/10.1007/s10021-018-0252-2

Maasri, A. A. E. Schechner, B. Erdennee, W. K. Dodds, S. Chandra, J. K. Gehlaus, and J. H. Thorp. 2019 Does diel variation in oxygen influence taxonomic and functional diversity of stream macroinvertebrates? Freshwater Science 38:692-701. 10.1086/705916

Sullivan PL, Stops MW, Macpherson GL, Li L, Hirmas DR, Dodds WK. 2019. How landscape heterogeneity governs stream water concentration-discharge behavior in carbonate terrains (Konza Prairie, USA). Chemical Geology. 527: 118989 doi.org/10.1016/j.chemgeo.2018.12.002

Wurtsbaugh, W. A., H. W. Paerl, and W. K. Dodds 2019. Nutrients, eutrophication and harmful algal blooms along the freshwater to marine continuum. WIRES:Water 6:e1373. 10.1002/wat2.1373

Cunha, D. G. F., W. K. Dodds, and S. A. Loiselle. 2018. Factors related to water quality and thresholds for microcystin concentrations in subtropical Brazilian reservoirs. Inland Waters 8:368-380.

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Research Grants Funded:

2021- 2026 *Effectiveness of virtual electronic cattle fencing to address management challenges within the Flint Hills of Kansas.* The Nature Conservancy. $434,906 (Co lead PI with Dr. Boyle)

2021-2023 *REI: Enhancing the EPSCoR MAPS Project and Support for Covid Delays.* National Science Foundation. $49,500 (Lead PI)

2021-2023 *REI: Enhancing the EPSCoR MAPS Project and Support for Environmental Science Program Director*. National Science Foundation. $89,100 (Lead PI)

2021-2022 *Collaborative Research: Hierarchical Functioning of River Macrosystems in Temperate Steppes - From Continental to Hydrogeomorphic Patch Scales*. National Science Foundation, Supplement $53,440 (Lead PI)

2017-2022 *RII Track-1: Microbiomes of Aquatic, Plant and Soil Systems across Kansas.* National Science Foundation. $2,656,194 to KSU (Lead PI KSU).

2015-2020 *Collaborative Research: Hierarchical Functioning of River Macrosystems in Temperate Steppes - From Continental to Hydrogeomorphic Patch Scales*. National Science Foundation, $371,669 to KSU (Co-PI project, lead PI KSU)

2014-2017 *Linking primary and secondary production in streams across different biomes* Science without Borders. Brazil Institute of International Education. through Escola de Engenharia de São Carlos. Universidade de São Paulo ~$55,000 (co-PI)

2014-2020 *LTER: Long-Term Research on Grassland Dynamics- Assessing Mechanisms of Sensitivity and Resilience to Global Change* National Science Foundation, $6,700,000 (co-PI)

2013-2014 *Doctoral Dissertation Research: The Impact of Historical Logging Activities on Mountain Stream Ecogeomorphology (Claire Ruffing).* National Science Foundation. $15,972 (co-PI)

2011-2017 *Collaborative Research: Scale, Consumers and Lotic Ecosystem Rates (SCALER): Centimeters to Continents.* National Science Foundation, $3,304,097 total, $ 1,198,082 to KSU (National Project lead PI)

2008-2015 *Ecological integrity of prairie streams as influenced by patch-burn grazing and riparian protection*. Missouri Department of Conservation, $281,512 to KSU (KSU-lead PI).

2011-2014 *MRI: Acquisition of a Hybrid GPU Computing Cluster High-End Applications in Science and Engineering.* National Science Foundation, $700,000 (co-PI)

2009-2013 *Collaborative Research: EPSCoR R 11 Track 2 Oklahoma & Kansas: A cyberCommons for Ecological Forecasting.* National Science Foundation EPSCoR Program, $1,608,168 to KSU (KSU-lead PI, Kansas co-PI)

2008-2014 *Konza Prairie LTER VI: Grassland dynamics and long-term trajectories of change.* National Science Foundation, $5,640,000 (co-PI)

2006-2010 *Forecasting ecological change in the Central Plains*, National Science Foundation EPSCoR Program, $3,373,478 to KSU (PI)

2005-2007 *Ecosystem thresholds and alternate states in Great Plains rivers and streams: cascading effects of anthropogenic hydrologic disturbance.* U.S. Environmental Protection Agency, $299,566 (PI)

2004-2007 *Interactive effects of disturbance frequency and species composition on ecosystem functioning of intermittent streams: a test of future climate change scenarios.* National Science Foundation, $320,000 (co-PI)

2004 *Funds for workshop on N transport.* LTER Network Office, $9,264 (PI)

2003 *Funds for workshop on lotic denitrification.* LTER Network Office, $2,400 (PI)

2003-2005 *Water quality and nitrogen loading in KS streams (Genomic approaches to study organismal response to global environmental change).* National Science Foundation EPSCoR, subcontract- $25,000 (PI).

2003-2005 *REU Site: Conservation of the tallgrass prairie ecosystem.* National Science Foundation, $169,954 (co-PI)

2002-2005 *Development of aquatic GAP analysis in Kansas.* United States Department of the Interior, $183,217 (co-PI)

2002-2008 *Konza Prairie LTER V: Long-term research on grassland dynamics and global change.* National Science Foundation, $4,680,000 (co-PI)

2001-2006 *Nitrate uptake and retention in streams: mechanisms and effects of human disturbances from stream reaches to landscapes.* National Science Foundation. $3,000,000 (co-PI)

1999-2002 *Research experience for undergraduates in grassland ecology at Konza Prairie.* National Science Foundation, $168,612 (PI)

1999-2001 *Acquisition of an isotope ratio mass spectrometer in the Kansas State University-University of Kansas-Creighton University Consortium.* National Science Foundation, $169,400 (co-PI)

1999-2000 *Assessing the impact of exposure of periphyton to linear alkylbenzene sulfonate with microscale sensors at the Procter & Gamble experimental stream facility.* Proctor and Gamble, $6,000 (PI)

1999-2001 *Quality and quantity of suspended material in Kansas Rivers: Demonstrating the influence of management practices.* Kansas Department of Health and Environment, $96,997 (co-PI)

1999-2003 *Stocking success and factors influencing survival and growth of stocked Walleyes.* Kansas Department of Wildlife and Parks, $160,378 (co-PI)

1997 *Research in modeling metabolism of attached stream algae.* National Science Foundation, Division of International Programs, $14,576 (PI)

1996-1999 *Nitrogen uptake, retention and cycling in stream ecosystems: An intersite N-15 tracer experiment.* National Science Foundation, $1,389,335 (co-PI)

1996-2002 *Long-term ecological research in tallgrass prairie: the Konza Prairie LTER Program.* National Science Foundation. $3,600,000 (co-PI)

1996-1999 *Research experience for undergraduates in grassland ecology at Konza Prairie Research Natural Area.* National Science Foundation. $163,679 (co-PI)

1995-1996 *Assessment of blue-green algal toxins in Kansas.* U.S. Geological Survey, $44,206 (PI)

1995 *LTER supplement,* National Science Foundation, $36,236 (co-PI)

1994-1997 *Use of remotely sensed data on phenological activity and heterogeneity to detect changes in grassland species composition in response to stress*. U.S. Environmental Protection Agency. $240,842 (co-PI)

1994-1995 *Estimation of effects of ultraviolet irradiance on periphyton primary production in streams*. National Science Foundation, $49,935 (PI)

1993 *LTER* e*quipment supplement: DOC Analyzer.* National Science Foundation, $18,000 (co-PI)

1992-1995 *Biotic and abiotic factors controlling nitrogen flux in subsurface systems.* National Science Foundation, EPSCoR, $594,965 (co-PI)

1992 *Density controls on ecological communities: Relationships between complexity and stability.* National Science Foundation, 30 service units on Cray YM-P Super Computer; 5 units on Connection Machine (PI)

1991-1992 *Nutrient Removal Bioassay Methods for Assessment of the Effects of Decreased Nutrient Loading on Phytoplankton Communities in Aquatic Ecosystems*. Soap and Detergent Association. $28,202 (PI)

1991-1996 *Fire, grazing and climatic interactions in tallgrass prairie (*Konza Prairie LTER program). National Science Foundation, ~$18,000/yr (co-PI)

1991 *Diatoms of ephemeral pools as air quality indicators*. National Park Service, Air Quality Division, $2,500 (PI)

1987 *Grazing of epiphytes from Cladophora: Biological, physical and chemical interactions*. National Science Foundation Postdoctoral Fellowship, $56,000 (PI)

1987 *Understanding the ecological* r*elationship between* Nostoc parmelioides *and its mutualistic midge larva*. Whitehall Research Foundation, $9,865 (PI)

1984 Sigma Xi Grants-in-Aid of Research. $300

1982 Oregon Biomedical Research Fund. $600

Invited Seminars:

2023 *Laws, theory, and pattern in ecology. Soil, Water, and Ecosystems Sciences Research Forum, keynote. University of Florida, Gainesville, Florida*

2018 *The value of freshwaters.* National University of Mongolia, Ulaan Baatar, Mongolia

2017 *Being wrong in science and elsewhere.* University of Arkansas Fayetteville, AR

2017 *Being wrong in science and elsewhere.* Award of Excellence Talk, Society of Freshwater Science. Charlotte, NC

2017 *The freshwater biome concept.* Plenary talk. XVI Congresso Brasileiro de Limnolgia

2016 *The world´s worst problems*. Federal University of Bahia, Instituto de Biologia
The value of freshwater. Federal University of Roraima - UFRR,Department of Agronomy
Prairie Streams. Departamento de Ecologia, IBRAG, Universidade do Estado do Rio de Janeiro, Brasil

2015 *Nitrogen and Phosphorus in Streams.* University of Kansas. Val Smith Symposium
Freshwater Futures: Ecosystem Services, Multidisciplinary Approaches, and How Future Stream Ecologists Can Help Save The World. Society of Freshwater Science Annual Meeting

2014 *Battles and Skirmishes: Nutrient pollution in Freshwaters.* University of Georgia
Humanity's Footprint. NRES Seminar Series. Kansas State University
The Value of Water. Sigma Xi Kansas State University Chapter. University Distinguished Researcher lecture
Humanity's Footprint. University Sustainability Celebration. Kansas State University
Grassland streams and Konza. International Workshop on River Ecology in the Temperate Steppes of Mongolia and the North American Great Plains. University of Kansas
Battles and Skirmishes: Nutrient pollution in Freshwaters. University of Michigan
World's Worst Problems. Escola de Engenharia de São Carlos. Universidade de São Paulo

2013 *Understanding freshwaters in the anthropocene: long-term and large-scale approaches.* Keynote talk. Mississippi River Research Consortium 45th annual meeting. Lacrosse, WI

Teaching strategies. The New Faculty Institute. Kansas State University, Manhattan

Value of freshwater, Public talk, Weese Distinguished Lecture, University of Oklahoma, Norman

Understanding freshwaters in the anthropocene: long-term and large-scale approaches, Technical talk, Weese Distinguished Lecture, University of Oklahoma, Norman

Prairie Streams. Keynote talk, Annual Konza Docent Roundup, Manhattan, KS

The Kaw River Informational talk, Symphony on the Prairie. Fort Riley, KS

2012 *The unique characteristics of grassland streams.* North American Benthological Society, Louisville, Kentucky

Valuation of ecosystem goods and services in aquatic ecosystems. University of Nebraska, Lincoln

Valuation of ecosystem goods and services in aquatic ecosystems. Oregon State University, Corvallis

Scale Consumers and Lotic Ecosystem Rates: a successful Macrosystems proposal. NEON annual members meeting, Washington, DC

2011 *The worst problems in the world.* Kansas State University, Manhattan, Kansas

Valuation of ecosystem goods and services in aquatic ecosystems, Grand Valley State University, Allendale, Michigan

*Global human impacts on freshwaters scaled by relative influence on ecosystem goods and service*s. Special Session: North American Benthological Society, Providence, Rhode Island

Grassland Streams. Grasslands in a Global Context, International Symposium. Kansas State University, Manhattan, Kansas

2010 Graduate Commencement Speaker. Kansas State University, Manhattan, Kansas

The worst problems in the world. University of California, Santa Cruz

Valuation of ecosystem goods and services in aquatic ecosystems. University of Arkansas, Fayetteville, Arkansas

Measuring stream metabolism. The University of Copenhagen, Copenhagen, Denmark

The ecology of prairie streams. University of Aarhus, Aarhus, Denmark

Nutrient Criteria in the Midwestern United States Iowa Water Conference

Thresholds, non-linearity and prediction in freshwater ecosystems. Iowa State University

Valuation of ecosystem goods and services in aquatic ecosystems. Oklahoma State University

Valuation of ecosystem goods and services in aquatic ecosystems. University of North Texas

2009 *Thresholds, non-linearity and prediction in freshwater ecosystems.* Ecology group, Eawag, Swiss Federal Institute of Aquatic Science and Technology, *Dübendorf* Switzerland

Prairie streams. Eawag, the Swiss Federal Institute of Aquatic Science and Technology, Kastanienbaum – Lucerne, Switzerland

Humanity's Footprint. Eawag, the Swiss Federal Institute of Aquatic Science and Technology, *Dübendorf* Switzerland

Properties of Water. Eidgenössische Technische Hochschule Zürich, Switzerland

Laws Theories and Patterns in Ecology. Centre d'Estudis Avangats de Blanes (C.S.I.C.), Spain

Thresholds, non-linearity and prediction in freshwater ecosystems. University of Barcelona, Spain

Valuation of ecosystem goods and services in aquatic ecosystems. Universidad de Girona, Girona Spain

2008 *Thresholds, non-linearity and prediction in freshwater ecosystems* NSF EPSCoR/ Water Dynamics/ Workshop. Keynote presentation. Burlington, VT

Ecology of prairie streams. Plenary talk. Great Plains Limnology Society. Lake Texoma, OK

STREON: Stream experimental and observational network. North American Benthological Society Annual Meeting, Salt Lake City, UT

STREON: Stream experimental and observational network. Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI), Boulder, CO

2007 *Ecology of prairie streams. Southwest Missouri State University, Springfield, MO.*

Aquatic research on Konza Prairie. EPSCoR Reverse site visit, Washington, D.C

Ecological forecasting: building infrastructure for the Central Plains. Water & Society Seminar Series, Kansas State University, Manhattan, KS

It is not just phosphorus that controls trophic state in fresh waters. US EPA Webcast.

Ecological forecasting and aquatic resources. Kansas Water Authority

Ecological forecasting and aquatic resources. Consortium for Environmental Stewardship and Sustainability

Laws in ecology. Southern Illinois University, Carbondale, IL

Laws in ecology. University of Florida, Gainesville, FL

2005 S*ome things I was wrong about in stream ecology, and why they matter*. Fordham University, Fordham, NY

Some things I was wrong about in stream ecology, and why they matter. Stroud Water Research Center, Philadelphia, PA

Nutrient criteria in streams. Great Plains Center for Bioassessment. Lawrence, KS

2004 *Laws in ecology*. University of New Mexico. Albuquerque, NM

Ecological stoichiometry in streams. University of New Mexico. Albuquerque, NM

2003 *Nitrogen cycling rates and carbon and nitrogen stoichiometry in streams.* North American Benthological Society, Athens, GA

Nitrogen in streams. University of Oklahoma, Norman, OK

2002 *Nitrogen in streams*. Iowa State University, Ames, IA

Nitrogen in streams. Wichita State University, Wichita, KS

2001 C*atapult: Momentum of human impact on earth*. Division of Biology, Kansas State University. Manhattan, KS

1999 *Nitrogen cycling at Konza Prairie*. Institute of Ecosystem Studies, Millbrook, NY.

Establishing nutrient criteria in streams. North American Benthological Society, Duluth, MN

R*elative importance of N and P limitation of stream periphyton*. American Society of Limnology and Oceanography, Santa Fe, NM. (co-authors: Tank, J., Lohman, K. and Smith, V.)

1998 N*itrogen cycling in some aquatic environments.* University of Montana, Missoula, MT

Attenuation of flow in macrophytes and periphyton. North American Benthological Society, Prince Edwards Island, Canada

Asking Large-Scale Ecological Questions: Some Possible Approaches for Individuals. University of Kansas, Lawrence, KS.

1997 *Microhabitat and aquatic microorganisms.* Monash University, Melbourne, Australia, National Institute of Water Quality and Atmospheric Research, Christchurch, New Zealand, Otago University, Dunedin, New Zealand

Aquatic ecology on Konza Prairie. Canterbury University, Christchurch, New Zealand, Otago University, Dunedin, New Zealand, National Institute of Water Quality and Atmospheric Research, Hamilton, New Zealand, University of New England, Armidale, Australia.

1996 *How good was water quality in native tallgrass prairie streams?* Kansas Water Environment Association, 51st Annual Conference, Hutchinson, KS

1994 *Mutualism in Communities and Ecosystems: Theory and Aquatic Examples*. Division of Biology, Kansas State University

Water Quality and Extreme Flows on Pristine Tallgrass Prairie. Water and the Future of Kansas Conference, Manhattan, KS

1992 *Nutrient Pollution and Surface Water Quality.* Water and the Future of Kansas Conference, Manhattan, KS

Is Photosynthesis in Cyanobacterial Surface Blooms Limited by Flux of Atmospheric CO_2? American Society of Limnology and Oceanography, Santa Fe, NM

1991 *Mutualism and Aquatic Primary Producers*. Ecology Group, University of Nebraska, Lincoln, NE

1990 *Mutualism and Aquatic Primary Producers*. Department of Zoology, University of Oklahoma, Department of Zoology and Division of Biology, Kansas State University

Microenvironment and Microbial Processes. Institute of Arctic Biology, University of Alaska and College of St. Benedicts, MN.

1989 *Mutualism and Aquatic Primary Producers*. Department of Biology, Florida International University

Eutrophication in Flathead Lake. State Department of Health and Environmental Sciences, Helena, MT

1988 *Influence of PO_4^{3-} on $^{15}NH_4^+$ and $^{15}NO_3^-$ Fluxes in an Oligotrophic Lake: Results from Mesocosm Studies*. American Society of Limnology and Oceanography, San Francisco, CA

Microhabitat and Interrelationships between Current Velocity, Photosynthesis, O_2, Light and N_2 Fixation in a Benthic Cyanobacterium. American Society of Limnology and Oceanography, San Francisco, CA

Nutrient-Phytoplankton Interactions in Flathead Lake. Department of Fish and Wildlife and Parks, Kalispell, MT

Mutualism between Nostoc *and* Cricotopus. Department of Microbiology, Montana State University

1987 *Nitrogen and Phosphorus Physiology of Phytoplankton in Flathead Lake*. University of Montana Biological Station

The Nitrogen Budget and Community Interactions in a Cold Water Pool Dominated by a Nitrogen Fixing Cyanobacterium. Department of Botany, University of Washington

1985 *Grazing and Season Effects on* Nostoc *Growth*. Stream Team, Oregon State University

The Nitrogen Cycle of Mare's Egg Spring. Oregon Institute of Marine Biology

Selected Professional Activities and Service Contributions:

Professional Activities:

- Board of Directors. Society for Freshwater Science (2016-2019)
- Elections and Place Committee Society for Freshwater Science (2013-2016)
- Leader, Review Team for Environmental Protection Agency draft report: Connectivity of Streams and Wetlands to Downstream Waters- A Review and Synthesis of the Scientific Evidence (2012)
- Group Leader, STREON: Stream Research and Observational Network, National Ecological Observatory Network, (2007-2009)
- Member, STREON Working Group. Advisory board to NEON (2009 to present)
- Editorial Board, Freshwater Biology (2008-present)
- Associate Editor, Journal of Geophysical Research (2006-2008)
- Associate Editor, Journal of the North American Benthological Society (2004-2006)
- 2005 Annual Meeting Co-Chair, North American Benthological Society (2003-2005)
- Panelist, National Science Foundation- Ecosystems Program (2001, 2004)
- Associate Editor, Journal of Phycology (1999-2003)
- Chair, Intersociety and International Interactions Committee of the North American Benthological Society (1997)
- Member, Intersociety and International Interactions Committee of the North American Benthological Society (1998-2001)
- Member, Future Meetings Committee of the American Society of Limnology and Oceanography (1997-1999)
- Chair, Council for Aquatic Sciences-Aquatic Sciences Meeting Committee (2005)
- Member, Council for Aquatic Sciences-Aquatic Sciences Meeting Committee (1999-2002)
- Member, North American Benthological Society- Elections and Meetings Committee (2000-2003)
- Member, United States Environmental Protection Agency, Nutrient Criteria in Streams Work Group Region 7 (1999-present)
- Member, Water and the Future of Kansas Conference Committee (1990-1997)

University Activities:

- Chair, Konza LTER Aquatic and Hydrological Research Group (1993-2017)
- Chair, Division of Biology Seminar Committee (1992-2015)
- Chair, Division of Biology Chris Edler Outstanding Research Award Committee (1995-present)
- Chair, Konza Management Plan: Aquatic Subgroup (1999-2001)
- Chair, Division of Biology Search Committees- Fisheries position (2001); Wildlife position (2002); Kansas Cooperative Unit and Division of Biology, Assistant Leader Fisheries Unit (2003), Bioinformatics position (2019) (member of 11 additional search committees)
- Member, Division of Biology Undergraduate Curriculum Committee (1995-2002)
- Member, Division of Biology Tenure and Promotions Committee (2002 -2008)
- Member, Division of Biology BRIEF Committee (2002-present)
- Member, Konza Education Advisory Committee (1999-2017)
- Member, Konza Prairie Advisory Committee (1994-2016)
- Member, Division of Biology Ecology and Evolutionary Biology Section, (1990-present)
- Member, Division of Biology Microbiology and Immunology Section, (1990-present)
- Treasurer, Sigma Xi, Kansas State University Chapter (1998-2000)