

## 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:

2002-present 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 have been major thrusts of my program.

### Professional Memberships:

American Association for the Advancement of Science  
American Institute of Biological Sciences  
American Society of Limnology and Oceanography  
North American Benthological Society  
Sigma Xi

### Awards and Professional Recognition:

- 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](http://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:**

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), Aquatic Ecology (BIOL 890), Stream Ecology, Algal Identification (BIOL 890), Professional Skills in Biology (BIOL 890)

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:**

<u>Student</u>	<u>Degree</u>	<u>Year</u>	<u>Current Position</u>	<u>Location</u>
Eric Strauss	MS	1995	Assistant Professor	University of Wisconsin, LaCrosse
Ken Fritz	M.S.	1997	Ecologist	US EPA
Michelle Evans-White	M.S.	2000	Assistant Professor	University of Arkansas
Melody Bernot	Ph.D.	2001	Assistant Professor	Ball State University
Randall Bernot	Ph.D.	2003	Assistant Professor	Ball State University
Robert Oakes	M.S.	2003	Law school student	Pennsylvania State University
Nicole Gerlanc	Ph.D.	2004	Assistant Professor	Frederick Community College
Kymerly Wilson	M.S.	2005	Laboratory Manager	Arizona State University
Jonathan O'Brien	Ph.D.	2006	Postdoctoral Associate	Michigan State University
Jessica Eichmiller	M.S.	2007	PhD candidate	University of Minnesota
Justin Murdock	Ph.D.	2008	Postdoctoral Associate	Kansas State University
Alyssa Standorf	Ph.D.		Current student	
Alex Reisinger	M.S.		Current student	
Kyle Winders	M.S.		Current student	

**Postdoctoral Associates:**

Wilfred Singogo 1992-1994  
 Francisco Costa 1994-1995  
 Yiyong Zhou 1995-1996  
 Deb Walks 2006-2007  
 Michelle Evans-White 2006-2007  
 David Hoeninghaus current  
 Justin Murdock current

**Undergraduate Students Mentored:**

Sarah Mueting 2006, 2007	Jennifer Nelson (REU) 1998
Loren Reinhardt (REU) 2006	Michelle Evans 1995-1997
Eric Banner (REU) 2002, 2003	Britta Culbertson 1995
Amy Junglass 2001	Esra Aksoy 1995
Kajsa Stromberg 2000	Jeannie Skalsky 1993-1994
Alex Corum, 2000	Angie Eichen 1991-1993
Janelle Riger 2000	Eric Strauss 1991-1992
Amanda López (REU) 1999	Clay Randel 1991-1992
Molly McGill 1999	Ruth Lehmann 1991-1992

**Peer Reviewed Publications:**

- Dodds, W. K., W. Bouska, J. L. Eitzmann, T. J. Pilger, K. L. Pitts, A. J. Riley, J. T. Schloesser and D. J. Thronbrugh (in press). Eutrophication of U.S. Freshwaters: Analysis of Potential Economic Damages. *Environmental Science and Technology*.
- Hall, R. O. Jr., J. L. Tank, D. J. Sobota, P. J. Mulholland, J. M. O'Brien, W. K. Dodds, J. R. Webster, H. M. Valett, G. C. Poole, B. J. Peterson, J. L. Meyer, W. H. McDowell, S. L. Johnson, S. K. Hamilton, N. B. Grimm, S. V. Gregory, C. N. Dahm, L. W. Cooper, L. R. Ashkenas, S. M. Thomas, R. W. Sheibley, J. D. Potter, B. R. Niederlehner, L.T. Johnson, A. M. Helton, C. M. Crenshaw, A. J. Burgin, M. J. Bernot, J. J. Beaulieu and C. P. Arango (in press). Nitrate removal in stream ecosystems measured by <sup>15</sup>N addition experiments: Total uptake. *Limnology and Oceanography*.
- Mulholland, P. J., R. O. Hall Jr., D. J. Sobota, W. K. Dodds, S. E. G. Findlay, N. B. Grimm, S. K. Hamilton, W. H. McDowell, J. M. O'Brien, J. L. Tank, L. R. Ashkenas, L. W. Cooper, C. N. Dahm, S. V. Gregory, S. L. Johnson, J. L. Meyer, B. J. Peterson, G. C. Poole, H. M. Valett, J. R. Webster, C. P. Arango, J. J. Beaulieu, M. J. Bernot, A. J. Burgin, C. L. Crenshaw, A. M. Helton, L. T. Johnson, B. R. Niederlehner, J. D. Potter, R. W. Sheibley and S. M. Thomas (in press). Nitrate removal in stream ecosystems measured by <sup>15</sup>N addition experiments: Denitrification. *Limnology and Oceanography*.
- Dodds, W. K., J. J. Beaulieu, J. J. Eichmiller, J. R. Fischer, N. R. Franssen, D. A. Gudder, A. S. Makinster, M. J. McCarthy, J. N. Murdock, J. M. O'Brien, J. L. Tank and R. W. Sheibley. 2008. Nitrogen cycling and metabolism in the thalweg of a prairie river. *Journal of Geophysical Research Biogeosciences*. 113, G04029, doi:10.1029/2008JG000696.
- Dodds, W. K. and R. M. Oakes. 2008. Headwater influences on downstream water quality. *Environmental Management* 41:367-377.
- Dodds, W. K., K. C. Wilson, R. L. Rehmeier, G. L. Knight, S. Wiggam, J. A. Falke, H. J. Dalgleish and K. N. Bertrand 2008. Benefits of Ecosystem Goods and Services Associated with Restored Lands Compared to Native Lands. *BioScience* 58:837-845
- Mulholland, P. J., A. M. Helton, G. C. Poole, R. O. Hall, Jr., S. K. Hamilton, B. J. Peterson, J. L. Tank, L. R. Ashkenas, L. W. Cooper, C. N. Dahm, W. K. Dodds, S. Findlay, S. V. Gregory, N. B. Grimm, S. L. Johnson, W. H. McDowell, J. L. Meyer, H. M. Valett, J. R. Webster, C. Arango, J. J. Beaulieu, M. J. Bernot, A. J. Burgin, C. Crenshaw, L. Johnson, B. R. Niederlehner, J. M. O'Brien, J. D. Potter, R. W. Sheibley, D. J. Sobota and S. M. Thomas. 2008. Stream denitrification across biomes and its response to anthropogenic nitrogen loading. *Nature* 452:202-207.
- Murdock, J. N., W. K. Dodds and D. I. Wetzel. 2008. Subcellular chemical imaging of localized benthic algal nutritional content via HgCdTe array FT-IR. *Vibrational Spectroscopy* 48:179-188.
- Williamson, C. E., W. Dodds, T. K. Kratz and M. Palmer. 2008. Lakes and streams as sentinels of environmental change in terrestrial and atmospheric processes. *Frontiers in Ecology and the Environment*. 6:247-254.
- Dodds, W. K. and J. J. Cole. 2007. Expanding the concept of trophic state in aquatic ecosystems: It's not just the autotrophs. *Aquatic Sciences* 69:427-439.
- Dodds, W. K. 2007. Trophic state, eutrophication, and nutrient criteria in streams. *Trends in Ecology and Evolution* 22:670-676.
- O'Brien, J. M. , W. K. Dodds, K. C. Wilson, J. N. Murdock and J. Eichmiller. 2007. The saturation of N cycling in Central Plains streams: <sup>15</sup>N experiments across a broad gradient of nitrate concentrations. *Biogeochemistry* 84(8):31-49.
- Murdock, J. N. and W. K. Dodds. 2007. Linking benthic algal biomass to stream substratum topography. *Journal of Phycology* 43:449-460.
- O'Brien, J. M. and W. K. Dodds. 2007. Ammonium uptake and mineralization in prairie streams: chamber incubation and short-term nutrient addition experiments. *Freshwater Biology* 53:102-112.
- Dodds, W. K. 2006. Nutrients and the "Dead Zone": Ecological stoichiometry and depressed dissolved oxygen in the northern Gulf of Mexico. *Frontiers in Ecology and the Environment* 4:211-217.
- Dodds, W. K. and J. A. Nelson. 2006. Redefining the community: a species approach. *Oikos* 112:464-472.
- Dodds, W. K. and R. M. Oakes. 2006. Controls on nutrients across a prairie stream watershed: Land use and riparian cover effects. *Environmental Management* 37:634-646.

- Dodds, W. K., V H. Smith and K. Lohman. 2006. Erratum: Nitrogen and phosphorus relationships to benthic algal biomass in temperate streams. *Canadian Journal of Fisheries and Aquatic Sciences* 63:1190-1191.
- 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.
- Bernot, R. J., W. K. Dodds, M. C. Quist and C. S. Guy. 2006. Temperature and kairomone induced life history plasticity in coexisting *Daphnia*. *Aquatic Ecology* 40:361-372.
- Dodds, W. K. 2006. Eutrophication and trophic state in rivers and streams. *Limnology and Oceanography* 51:671-680.
- Bernot, M. J. and W. K. Dodds. 2005. Nitrogen retention, removal, and saturation in lotic ecosystems. *Ecosystems* 8:442-453.
- Fritz, K. M. and W. K. Dodds. 2005. Harshness: Characterization of intermittent stream habitat over space and time. *Marine and Freshwater Research* 56:13-23.
- Payn R. A., J. R. Webster, P. J. Mulholland, H. M. Valett, and W. K. Dodds. 2005. Estimation of stream nutrient uptake from nutrient addition experiments. *Limnology and Oceanography Methods* 3:174-182.
- Dodds, W. K. 2005. The commons, game theory, and aspects of human nature that may allow conservation of global resources. *Environmental Values* 14:411-426.
- Bernot, R. J., W. K. Dodds, M. C. Quist and C. S. Guy. 2004. Larval fish-induced phenotypic plasticity of coexisting *Daphnia*: an enclosure experiment. *Freshwater Biology* 49:87-97.
- Dodds, W. K., K. Gido, M. Whiles, K. Fritz and W. Mathews. 2004. Life on the edge: ecology of Great Plains prairie streams. *Bioscience* 54:202-216.
- Dodds, W. K. and M. R. Whiles. 2004. Factors related to quality and quantity of suspended particles in rivers: general continent-scale patterns in the United States. *Environmental Management* 33:355-367.
- Hwang, S.-C., C.-S. Lin, I.-M. Chen, L.-Y. Liu and W. K. Dodds. 2004. Removal of multiple nitrogenous wastes by *Aspergillus niger* in a continuous fixed-slab reactor. *Journal of Biotechnology* 93:131-138.
- Dodds W. K., E. Martí, J. L. Tank, J. Pontius, S. K. Hamilton, N. B. Grimm, W. B. Bowden, W. H. McDowell, B. J. Peterson, H. M. Valett, J. R. Webster and S. Gregory. 2004. Carbon and nitrogen stoichiometry and nitrogen cycling rates in streams. *Oecologia* 140:458-467.
- Bernot, R. J., W. K. Dodds, M. C. Quist and C. S. Guy. 2004. Spatial and temporal variability of zooplankton in a Great Plains reservoir. *Hydrobiologia* 525:101-112.
- Fritz, K. M. and W. K. Dodds. 2004. Resistance and resilience of macroinvertebrate assemblages to drying and flood in a tallgrass prairie stream system. *Hydrobiologia* 527:99-112.
- Dodds, W. K. and R. M. Oakes. 2004. A technique for establishing reference nutrient concentrations across watersheds impacted by humans. *Limnology and Oceanography Methods* 2:333-341.
- Bernot, M. J., W. K. Dodds, W. S. Gardner, M. J. McCarthy, D. Sobolev, J. L. Tank. 2003. Comparing denitrification estimates for a Texas estuary by using acetylene inhibition and membrane inlet mass spectrometry. *Applied and Environmental Microbiology* 69:5950-5956.
- Dodds, W. K. 2003. The misuse of inorganic N and soluble reactive P to indicate nutrient status of surface waters. *Journal of the North American Benthological Society* 22:171-181.
- Dodds, W. K. 2003. The role of periphyton in phosphorus retention in shallow freshwater aquatic systems. *Journal of Phycology* 39:830-849.
- Evans-White, M. A., W. K. Dodds and M. R. Whiles. 2003. Ecosystem significance of crayfishes and stonerollers in a prairie stream: functional differences between co-occurring omnivores. *Journal of the North American Benthological Society* 22:423-441.
- Tank, J. and W. K. Dodds. 2003. Responses of heterotrophic and autotrophic biofilms to nutrients in ten streams. *Freshwater Biology* 48:1031-1049.
- Webster, J. R., P. J. Mulholland, J. L. Tank, H. M. Valett, W. K. Dodds, B. J. Peterson, W. B. Bowden, C. N. Dahm, S. Findlay, S. V. Gregory, N. B. Grimm, S. K. Hamilton, S. L. Johnson, E. Martí, W. H. McDowell, J. L. Meyer, D. D. Morrall, S. A. Thomas and W. M. Wollheim. 2003. Factors affecting ammonium uptake in streams – an inter-biome perspective. *Freshwater Biology* 48:1329–1352.

- Dodds, W. K. and B. J. F. Biggs. 2002. Water velocity attenuation by stream periphyton and macrophytes in relation to growth form and architecture. *Journal of the North American Benthological Society* 21:2-15.
- Dodds, W. K., A. J. López, W. B. Bowden, S. Gregory, N. B. Grimm, S. K. Hamilton, A. E. Hershey, E. Martí, W. B. McDowell, J. L. Meyer, D. Morrall, P. J. Mulholland, B. J. Peterson, J. L. Tank, H. M. Vallet, J. R. Webster, W. Wollheim. 2002. N uptake as a function of concentration in streams. *Journal of the North American Benthological Society* 21:206-220.
- Dodds, W. K., V. H. Smith, and K. Lohman. 2002 Nitrogen and phosphorus relationships to benthic algal biomass in temperate streams. *Canadian Journal of Fisheries and Aquatic Science* 59: 865–874.
- Findlay, S., J. Tank, S. Dye, H. M. Vallett, P. Mulholland, W. H. McDowell, S. Johnson, S. K. Hamilton, J. Edmonds, W. K. Dodds, W. B. Bowden. 2002. A cross-system comparison of bacterial and fungal biomass in detritus pools of headwater streams. *Microbial Ecology* 43:55-66.
- Kemp, M. J. and W. K. Dodds. 2002. Comparisons of nitrification and denitrification in pristine and agriculturally influenced streams. *Ecological Applications* 12:998-1009.
- Kemp, M. J. and W. K. Dodds. 2002. The influence of ammonium, nitrate, and dissolved oxygen concentration on uptake, nitrification, and denitrification rates associated with prairie stream substrata. *Limnology and Oceanography* 47:1380-1393.
- Whiles, M. R. and W. K. Dodds. 2002. Relationships between stream size, suspended particles, and filter-feeding macroinvertebrates in a Great Plains drainage network. *Journal of Environmental Quality* 31:1589-1600.
- Fritz, K. M. and W. K. Dodds. 2002. Macroinvertebrate assemblage structure across a tallgrass prairie stream landscape. *Archiv Für Hydrobiologie* 154:79-102.
- Mulholland, P. J., J. L. Tank, J. R. Webster, W. B. Bowden, W. K. Dodds, S. V. Gregory, N. B. Grimm, S. K. Hamilton, S. L. Johnson, E. Martí, W. H. McDowell, J. Merriam, J. L. Meyer, B. J. Peterson, H. M. Valett, and W. M. Wollheim 2002. Can uptake length in streams be determined by nutrient addition experiments? Results from an inter-biome comparison study. *Journal of the North American Benthological Society* 21:544-560.
- Kemp, M. J. and W. K. Dodds. 2001. Spatial and temporal patterns of nitrogen in prairie streams. *Biogeochemistry* 53:125-141.
- Peterson, B. J. W. Wollheim, P. J. Mulholland, J. R. Webster, J. L. Meyer, J. L. Tank, N. B. Grimm, W. B. Bowden, H. M. Vallet, A. E. Hershey, W. B. McDowell, W. K. Dodds, S. K. Hamilton, S. Gregory, D. J. D'Angelo. 2001. Control of nitrogen export from watersheds by headwater streams. *Science* 292:86-90.
- Kemp, M. J. and W. K. Dodds. 2001. Centimeter-scale patterns in dissolved oxygen and nitrification rates in a prairie stream *Journal of the North American Benthological Society* 20:347-357.
- Evans-White, M., W. K. Dodds, L. Gray and K. M. Fritz. 2001. A comparison of the trophic ecology of crayfish (*Orconectes nais* (Faxon) and *Orconectes neglectus* (Faxon)) and central stonerollers (*Compostoma anomalum* (Rafinesque)): omnivory in a tallgrass prairie stream. *Hydrobiologia* 462:131-144.
- Mulholland, P. J., C. S. Fellows, J. L. Tank, N. B. Grimm, J. R. Webster, S. K. Hamilton, E. Marti, L. Ashkenas, W. B. Bowden, W. K. Dodds, W. H. McDowell, M. J. Paul, B. J. Peterson and J. R. Webster. 2001. Inter-biome comparison of factors controlling stream metabolism. *Freshwater Biology* 46:1503-1517.
- Dodds, W. K. and E. Welch. 2000. Establishing nutrient criteria in streams. *Journal of the North American Benthological Society* 19:186-196.
- Dodds, W. K., M. A. Evans-White, N. Gerlanc, L. Gray, D. A. Gudder, M. J. Kemp, A. L. López, D. Stagliano, E. Strauss, J. L. Tank, M. R. Whiles and W. Wollheim. 2000. Quantification of the nitrogen cycle in a prairie stream. *Ecosystems* 3:574-589.
- Fritz, K. M., W. K. Dodds and J. Pontius. 1999. The effects of bison crossings on the macroinvertebrate community in a tallgrass prairie stream. *American Midland Naturalist* 141:253-265.
- Dodds, W. K., B. J. F. Biggs and R. L. Lowe. 1999. Photosynthesis-irradiance patterns in benthic algae: Variations as a function of assemblage thickness and community structure. *Journal of Phycology* 35:42-53.
- Banks, M. K., C. Clennan, W. Dodds and C. Rice. 1999. Variations in microbial activity due to fluctuations in soil water content at the water table interface. *Journal of Environmental Science and Health* 34:479-505.

- Dodds, W. K. and J. Brock. 1998. A portable chamber for *in situ* determination of benthic metabolism. *Freshwater Biology* 39:49-59.
- Dodds, W. K., J. R. Jones and E. B. Welch. 1998. Suggested classification for stream trophic state: distributions of temperate stream types by chlorophyll, total N and P. *Water Research* 32:1455-1462.
- Bott, T. L., J. T. Brock, A. Battrop, P. Chambers, W. K. Dodds, K. Himbeault, J. R. Lawrence, D. Planas, E. Snyder and G. M. Wolfaardt. 1997. An evaluation of techniques for measuring periphyton metabolism in chambers. *Canadian Journal of Fisheries and Aquatic Science* 54:715-725.
- Dodds, W. K. 1997. Interspecific interactions: constructing a general, neutral model for interaction type. *Oikos* 78:377-383.
- Dodds, W. K. 1997. Distribution of runoff and rivers related to vegetative characteristics, latitude, and slope: a global perspective. *Journal of the North American Benthological Society* 16:162-168.
- Dodds, W. K., V. H. Smith and B. Zander. 1997. Developing nutrient targets to control benthic chlorophyll levels in streams: A case study of the Clark Fork River. *Water Research* 31:1738-1750.
- Strauss, E. A. and W. K. Dodds. 1997. Influence of protozoa and nutrient availability on nitrification rates in subsurface sediments. *Microbial Ecology* 34:155-165.
- Dodds, W. K., M. K. Banks, C. S. Clenan, C. W. Rice, D. Sotomayor, E. A. Strauss and W. Yu. 1996. Biological properties of soil and subsurface sediments under abandoned pasture and cropland. *Soil Biology & Biochemistry* 28:837-846.
- Dodds, W. K., C. Randel and C. Edler. 1996. Microcosms for aquifer research: Application to colonization of various sized particles by groundwater microorganisms. *Groundwater* 34:756-759.
- Edler, C. and W. K. Dodds. 1996. The ecology of a subterranean isopod *Caecidotea tridentata*. *Freshwater Biology* 249-259.
- Dodds, W. K., J. M. Blair, G. M. Henebry, J. K. Koelliker, R. Ramundo and C. M. Tate. 1996. Nitrogen transport from tallgrass prairie watersheds. *Journal of Environmental Quality* 25:973-981.
- Dodds, W. K., R. E. Hutson, A. C. Eicem, M. E. Evans, D. A. Gudder, K. M. Fritz and L. Gray. 1996. The relationship of floods, drying, flow and light to primary production and periphyton biomass in a prairie stream. *Hydrobiologia* 133:151-159.
- Dodds, W. K. and G. M. Henebry. 1996. The effect of density dependence on community structure. *Ecological Modeling* 63:33-42.
- Dodds, W. K. 1995. Availability, uptake and regeneration of phosphate in mesocosms with varied levels of P deficiency. *Hydrobiologia* 297:1-9.
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- Dodds, W. K., D. A. Gudder and D. Mollenhauer. 1995. The ecology of *Nostoc*. *Journal of Phycology* 31:2-18.
- Zhou, Y. and W. K. Dodds. 1995. Kinetics of size-fractionated and dissolved alkaline phosphatase in a farm pond. *Archiv Für Hydrobiologie* 134:93-102.
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- Strauss, E. A., W. K. Dodds and C. C. Edler. 1994. The impact of nutrient pulses on trophic interactions in a farm pond. *Journal of Freshwater Ecology* 3:217-228.
- Dodds, W. K. 1993. What controls levels of dissolved phosphate and ammonium in surface waters? *Aquatic Science* 55:132-142.
- Eicem, A. C., W. K. Dodds, C. M. Tate and C. Edler. 1993. Microbial decomposition of elm and oak leaves in a Karst aquifer. *Applied and Environmental Microbiology* 59:3592-3596.
- Dodds, W. K., E. A. Strauss and R. Lehmann. 1993. Nutrient dilution and removal bioassays to estimate phytoplankton response to nutrient control. *Archiv Für Hydrobiologie* 128:467-481.
- Dodds, W. K. 1992. A modified fiber-optic light microprobe to measure spherically integrated photosynthetic photon flux density: Characterization of periphyton photosynthesis-irradiance patterns. *Limnology and Oceanography* 37:871-878.
- Dodds, W. K. and C. Randel. 1992. Field assessment of the effects of nutrient removal on phytoplankton productivity and biomass. *Journal of Freshwater Ecology* 7:284-292.
- Dodds, W. K. and D. A. Gudder. 1992. The ecology of *Cladophora*. *Journal of Phycology* 28:415-427.

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- Dodds, W. K. 1991. Community interactions between the filamentous alga *Cladophora glomerata* (L.) Kuetzing, its epiphytes, and epiphyte grazers. *Oecologia* 85:572-580.
- Dodds, W. K., B. K. Ellis and J. C. Priscu. 1991. Zooplankton induced decrease in inorganic phosphorus uptake by phytoplankton in an oligotrophic lake. *Hydrobiologia* 211:253-259.
- Dodds, W. K. and J. C. Priscu. 1991. Ammonium stimulation of dark carbon fixation as an indicator of nitrogen deficiency in phytoplankton: potential errors caused by ammonium-oxidizing bacteria. *Journal of Phycology* 27:79-82.
- Dodds, W. K. 1991. Factors associated with dominance of the filamentous green alga *Cladophora glomerata*. *Water Research* 25:1325-1332.
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- Dodds, W. K. and R. W. Castenholz. 1990. Sulfide and pH effects on variable fluorescence of photosystem II in two strains of the cyanobacterium *Oscillatoria amphigranulata*. *Photosynthesis Research* 24:265-271.
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- Dodds, W. K. and J. C. Priscu. 1990. Mesocosm studies on the influence of phosphate enrichment on ammonium and nitrate flux in an oligotrophic lake. *Hydrobiologia* 206:235-243.
- Dodds, W. K. 1989. Photosynthesis of two morphologies of *Nostoc parmelioides* (Cyanobacteria) as related to current velocities and diffusion patterns. *Journal of Phycology* 25:258-262.
- Dodds, W. K. 1989. Microscale vertical profiles of N<sub>2</sub> fixation, photosynthesis, O<sub>2</sub>, chlorophyll a, and light in a cyanobacterial assemblage. *Applied and Environmental Microbiology* 55:882-886.
- Dodds, W. K. and J. L. Marra. 1989. Behaviors of the midge, *Cricotopus* (Diptera:Chironomidae) related to mutualism with *Nostoc parmelioides* (Cyanobacteria). *Aquatic Insects* 11:201-208.
- Dodds, W. K. and J. C. Priscu. 1989. Ammonium, nitrate, phosphate, and inorganic carbon uptake in an oligotrophic lake: seasonal variations among light response variables. *Journal of Phycology* 25:699-705.
- Dodds, W. K., K. Johnson and J. C. Priscu. 1989. Simultaneous nitrogen and phosphorus deficiency in natural phytoplankton assemblages: theory, empirical evidence, and implications for lake management. *Lake and Reservoir Management* 5:21-26.
- Dodds, W. K. and R. W. Castenholz. 1988. The nitrogen budget of an oligotrophic cold water pond. *Arch. Hydrobiol. Suppl.* 4:343-362.
- Dodds, W. K. and R. W. Castenholz. 1988. The biological effects of nitrate fertilization and water replacement in an oligotrophic cold water pond. *Hydrobiologia* 162:141-146.
- Dodds, W. K. 1988. Community structure and selection for positive or negative species interactions. *Oikos* 53:387-390.
- Dodds, W. K. and J. C. Priscu. 1988. An inexpensive, simple device for sampling large volumes of lake water from discrete depths. *Freshwater Biology* 20:113-115.
- Dodds, W. K. and R. D. Jones. 1987. Potential rates of nitrification and denitrification in an oligotrophic freshwater sediment system. *Microbial Ecology* 14:91-100.
- Dodds, W. K. and R. W. Castenholz. 1987. Effects of grazing and light on the growth of *Nostoc pruniforme*. *British Phycology Journal* 23:219-227.

## Books

- Dodds, W. K. (in press) *Laws, Theories and Patterns in Ecology*. University of California Press.
- 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.

## Book Chapters

- Gray, L., G. L. Macpherson, J. K. Koelliker and W. K. Dodds. 1998. Hydrology and aquatic chemistry. In Knapp, A. K., J. M. Briggs, D. C. Hartnett and S. L. Collins (eds.), *Grassland Dynamics: Long-term Ecological Research in Tallgrass Prairie*. Oxford Press, pp 159-176.
- Gray, L. J. and W. K. Dodds. 1998. Structure and dynamics of aquatic communities. In Knapp, A. K., J. M. Briggs, D. C. Hartnett and S. L. Collins (eds.), *Grassland Dynamics: Long-term Ecological Research in Tallgrass Prairie*. Oxford Press, pp. 177-189.

## Reviews and Reports (\*peer reviewed):

- Dodds, W. K. 2007. Review of D. P. Batzer and R. R. Sharitz (eds.) *Ecology of Freshwater and Estuarine Wetlands*, University of California Press. *The Quarterly Review of Biology* 82:431.
- Dodds, W. K. 2000. Review of Gary E. Dillard, *Common Freshwater Algae of the United States*. *Journal of Phycology* 36:622.
- Dodds, W. K. 2000. Review of Stoermer and Smol (Eds.) *The Diatoms: Applications for the Environmental and Earth Sciences*, Ecological Engineering.
- Buck, S., G. Denton, W. Dodds, J. Fisher, D. Flemer, D. Hart, A. Parker, S. Porter, S. Rector, A. Steinman, J. Stevenson, J. Stoner, D. Tillman, S. Wang, V. Watson, E. Welch. 2000. *Nutrient Criteria Technical Guidance Manual, Rivers and Streams*. United States Environmental Protection Agency. EPA-822-B-00-002.\*
- Pimentel, D. and W. Dodds. 1999. Human resource use, population growth, and environmental destruction. *Bulletin of the Ecological Society of America* 80:88-91.
- Dodds, W. K. 1996. *Assessment of blue-green algal toxins in Kansas*. Report no. G2020-02, Kansas Water Resources Research Institute, contribution no. 320. U.S. Department of the Interior Geological Survey.
- Meyer, J., T. Crocker, D. D'Angelo, W. Dodds, S. Findlay, M. Oswood, D. Reper and D. Toetz. 1993. *Stream research in the LTER network*. LTER publication No. 15.

**Research Grants:**

- 2008-2009 *Ecological integrity of prairie streams as influenced by patch-burn grazing and riparian protection.* Missouri Department of Conservation, \$72,604 to KSU (KSU-lead PI).
- 2008-2014 *Konza Prairie LTER VI: Grassland dynamics and long-term trajectories of change.* National Science Foundation, \$4,920,000 (co-PI).
- 2006-2008 *Forecasting ecological change in the Central Plains,* National Science Foundation EPSCoR Program, \$3,263,478 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.* Procter 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 equipment 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 Soap and Detergent Association. *Nutrient Removal Bioassay Methods for Assessment of the Effects of Decreased Nutrient Loading on Phytoplankton Communities in Aquatic Ecosystems*. \$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 relationship 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:**

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

- Dodds, W. K. *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 *Some 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 *Catapult: 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.
- Relative 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 *Nitrogen 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<sub>2</sub>?* 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<sub>4</sub><sup>3-</sup> on <sup>15</sup>NH<sub>4</sub><sup>+</sup> and <sup>15</sup>NO<sub>3</sub><sup>-</sup> 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<sub>2</sub>, Light and N<sub>2</sub> 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 Service Contributions:**

Professional Activities:

- Editorial Board, *Freshwater Biology* (2008-present)  
STREON: Stream Research and Observational Network, National Ecological Observatory Network, Group Leader (2007-present)  
Associate Editor, *Journal of Geophysical Research* (2006-present)  
Associate Editor, *Journal of the North American Benthological Society* (2004-2006)  
North American Benthological Society 2005 annual meeting (Co-chair, 2003-2005)  
United States National Science Foundation- Ecosystems Program, 2004 Spring Grant Panel  
Associate Editor, *Journal of Phycology* (1999-2003)  
Intersociety and International Interactions Committee of the North American Benthological Society (Chair 1997, member 1998-2001)  
Future Meetings Committee of the American Society of Limnology and Oceanography (1997-present)  
Council for Aquatic Sciences- Chair 2005 Aquatic Sciences Meeting Committee (1999-2002)  
North American Benthological Society- Elections and Meetings Committee (2000-2003)  
United States National Science Foundation- Ecosystems Program, 2001 Spring Grant Panel  
United States Environmental Protection Agency, Nutrient Criteria in Streams Work Group Region 7 (1999-present)  
Treasurer, Sigma Xi, Kansas State University Chapter (1998-2000)  
Water and the Future of Kansas Conference Committee (1990-1997)

University Activities:

- Chair, Konza LTER Aquatic and Hydrological Research Group (1990-present)  
Chair, Division of Biology Seminar Committee (1992-present)  
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) (member of 6 additional search committees)  
Member, Division of Biology Undergraduate Curriculum Committee (1995-2002)  
Member, Division of Biology Tenure and Promotions Committee (2002 -present)  
Member, Division of Biology BRIEF Committee (2002-present)  
Member, Konza Education Advisory Committee (1999-present)  
Member, Konza Prairie Advisory Committee (1994-present)

Member, Division of Biology Ecology and Evolutionary Biology Section, (1990-present)  
Member, Division of Biology Microbiology and Immunology Section, (1990-present)