

Professor Diane M. McKnight

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Citizenship: United States of America

I. EDUCATION

1979, Ph.D., Environmental Engineering, Massachusetts Institute of Technology
1978, M.S., Civil Engineering (Water Resources), Massachusetts Institute of Technology
1975, B.S., Mechanical Engineering, Massachusetts Institute of Technology

II. PROFESSIONAL EXPERIENCE

2015-2018-Program Officer, National Science Foundation, Office of Polar Programs (on leave from University of Colorado)
2013-2015, Director, Center for Water, Earth Science and Technology, University of Colorado
2004-2015, Co-Director Hydrologic Sciences Graduate Program, University of Colorado
1999-present, Professor of Civil, Environmental and Architectural Engineering, University of Colorado
1996-present, Fellow of INSTAAR, University of Colorado
1996-2004, Associate Director, Mountain Research Station, University of Colorado
1996-1999, Associate Professor of Civil, Environmental and Architectural Engineering, University of Colorado
1979-1996, Research hydrologist, National Research Program, U. S. Geological Survey
1986-1992, Research Advisor -Ecology, Water Resources Division, U. S. Geological Survey
1979-1980, National Research Council Fellow, U. S. Geological Survey
1975-1979, INCRA Fellow, Massachusetts Institute of Technology

III. HONORS AND SCHOLARLY AWARDS

2019-20, Distinguished Lecturer, Association of Environmental Engineering and Science Professors
2015, Distinguished Research Lecturer, University of Colorado
2014, Faculty Research Award, College of Engineering and Applied Science, University of Colorado
2014, John Dalton Medal, European Geophysical Union
2014, American Geophysical Union, Hydrology Career Award
2012, National Academy of Engineering, member

2009, American Association for the Advancement of Science, Fellow
2008, Honorary Chair, Humic Sciences and Technology Conference XI
2005, American Geophysical Union, Hydrology Section, Langbein Lecturer
2003, American Geophysical Union, Fellow
1995, USGS, Meritorious Service Award
1985, 1993, USGS, Performance Award
1978, Arthur T. Ippen Award, Ralph M. Parsons Laboratory, MIT

IV. RESEARCH INTERESTS:

Hydrology, conducting studies of coupled ecological, biogeochemical and hydrologic processes in lakes, streams, and watersheds, primarily in polar and mountain regions. Studies include the response of microbial communities in lakes and streams to climate-driven hydrologic change, the biogeochemistry of natural organic material and biogeochemical processes in acid mine drainage streams and in arsenic contaminated groundwater. Another aspect of this research is development of reactive solute transport models of biogeochemical and hydrologic processes in stream systems.

V. PROFESSIONAL SERVICE:

National Research Council: Committee on Climate Change and Water Resources Management, member 1990-1992, Committee on Antarctic Policy and Science, member 1991-1992, Polar Research Board, member 1994-1998, Committee on Inland Aquatic Ecosystems, member, 1994- 1996, Water, Science and Technology Board, member, 2000-2003, Committee to Review Climate Change Science Plan, member, 2003-2004, Committee on Salmon and Water Resources in the Columbia Basin, member 2003-2004, Committee on U.S. Army Corps of Engineers Water Resources, Science, Engineering, and Planning, member 2009-2012, Committee on the Value and Sustainability of Biological Field Stations, Marine Laboratories, and Nature Reserves in 21st Century Science, Education, and Public Outreach, member 2013, Committee on the Effects of Diluted Bitumen on the Environment, Chair 2014-2015.

National Science Foundation: Office of Polar Programs Advisory Committee, member 1993-1996, Advisory Committee for Environmental Research and Education, member 2004-2007.

American Geophysical Union: Chair, AGU Committee on Biogeosciences (1998-2000), Acting President of Biogeosciences Section (2000-2002), Editor (founding), Journal of Geophysical Research-Biogeosciences, 2004-2009, AGU Chapman Conference on Lakes and Climate Change, member of steering committee, 2008-2009, AGU Chapman Conference on Organic Matter Fluorescence, member of steering committee, 2008-2010, Biogeosciences Section, Nominations Committee, Chair, 2012, Maclewane Award committee, member, 2015-2016, AGU Chapman Conference on Winter Limnology, member of steering committee and guest editor of special section of JGR-Biogeosciences,, 2018-present,.

Long Term Ecological Research Network: Chair, Editorial Committee, Schoolyard Children's Book Series, 2006-2015, Principal Investigator, McMurdo Dry Valleys Long-Term Ecological Research project, 2009-2015, Chair, Task Force to re-envision the LTER Network Office, 2013-2014, Chair, LTER Network-Executive Committee, 2019-present.

American Society of Limnology and Oceanography: Member of Board, 1992-1994, President-elect: 1995, President 1996-1998, Past-President 1998-2000; Steering committee for workshop on Emerging Issues in Limnology, member 2002-2003.

Freshwater Imperative, steering committee, 1992-1996, NSF supported effort to develop and promote research agenda for limnology.

National Oceanic and Atmospheric Administration: Science Advisory Board, member 1998-2000.

Intergovernmental Panel on Climate Change (IPCC): Working Group 2- Impacts, Vulnerability and Adaptability, group 15- North America, member 1998-2001

US Global Change Research Program: Water Cycle Science Plan committee, member, 1999-2000.

VI. REFERENCES

Journal articles

Sokol, E. R., Barrett, J. E.; Kohler, T. J.; McKnight, D. M.; Salvatore, M. R.; Stanish, L. F. 2020. Evaluating Alternative Metacommunity Hypotheses for Diatoms in the McMurdo Dry Valleys Using Simulations and Remote Sensing Data. *Frontiers in Ecology and Evolution*, Vol. 8, 521668, DOI: 10.3389/fevo.2020.521668.

Khan, A. L.; Rittger, K; Xian, Peng; Katich, J. M.; Armstrong, R. L.; Kayastha, R. B.; Dana, J. L.; McKnight, D. M. 2020. Biofuel Burning Influences Refractory Black Carbon Concentrations in Seasonal Snow at Lower Elevations of the Dudh Koshi River Basin of Nepal, *Frontiers in Earth Science*, Vol. 8, DOI: 10.3389/feart.2020.00371.

Silicon Isotopic Composition of Dry and Wet-Based Glaciers in Antarctica
Hatton, J. E.; Hendry, K. R.; Hirst, C.; Opfergelt, S.; Henkel, S.; Silva-Busso, A.; Welch, S. A.; Wadham, J. L.; Lyons, W. B.; Bagshaw, E; Staubwasser, M. ; McKnight, D. M. 2020. *Frontiers in Earth Science*, Vol. DOI: 10.3389/feart.2020.00286.

Hirst, C.; Opfergelt, S.; Gaspard, F.; Hendry, K. R.; Hatton, J. E.; Welch, S.; McKnight, D. M.; Lyons, W. B. 2020. Silicon Isotopes Reveal a Non-glacial Source of Silicon to Crescent Stream, McMurdo Dry Valleys, Antarctica. *Frontiers in Earth Science*, Vol: 8, DOI: 10.3389/feart.2020.00229.

Rue, G. P.; Darling, J. P.; Graham, E.; Tfaily, M. M.; McKnight, D. M. 2020. Dynamic changes in dissolved organic matter composition in a Mountain Lake under ice cover and relationships to changes in nutrient cycling and phytoplankton community composition. *Aquatic Sciences*, Vol: 82, DOI: 10.1007/s00027-019-0687-3.

Olk, D.C.; Bloom, P. R.; De Nobili, M.; Chen, Y.; McKnight, D. M.; Wells, M. J. M.; Weber, J. "Using Humic Fractions to Understand Natural Organic Matter Processes in Soil and Water: Selected Studies and Applications." *Journal of Environmental Quality*. 48 (6) (2019): 1633-1643.

Wlostowski, A. N.; Schulte, N. O*; Adams, B. J.; Ball, B. A. Esposito, R. M. M.; Gooseff, M. N.; Lyons, W. B.; Nielsen, U. N.; Virginia, R. A.; Wall, D. H.; Welch, K. A., McKnight, D. M. "The Hydroecology of an Ephemeral Wetland in the McMurdo Dry Valleys, Antarctica." *Journal of Geophysical Research-Biogeosciences*. 124 (12) (2019): 3814-3830.

Loria, K. A.; McKnight, D.; Ragar, D. M.; Johnson, P. T. J. "The life aquatic in high relief: shifts in the physical and biological characteristics of alpine lakes along an elevation gradient in the Rocky Mountains, USA." *Aquatic Sciences*. 82 (1): 11. (2019)

Rue, G. P*; Darling, J. P.*; Graham, E.; Tfaily, M. M., McKnight, D. M.. "Dynamic changes in dissolved organic matter composition in a Mountain Lake under ice cover and relationships to changes in nutrient cycling and phytoplankton community composition." *Aquatic Sciences*. 82 (1): 15. (2019)

Preston, D. L; Sokol, E. R.; Hell, K. McKnight, D. M., Johnson, P. T. J. "Experimental effects of elevated temperature and nitrogen deposition on high-elevation aquatic communities." *Aquatic Sciences*. 82 (1): 7. (2019)

Harmon, R. S.; Leslie, D. L.; Lyons, W. B.; Welch, K. A. McKnight, D. M. "Diurnal chemistry of two contrasting stream types, Taylor Valley, McMurdo Dry Valley Region, Antarctica." 16th International Symposium on Water-Rock Interaction (WRI) / 13th International Symposium on Applied Isotope Geochemistry / 1st IAGC International Conference) .Ed.Chudaev O; Kharaka Y; Harmon R; Millot R; ShouakarStash O: E D P Sciences, January 01, 2019

Bishop, J.; Kopalova, K.; Darling, J.P.; Schulte, N.O.; Kohler, J.; McMinn, A.; Spaulding, S. A.; McKnight, D. M.; Van De Vijver, B. 2019. *Sabbea* gen. nov., a new diatom genus (Bacillariophyta) from continental Antarctica. *Phytotaxa*, Vol: 418(1), pp: 42-56, DOI: 10.11646/phytotaxa.418.1.2

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Diaz, M. A.; Adams, B. J.; Welch, K. A.; Welch, S. A.; Opiyo, S. O.; Khan, A. L.; McKnight, D. M.; Cary, S. C.; Lyons, W. B. 2018. Aeolian Material Transport and Its Role in Landscape Connectivity in the McMurdo Dry Valleys, Antarctica. *Journal of Geophysical Research-Earth Surface* 123: 3323-3337 **DOI:** 10.1029/2017JF004589

Andriuzzi, Walter S.; Stanish, L. F.; Simmons, B. L., Jaros, C., Adams, B. J., Wall, D. J., McKnight, D. M. 2018. Spatial and temporal patterns of microbial mats and associated invertebrates along an Antarctic stream. *Polar Biol.* 41(10): 1911-1921.

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Graham, E. B.; Gabor, R. S.; Schooler, S., McKnight, D. M., Nemergut, D. R., Knelman, J. E. 2018. Oligotrophic wetland sediments susceptible to shifts in microbiomes and mercury cycling with dissolved organic matter addition. *PEERJ* 6: e4575.

Smith, H. J.; Diesler, M.; McKnight, D. M., SanClements, M. D., Foreman, C. M. 2018. Relationship between dissolved organic matter quality and microbial community composition across polar glacial environments. *FEMS Microbiology Ecology* 94(7):UNSP fiy090.

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Kulkarni, H. V., Mladenov N., McKnight, D. M., Zheng, Y., Kirk, M. F., Nemergut, D. R. 2018. Dissolved fulvic acids from a high arsenic aquifer shuttle electrons to enhance microbial iron reduction. *Science of the Total Environment*, 615:1390-1395.

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- Rue, G. P., Rock, N. D., Gabor, R. S., Pitlick, J., Tffaily, M., McKnight, D. M. 2017. Concentration-discharge relationships during an extreme event: Contrasting behavior of solutes and changes to chemical quality of dissolved organic material in the Boulder Creek Watershed during the September 2013 flood. *Water Resources Research*. 53:5276-5297, DOI; 10.1002/2016WR019708.
- Kociolek, J. P., Kopalova, K., Hamsher, S. E., Kohler, T. J., Van de Vijver, B., Convey, P., McKnight, D. M. 2017. Freshwater diatom biogeography and the genus *Luticola*: an extreme case of endemism in Antarctica. *Polar Biology*. 40: 1185-1196; DOI 10.1007/s00300-017-2090-7.
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- Khan, A. L., Wagner, S., Jaffe, R., Xian, P., Williams, M., Armstrong, R., McKnight, D. M. 2017. Dissolved black carbon in the global cryosphere: Concentrations and chemical signatures. *Geophysical Research Letters*. 44:6226-6234, DOI 10.1002/2017GL073485.

Sakaeva, A. Sokol, E. R., Kohler, T. J., Stanish, L. F., Spaulding, S. A., Howkins, A., Welch, K. A., Lyons, W. B., Barrett, J. E., McKnight, D. M. 2016. Polar Biology. 39:2457-2458, DOI 10.1007/s00300-016-1944-8.

Miller, M. P., Boyer, E. W., McKnight, D. M., Brown, M. G., Gabor, R. S., Hunsaker, C. T., Iavorivska, L., Inamdar, S., Johnson, D. W., Kaplan, L. A., Lin, H., McDowell, W. H., Perdrial, J. N. 2016. Variation of organic matter quantity and quality in streams at Critical Zone Observatory watersheds, Water Resources Research, 52, 8202–8216, doi:10.1002/2016WR018970.

Burns, M. A., Barnard, H. R., Gabor, R. S., McKnight, D. M., Brooks, P. D. 2016. Dissolved organic matter transport reflects hillslope to stream connectivity during snowmelt in a montane catchment, Water Resources Research, 52, 4905–4923, doi:10.1002/2015WR017878.

Wlostowski, A. N., Gooseff, M. N., McKnight, D. M., Jaros, C., Lyons, W. B. 2016. Patterns of hydrologic connectivity in the McMurdo Dry Valleys, Antarctica: a synthesis of 20 years of hydrologic data. Hydrologic Processes, 30: 2958–2975. doi: 10.1002/hyp.10818.

Herbei, R., Rytel, A. L., Lyons, W. B., McKnight, D. M., Jaros, C., Gooseff, M. N., Priscu, J. C. 2016. Hydrological Controls on Ecosystem Dynamics in Lake Fryxell, Antarctica. PLOS ONE <http://dx.doi.org/10.1371/journal.pone.0159038>

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Preston, D. L., Caine, N., McKnight, D. M., Williams, M. W., Hell, K., Miller, M. P., Hart, S. J., Johnson, P. T. J. 2016. Climate regulates alpine lake ice cover phenology and aquatic ecosystem structure. Geophysical Research Letters. 43:5553-5560. DOI: 10.1002/2016GL069036.

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Cawley, K. M., Murray, A. E., Doran, P. T., Kenig, F., Stubbins, A., Chen, H. M., Hatcher, P. G., McKnight, D. M. 2016. Characterization of dissolved organic material in the interstitial brine of Lake Vida, Antarctica. Geochimica et Cosmochimica Acta. 183:63-78. DOI: 10.1016/j.gca.2016.03.023.

Kohler, T. J., Van Horn, D., Darling, J. P., Takacs-Vesbach, C. D., McKnight, D. M. 2016. Nutrient treatments alter microbial mat colonization in two glacial meltwater streams for the McMurdo Dry Valleys, Antarctica. FEMS Microbiology Ecology. 92:fiw049. DOI: 10.1093/femsec/fiw049

Gooseff, M.N., Van Horn, D., Sudman, Z., McKnight, D.M., Welch, K. A., Lyons, W. B. 2016. Stream biogeochemical and suspended sediment responses to permafrost degradation in stream banks in Taylor Valley, Antarctica. *Biogeosciences*. 13:1723-1732. DOI: 10.5194/bg-13-1723-2016.

Castendyk, D., McKnight, D. M., Welch, K., Niebuhr, S., Jaros, C. 2015. Pressure-driven, shoreline currents in a perennially ice-covered, pro-glacial lake in Antarctica, identified from a LiCl tracer injected into a pro-glacial stream. *Hydrological Processes* 29(9):2212-2231.

Gabor, R. S., Burns, M. A., Lee, R. H., Elg, J. B., Kemper, C. J., Barnard, H. R., McKnight, D. M. 2015. Influence of Leaching Solution and Catchment Location on the Fluorescence of Water-Soluble Organic Matter. *Environmental Science & Technology* 49(7):4425-4432.

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VI. RESEARCH GRANTS AND CONTRACTS

ONR, Humic substances as electron acceptors and electron shuttlers in anaerobic marine sediments, \$140,000 total award, 1996-1998.

NSF, McMurdo Dry Valleys Long term Ecological Research: a cold desert ecosystem, \$125,000/yr for stream hydrology and ecology, and database management, 1997-2005.

NSF, Niwot Ridge Long term Ecological Research, co-investigator, \$25,000/yr for phytoplankton ecology component and \$15,000 for educational outreach supplement, 1998-2005.

NSF-OPP, "The effects of dissolved organic matter on the photolysis and bioaccumulation of organic contaminants in Pony Lake, Cape Royds.", \$11,000, 1997-1998.

EPA "Manganese photochemistry in mountain streams", with D. Hrncir University of Texas as subcontract, \$351,175 total award, 1998-2000.

Trout Unlimited, Summit County, with inkind support from Keystone Resort)- Characterization of stream ecosystems in the Snake River for the Snake River Task Force, \$9000, 1999.

ONR, Electron-accepting capacity of humic substances in marine sediments: chemistry of reactive quinone moieties, \$285,000, 1999-2001.

EPA, Characterization of stream ecosystems in the Snake River for the Snake River Task Force, sub-contract to Keystone Center, \$50,000, 2001-2003.

NSF-EPA, A decision making framework for stream restoration from acid mine drainage, co-PI with Nick Flores (Economics, CCSI), \$60,000, 2002-2004.

NSF-OPP, Collaborative research: Direct and indirect photolytic fate of persistent organic pollutants in arctic surface waters. Co-PI with Yo Chinn, Ohio State University, \$170,000, 2001-2003.

EPA, Influence of climate-induced alterations in dissolved organic carbon on UV radiation and metal toxicity in high elevation streams, co-PI with W. Clements, Colorado State University, \$227,999, 2002-2005.

NSF-OPP, Collaborative Research: Biogeochemistry of Dissolved Organic Matter in Pony Lake, Ross Island. Co-PI with Yo Chin, Penney Miller, Christine Foreman, \$ 284,607, 2004-2007.

NSF, Niwot Ridge Long term Ecological Research, co-investigator, \$25,000/yr for phytoplankton ecology component and \$15,000-\$40,000/yr for educational outreach supplement, 2005-2011.

NSF, McMurdo Dry Valleys Long Term Ecological Research: a cold desert ecosystem, \$60,000/yr for stream hydrology and ecology, 2005-2011.

NSF-DEB, Development of the LTER Schoolyard Book Series, \$78,000, 2007-2008.

NSF-GEO, Collaborative research: Stream-Sediment Bed Exchange of Colloids and Colloid-Associated Metals in Acid Mine Drainage Environments, \$427,628, 2006-2009

NSF-GEO, Collaborative Research: Humics and Iron Redox Reactions in Bangladesh Aquifer, \$388,063, 2008–2011.

NSF-OPP, Collaborative Research: The Biogeochemical Evolution of Dissolved Organic Matter in a Fluvial System on the Cotton Glacier, Antarctica, \$329,535.00, 2009-2011.

NSF-OPP, Collaborative Research: Stream Ecosystem "Harshness" and Microbial, \$452,230.00, 2009-2011.

NSF-OPP, Increased Connectivity in a Polar Desert Resulting from Climate Warming: McMurdo Dry Valley LTER Program, \$ 5,640,000, 2011-2017.

NSF, DEB, Proposal to Support a Task Force for Envisioning the Next Generation Office of the Long-Term Ecological Research Network, \$96,408.00, 2013- 2014

NSF, DEB , Proposal for continued support for the LTER Schoolyard Book Series, \$444,920, 2013-2015.

VII. GRADUATE STUDENTS ADVISED

Ph. D.

1. Sarah Spaulding (co-adviser with D.Wall) 1997
2. Dev Niyogi (co-advisor with Prof. William Lewis in Environmental, Population and Organismic Biology) 1999
3. Michael Gooseff, 2001
4. Durelle Scott, 2001
5. Natalie Mladenov, 2004
6. Andrew Todd, 2005 (fall)
7. Rose Cory, 2005 (fall)
8. Anne Hickey, 2006 (spring)
9. Matt Miller, 2008 (summer)
10. Karen Cozzetto, 2009 (summer)
11. Joshua Koch, 2010 (fall)
12. Lee Stanish, 2011 (fall)
13. Kaelin Cawley, 2010 (spring)
14. Sabre Duren, 2013 (fall)

15. Rachel Gabor, 2013 (fall)
16. James Duncan Cullis, 2011 (fall)
17. Tyler Kohler, 2015 (spring)
18. Alia Khan, 2016 (summer)
19. Alex Mass, 2017 (fall)
20. Garrett Rue, 2019 (summer)
21. Margaret Bowman, 2020 (summer)
22. Brian Straight, 2020 (summer)
23. Nicholas Schulte, 2020 (fall)
24. Tanya Petach
25. Jessica Egan
26. Lane Allen

M. S.

1. Arne Bomblies, 1999
2. Summer Waters, 1999
3. Laura Belanger, 2002
4. Durelle Scott, 2001
5. Alexandra Brown, 2001
6. Lisa Klapper, 2001
7. Eric August, 2001
8. Ethan Chatfield, 2001
9. Erin Van Matre, 2002
10. Matt Miller, 2004
11. Christopher Jaros, 2003
12. Eileen Gardner, 2003
13. Sabre Duren, 2004
14. Marcy Appel, 2004
15. Justin Joslin, 2005
16. Chi Yang, 2005 (spring)
17. Jeffrey Wong, 2006 (spring)
18. Colleen Flanagan, 2007 (spring)
19. Lindsay Weber, 2008 (spring)
20. Tisza Bell, 2009 (fall)
21. Rachel McLoughlin, 2009 (spring)
22. Aimee McLaughlin, 2009 (fall)
23. Bailey Simone, 2010 (summer)
23. Caitlin Crouch, 2011 (summer)
24. Jessica Ebert, 2012 (fall)
25. Alia Khan, 2012 (summer)
26. Deena Garland, 2013 (spring)
27. Travis Drake, 2014 (summer)
28. Aneilya Sakaeva, 2014 (summer)
29. Ian Bishop, 2014 (summer)
30. Steven Crisp, 2015 (summer)
31. Garrett Rue, 2015 (summer)

32. Jordan Carroll, 2016 (fall)
32. Matt Olivier, 2017 (summer)
33. Meredith Tyree, 2017 (summer)
34. Kelley Watson, 2018 (spring)
35. Jessica Egan, 2020 (summer)
36. Matthew Jones, 2019 (fall)
37. Joshua Darling
38. Colette Werk
39. Nayoung Hur
40. Nicole Brooks
41. Sarah (Maggie) Anderson

VIII. SUMMARY OF COURSES TAUGHT

Natural Organic Material in Water (Spring 1997)
Applied Stream Ecology (regularly, 1997-present)
Surface Water Quality Modeling (1998-1999)
Alpine Ecology and Experiential Learning (summer 1998-2004)
Introduction to Applied Ecology (regularly, spring 2000-present)
Advanced Aquatic Chemistry (spring 2003, Spring 2008)
Environmental Engineering Chemistry (fall 2005, 2008)

IX. UNIVERSITY SERVICE

Departmental Committees:

- CEAE Curriculum Committee (member 1997-1999, 2005-2006)
- CEAE Executive Committee (member 2001-2004)
- Hydrology search committees
- Chair and member, Environmental Engineering search committees
- INSTAAR, Chair, Isotope biogeochemist search committee (2019)

Local committees and public outreach activities:

- Boulder Creek Watershed Initiative, member Board of Directors (1997-2008).
- Snake River Watershed Task Force, member, 1999-2007.

X. PROFESSIONAL SOCIETIES

- Ecological Society of America
- American Society of Limnology and Oceanography
- American Chemical Society
- American Geophysical Union
- Geological Society of America
- International Humic Substances Society
- Phycological Society of America
- Society for Freshwater Science
- Sigma Xi

XII. REVIEWER

Journals:

- Ecosystems
- Antarctic Science
- Archiv of Hydrobiologie
- Chemical Geology
- Environmental Science and Technology
- Geochimica Cosmochimica Acta
- Hydrologic Processes
- Journal of Arctic, Antarctic and Alpine Research
- Journal of Soil Science Society of America
- Limnology and Oceanography
- Nature
- Polar Biology
- Water Research
- Water Resources Research

Books:

- MIT Press

Proposals:

- NSF (DEB, Polar Programs, Hydrology)
- Dept. of Agriculture
- Department of Energy

XIII. CONFERENCES ORGANIZED

Co-chair of symposium "Freshwater Ecosystems and Climate Change in North America", co-sponsored by American Society of Limnology and Oceanography and North American Benthological Society, 1993.

Co-chair of 1988 American Society of Limnology and Oceanography, summer meeting