

Christopher T. Filstrup

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RESEARCH INTERESTS

limnology, freshwater resources management, largescale water quality drivers, cultural eutrophication, harmful algal blooms, cyanobacteria physiology, nutrient cycling and transport, pelagic community structuring, phytoplankton ecology, water reuse, drinking water systems

EDUCATION

Ph.D., Biology	Baylor University (Waco, TX)	2009
Dissertation: Organic matter sources through annual and decadal timescales in a polymictic reservoir. Advisor: Owen T. Lind.		
B.S., Biology	University of Texas at Austin	1998

APPOINTMENTS

Applied Limnologist	University of Minnesota Duluth	2019 – Present
Institute: Natural Resources Research Institute		
Responsibilities: Direct operations of the Central Analytical Laboratory (water chemistry), work with project partners to develop solutions to sustainable use of natural resources and water quality challenges.		
Member	Water Resources Science Graduate Program	2017 – Present
Institution: University of Minnesota System		
Research Associate	University of Minnesota Duluth	2016 – 2019
Academic units: Large Lakes Observatory & Minnesota Sea Grant		
Postdoctoral Researcher	Iowa State University	2010 – 2016
Responsibilities: Managed operations of state-certified water quality laboratory, managed multiple water quality assessment and restoration projects including the state-wide lake water quality monitoring program.		
Adjunct Assistant Professor	University of Iowa	2012 – 2015
Responsibilities: Developed and taught intensive field course in aquatic ecology.		
Lecturer	Baylor University	2010
Academic unit: Department of Geology		
Research Associate	Baylor University	2006 – 2010
Academic unit: Center for Spatial Research		
Responsibilities: Modeled watershed – lake interactions with emphasis on nutrient transport and phytoplankton communities using watershed models coupled to hydrodynamic and water quality models.		
Graduate Assistant	Baylor University	2000 – 2006

AWARDS & DISTINCTIONS

Fellows Program	Assoc. for the Sciences of Limnology & Oceanography	2016
Description: Program “to honor ASLO members who have advanced the aquatic sciences via their exceptional contributions to the benefit of the society and its publications, meetings, and other activities.”		
Outstanding Reviewer	Society for Freshwater Sciences	2016

Invited Participant	UNOLS Chief Scientist Training Program	2015
	Description: University-National Oceanographic Laboratory System program to train early career marine scientists in acquiring and utilizing ship time for multidisciplinary research, and in directing science party operations aboard research cruises.	
Invited Participant	Ecological Dissertations in the Aquatic Sciences	2010
	Description: Eco-DAS is a program funded by National Science Foundation and the Association for the Sciences of Limnology & Oceanography to bridge interdisciplinary gaps in aquatic ecology, thereby increasing the likelihood of professional success for recent Ph.D. graduates.	
Limnology/Aquatic Ecology Scholarship	Baylor U.	2001, 2004, 2006

MEDIA MENTIONS

- Sea Grant Files Radio Show. 2018. Interviewed to discuss harmful algal blooms that occurred in Minnesota surface waters during the summer of 2018. *The algae blooms of 2018* by Jesse Schomberg. <https://bit.ly/2Rv5p1p>
- FOX21 News. 2017. Interviewed to discuss findings of paper showing that high nitrate concentrations can lead to unexpectedly clear lakes. *Algae eating toxin found in lakes* by Brittney Merlot. <https://bit.ly/2NxQoos>
- Science Now. 2017. Summary of *Inland Waters* article on impacts of excess nitrate. *Too much of a good thing is killing Midwestern lakes* by Robert F. Service. <https://bit.ly/2hFZw12>
- Eos. 2017. Interviewed to discuss findings of *Inland Waters* article. *Polluted lakes in disguise* by Kimberly M. S. Cartier. <https://bit.ly/2MmhS4i>
- Minnesota Public Radio News. 2017. Interviewed to discuss findings of *Inland Waters* article. *Study shows clear lakes can be some of the most polluted* by Dan Kraker. <https://bit.ly/2NAM5RO>
- Minnesota Public Radio News. 2017. Interviewed as expert on harmful algal blooms for story. *Researchers search for clues to toxic algae blooms* by Dan Kraker. <https://bit.ly/2x8zMAb>

PEER-REVIEWED PUBLICATIONS

Google Scholar – Citations 717, h-index 12, i10-index 16

26. Gellis, AC, CC Fuller, P Van Metre, **CT Filstrup**, MD Tomer, KJ Cole, & TY Sabitov. In press. Combining sediment fingerprinting with age-dating sediment using fallout radionuclides for an agricultural stream, Walnut Creek, Iowa, USA. *Journal of Soils and Sediments*.
25. **Filstrup, CT**, T Wagner, SK Oliver, CA Stow, KE Webster, EH Stanley, & JA Downing. 2018. Evidence for regional nitrogen stress on chlorophyll *a* in lakes across large landscape and climate gradients. *Limnology and Oceanography* 63: S324-S339. doi: 10.1002/lno.10742
24. Hillebrand, H, B Blasius, ET Borer, JM Chase, JA Downing, BK Eriksson, **CT Filstrup**, WS Harpole, D Hodapp, S Larsen, AM Lewandowska, EW Seabloom, DB Van de Waal, & AB Ryabov. 2018. Biodiversity change is uncoupled from species richness trends: consequences for conservation and monitoring. *Journal of Applied Ecology* 55:169-184. doi: 10.1111/1365-2664.12959
23. Soranno, PA, & 79 others. 2017. LAGOS-NE: a multi-scaled geospatial and temporal database of lake ecological context and water quality for thousands of U.S. lakes. *GigaScience* 6:1-22. doi: 10.1093/gigascience/gix101
22. **Filstrup, CT**, & JA Downing. 2017. Relationship of chlorophyll to phosphorus and nitrogen in nutrient-rich lakes. *Inland Waters* 7:385-400. doi: 10.1080/20442041.2017.1375176
#most downloaded paper all-time in Inland Waters
21. Lapierre, JF, DA Seekell, **CT Filstrup**, SM Collins, CE Fergus, PA Soranno, & KS Cheruvilil. 2017. Continental-scale variation in controls of summer CO₂ in United States lakes. *Journal of Geophysical Research: Biogeosciences* 122:875-885. doi: 10.1002/2016JG003525

20. Cheruvilil, KS, S Yuan, KE Webster, PN Tan, JF Lapierre, SM Collins, CE Fergus, CE Scott, EN Henry, PA Soranno, **CT Filstrup**, & T Wagner. 2017. Creating multithemed ecological regions for macroscale ecology: testing a flexible, repeatable, and accessible clustering method. *Ecology and Evolution* 7:3046-3058. doi: 10.1002/ece3.2884
19. Jones, JR, DV Obrecht, JL Graham, MB Balmer, **CT Filstrup**, & JA Downing. 2016. Seasonal patterns in carbon dioxide in 15 mid-continent (USA) reservoirs. *Inland Waters* 6:265-272. doi: 10.5268/IW-6.2.982
18. Heathcote, AJ, **CT Filstrup**, DL Kendall, & JA Downing. 2016. Biomass pyramids in lake plankton: influence of Cyanobacteria size and abundance. *Inland Waters* 6:250-257. doi: 10.5268/IW-6.2.941
17. **Filstrup, CT**, AJ Heathcote, DL Kendall, & JA Downing. 2016. Phytoplankton taxonomic compositional shifts across nutrient and light gradients in temperate lakes. *Inland Waters* 6:234-249. doi: 10.5268/IW-6.2.939
16. Soranno, PA, EG Bissell, KS Cheruvilil, ST Christel, SM Collins, CE Fergus, **CT Filstrup**, JF Lapierre, NR Lottig, SK Oliver, CE Scott, NJ Smith, S Stopyak, S Yuan, MT Bremigan, JA Downing, C Gries, EN Henry, NK Skaff, EH Stanley, CA Stow, PN Tan, T Wagner, & KE Webster. 2015. Building a multi-scaled geospatial temporal ecology database from disparate data sources: fostering open science and data reuse. *GigaScience* 4:28. doi: 10.1186/s13742-015-0067-4
15. Keeler, BL, SA Wood, S Polasky, C Kling, **CT Filstrup**, & JA Downing. 2015. Recreational demand for clean water: evidence from geotagged photographs by visitors to lakes. *Frontiers in Ecology and the Environment* 13:76-81. doi: 10.1890/140124
14. **Filstrup, CT**, T Wagner, PA Soranno, EH Stanley, CA Stow, KE Webster, & JA Downing. 2014. Regional variability among nonlinear chlorophyll-phosphorus relationships in lakes. *Limnology and Oceanography* 59:1691-1703. doi: 10.4319/lo.2014.59.5.1691
13. Soranno, PA, KS Cheruvilil, EG Bissel, MT Bremigan, JA Downing, CE Fergus, **CT Filstrup**, EN Henry, NR Lottig, EH Stanley, CA Stow, PN Tan, T Wagner, & KE Webster. 2014. Cross-scale interactions: quantifying multi-scaled cause-effect relationships in macrosystems. *Frontiers in Ecology and the Environment* 12:65-73. doi: 10.1890/120366
12. Cheruvilil, KS, PA Soranno, KC Weathers, PC Hanson, SJ Goring, **CT Filstrup**, & EK Read. 2014. Creating and maintaining high-performing collaborative research teams: the importance of diversity and interpersonal skills. *Frontiers in Ecology and the Environment* 12:31-38. doi: 10.1890/130001
11. Levy, O, BA Ball, B Bond-Lamberty, KS Cheruvilil, AO Finley, NR Lottig, SW Punyasena, J Xiao, J Zhou, LB Buckley, **CT Filstrup**, TH Keitt, JR Kellner, AK Knapp, AD Richardson, D Tchong, M Toomey, R Vargas, JW Voordeckers, T Wagner, & JW Williams. 2014. Approaches to advance scientific understanding of macrosystems ecology. *Frontiers in Ecology and the Environment* 12:15-23. doi: 10.1890/130019
10. **Filstrup, CT**, H Hillebrand, AJ Heathcote, WS Harpole, & JA Downing. 2014. Cyanobacteria dominance influences resource use efficiency and community turnover in phytoplankton and zooplankton communities. *Ecology Letters* 17:464-474. doi: 10.1111/ele.12246
9. Heathcote, AJ, **CT Filstrup**, & JA Downing. 2013. Watershed sediment losses to lakes accelerating despite agricultural soil conservation efforts. *PLoS ONE* 8:e53554. doi: 10.1371/journal.pone.0053554
8. White, JD, SJ Prochnow, **CT Filstrup**, & BW Byars. 2010. A combined watershed-water quality modeling analysis of the Lake Waco reservoir: II. Watershed and reservoir management options and outcomes. *Lake and Reservoir Management* 26:159-167. doi: 10.1080/07438141.2010.495317

7. White, JD, SJ Prochnow, **CT Filstrup**, JT Scott, BW Byars, & L Zygo-Flynn. 2010. A combined watershed–water quality modeling analysis of the Lake Waco reservoir: I. Calibration and confirmation of predicted water quality. *Lake and Reservoir Management* 26:147-158. doi: 10.1080/07438141.2010.495315
6. **Filstrup, CT**, & OT Lind. 2010. Sediment transport mechanisms influencing spatiotemporal resuspension patterns in a shallow, polymictic reservoir. *Lake and Reservoir Management* 26:85-94. doi: 10.1080/07438141.2010.490771
5. **Filstrup, CT**, JT Scott, JD White, & OT Lind. 2010. Use of sediment elemental and isotopic compositions to record the eutrophication of a polymictic reservoir in central Texas, USA. *Lakes & Reservoirs: Research and Management* 15:25-39. doi: 10.1111/j.1440-1770.2010.00420.x
4. **Filstrup, CT**, JT Scott, & OT Lind. 2009. Allochthonous organic matter supplements and sediment transport in a polymictic reservoir determined using elemental and isotopic ratios. *Biogeochemistry* 96:87-100. doi: 10.1007/s10533-009-9346-4
3. Prochnow, SJ, JD White, JT Scott, & **CT Filstrup**. 2008. Multi-scenario simulation analysis in prioritizing management options for an impacted watershed system. *Ecohydrology and Hydrobiology* 8:3-15. doi: 10.2478/v10104-009-0001-4
2. Prochnow, SJ, JD White, JT Scott, & **CT Filstrup**. 2007. Small reservoir impact on simulated watershed-scale nutrient yield. *Research Letters in Ecology* 2007: Article ID 12571. doi: 10.1155/2007/12571
1. Scott, JT, RD Doyle, & **CT Filstrup**. 2005. Periphyton nutrient limitation and nitrogen fixation potential along a wetland nutrient-depletion gradient. *Wetlands* 25:439-448. doi: 10.1672/18

TECHNICAL REPORTS

9. **Filstrup, CT**, & JA Downing. 2016. Capstone Project: Drivers of internal phosphorus loading in Iowa lakes. Prepared for the Iowa Department of Natural Resources.
8. Downing, JA, **CT Filstrup**, L Whitehouse, & DL Kendall. 2016. Silver Lake (Palo Alto County): a diagnostic and feasibility study. Prepared for the Iowa Department of Natural Resources.
7. Downing, JA, **CT Filstrup**, L Whitehouse, DL Kendall, & HM Carroll. 2016. North and South Twin Lakes: a diagnostic and feasibility study. Prepared for the Iowa Department of Natural Resources.
6. Fischer, JR, A Belyaeva, **CT Filstrup**, CJ Williams, MC Quist, & JA Downing. 2014. Benchmarks of biological integrity for lake restoration success: fish, invertebrate, and plankton communities in Iowa lakes. Prepared for the Iowa Department of Natural Resources.
5. Williams, CJ, **CT Filstrup**, & JA Downing. 2013. Maximizing ecosystem benefits of the Storm Lake dredging program: an evaluation of dredging and potential management scenarios on wind-driven sediment resuspension and water quality of Storm Lake. Prepared for the Iowa Department of Natural Resources.
4. Heathcote, AJ, **CT Filstrup**, & JA Downing. 2012. Historic water quality conditions in Iowa natural lakes. Prepared for the Iowa Department of Natural Resources.
3. Downing, JA, & **CT Filstrup**. 2011. Easter Lake: a diagnostic-feasibility study for lake restoration. Prepared for the Iowa Department of Natural Resources.
2. Downing, JA, K Poole, & **CT Filstrup**. 2010. Black Hawk Lake: a diagnostic-feasibility study for lake restoration. Prepared for the Iowa Department of Natural Resources.
1. Downing, JA, K Poole, & **CT Filstrup**. 2010. Lower Chain Lakes: a diagnostic-feasibility study for lake restoration. Prepared for the Iowa Department of Natural Resources.

#copies of all technical reports available upon request

SELECT NON-PEER-REVIEWED PUBLICATIONS

6. Rose, KC, **CT Filstrup**, P Fink, H-P Grossart, & KR Salk. 2018. Life in transition: ASLO and early career scientists. *Limnology and Oceanography Bulletin*. doi: 10.1002/lob.10276.
5. **Filstrup, CT**, KC Rose, X Xiao, H Doi, AK Johnson, & S Menden-Deuer. 2016. Meeting highlights: early career workshop at ASLO Summer Meeting provides tips to improve funding success. *Limnology and Oceanography Bulletin* 25:135-136. doi: 10.1002/lob.10143.
4. Menden-Deuer, S, L Bristow, H Doi, **CT Filstrup**, A Johnson, K Rose, X Xi, A Burgess, & G Wilkinson. 2015. Big data on important issues: assessing the needs of student and early career aquatic scientists. *Limnology and Oceanography Bulletin* 24:77-79. doi: 10.1002/lob.10052
3. **Filstrup, CT**, AJ Heathcote, & JA Downing. 2014. Sediment accumulation rates still increasing in Iowa's natural lakes. *Getting into Soil and Water* 2014:14-16. Available at <http://bit.ly/2AiOS7t>
2. Kavanaugh, MT, GW Holtgrieve, H Baulch, JR Brum, ML Cuvelier, **CT Filstrup**, KJ Nickols, & GE Small. 2013. A salty divide within ASLO? *Limnology and Oceanography Bulletin* 22:34-37. doi: 10.1002/lob.201322233
1. **Filstrup, CT**, WS Harpole, AJ Heathcote, J Shurin, & M Kondoh. 2012. Causes and consequences of biodiversity loss across global ecosystems. *Limnology and Oceanography Bulletin* 21:98-99. doi: 10.1002/lob.201221497

CURRENT GRANTS

National Science Foundation. Macrosystems Biology & Early NEON Science Program. 2016. Collaborative Proposal: MSB-FRA: A macrosystems ecology framework for continental-scale prediction and understanding of lakes. PIs: PA Soranno, KS Cheruvilil, PN Tan, J Zhou, EH Stanley, C Gries, NR Lottig, T Wagner, E Hanks, & E Schliep. Senior Personnel: Downing, JA, CT Filstrup, & JF Lapierre. *Funding provided for project participation and travel over 5 years.*

PREVIOUSLY HELD GRANTS

\$1.76 M TOTAL

- Iowa Department of Natural Resources. 2016. Shallow lakes monitoring analytical support. PIs: JA Downing, & CT Filstrup. **\$19,373 over one year.**
- Iowa Department of Natural Resources. 2016. Wetland monitoring analytical support. PIs: JA Downing, & CT Filstrup. **\$8,410 over one year.**
- Iowa Department of Natural Resources. 2016. Developing quantitative tools to identify mechanisms underlying internal phosphorus loading in Iowa lakes. PIs: JA Downing, & CT Filstrup. **\$47,233 over one year.**
- Iowa Department of Natural Resources. 2014. Silver Lake (Palo Alto County) restoration diagnostic and feasibility study PIs: JA Downing, CT Filstrup, & CJ Williams. **\$210,086 over two years.**
- Iowa Department of Natural Resources. 2014. 2014-2016 ambient lake monitoring program. PIs: JA Downing, CT Filstrup, & CJ Williams. **\$522,131 over three years.**
- Iowa Department of Natural Resources. 2013. Twin Lakes restoration diagnostic and feasibility study. PIs: JA Downing, CT Filstrup, & CJ Williams. **\$209,854 over two years.**
- University-National Oceanographic Laboratory System. Biodiversity dynamics across trophic levels in pelagic communities. PI: CT Filstrup. **\$1,500 over one year.**
- Iowa Department of Natural Resources. 2015. Shallow lakes monitoring analytical support. PIs: JA Downing, CT Filstrup, & CJ Williams. **\$11,149 over one year.**
- Iowa Department of Natural Resources. 2015. Wetland monitoring analytical support. PIs: JA Downing, CT Filstrup, & CJ Williams. **\$5,885 over one year.**

- Smithfield Foods, Inc. The Smithfield Fund. 2013. Detecting and understanding toxicogenic blue-green algae: an emerging environmental health hazard that proliferates in impaired water. PIs: SM Ensley, KJ Yoon, CT Filstrup, JA Downing, & P Imerman. **\$49,967 over one year.**
- Leopold Center for Sustainable Agriculture. Iowa State University. 2013. Sediment source contributions to lake sedimentation in agricultural watersheds of Iowa. PIs: JA Downing, & CT Filstrup. **\$4,405 over one year.**
- Iowa Department of Natural Resources. 2012. Maximizing ecosystem benefits of the Storm Lake dredging program: an evaluation of dredging and additional management actions on wind-driven sediment resuspension and water quality of Storm Lake. PIs: JA Downing, CJ Williams, & CT Filstrup. **\$143,618 over one year.**
- Iowa State University Health Research Initiative. 2012. Integrated research on the health impacts of harmful algal blooms. PIs: WK Rumbelha, SM Ensley, P Imerman, KJ Yoon, E Whitley, JA Downing, CT Filstrup, D Chen, N Neihart, JE Riviere, D van der Merwe, IC Garrison, & KP Price. **\$50,000 over one year.**
- Association for the Sciences of Limnology and Oceanography. Emerging Issues Workshop Program. 2012. Causes and consequences of biodiversity loss across global ecosystems. PIs: WS Harpole, CT Filstrup, AJ Heathcote, & J Shurin. **\$10,000 for workshop.**
- Iowa Department of Natural Resources. 2010. Ambient lake water quality monitoring 2011-2013. PIs: JA Downing, & CT Filstrup. **\$453,637 over three years.**
- Baylor University. Bob Gardner Memorial Grant. 2002, 2004, 2005. Titles varied by year. PI: CT Filstrup. **\$3,000 over three years.**
- Baylor University. Folmar Research Award. 2001-06 (awarded annually). Titles varied by year. PI: CT Filstrup. **\$6,000 over six years.**

INTERDISCIPLINARY WORKGROUP INVITEE

- Iowa State University. Integrated Assessment Models and the social costs of water pollution. April 2018. Ames, IA.
- National Socio-Environmental Synthesis Center. The value of water quality to lake recreation: evidence from geotagged social media. May 2017. Annapolis, MD.
- National Socio-Environmental Synthesis Center. The value of water quality to lake recreation: evidence from geotagged social media. January 2016. Annapolis, MD.
- National Center for Ecological Analysis & Synthesis. Lake Ontology Working Group. June 2015. Santa Barbara, CA.
- Ecological Dissertations in the Aquatic Sciences (Eco-DAS). Reunion Symposium. May 2014. Portland, OR.

PROFESSIONAL LEADERSHIP

Society positions held

- Deputy Editor of *Limnology & Oceanography Bulletin*. 2016 – Present. Publication of the Association for the Sciences of Limnology & Oceanography.
- Early Career Committee Member. 2015 – 2018. Committee of the Association for the Sciences of Limnology & Oceanography charged with developing professional development opportunities and resources for early career members of the society.

Conference session and workshop organizer

- Organizer. 2018. Harmful Algal Blooms in Minnesota Workshop. St. Anthony Falls Laboratory. March 2018. Minneapolis, MN.

- Organizer. 2018. Nutrient Runoff Risk Reduction: A workshop to explore decision support tools. National Water Center, University of Alabama. January – February 2018. Tuscaloosa, AL.
- Lead organizer. 2017. Tips to facilitate publication success. Early Career Committee Workshop. Association for the Sciences of Limnology & Oceanography Aquatic Sciences Meeting. March 2017. Honolulu, HI.
- Lead organizer. 2016. Writing a winning proposal: Vital tips from program officers for early career scientists. Early Career Committee Workshop. Association for the Sciences of Limnology & Oceanography Summer Meeting. June 2016. Santa Fe, NM.
- Organizer. 2016. Bridging local processes and large-scale patterns in aquatic biogeochemical cycles across landscapes. Conference Special Session. Association for the Sciences of Limnology & Oceanography Summer Meeting. June 2016. Santa Fe, NM.
- Organizer. 2012. Biodiversity-ecosystem functioning relationships across trophic levels and gradients in the context of global change. Conference Special Session. Association for the Sciences of Limnology & Oceanography Summer Meeting. July 2012. Otsu, Japan.
- Organizer. 2012. Causes and consequences of biodiversity loss across global ecosystems. Emerging Issues Workshop. Association for the Sciences of Limnology & Oceanography Summer Meeting. July 2012. Otsu, Japan.

Project meeting and community organizer

- Lead organizer. 2014 – 2016. Silver Lake (Palo Alto County) DFS Project Steering Committee & Public Meetings. Ayrshire, IA.
- Lead organizer. 2013 – 2016. Twin Lakes DFS Project Steering Committee & Public Meetings. Manson, IA.
- Organizer. 2013 – 2014. Biological Integrity Project Partners Meetings. Ames, IA.
- Organizer. 2011. Easter Lake DFS Project Steering Committee & Public Meetings. Des Moines, IA.

SUPERVISORY EXPERIENCE

Graduate student committees

- Bambach, Matt. Current. Tentative title: Impacts of climate change, land use, and other changes in water quality on harmful algae blooms (cyanobacteria production and toxicity) in inland Minnesota lakes. Master's student in Water Resources Science Graduate Program at University of Minnesota Duluth – Natural Resources Research Institute.
- Reinl, Kaitlin. Current. Focal area: Cyanobacteria blooms in Lake Superior. Ph.D. student in Water Resources Science Graduate Program at University of Minnesota Duluth – Large Lakes Observatory.
- Sachs, Gage. Current. Focal area: Diatom metabolic pathways and lipid geochemistry in groundwater seepage pools on Lake Superior's coast. Ph.D. student in Water Resources Science Graduate Program at University of Minnesota Duluth – Large Lakes Observatory.

Undergraduate research advisees

- Kussow, Madeline. Current. Tentative title: Influence of substrate size on colonization rates of periphyton in experimental streams. University of Wisconsin – Eau Claire.
- Vang, Kongmeng. 2017. Photographic color spectrum decomposition to quantify algal abundance and composition. University of Minnesota Duluth.
- Tenborg, Lucas. 2013. Environmental factors promoting Cyanobacteria bloom formation. Iowa State University. Presented research at ISU Science with Practice Symposium.
- Johnson, Casey. 2011 – 2012. Decay of chlorophyll *a* during freezing: implications for recommended holding times. Iowa State University. Presented research at ISU Undergraduate Research Symposium.

PRESENTATIONS

Invited presentations

7. **Filstrup, CT.** 2018. Biodiversity – ecosystem functioning in lakes: the importance of phytoplankton evenness & community turnover. Ecology, Evolution, and Behavior Department Seminar Series. University of Minnesota. September 2018. St. Paul, MN.
6. **Filstrup, CT.** 2018. It's a blue-green algal-covered world: learn how to protect your family, pets, and beer from harmful algal blooms. Twin Ports Climate Conversations Seminar Series. Twin Ports Climate Coalition. June 2018. Duluth, MN.
5. **Filstrup, CT.** 2017. Cyanobacteria dominance in agricultural landscapes: implications for lake community structure & ecosystem functioning. Natural Resources Research Institute Seminar Series. April 2017. Duluth, MN.
4. **Filstrup, CT.** 2016. Growing your professional network: what happens after Eco-DAS? Ecological Dissertations in the Aquatic Sciences (Eco-DAS) XII Symposium. October 2016. Honolulu, HI.
3. **Filstrup, CT,** AJ Heathcote, & JA Downing. 2014. Are current soil erosion control efforts effective? Insights from sediment accumulation rates in Iowa lakes. 2014 Iowa Water Conference. March 2014. Ames, IA.
2. **Filstrup, CT.** 2012. Nutrient enrichment and Cyanobacteria dominance of Iowa lakes. Iowa Lakeside Laboratory Public Lecture Series. June 2012. Milford, IA.
1. **Filstrup, CT,** & OT Lind. 2010. Watershed-water quality linkages: the fate of terrestrial OM in aquatic ecosystems. Ecological Dissertations in the Aquatic Sciences (Eco-DAS) IX Symposium. October 2010. Honolulu, HI.

Contributed presentations (last 5 years only)

9. **Filstrup, CT,** JF Lapierre, S Oliver, P Soranno, T Wagner, & JA Downing. 2018. Spatiotemporal patterns in extreme lake chlorophyll concentrations at the sub-continental scale. Association for the Sciences of Limnology & Oceanography Summer Meeting. June 2018. Victoria, BC, Canada.
8. Lapierre, JF, K Cheruvilil, **CT Filstrup,** A Heathcote, P Maisonneuve, & D Seekell. 2018. Is limnology becoming increasingly biogeochemical and global? Association for the Sciences of Limnology & Oceanography Summer Meeting. June 2018. Victoria, BC, Canada.
7. **Filstrup, CT,** PR Leavitt, & JA Downing. 2017. Cyanobacteria physiological responses to resource imbalance in eutrophic lakes as revealed by cellular pigment content. Association for the Sciences of Limnology & Oceanography Aquatic Sciences Meeting. March 2017. Honolulu, HI.
6. **Filstrup, CT,** T Wagner, CA Stow, SK Oliver, EH Stanley, KE Webster, & JA Downing. 2016. Nitrogen stress effects on lake phytoplankton vary by region based on land use. Association for the Sciences of Limnology & Oceanography Summer Meeting. June 2016. Santa Fe, NM.
5. **Filstrup, CT,** T Wagner, CA Stow, SK Oliver, EH Stanley, KE Webster, & JA Downing. 2015. Regional divergence in nitrogen subsidy-stress effects on lake phytoplankton. National Science Foundation Macrosystems Biology PI Meeting. August 2015. Arlington, VA.
4. **Filstrup, CT,** AJ Heathcote, DL Kendall, & JA Downing. 2015. Does nitrogen, phosphorus, or nitrogen-to-phosphorus ratio best predict Cyanobacteria abundance in lakes? Symposium honoring Val H. Smith. April 2015. Lawrence, KS.
3. **Filstrup, CT,** SK Oliver, EH Stanley, CA Stow, T Wagner, KE Webster, & JA Downing. 2015. Regional divergence in nitrogen subsidy-stress effects on lake phytoplankton. Association for the Sciences of Limnology & Oceanography Aquatic Sciences Meeting. February 2015. Granada, Spain.

2. **Filstrup, CT**, SK Oliver, EH Stanley, CA Stow, T Wagner, KE Webster, & JA Downing. 2014. Subsidy-stress effects of nitrogen on phytoplankton biomass. Joint Aquatic Sciences Meeting. May 2014. Portland, OR.
1. Scott, CE, CE Fergus, NR Lottig, **CT Filstrup**, T Wagner, EH Stanley, & PA Soranno. 2014. Which global and regional climate metrics at macroscales best describe lake water quality responses to climate change? Joint Aquatic Sciences Meeting. May 2014. Portland, OR.

PROFESSIONAL SERVICE

Professional society service

- Invited mentor. 2018. Ecological Dissertations in the Aquatic Sciences (Eco-DAS) XIII Symposium. October 2018. Honolulu, HI.
- Mentor. 2015 – 2017. Association for the Sciences of Limnology & Oceanography (ASLO) Meeting Mentor Program. Annual ASLO conferences held in 2015 – 2017.
- Invited mentor. 2016. Ecological Dissertations in the Aquatic Sciences (Eco-DAS) XII Symposium. October 2016. Honolulu, HI.
- Student presentation judge. 2013, 2015. Association for the Sciences of Limnology & Oceanography (ASLO) annual conferences held in 2013 & 2015.
- Moderator. 2013. Phytoplankton ecology. Conference Contributed Session. Association for the Sciences of Limnology & Oceanography Aquatic Sciences Meeting. February 2013. New Orleans, LA.
- Moderator. 2012. In-lake management: managing internal loading. Conference Contributed Session. North American Lake Management Society Meeting. November 2012. Madison, WI.

Manuscript referee

Canadian Journal of Fisheries and Aquatic Sciences, Ecological Applications, Freshwater Biology, Freshwater Science, Hydrobiologia, Inland Waters, Journal of Contemporary Water Research and Education, Journal of Environmental Quality, Journal of Great Lakes Research, Journal of Limnology, Journal of Soil and Water Conservation, Lake and Reservoir Management, Limnology and Oceanography, Limnology and Oceanography Bulletin, Proceedings of the Indiana Academy of Sciences, Science of the Total Environment, Southeastern Naturalist

Professional memberships

American Association for the Advancement of Science (AAAS), Association for the Sciences of Limnology and Oceanography (ASLO), Ecological Society of America (ESA), International Society of Limnology (SIL), North American Lake Management Society (NALMS), Sigma Xi

COMMUNITY SERVICE & PUBLIC OUTREACH

- Activity leader. 2018. 2018 5th Grade Forestry Field Day. Chester Park. September 2018. Duluth, MN.
- Session leader. 2018. 3rd Annual North Shore Bioblitz. Wolf Ridge Environmental Learning Center. July 2018. Finland, MN.
- Science Fair Judge. 2017, 2018. Northeast Minnesota and American Indian Regional Science and Engineering Fair. February 2017, 2018. Duluth, MN.
- Invited panelist. 2017. Lake Superior Regional Citizen Science Symposium. November 2017. Duluth, MN.
- Invited speaker. 2017. Pea soup water and surface scums and toxins, Oh My! Cyanobacteria (blue-green algae) blooms in lakes. Large Lakes Observatory Science on Deck Program. July 2017. Duluth, MN.

Session leader. Summers of 2014, 2015. Whiterock Conservancy Bioblitz. Whiterock Conservancy. June 2014, July 2015. Coon Rapids, IA.

Session leader. 2013. Waterloo CSD Mussel Workshop. Iowa State University. December 2013. Ames, IA.

TEACHING EXPERIENCE

Lead instructor or co-instructor

Aquatic Ecology. Summers of 2012 – 2015. Intensive field course with lecture and laboratory components for undergraduates. 4 credits. Iowa Lakeside Laboratory.

Topics in Ecology & Sustainability: Limnology. Summers of 2014, 2015. Intensive field course with lecture and laboratory components for undergraduates. 2 credits. Iowa Lakeside Laboratory.

Lake Management Strategies and Techniques. 2014. Seminar course focusing on lake management and restoration techniques for undergraduates. 2 credits. Iowa State University.

Aquatic Ecology. 2013. Lecture course for undergraduates and graduates. Co-taught with JA Downing. 3 credits. Iowa State University.

Water Quality Monitoring Strategies & Techniques. 2013. Seminar course focusing on water quality issues, monitoring techniques, and sample design for undergraduates. 2 credits. Iowa State University.

Introduction to Geographic Information Systems. 2010. Lecture and computer laboratory course for undergraduates and graduates. 4 credits. Baylor University.

Teaching Assistant

Modern Concepts of Bioscience Laboratory II. 2001 – 2004, 2006. 1st year laboratory course for undergraduate Biology majors. 1 credit. Baylor University.

Limnology. Fall semesters of 2002, 2004, 2005. Lecture, field, and laboratory course for undergraduates and graduates. 4 credits. Baylor University.

Ecology. Summer of 2003. Lecture and laboratory course for undergraduate Biology majors. 4 credits. Baylor University.

Modern Concepts of Bioscience Laboratory I. Fall of 2001. 1st semester laboratory course for undergraduate Biology majors. 1 credit. Baylor University.