

BYU Plant & Wildlife Sciences

COLLEGE OF LIFE SCIENCES

Dr. Benjamin W. Abbott

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Research interests

Ecosystem ecology, Environmental sustainability, Science communication, Environmental policy, Hydrology, Water security, Renewable energy, Public health, Expert assessment

Education

University of Alaska Fairbanks, Ph.D., December 2014. Department of Biology and Wildlife.
Adviser: Jeremy B. Jones. Dissertation: *Permafrost in a warmer world: net ecosystem carbon imbalance*
Utah State University, B.S., April 2009. Major: Watershed and Earth Science. Minors: French & English. Adviser: Chris Luecke. Undergraduate research project: *Energy pathways and food sources: stable isotope analysis in an Arctic lake*

Professional experience

Assistant professor, Brigham Young University	2017-present
Postdoctoral fellow, Michigan State University	2016-2017
Marie Curie postdoctoral fellow, Université de Rennes 1	2014-16
Research and teaching assistant, University of Alaska Fairbanks	2009-14
Staff writer: natural resources and science correspondent for the <i>Utah Statesman</i>	2008-09
Undergraduate researcher, <i>Limnology</i> , Utah State University	2007-09

Scientific articles (Google Scholar profile [here](#) and all publications [available here](#))

Severe, E., I. M. Errigo, M. Proteau, S. S. Sayedi, T. Kolbe, J. Marçais, Z. Thomas, C. Petton, F. Rouault, C. Vautier, J.-R. de Dreuzy, F. Moatar, L. Aquilina, R. L. Wood, T. LaBasque, C. Lécuyer, G. Pinay, and **B. W. Abbott**. 2023. *Deep denitrification: Stream and groundwater biogeochemistry reveal contrasted but connected worlds above and below*. [Science of The Total Environment](#).

Lee, R. M., B. Shoshitaishvili, R. L. Wood, J. Bekker, and **B. W. Abbott**. 2023. *The meanings of the Critical Zone*. [Anthropocene](#).

Heiner, M., M. J. Heaton, **B. W. Abbott**, P. White, C. Minaudo, and R. Dupas. 2023. *Model-Based Clustering of Trends and Cycles of Nitrate Concentrations in Rivers Across France*. [Journal of Agricultural, Biological and Environmental Statistics](#).

Lee, R. M., N. Griffin, E. Jones, **B. W. Abbott**, R. J. Frei, S. Bratsman, M. Proteau, I. M. Errigo, A. Shogren, W. B. Bowden, J. P. Zarnetske, and Z. T. Aanderud. 2022. *Bacterioplankton dispersal and biogeochemical function across Alaskan Arctic catchments*. [Environmental Microbiology](#).

Strauss, J., C. Biasi, T. Sanders, **B. W. Abbott**, T. S. von Deimling, C. Voigt, M. Winkel, M. E. Marushchak, D. Kou, M. Fuchs, M. A. Horn, L. L. Jongejans, S. Liebner, J. Nitzbon, L. Schirrmeister, K. Walter Anthony, Y. Yang, S. Zubrzycki, S. Laboor, C. Treat, and G. Grosse.

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- 2022.** *A globally relevant stock of soil nitrogen in the Yedoma permafrost domain.* Nature Communications.
- Abbott, B. W.,** M. Brown, J. C. Carey, J. Ernakovich, J. M. Frederick, L. Guo, G. Hugelius, R. M. Lee, M. M. Loranty, R. Macdonald, P. J. Mann, S. M. Natali, D. Olefeldt, P. Pearson, A. Rec, M. Robards, V. G. Salmon, S. S. Sayedi, C. Schädel, E. A. G. Schuur, S. Shakil, A. J. Shogren, J. Strauss, S. E. Tank, B. F. Thornton, R. Treharne, M. Turetsky, C. Voigt, N. Wright, Y. Yang, J. P. Zarnetske, Q. Zhang, and S. Zolkos. **2022.** *We Must Stop Fossil Fuel Emissions to Protect Permafrost Ecosystems.* Frontiers in Environmental Science.
- Ernakovich, J. G., R. A. Barbato, V. I. Rich, C. Schädel, R. E. Hewitt, S. J. Doherty, E. D. Whalen, **B. W. Abbott,** J. Barta, C. Biasi, C. L. Chabot, J. Hultman, C. Knoblauch, M. C. Y. L. Vetter, M.-C. Leewis, S. Liebner, R. Mackelprang, T. C. Onstott, A. Richter, U. M. E. Schütte, H. M. P. Siljanen, N. Taş, I. Timling, T. A. Vishnivetskaya, M. P. Waldrop, and M. Winkel. **2022.** *Microbiome assembly in thawing permafrost and its feedbacks to climate.* Global Change Biology.
- Schuur, E. A. G., **B. W. Abbott,** R. Commane, J. G. Ernakovich, E. S. Euskirchen, G. Hugelius, G. Grosse, M. Jones, C. D. Koven, V. Leyshk, D. M. Lawrence, M. M. Loranty, M. Mauritz, D. Olefeldt, S. M. Natali, H. Rodenhizer, V. Salmon, C. Schädel, J. Strauss, C. Treat, and M. R. Turetsky. **2022.** *Permafrost and climate change: carbon cycle feedbacks from the warming Arctic.* Annual Review of Environment and Resources.
- Thompson, C. D., E. Severe, A. J. Norris, J. Gudmundsen, M. Lewis, E. Currit, N. Newbold, and **B. W. Abbott.** **2022.** *Improving sustainable agriculture promotion: an explorative analysis of NRCS assistance programs and farmer perspectives.* International Journal of Agricultural Sustainability.
- Hannah, D. M., **B. W. Abbott,** K. Khamis, C. Kelleher, I. Lynch, S. Krause, and A. S. Ward. **2022.** *Illuminating the 'invisible water crisis' to address global water pollution challenges.* Hydrological Processes.
- Cheng, F., C. Garzzone, X. Li, U. Salzmann, F. Schwarz, A. M. Haywood, J. Tindall, J. Nie, L. Li, L. Wang, **B. W. Abbott,** B. Elliott, W. Liu, D. Upadhyay, A. Arnold, and A. Tripathi. **2022.** *Alpine permafrost could account for a quarter of thawed carbon based on Plio-Pleistocene paleoclimate analogue.* Nature Communications.
- Krause, S., **B. W. Abbott,** V. Baranov, S. Bernal, P. Blaen, T. Datry, J. Drummond, J. H. Fleckenstein, J. G. Velez, D. M. Hannah, J. L. A. Knapp, M. Kurz, J. Lewandowski, E. Martí, C. Mendoza-Lera, A. Milner, A. Packman, G. Pinay, A. S. Ward, and J. P. Zarnetske. **2022.** *Organizational Principles of Hyporheic Exchange Flow and Biogeochemical Cycling in River Networks Across Scales.* Water Resources Research.
- Shogren, A. J., J. P. Zarnetske, **B. W. Abbott,** S. Bratsman, B. Brown, M. Carey, R. Fulweber, H. E. Greaves, E. Haines, F. Iannucci, J. C. Koch, A. Medvedeff, J. A. O'Donnell, L. Patch, B. A. Poulin, T. J. Williamson, and W. B. Bowden. **2022.** *Multi-year, spatially extensive, watershed scale synoptic stream chemistry and water quality conditions for six permafrost-underlain Arctic watersheds.* Earth System Science Data.
- Frei, R. J., G. M. Lawson, A. J. Norris, G. Cano, M. C. Vargas, E. Kujanpää, A. Hopkins, B. Brown, R. Sabo, J. Brahney, and **B. W. Abbott.** **2021.** *Limited progress in nutrient pollution in the U.S. caused by spatially persistent nutrient sources.* PLOS ONE.
- Jones, E. F., R. J. Frei, R. M. Lee, J. D. Maxwell, R. Shoemaker, A. P. Follett, G. M. Lawson, Malmfeldt, R. Watts, Z. T. Aanderud, C. Allred, A. T. Asay, M. Buhman, H. Burbidge, A. Call, T. Crandall, I. Errigo, N. A. Griffin, N. C. Hansen, J. C. Howe, E. L. Meadows, E. Kujanpaa, L. Lange, M. L. Nelson, A. J. Norris, E. Ostlund, N. J. Suiter, K. Tanner, J. Tolworthy, M. C. Vargas, and **B. W. Abbott.** **2021.** *Citizen science reveals unexpected solute patterns in semiarid river networks.* PLOS ONE
- Ebeling, P., R. Dupas, **B. W. Abbott,** R. Kumar, S. Ehrhardt, J. H. Fleckenstein, and A. Musolff. **2021.** *Long-Term Nitrate Trajectories Vary by Season in Western European Catchments.* Global Biogeochemical Cycles.

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- Crandall, T., E. Jones, M. Greenhalgh, R. J. Frei, N. Griffin, E. Severe, J. Maxwell, L. Patch, S. I. S. Clair, S. Bratsman, M. Merritt, A. J. Norris, G. T. Carling, N. Hansen, S. B. S. Clair, and **B. W. Abbott**. **2021**. *Megafire affects stream sediment flux and dissolved organic matter reactivity, but land use dominates nutrient dynamics in semiarid watersheds*. [PLOS ONE](#).
- Webber, Z. R., K. G. I. Webber, T. Rock, I. St. Clair, C. Thompson, S. Groenwald, Z. Aanderud, G. T. Carling, R. J. Frei, and **B. W. Abbott**. **2021**. *Diné citizen science: Phytoremediation of uranium and arsenic in the Navajo Nation*. [Science of The Total Environment](#).
- Yang, G., Y. Peng, **B. W. Abbott**, C. Biasi, B. Wei, D. Zhang, J. Wang, J. Yu, F. Li, G. Wang, D. Kou, F. Liu, and Y. Yang. **2021**. *Phosphorus rather than nitrogen regulates ecosystem carbon dynamics after permafrost thaw*. [Global Change Biology](#).
- Vautier, C., T. Kolbe, T. Babey, J. Marçais, **B. W. Abbott**, A. M. Laverman, Z. Thomas, L. Aquilina, G. Pinay, and J.-R. de Dreuzy. **2021**. *What do we need to predict groundwater nitrate recovery trajectories?* [Science of The Total Environment](#).
- Shogren, A. J., J. P. Zarnetske, **B. W. Abbott**, F. Iannucci, A. Medvedeff, S. Cairns, M. J. Duda, and W. B. Bowden. **2021**. *Arctic concentration–discharge relationships for dissolved organic carbon and nitrate vary with landscape and season*. [Limnology and Oceanography](#).
- Gu, S., A. Casquin, R. Dupas, **B. W. Abbott**, P. Petitjean, P. Durand, and G. Gruau. **2021**. *Spatial Persistence of Water Chemistry Patterns Across Flow Conditions in a Mesoscale Agricultural Catchment*. [Water Resources Research](#)
- Gao, T., Y. Zhang, S. Kang, **B. W. Abbott**, X. Wang, T. Zhang, S. Yi, and O. Gustafsson. **2021**. *Accelerating permafrost collapse on the Eastern Tibetan Plateau*. [Environmental Research Letters](#).
- Abbott, B. W.**, A. V. Rocha, A. Shogren, J. P. Zarnetske, F. Iannucci, W. B. Bowden, S. P. Bratsman, L. Patch, R. Watts, R. Fulweber, R. J. Frei, A. M. Huebner, S. M. Ludwig, G. T. Carling, and J. A. O'Donnell. **2021**. *Tundra wildfire triggers sustained lateral nutrient loss in Alaskan Arctic*. [Global Change Biology](#).
- Wologo, E., S. Shakil, S. Zolkos, S. Textor, S. Ewing, J. Klassen, R. G. M. Spencer, D. C. Podgorski, S. E. Tank, M. A. Baker, J. A. O'Donnell, K. P. Wickland, S. S. W. Foks, J. P. Zarnetske, J. Lee-Cullin, F. Liu, Y. Yang, P. Kortelainen, J. Kolehmainen, J. F. Dean, J. E. Vonk, R. M. Holmes, G. Pinay, M. M. Powell, J. Howe, R. J. Frei, S. P. Bratsman, and **B. W. Abbott**. **2021**. *Stream dissolved organic matter in permafrost regions shows surprising compositional similarities but negative priming and nutrient effects*. [Global Biogeochemical Cycles](#).
- Sayedi, S. S., **B. W. Abbott**, B. F. Thornton, J. M. Frederick, J. E. Vonk, P. Overduin, C. Schädel, E. A. G. Schuur, A. Bourbonnais, N. Demidov, A. Gavrillov, S. He, G. Hugelius, M. Jakobsson, M. C. Jones, D. Jounge, G. Kraev, R. W. Macdonald, A. D. McGuire, C. Mu, M. O'Regan, K. M. Schreiner, C. Stranne, E. Pizhankova, A. Vasiliev, S. Westermann, J. P. Zarnetske, T. Zhang, M. Ghandehari, S. Baeumler, B. C. Brown, and R. J. Frei. **2020**. *Subsea permafrost carbon stocks and climate change sensitivity estimated by expert assessment*. [Environmental Research Letters](#).
- Mu, C., **B. W. Abbott**, A. J. Norris, M. Mu, C. Fan, X. Chen, L. Jia, R. Yang, T. Zhang, K. Wang, X. Peng, Q. Wu, G. Guggenberger, and X. Wu. **2020**. *The status and stability of permafrost carbon on the Tibetan Plateau*. [Earth-Science Reviews](#).
- Kropp, H., M. M. Loranty, S. M. Natali, A. L. Kholodov, A. V. Rocha, I. H. Myers-Smith, **B. W. Abbott**, J. Abermann, E. Blanc-Betes, D. Blok, G. Blume-Werry, J. Boike, A. L. Breen, S. M. P. Cahoon, C. T. Christiansen, T. A. Douglas, H. E. Epstein, G. V. Frost, M. Goeckede, T. T. Høye, S. D. Mamet, J. A. O'Donnell, D. Olefeldt, G. K. Phoenix, V. G. Salmon, A. B. K. Sannel, S. L. Smith, O. Sonnentag, L. Vaughn, M. Williams, B. Elberling, L. Gough, J. Hjort, P. M. Lafleur, E. S. Euskirchen, M. Heijmans, E. R. Humphreys, H. Iwata, B. M. Jones, T. Jorgenson, I. Grünberg, Y. Kim, J. Laundre, M. Mauritz, A. Michelsen, G. Schaepman-Strub, K. D. Tape, M. Ueyama, B.-Y. Lee, K. Langley, and M. Lund. **2020**. *Shallow soils are warmer under trees and tall shrubs across Arctic and Boreal ecosystems*. [Environmental Research Letters](#).

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- Shogren, A. J., J. P. Zarnetske, **B. W. Abbott**, F. Iannucci, and W. B. Bowden. **2020**. *We cannot shrug off the shoulder seasons: Addressing knowledge and data gaps in an Arctic Headwater*. Environmental Research Letters.
- Li, F., Y. Peng, L. Chen, G. Yang, **B. W. Abbott**, D. Zhang, K. Fang, G. Wang, J. Wang, J. Yu, L. Liu, Q. Zhang, K. Chen, A. Mohammad, and Y. Yang. **2020**. *Warming alters surface soil organic matter composition despite unchanged carbon stocks in a Tibetan permafrost ecosystem*. Functional Ecology.
- Tank, S. E., J. E. Vonk, M. A. Walvoord, J. W. McClelland, I. Laurion, and **B. W. Abbott**. **2020**. *Landscape matters: Predicting the biogeochemical effects of permafrost thaw on aquatic networks with a state factor approach*. Permafrost and Periglacial Processes.
- Estop-Aragonés, C., D. Olefeldt, **B. W. Abbott**, J. P. Chanton, C. I. Czimczik, J. F. Dean, J. E. Egan, L. Gandois, M. H. Garnett, I. P. Hartley, A. Hoyt, M. Lupascu, S. M. Natali, J. A. O'Donnell, P. A. Raymond, A. J. Tanentzap, S. E. Tank, E. A. G. Schuur, M. Turetsky, and K. W. Anthony. **2020**. *Assessing the Potential for Mobilization of Old Soil Carbon After Permafrost Thaw: A Synthesis of ¹⁴C Measurements From the Northern Permafrost Region*. Global Biogeochemical Cycles.
- Wen, H., J. Perdrial, **B. W. Abbott**, S. Bernal, R. Dupas, S. E. Godsey, A. Harpold, D. Rizzo, K. Underwood, T. Adler, G. Sterle, and L. Li. **2020**. *Temperature controls production but hydrology regulates export of dissolved organic carbon at the catchment scale*. Hydrology and Earth System Sciences.
- Voigt, C., M. E. Marushchak, **B. W. Abbott**, C. Biasi, B. Elberling, S. D. Siciliano, O. Sonnentag, K. J. Stewart, Y. Yang, and P. J. Martikainen. **2020**. *Nitrous oxide emissions from permafrost-affected soils*. Nature Reviews Earth & Environment.
- Barbe, L., C. Mony, and **B. W. Abbott**. **2020**. *Artificial Intelligence Accidentally Learned Ecology through Video Games*. Trends in Ecology & Evolution.
- Turetsky, M. R., **B. W. Abbott**, M. C. Jones, K. W. Anthony, D. Olefeldt, E. A. G. Schuur, G. Grosse, P. Kuhry, G. Hugelius, C. Koven, D. M. Lawrence, C. Gibson, A. B. K. Sannel, and A. D. McGuire. **2020**. *Carbon release through abrupt permafrost thaw*. Nature Geoscience.
- Errigo, I. M., **B. W. Abbott**, D. L. Mendoza, L. Mitchell, S. S. Sayedi, J. Glenn, K. E. Kelly, J. D. Beard, S. Bratsman, T. Carter, R. A. Chaney, A. Follett, A. Freeman, R. J. Frei, M. Greenhalgh, H. A. Holmes, P. D. Howe, J. D. Johnston, L. Lange, R. Martin, A. Stacey, T. Tran, and D. Wilson. **2020**. *Human Health and Economic Costs of Air Pollution in Utah: An Expert Assessment*. Atmosphere.
- Bochet, O., L. Bethencourt, A. Dufresne, J. Farasin, M. Pédrot, T. Labasque, E. Chatton, N. Lavenant, C. Petton, **B. W. Abbott**, L. Aquilina, and T. L. Borgne. **2020**. *Iron-oxidizer hotspots formed by intermittent oxic-anoxic fluid mixing in fractured rocks*. Nature Geoscience.
- Frei, R. J., **B. W. Abbott**, R. Dupas, S. Gu, G. Gruau, Z. Thomas, T. Kolbe, L. Aquilina, T. Labasque, A. Laverman, O. Fovet, F. Moatar, and G. Pinay. **2020**. *Predicting Nutrient Incontinence in the Anthropocene at Watershed Scales*. Frontiers in Environmental Science.
- Mu, C., Paul. F. Schuster, **B. W. Abbott**, S. Kang, J. Guo, S. Sun, Q. Wu, and T. Zhang. **2020**. *Permafrost degradation enhances the risk of mercury release on Qinghai-Tibetan Plateau*. Science of The Total Environment.
- Barbe, L., A. Prinzing, C. Mony, **B. W. Abbott**, M. Santonja, K. Hoeffner, S. Guillocheau, D. Cluzeau, A.-J. Francez, N. Le Bris, and V. Jung. **2020**. *Opposing Effects of Plant-Community Assembly Maintain Constant Litter Decomposition over Grasslands Aged from 1 to 25 Years*. Ecosystems.
- Li, F., Y. Peng, L. Chen, G. Yang, **B. W. Abbott**, D. Zhang, K. Fang, G. Wang, J. Wang, J. Yu, L. Liu, Q. Zhang, K. Chen, A. Mohammad, and Y. Yang. **2019**. *Warming alters surface soil organic matter composition despite unchanged carbon stocks in a Tibetan permafrost ecosystem*. Functional Ecology.
- Shogren, A. J., J. P. Zarnetske, **B. W. Abbott**, F. Iannucci, R. J. Frei, N. A. Griffin, and W. B. Bowden. **2019**. *Revealing biogeochemical signatures of Arctic landscapes with river chemistry*. Scientific Reports.

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- Carey, J. C., **B. W. Abbott**, and A. V. Rocha. **2019**. *Plant Uptake Offsets Silica Release From a Large Arctic Tundra Wildfire*. Earth's Future.
- Natali, S. M., J. D. Watts, B. M. Rogers, S. Potter, S. M. Ludwig, A.-K. Selbmann, P. F. Sullivan, **B. W. Abbott**, K. A. Arndt, L. Birch, M. P. Björkman, A. A. Bloom, G. Celis, T. R. Christensen, C. T. Christiansen, R. Commane, E. J. Cooper, P. Crill, C. Czimczik, S. Davydov, J. Du, J. E. Egan, B. Elberling, E. S. Euskirchen, T. Friborg, H. Genet, M. Göckede, J. P. Goodrich, P. Grogan, M. Helbig, E. E. Jafarov, J. D. Jastrow, A. A. M. Kalhori, Y. Kim, J. S. Kimball, L. Kutzbach, M. J. Lara, K. S. Larsen, B.-Y. Lee, Z. Liu, M. M. Loranty, M. Lund, M. Lupascu, N. Madani, A. Malhotra, R. Matamala, J. McFarland, A. D. McGuire, A. Michelsen, C. Minions, W. C. Oechel, D. Olefeldt, F.-J. W. Parmentier, N. Pirk, B. Poulter, W. Quinton, F. Rezanezhad, D. Risk, T. Sachs, K. Schaefer, N. M. Schmidt, E. A. G. Schuur, P. R. Semenchuk, G. Shaver, O. Sonnentag, G. Starr, C. C. Treat, M. P. Waldrop, Y. Wang, J. Welker, C. Wille, X. Xu, Z. Zhang, Q. Zhuang, and D. Zona. **2019**. *Large loss of CO₂ in winter observed across the northern permafrost region*. Nature Climate Change.
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- Abbott, B. W.**, K. Bishop, J. P. Zarnetske, C. Minaudo, F. S. Chapin, S. Krause, D. M. Hannah, L. Conner, D. Ellison, S. E. Godsey, S. Plont, J. Marçais, T. Kolbe, A. Huebner, R. J. Frei, T. Hampton, S. Gu, M. Buhman, S. S. Sayedi, O. Ursache, M. Chapin, K. D. Henderson, and G. Pinay. **2019**. *Human domination of the global water cycle absent from depictions and perceptions*. Nature Geoscience.
- Dupas, R., **B. W. Abbott**, C. Minaudo, and O. Fovet. **2019**. *Distribution of Landscape Units Within Catchments Influences Nutrient Export Dynamics*. Frontiers in Environmental Science.
- Turetsky, M. R., **B. W. Abbott**, M. C. Jones, K. W. Anthony, D. Olefeldt, E. A. G. Schuur, C. Koven, A. D. McGuire, G. Grosse, P. Kuhry, G. Hugelius, D. M. Lawrence, C. Gibson, and A. B. K. Sannel. **2019**. *Permafrost collapse is accelerating carbon release*. Nature.
- Dupas, R., C. Minaudo, and **B. W. Abbott**. **2019**. *Stability of spatial patterns in water chemistry across temperate ecoregions*. Environmental Research Letters.
- Thomas, Z., P. Rousseau-Gueutin, **B. W. Abbott**, T. Kolbe, H. Le Lay, J. Marçais, F. Rouault, C. Petton, P. Pichelin, G. Le Hennauff, H. Squiquidant, T. Labasque, J.-R. de Dreuzy, L. Aquilina, J. Baudry, and G. Pinay. **2019**. *Long-term ecological observatories needed to understand ecohydrological systems in the Anthropocene: a catchment-scale case study in Brittany, France*. Regional Environmental Change.
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- Marçais, J., A. Gouvain, T. Labasque, **B. W. Abbott**, G. Pinay, L. Aquilina, F. Chabaux, D. Viville, and J.-R. de Dreuzy. **2018**. *Dating groundwater with dissolved silica and CFC concentrations in crystalline aquifers*. Science of The Total Environment.
- Thomas, Z., and **B. W. Abbott**. **2018**. *Hedgerows reduce nitrate flux at hillslope and catchment scales via root uptake and secondary effects*. Journal of Contaminant Hydrology.

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- Malone, E. T., **B. W. Abbott**, M. J. Klaar, C. Kidd, M. Sebilo, A. M. Milner, and G. Pinay. **2018**. *Decline in Ecosystem $\delta^{13}C$ and Mid-Successional Nitrogen Loss in a Two-Century Postglacial Chronosequence*. Ecosystems.
- Larsson, M., and **B. W. Abbott**. **2018**. *Is the Capacity for Vocal Learning in Vertebrates Rooted in Fish Schooling Behavior?* Evolutionary Biology.
- Liu, F., L. Chen, **B. W. Abbott**, Y. Xu, G. Yang, D. Kou, S. Qin, J. Strauss, Y. Wang, B. Zhang, and Y. Yang. **2018**. *Reduced quantity and quality of SOM along a thaw sequence on the Tibetan Plateau*. Environmental Research Letters.
- Abbott, B. W.**, F. Moatar, O. Gauthier, O. Fovet, V. Antoine, and O. Ragueneau. **2018**. *Trends and seasonality of river nutrients in agricultural catchments: 18 years of weekly citizen science in France*. Science of The Total Environment.
- Loranty, M. M., **B. W. Abbott**, D. Blok, T. A. Douglas, H. E. Epstein, B. C. Forbes, B. M. Jones, A. L. Kholodov, H. Kropp, A. Malhotra, S. D. Mamet, I. H. Myers-Smith, S. M. Natali, J. A. O'Donnell, G. K. Phoenix, A. V. Rocha, O. Sonnentag, K. D. Tape, and D. A. Walker. **2018**. *Reviews and syntheses: Changing ecosystem influences on soil thermal regimes in northern high-latitude permafrost regions*. Biogeosciences.
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Talks

- (i) **BW Abbott. 2023.** *Living within our means: reducing water use to move from control of nature to natural resilience*. American Water Works Association. Salt Lake City, Utah.
- (i) Dorothy Adams, Darcy Glenn, Matt Yost, Brian McNerny, **BW Abbott. 2023.** *Climate Change & Environmental Health*. Summit County Health. Park City, Utah.
- (i) **BW Abbott. 2023.** *What does the decline of Great Salt Lake mean for agriculture in Utah*. Utah Soil Health Advisory Committee. Utah Department of Agriculture and Food. Provo, Utah.
- (i) **BW Abbott. 2023.** *Living within our means: reducing water use to move from control of nature to natural resilience*. Spring Runoff Conference. Logan, Utah.
- (i) **BW Abbott**, Lauren Regan, Whitney Krogue, Brigham Daniels, Lance Long. **2023.** *SLAPPING back in Utah*. 41st Public Interest Environmental Law Conference. Eugene, Oregon.
- (i) **BW Abbott. 2023.** *The surprising rise of intermittent renewables: implications for climate, air quality, and geopolitics*. Department of Chemical Engineering, Brigham Young University, Provo, Utah.
- (i) **BW Abbott. 2023.** *Interfaith support for the Great Salt Lake Rescue*. Utah State Capitol. Salt Lake City, Utah.
- (i) **BW Abbott** and Brian C. Brown. **2023.** *Opportunities and Risks in the Great Salt Lake Rescue*. Salt Lake County Council. Salt Lake City, Utah.
- (i) **BW Abbott. 2023.** *Great Salt Lake Rescue*. Great Salt Lake Alliance. Salt Lake City, Utah.
- (i) **BW Abbott. 2023.** *Air quality, habitat, and economy: Why we must save Great Salt Lake*. Utah Clean Air Task Force. Provo, Utah.
- (i) **BW Abbott. 2022.** *When water turns to air: the global water crisis and its links with food security and air quality*. Utah One Health Symposium. West Jordan, Utah.
- (s, i) E Ellis, K Tanner, MM Meyer, B Stireman, S Daly, EB Gaddis, EF Jones, R Sainsbury, **BW Abbott. 2022.** *Using Science and Relationships to Elevate the Utah Lake Debate*. Salt Lake County Watershed Symposium. Salt Lake City, Utah.
- (s) J Nipko, **BW Abbott**, JP Zarnetske, AJ Shogren-Harris, WB Bowden, R Lee. **2022.** *Blinded by the light: seasonal sensitivity of Arctic river carbon to photo- and biodegradation*. American Geophysical Union. Chicago, Illinois.
- (i) **BW Abbott. 2022.** *Fire & Water in the West*. Juan Diego Catholic High School environmental seminar. Draper, Utah.
- (i) **BW Abbott. 2022.** *The past, present, and future of Utah's most misunderstood*. 70th Annual Utah State Historical Society Conference. Water at the Confluence of Past and Future. Provo, Utah.
- (i) **BW Abbott. 2022.** *Muddy Reflections: How We Lost Our Way Restoring Utah's Most Misunderstood*. David R. Keller Environmental Ethics Symposium. Utah Valley University, Orem, Utah.
- (i) **BW Abbott. 2022.** *Why is the Great Salt Lake drying up and why does it matter?* Utah Environmental Health Association Fall Meeting. Ogden, Utah.

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- ① **BW Abbott**, C. Oscarson. **2022**. *Climate Change in Europe*. Panel in the Café Europa series by the Kennedy Center. Provo, Utah.
- ① **BW Abbott**. **2022**. *Lake effects: Utah Lake and environmental Hope*. Plenary talk in the Science Unwrapped series. Utah State University. Logan, Utah.
- (s, i) A Eichert, J Nipko, **BW Abbott**. **2022**. *Insects, organic matter, and climate change in the Arctic*. Toolik Talking Shop. North Slope, Alaska.
- ① **BW Abbott**. **2022**. *Muddy Reflections: How we lost our way restoring Utah's most misunderstood lake*. Plenary talk for the art show *View from the short: The preservation of Utah Lake*, curated by David Chapman Lindsay and Kamilla Earlywine. Provo, Utah.
- ① **BW Abbott**. **2022**. *Human health and economic benefits of improving air quality*. Utah Environmental Health Association Spring Meeting. Kanab, Utah.
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- ① **BW Abbott**. **2022**. *Utah Lake: an ecosystem in recovery*. Women's State Legislative Council. Salt Lake City, Utah.
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- ① **BW Abbott**. **2022**. *Now here's a good question!* Utah State University, Department of Watershed Sciences seminar. Logan, Utah.
- ① **BW Abbott**. **2022**. *Revisiting how we teach the water cycle*. Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) Winter Cyber Seminar. Virtual.
- ① **BW Abbott**. **2022**. *The recovery of the Utah Lake ecosystem*. Utah Lake Commission. Orem, Utah.
- ① **BW Abbott**. **2022**. *Utah Lake: an ecosystem in recovery*. Utah Lake Summit, Utah Valley University. Orem, Utah.
- BW Abbott**. **2021**. *Is Utah Lake a gleaming success or a steaming failure?* Salt Lake Watershed Symposium. Salt Lake City, Utah.
- ① **BW Abbott**. **2021**. *Back to the Holocene: Why we must do better than 1.5C and how we can do it*. Western North American Naturalist. Virtual.
- BW Abbott**, E Wologo, S Shakil, S Zolkos, S Textor, J Klassen, RGM Spencer, DC Podgorski, SE Tank, MA Baker, JA O'Donnell, KP Wickland, SSW Foks, JP Zarnetske, J Lee-Cullin, F Liu, Y Yang, P Kortelainen, J Kolehmainen, JF Dean, JE Vonk, RM Holmes, G Pinay, MM Powell, J Howe, RJ Frei, SP Bratsman, S Ewing. **2021**. *Stream dissolved organic matter in permafrost regions shows surprising compositional similarities but negative priming and nutrient effects*. Society for Freshwater Science annual meeting. Virtual. [Link](#).
- ① **BW Abbott**. **2021**. *Back to the Holocene: getting real about climate targets, emissions, and feedbacks*. Arctic 21: International Cryosphere Climate Initiative (ICCI). Stockholm, Sweden.
- ① **BW Abbott**. **2021**. *Climate change, pollution, and the Restored Gospel*. Plenary presentation at the Citizen's Climate Lobby LDS Action Team monthly meeting. Salt Lake City, Utah.
- ① **BW Abbott**. **2021**. *Unnatural but wild: how humans have reshaped fire in the American West*. Bountiful Davis Art Center exhibition, "Wildfires in Utah Art, Homes and Land." Bountiful, Utah. [Link](#).
- ① J Holdren, A Weaver, D Keith, N Obed, P Pearson, **BW Abbott**, D Tizya-Tramm, E May, M Kergin. **2021**. *Climate change and Permafrost Carbon Feedback Demand Urgent Action—and much more research*. Permafrost Carbon Feedback Action Group. Vancouver, Canada. [Link](#).

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- (S) S Sayedi, **BW Abbott**, BF Thornton, JM Frederick, JE Vonk, P Overduin, C Schädel, EAG Schuur, A Bourbonnais, N Demidov, A Gavrilov, S He, G Hugelius, M Jakobsson, MC Jones, D Joung, G Kraev, RW Macdonald, AD McGuire, C Mu, M O'Regan, KM Schreiner, C Stranne, E Pizhankova, A Vasiliev, S Westermann, JP Zarnetske, T Zhang, M Ghandehari, S Baeumler, BC Brown, and RJ Frei. **2020**. *Subsea permafrost carbon stocks and climate change sensitivity estimated by expert assessment*. American Geophysical Union, Fall Meeting. San Francisco, California.
- (S) B Brown, **BW Abbott**, AH Fullerton, CJ Sergeant, F Tromboni, A Shogren, JA Webb, D Allen, JP Zarnetske, L Kuglerová, CM Ruffing-Cathcart, D Kopp, E Sokol, M Heaton, JB Jones. **2020**. *Global Analysis of Streamflow in a Changing World*. American Geophysical Union, Fall Meeting. San Francisco, California.
- (S) M Greenhalgh, B Brown, **BW Abbott**. **2020**. *Wildfires can rock you like a hurricane*. Salt Lake City Watershed Symposium. Salt Lake City, UT.
- BW Abbott**, A Rocha, A Shogren, J Zarnetske, F Iannucci, WB Bowden, SP Bratsman, L Patch, R Watts, R Fulweber, RJ Frei, AM Huebner, L Ludwig, G Carling. **2020**. *Tundra Wildfire triggers long-term lateral nutrient loss in Alaskan Arctic*. Ecological Society of America. Salt Lake City, Utah.
- (I) **BW Abbott**, S St. Clair, L Patch, T Crandall, EF Jones, B Brown, S Bratsman, A Norris, Z Aanderuud, D Adams, K Kildew. **2019**. *Ecohydrological Monitoring of the Nebo Megafire Complex*, Utah Department of Environmental Quality, Water Quality Task Force Meeting. Salt Lake City, Utah.
- (I) **BW Abbott**, S St. Clair, EF Jones, B Brown, P Frandsen, Z Aanderuud, L Patch, D Adams, K Kildew. **2019**. *Aquatic Consequences of Wildfire*, Utah Department of Natural Resources Fire Response Workshop. Farmington, Utah.
- (S) B Brown, J Maxwell, C Minaudo, S St. Clair, **BW Abbott**. **2019**. *Modeling Fire-Induced Changes to River Status with Deep Learning*. Salt Lake City Watershed Symposium. Salt Lake City, UT.
- (S) I Errigo, L Patch, S Bratsman, T Crandall, EF Jones, Z Aanderud, P Frandsen, S St. Clair, **BW Abbott**. **2019**. *Watershed-Scale Nutrient Budgets and eDNA Following a Utah Megafire*. Salt Lake City Watershed Symposium. Salt Lake City, Utah.
- (S) EF Jones, G Loosle, Z Aanderuud, G Carling, J Maxwell, **BW Abbott**. **2019**. *Using Citizen Science to Locate Nutrient Sources to Utah Lake*. Salt Lake City Watershed Symposium. Salt Lake City, Utah.
- (S) EF Jones, G Loosle, M Baker, **BW Abbott**, Z Aanderuud. **2019**. *N vs P: Nutrient Limitation of Harmful Algal Blooms on Utah Lake*. Salt Lake City Watershed Symposium. Salt Lake City, Utah.
- (S, I) SS Sayedi, **BW Abbott**, J Frederick, BF Thornton, J Vonk, P Overduin, A Maslakov, EAG Schuur, T Zhang, CC Mu, AD McGuire, K Schreiner, JD Joo, E Pizhankova, A Gavrilov, JP Zarnetske, K Schaefer, et al. **2019**. *Expert assessment of subsea permafrost carbon stocks and sensitivity to climate change*, Interagency Arctic Research Policy Committee. [Webinar](#).
- BW Abbott**, K Bishop, JP Zarnetske, C Minaudo, FS Chapin III, RJ Frei, DM Hannah, S Krause, L Conner, D Ellison, S Godsey, S Plont, J Marçais, T Kolbe, A Huebner, T Hampton, S Gu, M Buhman, O Ursache, M Chapin, K Henderson, G Pinay. **2019**. *Human domination of the global water cycle absent from depictions and perceptions*. Society for Freshwater Science annual meeting. Salt Lake City, Utah.
- (S) L Patch, RJ Frei, T Crandall, R Watts, EF Jones, **BW Abbott**. **2019**. *Wildfire and water quality: using fluorescence spectroscopy to predict the biodegradability of dissolved organic matter*. Society for Freshwater Science annual meeting. Salt Lake City, Utah.
- (S) T Crandall, **BW Abbott**, EF Jones, J Maxwell. **2019**. *Megafires and hurricanes: multiple stressors alter form and function of semi-arid watersheds*. Society for Freshwater Science annual meeting. Salt Lake City, Utah.

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- (S)S Bratsman, **BW Abbott**, A Rocha, JP Zarnetske, WB Bowden, F Iannucci, RJ Frei, R Watts, A Shogren, M Baker, G Carling, L Ludwig. **2019**. *Persistent nitrogen flux from tundra ten years after massive wildfire*. Society for Freshwater Science annual meeting. Salt Lake City, UT.
- (I)**BW Abbott**, R Pomerance, S Natali. **2018**. *Permafrost carbon outreach and activism opportunities*, Permafrost Carbon Network Annual Meeting. Washington D.C.
- (S)SS Sayedi, **BW Abbott**, J Frederick, BF Thornton, J Vonk, P Overduin, A Maslakov, EAG Schuur, T Zhang, CC Mu, AD McGuire, K Schreiner, JD Joo, E Pizhankova, A Gavrilov, JP Zarnetske, K Schaefer. **2018**. *Expert assessment of subsea permafrost and related emissions*. Permafrost Carbon Network Annual Meeting. Washington D.C.
- (I)**BW Abbott**. **2018**. *Spatial stability of water quality provides a shortcut to solving eutrophication*. Utah State University, Watershed and Earth System Science department seminar, Logan, Utah.
- (S)M Buhman, **BW Abbott**, K Bishop, JP Zarnetske, G Pinay. **2018**. *Global water cycle diagrams minimize human influence and over-represent water security*. Salt Lake City Watershed Symposium. Salt Lake City, Utah.
- BW Abbott**, E Wologo, S Textor, S Shakil, S Zolkos, S Ewing, R Spencer, M Baker, S Tank, J O'Donnell, KP Wickland, J Lee-Cullin, JP Zarnetske, F Liu, Yang, P Kortelainen, J Kolehmainen, J Dean, J Vonk, RM Holmes, G Pinay, PJ Mann, (S)J Howe. **2018**. *Could priming and nutrient effects from degrading permafrost alter dissolved organic matter dynamics in permafrost rivers?* European Conference on Permafrost. Chamonix, France.
- (S)BJ Frei, (S)N Griffin, **BW Abbott**, Z Aanderud, JP Zarnetske, WB Bowden, F Iannucci. *Untangling terrestrial and aquatic controls on carbon, nutrients, and microorganisms in Arctic stream networks*. **2018**. European Conference on Permafrost. Chamonix, France.
- (I)**BW Abbott**, T Kolbe, JR de Dreuzy, C Vautier, J Marçais, Zahra Thomas, F Moatar, L Aquilina, T Labasque, JP Zarnetske, C Lécuyer, G Pinay. **2018**. *Limits and location of denitrification at catchment scales: can hyporheic and riparian removal solve diffuse nutrient pollution?* Society for Freshwater Science. Detroit, Michigan.
- (I)**BW Abbott**, Z Aanderud, G Carling, N Hansen. **2018**. *Cultivating stewardship and improving water quality in the Utah Lake watershed*. Provo River Watershed Council. Orem, Utah.
- BW Abbott**, K Bishop, JP Zarnetske, C Minaudo, FS Chapin III, D Ellison, S Krause, DM Hannah, G Pinay. **2017**. *Global Water Cycle Diagrams Minimize Human Influence and Over-represent Water Security*. American Geophysical Union, Fall Meeting. New Orleans, Los Angeles.
- (I)**BW Abbott**, G Grua, JP Zarnetske, F Moatar, G Pinay. **2017**. *Stable spatial patterns of nitrate in headwater stream networks allows identification and mitigation of critical source areas*. Managing Global Resources for a Secure Future. Tampa, Florida.
- (I)**BW Abbott** **2017**. *Unexpected spatial stability of water chemistry in headwater stream networks*. Idaho State University Department of Geoscience Seminar. Pocatello, Idaho.
- (I)**BW Abbott**, G Grua, JP Zarnetske, F Moatar, T Kolbe, G Pinay. **2017**. *Stable spatial structure and strong temporal synchrony of water quality in stream networks*. Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry. Lewiston, Maine.
- ****BW Abbott**, G Grua, JP Zarnetske, F Moatar, L Barbe, T Kolbe, S Gu, AC Pierson-Wickmann, P Davy, G Pinay. **2017**. *Stable spatial structure and strong temporal synchrony of water quality in stream networks*. HydroEco: ecology-hydrology-human interactions in a changing world. Birmingham, UK (Best oral presentation).
- (I)**BW Abbott**. **2016**. *The biggest terrestrial tipping point or a potential carbon sink? 124 experts weigh in on the permafrost carbon feedback*. Chrono-Environnement Seminar at the Université de Franche-Comté. Besançon, France.
- (I)**BW Abbott**. **2016**. *Using expert assessment to conceptualize climate-vegetation-wildfire interactions: constraining baselines, quantifying risk, and identifying key uncertainties*. Plenary talk at the Global Paleofire Workshop: Fire History Baselines by Biome. Bordeaux, France.

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- BW Abbott**, G Pinay, G Gruau, J Zarnetske, Z Thomas, S Gu, T Kolbe, F Moatar, L Barbe, O Fovet, AC Pierson-Wickmann. **2016**. *Where and how often do we need to measure water quality to learn how to improve it?* 5th international EcoSummit; Ecological Sustainability: Engineering Change. Montpellier, France.
- BW Abbott**, JB Jones, JR Larouche, SE Godsey, AW Balsler. **2016**. *Lateral and vertical fluxes of carbon and nitrogen from upland thermokarst*. Eleventh International Conference On Permafrost (ICOP). Potsdam, Germany.
- ⁽ⁱ⁾**BW Abbott**, G Pinay, T Kolbe, J Marçais, G Gruau, T Labasque, L Aquilina, JR de Dreuzy, Z Thomas, Camille Vautier, Carolyn Oldham. **2016**. *Using multi-tracer inference to move beyond single-catchment ecohydrology*. Seminar at the University of Birmingham School of Biosciences and Geography.
- BW Abbott**, G Pinay, Z Thomas, T Kolbe, JR de Dreuzy, T Labasque, L Aquilina. **2015**. *Controls on carbon and nutrient dynamics in agricultural catchments across temporal and spatial scales*, seminar for the National Institute for Agricultural Research (INRA), Rennes, France.
- BW Abbott**, JB Jones, JR Larouche, WB Bowden, SE Godsey. **2015**. *Patterns and persistence of hydrological carbon and nutrient export from collapsing permafrost*, HydroEco. Vienna, Austria.
- BW Abbott**, JB Jones, MS Bret-Harte, FS Chapin III, EAG Schuur. **2015**. *Permafrost dans un monde qui se réchauffe : un écosystème en déséquilibre*, OSUR seminar. Rennes, France.
- EAG Schuur, **BW Abbott**. **2014**. *Expert assessment of vulnerability of carbon pools in the permafrost zone to climate change*, 3rd Carbon Pools in Permafrost (CAPP) workshop, Stockholm, Sweden.
- JE Vonk, **BW Abbott**, PJ Mann, JB Jones, JR Larouch, A Davydova, N Zimov, WB Bowden, RGM Spencer. **2014**. *Biodegradability of dissolved organic matter from collapsing permafrost in Siberia and Alaska*, 4th European Conference on Permafrost. Évora, Portugal.
- BW Abbott**, JB Jones, EAG Schuur, WB Bowden, FS Chapin III, H Epstein, M Flannigan, TK Harms, TN Hollingsworth, M Mack, SM Natali, AV Rocha, SE Tank, MR Turetsky, JE Vonk, KP Wickland. **2013**. *Can increased biomass offset carbon release from permafrost region soils, streams, and wildfire: an expert elicitation?* American Geophysical Union, Fall Meeting. San Francisco, California.
- **BW Abbott**, JB Jones, JR Larouche, WB Bowden. **2013**. *Dissolved organic carbon biodegradability from collapsing permafrost on the North Slope of Alaska*, Midnight Sun Science Symposium. Fairbanks, Alaska (2nd prize).
- BW Abbott**, JB Jones, JR Larouche, WB Bowden. **2012**. *Hydrologic and gaseous export of carbon and nitrogen from upland thermokarst features on the North Slope of Alaska*, Tenth International Conference on Permafrost (TICOP). Salekhard, Siberia.
- SE Godsey, **BW Abbott**. **2012**. *Interdisciplinary Permafrost Research*, Permafrost Young Researchers Network Workshop. Salekhard, Siberia.
- BW Abbott**, JB Jones, EAG Schuur. **2012**. *Carbon from the far north. When and how much*, Midnight Sun Science Symposium. Fairbanks, Alaska.
- ^{(i)**}**BW Abbott**, EAG Schuur, JB Jones. **2011**. *Timing and magnitude of CO₂ and CH₄ release from the permafrost region: an expert elicitation*, American Geophysical Union, Fall Meeting. San Francisco, California (Outstanding Student Paper Award: Global Environmental Change).
- JL Larouche, **BW Abbott**, JB Jones, WB Bowden. **2011**. *Amount and lability of dissolved organic carbon entering arctic streams from landscapes disturbed by fire and thermokarst terrain, North Slope, Alaska*. American Geophysical Union, Fall Meeting. San Francisco, California.
- JB Jones, **BW Abbott**. **2011**. *Hydrobiogeochemistry of the Arctic System: Climate Change and the Impacts of Permafrost Thaw on Stream Hydrology and Elemental Fluxes*. Introduction to Changing Permafrost in the Arctic Landscape, online lecture series.

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- BW Abbott**, JB Jones, TK Harms. **2011**. *How much carbon and nitrogen come out of a thermokarst and why?* Arctic System Science Thermokarst Project online seminar.
- BW Abbott**, JB Jones. **2010**. *Carbon export from thermokarst features on the North Slope*, Biology Graduate Student Symposium. Fairbanks, Alaska.
- **BW Abbott**, WA Wurtsbaugh. **2008**. *Nutrient limitation in Cutler Reservoir: will phosphorus reduction affect eutrophication*, Spring Runoff Conference. Logan, Utah (2nd prize).

Posters

- BW Abbott**, S Lambson, A Johnson, T Gomez, D Lindsay, EF Jones, RL Buck, TBB Bishop, K Song, K Lawrence, E Currit, IM Errigo, JJ LeMonte, J Westwater, D Morin *Mapping flows of influence and information across Utah's two largest lakes* (2022), Great Salt Lake Issues Forum. Salt Lake City, Utah
- ^(s)SS Sayedi, **BW Abbott**, B Vanni re, BA Leys, D Colombaroli, G Gil-Romera, JC Aleman, MM Slowinski, AL Daniau. *Expert Assessment of Past and Future Changes in Global Fire Regimes*, (2019), American Geophysical Union Fall Meeting. San Francisco, California.
- ^(s)RJ Frei, **BW Abbott**, G Loosle, C Vargas, A Norris, L Peterson, A Hopkins, G Cano, RD Sabo, J Brahney. *Transforming Student Projects into Publishable Research: A Case Study with 6 Undergraduates and the EPA's National Assessment of Water Quality*, (2019), American Geophysical Union Fall Meeting. San Francisco, California.
- ^(s)I Errigo, **BW Abbott**, J Reimer, J Glenn, RA Chaney, A Freeman, RJ Frei, PD Howe, DL Mendoza, S Bratsman, A Stacey, D Wilson, L Lange. *Human Health and Economic Costs of Air Pollution in Utah: An Expert Assessment*, (2019), American Geophysical Union Fall Meeting. San Francisco, California.
- BW Abbott**, AV Rocha, A Shogren, JP Zarnetske, F Iannucci, WB Bowden, S Bratsman, R Watts, RA Fulweber, RJ Frei, A Huebner, S Ludwig, GT Carling. *Tundra Wildfire Triggers Long-Term Lateral Nitrogen Loss*, (2019), American Geophysical Union Fall Meeting. San Francisco, California.
- ^(s) B Brown, J Maxwell, C Minaudo, S St. Clair, **BW Abbott**. *Modeling Fire-Induced Changes to River Status with Deep Learning*, (2019), Salt Lake City Watershed Symposium. Salt Lake City, Utah.
- ^(s)L Patch, RJ Frei, T Crandall, R Watts, EF Jones, **BW Abbott**. *Wildfire and water quality: using fluorescence spectroscopy to predict the biodegradability of dissolved organic matter*, (2019), Salt Lake City Watershed Symposium. Salt Lake City, Utah.
- ^(s, i)SS Sayedi, **BW Abbott**, J Frederick, BF Thornton, J Vonk, P Overduin, A Maslakov, EAG Schuur, T Zhang, CC Mu, AD McGuire, K Schreiner, JD Joo, E Pizhankova, A Gavrillov, JP Zarnetske, K Schaefer. *Expert assessment of organic carbon stocks and vulnerability in subsea permafrost* (2019), Arctic Futures 2050. Washington DC.
- BW Abbott**, K Bishop, JP Zarnetske, FS Chapin III, RJ Frei, DM Hannah, S Krause, G Pinay. *Human domination of the global water cycle absent from depictions and perceptions*, (2019), Gordon Research Conference, Catchment Science: Interactions of Hydrology, Biology, and Geochemistry. Andover, New Hampshire.
- BW Abbott**, JP Zarnetske, WB Bowden, F Iannucci, AJ Shogren, N Griffin, S Bratsman, R Watts. *Carbon and nutrient dynamics in Arctic stream networks determined with catchment-scale estimates of redox reactions* (2019), Spring Runoff Conference. Logan, Utah.
- ^(s)S Bratsman, **BW Abbott**, A Rocha, JP Zarnetske, WB Bowden, F Iannucci, A Shogren, M Baker, G Carling, L Ludwig. *Persistent nitrogen flux from tundra ten years after massive wildfire*, (2019), Spring Runoff Conference. Logan, Utah.
- ^(s)EF Jones, T Crandall, RJ Frei, R Shoemaker, R Watts, ZT Aanderud, **BW Abbott**. *Using citizen science to locate nutrient sources and foster community connection in the Utah Lake Watershed* (2019), Spring Runoff Conference. Logan, Utah.
- ^(s)L Lange, **BW Abbott**, I Errigo, E Van Der Linden. *Mapping waterborne pathogens in Ecuador* (2019), Spring Runoff Conference. Logan, Utah.

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- (S)L Patch, O Bochet, L Bethencourt, A Dufresne, J Farasin, M Pedrot, T Labasque, E Chatton, N Lavenant, C Petton, **BW Abbott**, L Aquilina, T Le Borgne. *Groundwater mixing in subsurface fractures triggers massive microbial mats*. (2019), Spring Runoff Conference. Logan, Utah.
- (S)Z Webber, **BW Abbott**, SI St Clair. *The Sunflower Project: using sunflowers to provide clean water to those living in areas polluted by uranium mining via partnership with high-school-aged students* (2019), Spring Runoff Conference. Logan, Utah.
- (S)SS Sayedi, C Abrahamian, **BW Abbott**, R Dupas, C Minaudo, Z Thomas. *Temporal stability of water chemistry spatial patterns across temperate ecoregions* (2019), Spring Runoff Conference. Logan, Utah.
- (S)A Stacey, **BW Abbott**, K Bishop, JP Zarnetske, FS Chapin III, A Huebner, RJ Frei, G Pinay. *Water cycle diagrams minimize human influence and over-represent water security* (2019), Spring Runoff Conference. Logan, Utah.
- (S)C Vargas, T Kolbe, JR dr Dreuzy, **BW Abbott**, et al. *Aquifers determine nutrient removal capacity at the catchment scale more than riparian and hyporheic zones* (2019), Spring Runoff Conference. Logan, Utah.
- (S)SS Sayedi, **BW Abbott**, J Frederick, BF Thornton, J Vonk, P Overduin, A Maslakov, EAG Schuur, T Zhang, CC Mu, AD McGuire, K Schreiner, JD Joo, E Pizhankova, A Gavrilov, JP Zarnetske, K Schaefer. *Expert assessment of subsea permafrost and related emissions* (2018), American Geophysical Union Fall Meeting. Washington DC.
- (S)RJ Frei, **BW Abbott**, R Dupas, S Gu, G Gruau, F Moatar, G Pinay, *Using biogeochemical tracers to quantify catchment resilience to nutrient loading* (2018), Salt lake City Watershed Symposium.
- (S)RJ Frei, **BW Abbott**, R Dupas, S Gu, G Gruau, F Moatar, G Pinay, *Constraining resilience: common flowpaths or stoichiometric controls on DOC and NO₃- concentrations?* (2018), Utah State University Spring Runoff Conference. Logan, Utah.
- BW Abbott**, EAG Schuur, JB Jones, FS Chapin III, and the Permafrost Carbon Network (2015), *Arctic and boreal biomass offsets little or none of permafrost carbon release from soils, streams, and wildfire*. Krycklan Symposium. Umeå, Sweden.
- (I)**BW Abbott**, EAG Schuur, JB Jones, FS Chapin III, and the Permafrost Carbon Network (2015), *The biggest terrestrial tipping point or a potential carbon sink? 124 experts weigh in on the permafrost carbon feedback*. Our Common Future under Climate Change. Paris, France.
- T Kolbe, **BW Abbott**, Z Thomas, JR de Dreuzy, C Vautier, T Labasque, L Aquilina, G Pinay (2015), *Coupling 3D groundwater modelling with CFC-based age dating to evaluate residence time distribution in the aquifer of an agricultural catchment*, HydroEco. Vienna, Austria.
- M Fritz, **BW Abbott**, N Belova, E Altug, D Frolov, J Lepage, Y Ma, A Morgenstern, M Oliva, A Schneider, J Stanilovskaya, S Tomaskovicova, A Niewendam (2014), *The Permafrost Young Researchers Network (PYRN): Integrating priorities for permafrost research over the next generation*, 4th European Conference on Permafrost. Évora, Portugal.
- **BW Abbott**, JB Jones, JR Larouche, WB Bowden (2013), *Carbon and nitrogen release from thawing permafrost: upland thermokarst*, Midnight Sun Science Symposium. Fairbanks, Alaska (1st prize).
- BW Abbott**, JB Jones, JR Larouche, WB Bowden (2012), *Carbon and nitrogen release from thawing permafrost: the biogeochemical physiology of upland thermokarst*, American Geophysical Union, Fall Meeting. San Francisco, California.
- BW Abbott**, JB Jones, JR Larouche, WB Bowden (2011), *The effects of thermokarst on terrestrial-aquatic linkages and stream chemistry in Arctic Alaska*, North American Benthological Society Annual Meeting. Providence, Rhode Island.
- BW Abbott**, JB Jones, TK Harms (2010), *Impacts of thermokarst formation on soil carbon dynamics on the North Slope of Alaska*, American Geophysical Union, Fall Meeting. San Francisco, California.

Proposals and grants

External funding

- Utah Department of Natural Resources. Abbott, Wood, Carling, Bekker, Jones, Witesman. *Improving empirical estimates of sustainable inflow to maintain a healthy Great Salt Lake*. \$166,785. Pending, 2023.
- NSF Education and Human Resources. Berkowitz, Hayes, Abbott, Walls, Muste, Fisher, Williams, Lixin, Brahney, Barnard, Carling. *REU Site: Critical Zone Research for Undergraduates*. \$457,500. **Funded**, 2022.
- NSF Education and Human Resources. Berkowitz, Hayes, Abbott, Walls, Muste, Fisher, Williams, Lixin, Brahney, Barnard. *REU Site: Critical Zone Research for Undergraduates*. \$577,981. Declined, 2022
- Fulbright U.S. Student Program. *Downstream impacts of agricultural land-use on aquatic biodiversity in the Ecuadorian Chocó*. \$12,750 to Isabella Errigo. **Funded**, 2021.
- NSF Postdoctoral Research Fellowship in Biology. *The Invasive Tradeoffs Hypothesis: How Does Wetland Plant Removal Affect Microbial and Nutrient Linkages*. \$160,000 to Rachel Buck. **Funded**, 2021.
- NSF Arctic System Science. Brothers, Budy, Abbott, Devlin. *Biomass Trajectories for Arctic Lake Food Webs*. \$1.4 million, \$320,711 to Abbott. Declined, 2021
- NSF Critical Zone Observatories. Perdrial, Abbott, Harpold, et al., *Collaborative Research: Network Cluster: Using Big Data approaches to assess ecohydrological resilience across scales*. \$3.2 million, \$357,883 to Abbott. **Funded**, 2020
- Provo River Watershed Council. *Cultivating stewardship and improving water quality in the Utah Lake watershed*. \$1,000. **Funded**, 2020
- NSF E.H.R. Core Research. Nixon and Abbott, *Elementary teachers' informal learning of science content with innovative water cycle materials*. \$490,597. Declined, 2020
- NSF MathBio. Sudakov, Abbott, and Aanderud, *Collaborative research: Stochastic modeling of microbial dynamics during soil disturbance*. \$215,471. Declined, 2019
- Utah Department of Natural Resources. St Clair, Abbott, Frandsen, Nelson, *Megafire impacts on terrestrial and aquatic ecosystems and management interventions to protect wildlife habitat and watershed hydrology*. \$497,946. **Funded**, 2019
- Utah Department of Natural Resources. St Clair, Abbott, *Instrumentation of Pole Creek Fire*. \$42,254. **Funded**, 2019
- Provo River Watershed Council. *Cultivating stewardship and improving water quality in the Utah Lake watershed*. \$1,000. **Funded**, 2019
- NSF Arctic System Science. Brothers, Budy, Abbott, Devlin. *Biomass Trajectories for Arctic Lake Food Webs*. \$253,336. Declined, 2019
- Utah Department of Environmental Quality. Aanderud, Baker, Abbott, Buck, Jones. *Utah Lake Bioassays to investigate nutrient limitation in Utah Lake*. \$79,643. **Funded**, 2019
- NSF ANS. Abbott, Zarnetske, Shogren, O'Donnell, Bowden, *COLLABORATIVE RESEARCH - Constraining fate and function of permafrost nutrients with direct multi-scale observations: Stream networks as indicators of watershed processes*. \$1.4 million, \$542,089 to Abbott. **Funded**, 2019
- Roger and Victoria Sant Educational Endowment for a Sustainable Environment. Abbott, Aanderud, Carling, Hansen, Frandsen, and Jones, *Cultivating stewardship and improving water quality in the Utah Lake watershed*. \$14,500. **Funded**, 2018
- NSF DEB RAPID. Abbott and St Clair, *The effects of mega-fires on ecosystem succession and resilience to continued disturbance in the western U.S.* \$200,000. Declined, 2018

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- NSF SitS. Abbott, Sudakov, and Aanderud, *Stochastic models of soil disturbance and microbial dynamics: predicting permafrost climate feedbacks*. \$299,000. Not invited for full proposal, 2018
- DOE. Abbott, Zarnetske, Bowden, and O'Donnell, *Constraining the fate and function of permafrost nutrients with direct multi-scale observations*. \$299,927. Declined, 2018
- NSF EPSCoR Research Infrastructure Improvement. Godsey and Abbott, *Water Quality in the West*. \$10,000. **Funded**, 2018
- Arctic Data Center and NCEAS. Brothers et al. (including Abbott), *From NEP to TEK: Linking biogeochemical predictions to environmental observations in northern communities*. \$54,600. Call was cancelled, 2018
- DOE. Frederick, Abbott, and Thornton, *Size and vulnerability of subsea permafrost carbon stocks: an expert assessment*. \$120,000. Not invited for full proposal, 2017
- DOE. Aanderud, Sudakov, and Abbott, *Integrating microbial succession into simulations of the permafrost climate feedback with stochastic models*. \$298,000. Not invited for full proposal, 2017
- NSF ANS. Sudakov and Abbott, *Stochastic modeling and analysis of abrupt change in permafrost ecosystems: connecting microbiology, vegetation, and climate*. \$300,000. Declined, 2018
- Roger and Victoria Sant Educational Endowment for a Sustainable Environment. Abbott, Aanderud, Carling, and Hansen, *Cultivating stewardship and improving water quality in the Utah Lake watershed*. \$10,000. Declined, 2017
- Thomas Jefferson Fund, Dupas and Abbott, *Leveraging new data streams to improve understanding and management of freshwater ecosystems in a changing world*. \$20,000. Declined, 2017
- Agence Nationale de la Recherche. Gruau et al. (including Abbott), *Headwater catchment controls on the stoichiometry and ecological impacts of nutrient fluxes (HEADWATER)*. €501,000. Declined, 2017
- Institut Polaire Français. Pétilion, Marguerie, Vernon, van Baaren, Francez, Pinay, and Abbott, *Impacts of climatic and environmental changes on functioning and diversity of Arctic Canadian ecosystems (ICE-Canada)*. \$150,000. Declined, 2016
- Agence Nationale de la Recherche. Aquilina et al. (including Abbott), *Environment Lab: a laboratory for ecological transition*. €10,141,912. Declined, 2016
- Agence Nationale de la Recherche. Davy et al. (including Abbott), *Environment Lab: eLABo*. €1,200,000. Declined, 2016
- NSF-EAR Postdoctoral Fellowship. Abbott, *Dissolved organic matter bioavailability regulates carbon export from the critical zone*. Declined, 2016

Internal funding

- Life Sciences Teaching Enhancement Grant (TEG). Glenn and Abbott, *Scientific Evidence and Environmental Advocacy to Protect Utah Lake: Development of a Multimedia-Based Teaching Case for Public Health and Environmental Science Students*. \$8,855. **Funded**, 2022
- Redd Center Interdisciplinary Research Award. Song-Glenn, Abbott, Gibson. \$10,000. **Funded**, 2022
- Mollie and Karl Butler Young Scholar Award in Western Studies. Abbott. \$24,000. **Funded**, 2022
- Life Sciences College Mentoring Supplement Award (CEMENT). Abbott. \$5,000. **Funded**, 2021
- BYU Life Sciences Teaching Development Grant (TDG). Whiting, Bybee, Gill, Ridge, Stowers, Abbott, Griffiths. *Student Learning on Display: Teaching innovation through museum exhibit development*. \$10,000. **Funded**, 2021
- BYU Interdisciplinary Research Origination Awards. Abbott, Nixon, Song-Glenn, Ames, Bailey, Carling, LeMonte, Gill, Hopkins, *Transforming water education to address the global water crisis*. \$120,000. **Funded**, 2021

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- Life Sciences College Mentoring Supplement Award (CEMENT). Abbott. \$5,000. **Funded**, 2020
- BYU Graduate School, High Impact Doctoral Research Assistantship (HIDRA). Zhang and Abbott, *Arctic river networks reveal terrestrial and aquatic signals of ecosystem change*. \$90,000. **Funded**, 2020
- Life Sciences Teaching Enhancement Grant (TEG). Abbott. *Addressing the global water crisis by catalyzing systems thinking about the water cycle*. \$5,000. **Funded**, 2020
- BYU Interdisciplinary Research Origination Awards. Abbott, Nixon, Song-Glenn, Ames, Carling, Gill, Hopkins, *Transforming water education to address the global water crisis*. \$119,500. Declined, 2020
- BYU Interdisciplinary Research Origination Awards. Daniels, Sun, Abbott, Blades, Hawkins, *Harnessing public and expert input to improve air quality policy: are the experts or the people better at convincing elected municipal politicians to act on air pollution?* \$40,000. Declined, 2020
- Life Sciences College Mentoring Supplement Award (CEMENT). Abbott. \$5,000. **Funded**, 2019
- BYU J. Reuben Clark, Jr. Grant. Daniels, Abbott, Karpowitz, Ridge, *Fostering stewardship by overcoming partisan obstacles through environmental messaging*. \$25,000. Declined, 2019
- BYU College of Life Sciences Graduate Mentoring Assistantship. Abbott and Crandall, *The effects of megafires on ecosystem recovery and human water security in Utah*. \$14,440. **Funded**, 2019
- BYU Interdisciplinary Research Origination Awards. Abbott, Ames, Song-Glenn, Nixon, Hopkins, Gill, Carling, *We are teaching the water cycle wrong: fixing misconceptions of water in the Anthropocene*. \$119,500. Declined, 2019
- BYU Graduate School, High Impact Doctoral Research Assistantship (HIDRA). Sayedi and Abbott, *Combining expert opinions to assess risk of dangerous change in Earth Systems: permafrost collapse, global wildfire, and water security*. \$90,000. **Funded**, 2018

Teaching, advising, and mentoring

Teaching:

Climate Change: Science and Solutions (BYU)	2020-present
Global Arctic Introduction to the Permafrost Climate Feedback (EPFL)	2020
ESS Capstone: Advanced Data Analysis and Writing (BYU)	2019-present
Watershed Ecology (BYU)	2018-present
Environmental Biology (BYU)	2018-19
Teaching assistant, <i>Microbiology</i> (UAF)	2014
Instructor, <i>Ecological Background for Resilience and Adaptation</i> , (UAF)	2012
Instructor, <i>Changing permafrost in the arctic landscape</i> , (UAF online course)	2011
Teaching fellow, <i>Oceanography</i> (USU)	2007
Guest lecturer:	
<i>Sustainable Infrastructure</i> (BYU)	2022
<i>Environmental Law and Policy</i> (BYU)	2021
<i>Hydrology</i> (Drake University)	2020-present
<i>Conservation Genomics</i> (BYU)	2019-present
<i>Science Methods for School Teachers</i> (BYU)	2019
<i>Charles Redd Center for Western Studies</i> (BYU)	2018/19
<i>Climate Change</i> (Utah Valley University)	2017/18
<i>Wetlands</i> (Université de Rennes 1)	2016
<i>Landscape ecology</i> (Université de Rennes 2)	2015
<i>Microbiology</i> (UAF)	2014
<i>Principles of Ecology and Methods for Interdisciplinary Research</i> (UAF)	2012/13
<i>Stream Ecology</i> (UAF)	2011

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Plant ecophysiology (UAF)

2010

Postdoctoral researchers advised:

Raymond M. Lee, *Arctic RIOS: River Integrated Observing through Synoptic Sampling*. 2020-2022

Rachel L. Wood, *The Invasive Tradeoffs Hypothesis: How Does Wetland Plant Removal Affect Microbial and Nutrient Linkages*. 2021-2022

Sophie Hill, *Transforming water education to address the global water crisis*. 2021-2023

Graduate students advised:

Aria McComber, M.S., *The corporate sustainability paradox: corporate and public preference for achieving circular life cycles for electronics* (2021-2023, BYU)

Qiwen Zhang, Ph.D., *Arctic river networks reveal terrestrial and aquatic signals of ecosystem change* (2020-2022, BYU)

Isabella Errigo, M.S., *eDNA reveals divergent successional trajectories in aquatic ecosystems affected by megafire* (2020-2022, BYU)

Adam Norris, M.S., *Effects of megafire on soil and stream processes* (2020-, BYU)

Samuel Bratsman, M.S., *Nutrient and microbial interactions structure lake and stream network biogeochemistry* (2020-2022, BYU)

Leslie Lange, M.S., *Improving science education and illuminating links between water quality and socioeconomic development* (2020-2022, BYU)

Brian Brown, M.S., *Machine learning techniques reveal watershed response to wildfire and climate change* (2019-2021, BYU)

Sara Sayedi, Ph.D., *Combining expert opinion to assess risk of dangerous change in Earth systems: permafrost collapse, global wildfire, and water security* (2018-2023, BYU)

Trevor Crandall, M.S., *Water quality in semi-arid ecosystems: wildfire and wastewater in the western U.S.* (2018-2020, BYU)

Camille Vautier, Ph.D. co-adviser, *Biological degradation at hydrological interfaces* (2016-2019, ECOBIO Rennes)

Adélaïde Duval, M.S. co-adviser, *How do microbial community and biogeochemical fluxes respond to different land use histories?* (2016-2017, ECOBIO/OSUR Rennes)

Charly David, M.S. co-adviser, *Dynamic imaging of hydrological exchange and degradation at river-groundwater interfaces* (2015-2016, Géosciences Rennes and Agrocampus Ouest)

Madiha Khadraoui, M.S., *Biogeochemical characterization of denitrification in agricultural landscapes* (2015-2016, ECOBIO/OSUR Rennes)

Honors students advised:

Bronwyn Meldrum, Biodiversity & Conservation Major, *Creating Habitat Suitability Models for Endangered Hawaiian Flora *Marsilea villosa* and *Sesbanaia tomentosa** (2022)

Paden Allsup, Computer Science major, *Reservoir Computing Solutions for Watershed Health* (2022)

Zak Webber, Molecular Biology Major, *Sunflowers Seedlings Fail to Remove Uranium Pollution in the Navajo Nation: Participatory Science as a Path to Build Community and Address Environmental Injustice* (2020)

Isabella Errigo, Environmental Science Major, *Human Health and Economic Costs of Air Pollution: An Expert Assessment* (2020)

Undergraduate students mentored (125 from 2017-present):

Rebecca Frei, Rachel Watts, Samuel Bratsman, Rhetta Shoemaker, Camila Vargas, Nicholas Suiter, Andrew Luymes, Jansen Howe, Madeline Buhman, Elizabeth Peterson, Leika Patch, Leslie Lange, Isabella Errigo, Zak Webber, Amanda Huebner, Isaac St. Clair, Allie Tuttle, Cecily

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Nicoll, Audrey Stacey, Audrey Goates, Abigail Banks, Haley Moon, Caleb Cline, Mary Proteau, Russell Anderson, Marina Pfeil Merritt, Heidi Wilding Mann, Emilee Severe, Mitchell Greenhalgh, Chelsea Abrahamian, Thomas Stanford, Derrek Wilson, Tessa Meredith, Elizabeth Kujanpää, Adam Norris, Noelle Ackerman, Kallin Austin, Elizabeth Buening, Emma Butler, Taylor Chattin, Meiyu Chen, Vivine Chen, Matthew Daw, Grace Day, Kristian Dorman, Madalynn Drennan, Zachary Eliason, Alora Gubler, Margaret Hancock, Shannon Lambson, Justin Lemke, Kylee Mecate, Megan Nebeker, Luke Oldham, Ryan Packham, Sarah Peterson Chan, Shiloh Ploeg, Sarah J. Rollins, Tori Simpson, Jacob Spencer, Austin Kallin, Eric Ball, Sarah Buening, Elisabeth Currit, Brooke Frandsen, Alora Gubler, Margaret Hancock, Kennedy Jones, Whitney Kingsolver, Lexanne Klimes, Abigail Packard, Madalynn Sweet, Hunter Hassell, Addison Bliss, Morgan Cardon, Danny Dudley, Sara Frutos, Jacquelyn Land, Katie Lawrence, Alex Long, Ethan McQuhae, Flynn Moore, Rachel Poulsen, Nathan Thompson, Hannah Butterfield, Tessa Cantrell, Emma Finlayson, Carter Flint, Kayla Sorenson, Katy Thomas, Jacob Blood, Heather Phipps, Paden Allsup, Robby Sainsbury, Eliza Hammari, Joshua Housley, Kirsten Steele, Megan White, Susan Banks, Amber Furecki, Anna Eichert, Austen Lambert, Chris Dutson, Collette McClellan, Hannah Butterfield, Hannah Rogers, Isaiah Cieslewicz, James Tyler, James Burchett, Jeremy Bekker, Kate Scanlan, Lindsey Daems, Jansen Nipko, Nathaniel Call, Nicholas Newbold, Sam Lowry, Sarah Buening, Sierra Curtis Nichols, Stephen Van de Graaff, Brenna Kilpatrick, Manon Hale, Anna Wright, Eliza Anderson, Mattia Lo Russo, Simona Ershova

Service

University, college, and department service

Brigham Young University Sustainability Working Group	2021-present
Faculty adviser to the Mountaineering club	2020-present
Faculty adviser to the Environmental Science & Sustainability club	2019-present
Faculty adviser to the Student Sustainability Initiative	2018-present
Department website committee	2018-present
Committee for the evaluation of undergraduate research	2018-present
Development of the Global Environmental Studies minor	2022
S-REACH (Science REsearch for AChieving High-school students) faculty mentor	2021
Hiring committee for the EAL and Public Health technician	2020/2021
Plant and Wildlife Sciences Hiring Committee	2020
Hiring committee for the BYU sustainability director	2020

Workshops and conferences organized

- Steering committee for [Permafrost Carbon Network](#) annual meeting (2023, Flagstaff, Arizona)
- Advisor for the [Traditional Ecological Knowledge](#) forum (2023, Provo, Utah)
- Planning committee for Utah Valley Earth Forum's [online forum](#) on Utah Lake (2022)
- Scientific consultant on the planning committee, [Utah Lake Summit II](#) (2022, Orem, Utah)
- Scientific consultant on the planning committee, [Utah Lake Summit I](#) (2022, Orem, Utah)
- Planning committee chair, [Utah Lake Symposium](#) (2021, Orem, Utah)
- Session contributor, *Great Ideas for Teaching (GIFTs) Climate Change at the Undergraduate Level* American Geophysical Union annual meeting (2021, New Orleans, Louisiana)
- Session chair, *European Geophysical Union General Assembly* (2021, Vienna, Austria)
 - *Data-driven analysis of water quality to understand solute and particulate export mechanisms in catchments*
- Organizing committee and presenter, *Faith is action: stewardship and the climate crisis* (2020, Salt Lake City, Utah)
- Session chair, *European Geophysical Union General Assembly* (2020, Vienna, Austria)

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- *Data-driven analysis of water quality to understand solute and particulate export mechanisms in catchments*

Organizing committee, *Society of Freshwater Sciences Annual Meeting* (2019, Salt Lake City, Utah)
Session Chair, *American Geophysical Union Fall Meeting* (2018, Washington D.C.)

- *Advances in Monitoring and Modeling of Subsea Permafrost*

Board member of the International Scientific Committee for the *European Conference on Permafrost* (2018, Chamonix-Mont-Blanc, France)

Conference organizer, *Water Quality in the West* (2018, Pocatello, Idaho)

Session chair, *American Geophysical Union Fall Meeting* (2017, New Orleans, Louisiana)

- *Vulnerability of Permafrost Carbon to Climate Change*. EAG Schuur, BW Abbott
- *Linking catchment biogeochemistry and hydrology to understand freshwater landscapes in the Anthropocene*. T Burt, BW Abbott, F Worrall
- *Interdisciplinary Approaches to Conceptualizing Nonlinear Changes in Permafrost Landscapes*. M Turetsky, T Douglas, BW Abbott

Workshop organizer, *Where land becomes stream: connecting spatial and temporal scales to better understand and manage catchment ecosystems* (2017, Rennes, France)

Workshop organizer, *Connectivity in fractured landscapes: soils, streams, and subterranean circulation* (2016, Rennes, France)

Workshop organizer, *Interfaces Joint Field Experiment* (2016, Pleine-Fougères, France)

Workshop organizer, *Small Catchment Ecohydrology Workshop* (2015, Rennes, France)

Conference assistant, *Vulnerability of Permafrost Carbon Research Coordination Network Synthesis Workshop* (2011, Seattle, USA)

Graduate committee service:

Brian C. Brown, Ph.D., *Predicting data streams to improve water security at regional to global scales* (2022, Computer Science)

Brian C. Brown, M.S., *Catchment Hydrology as an Emergence Phenomenon* (2022, Computer Science)

Jeremy Stanley Bekker, M.S., *Online Mindfulness Curriculum* (2022, Psychology)

Logan Kalaiwaipono Ellis, M.S., *Sediment and nutrients from invasive ungulates affects indigenous fishing practices in Molokai* (2020, BYU Biology)

Isabella Errigo, M.S., *Using environmental DNA to assess native and nonnative fish and invertebrate recovery following a megafire* (2020, BYU Plant and Wildlife Sciences)

Forrest Jensen, M.S., *Quantifying informal learning pathways for K-12 science teachers* (2020, BYU Teacher Education)

Kaylee Tanner, M.S., *New methods for remote sensing of water quality: from drones to Landsat* (2020, BYU Civil Engineering)

Rachel Watts, M.S., *Quantifying local to global dust inputs as controls on stream nutrient concentration* (2020, USU Watershed Sciences)

Devri Adams Tanner, Ph.D., *Postfire successional trajectories of forests under grazing pressure* (2019, BYU Plant and Wildlife Sciences)

Madeleine Malmfeldt, M.S., *Creating an early warning detection network for harmful algal blooms* (2019, BYU, Plant and Wildlife Sciences)

Gabriella L. Lawson, M.S., *Nutrient or light limitation in Utah Lake: The 9-billion-dollar question* (2019, BYU, Plant and Wildlife Sciences)

Jordan Maxwell, Ph.D., *Disturbance effects on ecosystem health and services in a mixed-aspen conifer forest* (2018, BYU, Plant and Wildlife Sciences)

Antoine Casquin, Ph.D., *Effects of landscape spatial structure on lateral C-N-P fluxes*, (2018, INRA, Agrocampus Ouest)

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Erin F. Jones, Ph.D., *Biologic and Hydrologic Controls of Water Quality in Urbanizing Semi-Arid Watersheds* (2017, BYU, Plant and Wildlife Sciences)

Scott Collins, M.S., *Population dynamics of cyanobacterial communities in harmful algal blooms on Utah Lake* (2017, BYU, Plant and Wildlife Sciences)

Natalie S. Barkdull, M.S., *Hydrological and biological response of high-mountain glaciers to climate change* (2017, BYU, Geological Sciences)

Reviewer for 50 international journals (200 reviews)

Agriculture Ecosystems and Environment. Analytical Chemistry. Arctic, Antarctic, and Alpine Research. Arctic Science. Atmosphere. Biogeochemistry. Australasian Journal of Water Resources. Biogeosciences. Biology and Fertility of Soils. Chemical Geology. Cryosphere. Ecosystems. Environmental Science & Technology. Freshwater Science. Geophysical Research Letters. Global Biogeochemical Cycles. Global Change Biology. Hydrogeology Journal. Hydrological Processes. Hydrology and Earth System Sciences. International Journal of Environmental Research and Public Health. Journal of Geophysical Research. Journal of Geophysical Research: Biogeosciences. Journal of Hydrology. Land Degradation & Development. Landscape Ecology. Limnologia. Limnology and Oceanography. Limnology and Oceanography: Methods. Microbial Ecology. Nature Communications. Nature Water. Nutrient Cycling in Agroecosystems. PeerJ. Permafrost and Periglacial Processes. Plant and Soil. PLOS One. Progress in Physical Geography. Remote Sensing of Environment. Science Advances. Science of the Total Environment. Science China: Earth Sciences. Scientific Reports. Sedimentary Geology. Soil Biology and Biochemistry. The Cryosphere. Water. Water Research. Water Resources Research.

Reviewer or panelist for 7 funding agencies

ArcticNet. AVOID 2. Earthwatch. I-SITE. National Science Center, Poland. Propolar. U.S. National Science Foundation.

Other service

Member of the Sustainability Advisory Council to the Presiding Bishopric of the Church of Jesus Christ of Latter-day Saints	2022-Present
Advisory board member to the Utah Valley Earth Forum	2022-Present
Special Issue Editor for Nitrogen collection on nitrogen cycling in permafrost soils	2021-22
Member of the Citizens' Climate Lobby LDS Action Team	2020-Present
Board member of the Utah Valley Sustainability Coalition	2019-Present
BYU representative to the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI)	2018-Present
Board member of Latter-day Saint Earth Stewardship	2019-Present
Board member of Mormon Environmental Stewardship Alliance	2019-Present
Review Board member for Biogeochemistry	2017-Present
Guest Editor for PLOS ONE collection on Freshwater Ecosystems	2020-21
Scientific contributor to Wildfires in Utah Art, Homes and Lands (BDAC)	2021
Scientific consultant for the Utah Governor's office on COVID-19	2020
Scientific consultant for the Provo City Council on COVID-19 and masks	2020
Ambassador for AGU's Voices for Science program	2019
Planning Committee for the Society for Freshwater Sciences	2018-19
Guest Editor for Science of the Total Environment	2017-18
Guest Editor for Frontiers in Ecology and Evolution	2017-18
Public relations representative for the Brittany Armorique LTER	2014-16
Executive committee member Permafrost Young Researchers Network	2012-14
National representative for the USA in Permafrost Young Researchers Network	2011-14

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Co-founder and executive committee chair of UAF Green Bikes program	2010-14
Translation editor for Russian submissions to the TICOP proceedings	2012
Web designer and organizer of the UAF Midnight Sun Science Symposium	2012
Fairbanks North Star Borough Outdoor Days radio telemetry station	2011
Co-chair of the UAF Review of Infrastructure, Sustainability, and Energy board	2010-13

Outreach and media

Author of blog: approximately limitless	2011-present
Founder of the Utah Lake Conservation Coalition	2022-present
Director of the Utah Lake Collaborative participatory science project	2018-present
Frequent guest on BYU Radio (“Top of Mind” and “Constant Wonder”)	2018-present
Scientific panelist for Utah Valley Earth Forum	2018-Present
Scientific docent for BYU MOA’s exhibit “ Far Out: The West Re-Seen ”	2020-2021
Commentator on “ The Crossroads Series ” by PBS NOVA	2020
Editor and art contributor to the Wikipedia article on the Water Cycle	2020
Scientific contributor for the Salt Lake Tribune on air pollution	2020
Guest writer for Salt Lake Tribune on Earth Day	2020
Press conference on the Clean Car Standards (Union of Concerned Scientists)	2019
Artistic contributor to BYU’s “ Silent Spring in the Anthropocene ” (Frank McEntire)	2019
Panelist: Rapid Growth and its Consequences in Utah	2019
Panelist: Millennial Political Engagement: Attitudes about Climate Change (BYU)	2019
Moderator for BYU Republicans and Democrats events on Climate Change	2019
UVEF Panelist: Wildfires, Drought, Air Pollution: The Growing Climate Crisis	2018
Contributor for Yale Climate Connections	2018
Journal cover photo, Ecology Letters	2018
Scientific briefing for Congressman John Curtis	2018
Scientific panel for Citizen’s Climate Lobby	2018
Global Arctic MOOC , École Polytechnique Fédérale de Lausanne	2018
Consultant and vocal artist for Air Transit (BYU Dance)	2018
Scientific contributor for the Deseret News and Salt Lake Tribune	2018
Scientific consultant for Tipping points documentary by Unboxed media	2012-13
Scientific consultant for Climate Hunters by Netherlands Public Broadcasting	2012-13
Contributor: <i>River Conservation: Challenges and Opportunities</i> , Fundación BBVA	2013
Journal cover photo, Journal of Plankton Research	2012 May
Contributor for Yale forum on Climate Change and the Media	2012
Article, <i>Life in Fairbanks</i> , UAF website	2010
Article, <i>America’s Greenest Hotels: Where luxury meets ecology</i> , Forbes Traveler	2008
Article, <i>The cost of living</i> , USU Natural Resources Almanac	2007

Awards and scholarships

Mollie and Karl Butler Young Scholar Award in Western Studies	2022-2025
Earth Guardian Award (Utah Valley Earth Forum)	2022
College Undergraduate Research Awards (E. McQuhae, E. Currit, M. Proteau, K. Lawrence)	2022
College Undergraduate Research Awards (E. Severe, M. Merritt, B. Frandsen)	2021
Excellence in Research Award for Plant and Wildlife Sciences	2020
High Impact Doctoral Research Assistant Grant (Qiwen Zhang)	2020
College Undergraduate Research Awards (M. Greenhalgh, H. Moon, A. Norris, T. Stanford)	2020

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Voices for Science Policy Fellowship	2019
College Undergraduate Research Awards (I. Errigo, L. Lange, R. Watts, R. Frei)	2019
High Impact Doctoral Research Assistant Grant (Sara Sayedi)	2018
Office of Research and Creative Activities Grant (Rebecca Frei)	2018
Innovation Working Group: Water Quality in the West	2018
Top Peer Reviewer (Publons)	2017-20
Editor's selection for Most Innovative Articles of the Year (ERL)	2016
Early Career Scientist Award (Arctic LTER)	2016-17
Marie Curie fellowship	2014-16
Ted McHenry Biology Field Research Fund	2013-14
IAB Director's Travel Award	2013
College of Natural Science and Mathematics Travel Grant	2013
Graduate School Travel Grant	2013
UAF Dissertation Completion Fellowship	2013
Midnight Sun Science Symposium, 1 st and 2 nd prizes	2013
Mike Ardaw Trust Scholarship	2012-13
George Happ Biomedical Graduate Scholarship	2012-13
IAB Director's Travel Award	2012
AGU Outstanding Student Paper Award: Global Environmental Change	2011
United States Permafrost Association AGU travel grant	2011
W. Scott Parish Memorial Scholarship	2011-12
Alaska EPSCoR travel grant	2010
UAF Office of Sustainability SIREN grant for UAF Green Bikes program	2010
USU Watershed Sciences Outstanding Senior	2009
Quinney Scholar Educational Enhancement Grant	2008
USU College of Humanities, Arts and Social Sciences, Hubbard Scholarship	2007-08
Undergraduate Research and Creative Opportunity grant	2007
Undergraduate Teaching Fellow of the Year: Utah State University	2007
USU College of Natural Resources, Quinney Scholarship	2002-08
