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EDUCATION

Ph.D. Graduate Program in Ecology (1996), Colorado State University, Fort Collins CO. Dissertation: *Algal investigations at varying temporal scales in an extreme environment: McMurdo Dry Valley Lakes, Antarctica.*

M.S. Biology (1991), Colorado State University, Fort Collins CO. Thesis: *Phytoplankton dynamics under ice-cover in a subalpine lake.*

B.A. Biology (1982), University of Colorado, Boulder CO.

EMPLOYMENT

Ecologist, US Geological Survey, (2004-2019)

Fellow, Institute of Arctic and Alpine Research, University of Colorado, Boulder CO (2019-present)

Directorate, Institute of Arctic and Alpine Research, University of Colorado, Boulder CO (2009-present)

Res. Scientist 1, Institute of Arctic and Alpine Research, University of Colorado, Boulder CO (1998-2008)

Graduate Faculty Appointment, University of Colorado, Denver (2018-2020)

Adjunct Faculty Appointment, Environmental Studies, University of Colorado, Boulder (2016-2021)

Affiliate Faculty Appointment, Biology Department, Colorado State University (2015-2019)

Adjunct Faculty Appointment, Biology Department, University of Iowa, Ames (2015-2018)

Adjunct Faculty Appointment, Geology Department, University of Colorado, Boulder (2005-2015)

Visiting Assistant Professor, *Ecology and Systematics of Diatoms*, Iowa State University, Iowa Lakeside Laboratory, Milford IA (2000-2009, 2011-2014)

Instructor, *Lake and Stream Ecology*, Mountain Research Station, University of Colorado, Boulder CO (2003)

Research Scientist, Diatom Collection, Department of Invertebrate Zoology and Geology, California Academy of Sciences, San Francisco CA (1998-2001)

Postdoctoral Fellow, Diatom Collection, Department of Invertebrate Zoology and Geology, California Academy of Sciences, San Francisco CA (1996-1998)

SCIENTIFIC PUBLICATIONS

90. Schulte, N.O., Carlisle, D.M. and Spaulding, S.A. 2022. Relationship of environmental stressors to benthic cyanobacteria in streams of the northeast United States. *Science of the Total Environment*. (in press)
89. Spaulding, S.A., Potapova, M., Bishop, I.W., Lee, S.S., Gasperak, T., Furey, P.C. and Edlund, M.B. 2022. Diatoms.org: supporting taxonomists, connecting communities. *Diatom Research* doi: 10.1080/0269249X.2021.2006790
88. Carlisle, D., Spaulding, S.A., Mitchell, R.M., Schulte, N.O., Lee, S.S., Tyree, M. and Pollard, A. 2021. Multi-metric indices for assessing the condition of stream diatom communities in the conterminous United States. *Ecological Indicators*. Volume 135 doi: 10.1016/j.ecolind.2021.108513
87. Li, D., Record, S., Sokol, E., Bitters, M.E., Chen, M.Y., Chung, Y.A., Helmus, M. Jaimes, R., Jansen, L., Jarzyna, M.A., Just, M.G., LaMontagne, J.M., Melbourne, B., Moss, W., Norman, K., Parker, S., Robinson, N., Seyednasrollah, B., Smith, C., Spaulding, S., Surasinghe, T., Thomsen, S., Zarnetske, P. 2021. Tidy NEON organismal data for biodiversity research. *Ecosphere*. (preprint) doi: 10.32942/osf.io.8kun3
86. Nagy et al. 2021. Harnessing the NEON data revolution to advance open environmental science with a diverse and data-capable community. *Ecosphere*. doi: 10.1002/ecs2.3833
85. Hamsher, S.E., Kociolek, J.P., Spaulding, S.A. and Saleh, A.I. 2021. Taxonomy and nomenclature of members within the Obtusae section of *Nitzschia* Hassall (Bacillariophyceae) including descriptions of two new species. *Fottea* 2: 247-258. doi: 10.5507/fot.2021.010
84. Williams, D.M., Spaulding, S.A. and Bishop, I.W. 2021. Studies on type material from Kützing's diatom collection IV: The basionym, author and type of *Tetracyclus rupestre*. *Phytotaxa*.
83. Alers-Garcia, J., Lee, S.S. and Spaulding, S.A. 2021. Alers-Garcia, J., Lee, S.S. and Spaulding, S.A. Resources and practices to improve diatom data quality. *Limnology and Oceanography Bulletin*. LOB10433. doi: 10.1002/lob.10433
82. Oleksy, I.A., Baron, J.S., Leavitt, P. and Spaulding, S.A. 2020. Multiple stressors interact to force mountain lakes into unprecedented ecological state. *Proceedings of the Royal Society B* doi: 10.1098/rspb.2020.0304
81. Paul, M.J., Jessup, B., Brown, L., Carter, J., Cantonati, M., Charles, D.F., Gerritsen, J., Herbst, D., Hristova, R.S., Howard, J., Isham, B., Lowe, R., Mazor, R., Mendez, P., Ode, P., O'Dowd, A., Olson, J., Pan, Y., Rehn, A., Spaulding, S.A., Sutula, M. and Theroux, S. 2020. Characterizing benthic macroinvertebrate and algal biological condition gradient models for California wadeable streams, USA. *Ecological Indicators* 177: 106618. doi: 10.1016/j.ecolind.2020.106618

80. Tyree, M.A., Bishop, I.W., Hawkins, C.P. and Spaulding, S.A. 2020. Reduction of taxonomic bias in diatom species data. *Limnology and Oceanography: Methods* doi: 10.1002/lom3.10350
79. Tyree, M.A., Carlisle, D.M. and Spaulding, S.A. 2020. Improving diatom enumeration methods for use in predictive bioassessment models. *Freshwater Science* 39: 183-195. doi: 10.1086/707725
78. Spaulding, S.A., Stone, J.R., Norton, S., Nurse, A. and Saros, J.E. 2019. Paleoenvironmental context for the Lake Pleistocene appearance of *Didymosphenia* in a North American alpine lake. *Special Issue of Aquatic Sciences* 82 (10) doi:10.1007/s00027-019-0681-9
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75. Bishop, J., Kopalová, K., Darling, J.P., Schulte, N.O., Kohler, T.J., McMinn, A., Spaulding, S.A., McKnight, D.M. and Van de Vijver, B. 2019. *Sabbae* gen. nov., a new diatom genus (Bacillariophyceae) from the Antarctic Continent. *Phytotaxa* 418: 42-56.
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Freshwater: The Diversity of Western Lakes in Space and Time: Geological Society of America Special Paper 536.

68. Edlund, M.B., Burge, R.L. and Spaulding, S.A. 2017. The transfer of *Navicula cuspidata* var. *obtusata* to *Craticula* (Bacillariophyceae) *Notulae algarum* 19: (14 January 2017) ISSN 2009-8987
67. Bishop, I. and Spaulding, S.A. 2017. Seasonal population dynamics and size restoration in *Didymosphenia geminata*. *Journal of Phycology* 53: 652-663.
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63. Spaulding, S.A. 2015. Antarctic Lakes. Book Review. *Arctic, Antarctic, and Alpine Research* 47(2): 211-212.
62. Spaulding, S.A., Otu, M., Wolfe, A.P. and Baron, J. 2015. Paleolimnological records of nitrogen deposition in shallow, high-elevation lakes of Grand Teton National Park, Wyoming, U.S.A. *Arctic, Alpine and Antarctic Research* 47(4): 701-715.
61. Bishop, I. and Spaulding, S.A. 2015. *Tetracyclus hinziae* (Bacillariophyta), a new species from the central Cascade Mountains (WA, USA). *Phytotaxa*.
60. Bergey, E.A. and Spaulding, S.A. 2015. *Didymosphenia*: it's more complicated. A response to the Forum article by Taylor and Bothwell (2014). *Bioscience* doi:10.1093/biosci/biu226
59. Cullis, J.D.S., McKnight, D.M. and Spaulding, S.A. 2015. Hydrodynamic control of benthic mats of *Didymosphenia geminata* at the reach scale. *Canadian Journal of Fisheries and Aquatic Sciences* 72(6): 902-914.
58. Spaulding, S.A. 2014. Introduction to the special issue on *Didymosphenia geminata*. *Diatom Research* 29(3): 227.
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56. Brahney, J., Spaulding, S., Ballantyne, A.P., Otu, M., Neff, J.C. 2014. Separating the influences of diagenesis, productivity, and anthropogenic nitrogen deposition on sedimentary d15N variations. *Organic Geochemistry* 75: 140-150.
55. Kociolek, J.P., Spaulding, S.A. and Lowe, R. 2015. Symmetrical Naviculoid Diatoms. In: Sheath, R. and Wehr, J. (eds). *Freshwater Algae of North America, Second Edition*. Academic Press.

54. Brahney, J., Ballantyne, A., Kociolek, J.P., Spaulding, S.A., Otu, M., Porwall, T. and Neff, J.C. 2014. Dust mediated transfer of phosphorus to alpine lake ecosystems of the Wind River Range, Wyoming, USA. *Biogeochemistry* 120: 259-278.
53. Atazadeh, I., Edlund, M., Van der Vijver, B., Mills, K., Spaulding, S., Gell, P., Crawford, S., Barton, A., Lee, S., Smith, K., Newall, P. and Potapova, M. 2014. Morphology, ecology and biogeography of *Stauroneis pachycephala* P.T. Cleve (Bacillariophyta) and its transfer to the genus *Envekadea*. *Diatom Research*.
52. Nakov, T., Ruck, E.C., Galachyants, Y., Spaulding, S.A. and Theriot, E. 2014. Molecular phylogeny of the Cymbellales (Heterokontophyta: Bacillariophyceae) with a comparison of models for accommodating rate-variation across sites. *Phycologia* 53 (4): 359–373.
51. Lee, S.L., Gaiser, E.E., Van de Vijver, B., Edlund, M.B. and Spaulding, S.A. 2014. Taxonomic investigation of *Mastogloia smithii* and variety *lacustris*: a status change and a new species from the Florida Everglades and the Caribbean region. *Diatom Research*.
50. Kheiri, S., Nejdassattari, T., Asri, Y., Hamdi, S.M.M., Edlund, M. and Spaulding S. 2013. *Cyclotella iranica* sp. nov., a new centric diatom (Bacillariophyta) from the Karaj River, Iran. *Phytotaxa* 104(1): 35-42.
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48. Spaulding, S.A., Jewson, D., Bixby, R., Nelson, H. and McKnight, D.M. 2012. Automated measurement of diatom size. *Limnology and Oceanography: Methods* 10: 882-890.
47. Reid, B.L., Hernandez, K.L., Frangopoulis, M., Bauer, G., Lorca, M., Kilroy, C. and Spaulding, S.A. 2012. The invasion of the freshwater diatom *Didymosphenia geminata* in Patagonia: prospects, strategies, and implications for biosecurity of invasive species in continental waters. *Conservation Letters* doi: 10.1111/j.1755-263X.2012.00264.x
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44. Spaulding, S.A., McKnight, D.M., Stanish, L., Van de Vijver, B. and Hodgson, D. 2010. Diatoms as indicators of environmental change in Antarctic and Sub-Antarctic freshwaters. In: Smol, J. and E.F. Stoermer (eds). *The Diatoms: Applications for the Environmental and Earth Sciences*. Cambridge University Press, Cambridge pp. 267-286.
43. Spaulding, S.A., Kilroy, C. and Edlund, M. 2010. Diatoms as invasive species. In: Smol, J. and E.F. Stoermer (eds). *The Diatoms: Applications for the Environmental and Earth Sciences*. Cambridge University Press, Cambridge pp. 560-569.

42. Spaulding, S.A. and Edlund, M.B. (Editors). 2010. A special volume honoring the life and legacy of Dr. Charles W. Reimer, *Proceedings of the Academy of Natural Sciences of Philadelphia* 160.
41. Rushforth, S.J., Edlund, M.B., Spaulding, S.A. and Stoermer, E.F. 2010. The Reimer Diatom Herbarium: an important resource for teaching and research. *Proceedings of the Academy of Natural Sciences of Philadelphia*.
40. Spaulding, S.A., Pool, J.R., Castro, S.I. and Hinz. 2010. Notes on species within the genus *Encyonema* Kützing, including two new species *Encyonema reimeri* sp. nov. and *E. nickcafeii* sp. nov. and *E. stoermeri* nom. nov., stat. nov. *Proceedings of the Academy of Natural Sciences of Philadelphia*.
39. Morales, E.A., Edlund, M.B. and Spaulding, S.A. 2010. Description and ultrastructure of fragilarioid diatom species (Bacillariophyceae) morphologically similar to *Pseudostaurosira elliptica* (Schumann) Edlund et al. *Phycological Research* 58: 97-107.
38. Van de Vijver, B., Mataloni, G., Stanish L. and Spaulding, S.A. 2010. New and interesting species of the genus *Muelleria* (Bacillariophyta) from the Antarctic Region and South Africa. *Phycologia* 49: 22-41.
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36. Kumar, S., Spaulding, S.A., Stohlgren, T., Hermann, K., Schmidt, T. and Bahls, L. 2009. Modelling the bioclimatic profile of the diatom *Didymosphenia geminata*. *Frontiers in Ecology and the Environment*. 8: 415-420.
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29. Edlund, M.B. and S.A. Spaulding. 2006. Restoration of maximum cell size by uniparental auxosporulation in *Scoliopleura* Grunow and *Muelleria* (Frenguelli) Frenguelli. In: Ognjanova-Rumenova and Manoylov (eds.), *Fossil and Recent Phycological Studies*, pp. 211-223.

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27. Spaulding, S.A., A. Akbulut and J.P. Kociolek 2003. A new species of *Aneumastus* Mann and Stickle from Central Turkey. *Diatom Research* 18:149-160.
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20. Strelnikova, N.I., E. Fourtanier, J.A. Barron, J.P. Kociolek, A. Mahood and S.A. Spaulding (2002). A species of the genus *Coscinodiscus* Ehrenberg from the Eocene of California. *Proceedings of the 15th International Diatom Symposium*, Ganter Verlag, Liechtenstein. pp. 359-380.
19. Kociolek, J.P., D. Lyon and S. Spaulding 2001. Revision of the South American species of *Actinella* *In: Jahn, R., Kociolek, J.P., Witkowski, A. and Compère P. (eds). Lange-Bertalot-Festschrift: Studies on Diatoms*, Koeltz Scientific Books, Koenigstein. pp. 131-166.
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13. Spaulding, S.A. and D. McKnight. 1998. Diatoms as Indicators of Environmental Change in Antarctic Freshwaters. *In: Smol, J. and E.F. Stoermer (eds). The Diatoms: Applications for the Environmental and Earth Sciences.* Cambridge University Press, Cambridge. pp. 249-263.
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1. McKnight, D., R.L. Smith, J.P. Bradbury, J. Baron and S.A. Spaulding. 1990. Phytoplankton dynamics in three Rocky Mountain lakes. *Arctic and Alpine Research* 22: 264-274.

DATA RELEASES

Oleksy, I., Baron, J.S., Leavitt, P. and Spaulding, S.A. 2019, Paleoecological data from The Loch and Sky Pond, Rocky Mountain National Park: U.S. Geological Survey data release, doi:10.5066/P9MVU3CX

RESEARCH REPORTS

Spaulding, S.A. and Schulte, N.O. 2021. Grand Canyon Youth Trip Report. Data report to the USGS Grand Canyon Monitoring Research Center, Flagstaff AZ.

Schulte, N.O. and Spaulding, S.A. 2021. Biotic integrity of Colorado streams and rivers inferred by multimetric indices. Report to Colorado Department of Public Health and Environment and U.S. Environmental Protection Agency.

Anderson, M., McKnight, D. and Spaulding, S. 2020. Ecological status of Lagerman Reservoir. Report to Boulder County OFS-200926.

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Spaulding, S.A., McGahey, J. and Lathom, B. 2014. Department of Interior, Technical Assistance Program, Jordan Parks Project Final Report.

Spaulding, S.A., Otu, M., Wolfe, A. and Baron, J. 2011. Atmospheric deposition of inorganic nitrogen in Grand Teton NP: determining biological effects on algal communities in alpine lakes. National Park Service Annual Report.

Spaulding, S.A., Lubinski, D.J. and Potapova, M. 2010. Diatoms of the United States.
<http://westerndiatoms.colorado.edu>

Spaulding, S.A., Otu, M., Wolfe, A. and Baron, J. 2010. Atmospheric deposition of inorganic nitrogen in Grand Teton NP: determining biological effects on algal communities in alpine lakes. National Park Service Annual Report.

Peterson, T.C., Spaulding, S.A., Kelly, E.F., Zahawi, R.A., MacDonald, L. and Sanford, W.E. 2010. Use of Diatoms and Phytoliths as Biological Fingerprints of Hydrological Connectivity and Flow Paths in a Fragmented Tropical Rainforest - A Pilot Study Involving CSU Students and a Local School Teacher. Warner Mini-Grant 2010.

Spaulding, S.A., O'Ney, S. and Hermann, K. 2009. Visual impacts of stalk forming diatoms in Grand Teton National Park. University of Wyoming - National Park Service Research Station Final Report.

Johnson, T., Hermann, K.A, Spaulding, S.A. et al. 2009. An ecological assessment of EPA Region 8 streams and rivers. EPA Region 8 Report.

Spaulding, S.A. and L. Elwell 2007. Increase in nuisance blooms and geographic expansion of the freshwater diatom *Didymosphenia geminata*. USGS Open File Report 2007-1425.

Edlund, M.B., E. Morales and S.A. Spaulding 2004. Complex: *Staurosira elliptica* (Schumann) Williams et Round. Academy of Natural Sciences, 13th Diatom Taxonomy Workshop Report.

Childs, J.R., J.B. Lowenstern, R.L. Phillips, P. Hart, J.J. Rytuba, J.A. Barron, S.W. Starratt, and S.A. Spaulding. 2000. Bathymetric, geophysical and geologic sample data from Medicine Lake, Siskiyou County, Northern California. U.S. Geological Survey, Open File Report OF 2000-043. (Available at pubs.usgs.gov/of/2000/of00-043/.)

Spaulding, S.A. 1997. Biodiversity within Taylor Valley, Antarctica (MCM LTER). Long-term Ecological Research Network Report.

Alger, A., C. Tate, D. McKnight, S. Spaulding, G. Shupe, K. Welch, H. House and P. Glenday. 1996. Stream Ecosystem Characteristics in Taylor Valley, McMurdo Dry Valleys, Antarctica. U.S. Geological Survey, Water-Resources Investigations Report.

Alger, A., S.A. Spaulding, D. McKnight and G. Shupe. 1996. Species composition and spatial distribution of algal mats in Green Creek, Taylor Valley, Antarctica. *Antarctic Journal of the United States*.

Doran, P.T., R.A. Wharton Jr., S.A. Spaulding and J.S. Foster. 1995. McMurdo LTER: Paleolimnology of Taylor Valley. *Antarctic Journal of the United States*.

Tate, C.M., D.M. McKnight and S.A. Spaulding. 1992. Phosphate uptake by algae in a stream contaminated by acid mine drainage, St. Kevin Gulch, Leadville, Colorado. p. 387-391. U.S. Geological Survey Water Resources Investigations Report, 91-4034.

Spaulding, S.A. 1992. Phytoplankton and zooplankton under ice-cover in a subalpine lake, The Loch, Rocky Mountain National Park, Colorado, 1987-1989. U.S. Geological Survey Open-File Report.

McKnight, D., C. Miller, R. Smith, J. Baron and S.A. Spaulding. 1988. Phytoplankton populations in lakes in Loch Vale, Rocky Mountain National Park, Colorado: Sensitivity to acidic conditions and nitrate enrichment. U.S. Geological Survey, Water-Resources Investigations Report.

Spaulding, S.A. and R. Wasem. 1986. Summary of precipitation monitoring program, North Cascades National Park Complex, 1980-1985. Water Resources Division, National Park Service.

RECENT ABSTRACTS (2010-2021)

Schulte, N.O., Spaulding, S.A., Potapova, M.P. and Lee, S.S. 2022. Using sediment core diatom records from hundreds of lakes to assess species loss and changes in water quality across the northern United States. Joint Aquatic Sciences Meeting, Grand Rapids, MI.

Shampain, A., Leavitt, P., Weinmann, T., Spaulding, S.A., and Baron, J. 2021. Algal productivity dynamics in Santa Fe Lake, New Mexico. Session GC086.

Spaulding, S.A., Potapova, M. Furey, P., Bishop, I.W., Lee, S.S., and Edlund, M.B. 2021. WORKSHOP: Creating taxon pages for *Diatoms of North America*, Society for Freshwater Science Annual Meeting (Online).

Spaulding, S.A. 2021. The genus *Navicula*. Diatom Web Academy presentation. (Online)
<https://diatoms.org/news/webinar-genus-navicula>

Potapova, M., Lee, S.S., and Spaulding, S.A. 2021. Taxonomic harmonization of diatom counts from lake sediment cores of Northeastern United States. North American Lake Monitoring Society. (Online).

Furey, P.C., Spaulding, S.A., Bishop, I.W., Edlund, M.B, Jovanovska, E. and Potapova, M.G. 2021. WORKSHOP. Diatoms.org: supporting taxonomists, connecting communities: an update and request for feedback. International Society for Diatom Research (Online).

Spaulding, S.A., Lee, S.S., and Tyree, M. 2020. WORKSHOP: What is a diatom species? Society for Freshwater Science (Online).

Schulte, N.O. and Spaulding, S.A. 2019. Metabarcoding for algae in rivers of the United States. Use of Algae for Monitoring Rivers and Comparable Habitats (UAMRICH) Conference, Zagreb.

Tyree, M., Schulte, N.O., Lee, S.S., Carlisle, R., Pollard, A. and Spaulding, S.A. 2019. Synthesis of a national multi-metric diatom index. Society for Freshwater Science, Salt Lake City UT.

Schulte, N.O., Carlisle, D. and Spaulding, S.A. 2019. Optimization of reference taxonomy, OTU grouping, and amplicon choice on algal bioassessments using DNA metabarcoding. Society for Freshwater Science, Salt Lake City UT.

Lee, S.S., Tyree, M. and Spaulding, S.A. 2019. WORKSHOP: Preparation for diatom taxonomic certification. Society for Freshwater Science, Salt Lake City UT.

Lee, S.S., Bishop, I.W., Spaulding, S.A., Mitchell, R.M., Yuan, L.L. 2019. Taxonomic harmonization may reveal a stronger association between diatom assemblages and total phosphorus in large datasets. Society for Freshwater Science, Salt Lake City UT.

Spaulding, S.A., Tyree, M., Alers-Garcia, J., Lee, S.S., Pollard, A. and Mitchell, R. 2019. WORKSHOP: Forging effective use of diatoms in assessment. National Water Quality Monitoring Conference, Denver CO.

Tyree, M., Bishop, I., Yong, C., Carlisle, D. and Spaulding, S.A. 2019. Exploring innovative diatom counting methods for use in bioassessment to improve performance without additional cost. National Water Quality Monitoring Conference, Denver CO.

Cantonati, M., Charles, D.F., Kelly, M.G., Lowe, R., Mazor, R.D., Poikane, S., Spaulding, S.A., Theroux, S. and Zgrundo, A. 2019. A comparison of benthic-algae-based assessments in the European Union and the United States. 10th UAMRICH (Use of algae for monitoring rivers and comparable habitats). Special Session, Zagreb Croatia.

Spaulding, S.A., Tyree, M.A. and Schulte, N.O. 2018. Invited Keynote Presentation: All polluted waters are alike; but clean waters are clean in their own way. International Diatom Symposium, Berlin DE.

Spaulding, S.A., Bishop, I.W., Lee, S., Edlund, M.B. and Potapova, M. 2018. Invited Presentation. Diatoms of North America: an authoritative flora for taxonomists and ecologists. Society for Freshwater Science, Detroit MI.

Tyree, M., Bishop, I.W., Cao, Y., Carlisle, D. and Spaulding, S.A. 2018. Developing alternative diatom enumeration methods to build better predictive bioassessment models. International Diatom Symposium, Berlin DE.

Edlund, M. Spaulding, S. and Jüttner, I. 2018. WORKSHOP: Web-based diatom resources –the future of high-visibility publishing. International Diatom Symposium, Berlin DE.

Burge, D.R.L., Lee, S., Bishop, I., Tyree, M., Edlund, M.B., Spaulding, S.A., Mitchell, R., and Yuan, L. 2018. Diatom taxonomic consistency in the 21st century: Lessons, directions, and updated methodologies. International Diatom Symposium, Berlin DE.

Meilijson, A., Hilgen, F., Sepúlveda, J., Steinberg, J., Fairbank, V., Flecker, R., Waldman, N.D., Spaulding, S.A., Bialik, O.M., Illner, P., Boudinot, G. and Makovsky, Y. 2018. Integrated stratigraphy of Messinian evaporites in the deep eastern Mediterranean reveal long lasting halite deposition during Atlantic connectivity. Geosciences Technology Workshop.

Fernandez, G., Tyree, M., Joeckel, M. and Spaulding, S.A. 2018. Investigation of a paleolake environment in the Late Miocene, Nebraska. American Geophysical Union Annual Meeting, Washington D.C.

Zachary L., Bishop, I.W., Spaulding, S.A., Nelson, H., and Mahoney, C. 2017. Automated diatom analysis applied to traditional light microscopy: A proof-of-concept study. American Geophysical Union, Annual Meeting, New Orleans LA.

Lee, S., Bishop, I.W., and Spaulding, S.A. 2017. Improving taxonomic consistency in large-scale assessments. US Environmental Protection Agency Shareholder Presentation.

Somayyeh K., Cuneyt N. S., Kociolek, J.P., Spaulding, S.A., and Edlund, M.B. 2017. Using diatoms for biomonitoring rivers in the central Albourz, Iran. Central European Diatom Symposium, Poland.

Edlund, M.B, Lee, S., Potapova, M., Bishop, I.W. and Spaulding, S.A. 2017. Status of the Diatoms of the United States web flora. North American Diatom Symposium, Stone Lab, OH.

Spaulding, S.A., Bishop, I.W., Tyree M. and Lee, S. 2017. Eliminating analyst bias in diatom assessment. Society for Freshwater Science, Raleigh NC.

Tyree, M.A., Bishop, I.W. and Spaulding, S.A. 2017. Improving diatom enumeration methods for use in predictive bioassessment models. Hydrological Sciences Symposium, University of Colorado, Boulder CO.

Vital, D., Reith, D., Coughlin, C., Integia, R., Srinivasan, S., Birky, B., Albarelli, G., Defino, P., Spaulding, S.A. and Horton, M.D. 2016. Phosphatic clay-diatom mixture; potential material for supercapacitor. Annual Physics Congress, California.

Vital, D., Reith, D., Coughlin, C., Integia, R., Srinivasan, S., Birky, B., Albarelli, G., Defino, P., Spaulding, S.A. and Horton, M.D. 2016. Capacitive property of phosphatic clay-diatom medley. National Mentoring Conference, Texas.

Spaulding, S.A. and Bishop, I.W. 2016. Biotic condition of rivers in the southeast United States. 2016. International Diatom Symposium, Université Laval, Québec.

Spaulding, S.A., Bishop, I.W., Sundareshwar, P.V., Hoffmann, G. and Kunza, L. 2016. Experimental determination of the role of iron on the growth of *Didymosphenia geminata*. International Diatom Symposium, Université Laval, Québec.

Bishop, I., Minerovic, A., Spaulding, S. and Potapova, M. 2016. Application of taxonomic free sorting to Fragilariophyceae of the Southeastern United States. International Diatom Symposium, Université Laval, Québec.

Kunza, L.A., Haueter, J.Z., Schiller, C. and Spaulding, S. 2016. *Didymosphenia geminata* in Grand Teton National Park, WY: Distribution, mat stoichiometry and biogeochemistry. Society for Freshwater Science, Davis CA.

Spaulding, S. 2015. Taxonomic bias in assessment programs. North American Diatom Symposium, Beaver Island MI.

Spaulding, S.A., Rushforth, S., Potapova, M., Lowe, R.L., Kociolek, J.P. and Edlund, M.B. 2015. A five-year progress report: Diatoms of the US. North American Diatom Symposium, Beaver Island MI.

Bishop, I. and Spaulding, S. 2015. Population-level patterns of size distribution, reduction and restoration in the nuisance diatom *Didymosphenia geminata*. North American Diatom Symposium, Beaver Island MI.

Jovanovska, E. Florian, C.R. and Spaulding, S.A. 2015. Developing methodology for isotopic determination of diatom-bound nitrogen in lake sediments. Central European Diatom Meeting, Bremerhaven Germany.

Kunza, L.A., Sundareshwar, P.V., Spaulding, S.A. and Gautam, S. 2014. Response of *Didymosphenia geminata* to altered phosphorus and iron availability. Joint Aquatic Sciences Meeting, Portland OR.

Jovanovska, E. Florian, C.R. and Spaulding, S.A. 2014. Diatom-bound nitrogen isotopic signatures in lake sediments. Joint Aquatic Sciences Meeting, Portland OR.

Spaulding, S.A., Rushforth, S., Potapova, M., Lowe, R.L., Kociolek, J.P. and Edlund, M.B. 2014. Progress toward completing the diatom flora of the United States. Joint Aquatic Sciences Meeting, Portland OR.

Kelly, K., Spaulding, S.A. and McLauchlan, K.K. 2013. Paleoecological reconstruction of a modern subalpine whitebark pine (*Pinus albicaulis*) community in Grand Teton National Park, U.S.A. Geological Society of America, Denver CO.

- Lee, S.S., Gaiser, E.E., Van de Vijver, B., Edlund, M.B. and Spaulding, S.A. 2013. Morphology and lectotypification of *Mastogloia smithii* and *M. lacustris* with descriptions of two new species from the Florida Everglades and the Caribbean region. North American Diatom Symposium, Bar Harbor, ME.
- Spaulding, S.A. 2013. Paleolimnological records of *Didymosphenia geminata* in North America. International *Didymosphenia* Conference, Providence, RI.
- Spaulding, S.A. 2012. High elevation lakes in Grand Teton NP: sentinels of environmental change. University of Wyoming / National Park Service Field Station seminar series. Moose, WY.
- Bixby R.J., Spaulding, S.A., Jewson, D.H. and Nelson, H. 2012. Can digital imaging flow cytometry replace microscope measurements of diatom cell dimensions? International Diatom Symposium, Ghent, Belgium.
- Stanish, L., Washenberger, C., O'Neill, S.P., Gonzalez-Pena, A., Legg, T.M., Knelman, J., McKnight, D.M., Spaulding, S.A. and Nemergut, D.R. 2012. Bacterial and diatom co-occurrence patterns in stream microbial mats from the McMurdo Dry Valleys, Antarctica. International Polar Year Conference.
- Spaulding, S.A., Pite, D., Wolfe, A.P. and Sundareshwar, P.V. 2011. Approaches for identifying change in the abundance and historical distribution of a freshwater diatom. Invited Presentation, American Geophysical Union, Fall Meeting, San Francisco CA.
- Spaulding, S.A., Otu, M., Baron, J. and Wolfe, A.P. 2011. Response of sensitive freshwater ecosystems to reactive nitrogen deposition in western North America. American Chemical Society, Invited Presenter, Denver CO.
- Benson, M.E., Spaulding, S.A., Kociolek, J.P., and Smith, D. 2011. Exceptional genus-richness and modernity in early freshwater diatoms of the late Eocene Florissant paleolake deposits of Colorado, USA. North American Diatom Symposium, Missoula MT.
- Lee, S.S., Edlund, M.B., Spaulding, S.A. and Gaiser, E.E. 2011. *Mastogloia smithii* var. *lacustris* Grunow: taxonomic origins and morphological variability in North America. North American Diatom Symposium, Missoula MT.
- Bixby, R.J., Spaulding, S.A., Jewson, D.H. and Nelson, H. 2011. Can digital imaging flow cytometry replace microscope measurements of diatom cell dimensions? North American Diatom Symposium, Missoula MT.
- Reid, B., Torres, R. Benavente, M.C., Montero, P., Spaulding, S.A. and Sundareshwar, P.V. 2011. *Didymosphenia geminata* invasion in Chile and the potential for biogeochemical state change in Patagonian rivers. Biolief Conference, Argentina.
- Edlund, M.B., Kociolek, J.P., Potapova, M., Rushforth, S., Spaulding, S.A. and Stoermer, E.F. 2010. Developing an on-line taxonomic guide to the freshwater diatoms of the United States: Scope, process and initial steps. International Diatom Symposium, Minneapolis MN.
- Spaulding, S.A. Historical abundance of *Didymosphenia geminata*. 2010. American Society of Limnology and Oceanography Annual Meeting, Santa Fe NM.

RECENT INVITED LECTURES (2010-2021)

Invited Speaker, for Professor Fernando Agudelo-Silva's Biology course, *Introduction to the diatoms*, College of Marin, Kentfield, CA (2021).

Invited Speaker, with Nick Schulte, *DNA Data Acceptability Criteria for Biological Condition Assessments*, National Monitoring Conference Workshop (2021).

Invited co-Convener for Special Online Workshop, *What is a diatom species?* Society for Freshwater Science (2020).

Invited Speaker, *Ecological change in high elevation lakes of the Rocky Mountains*. Boulder County Nature Association Conference, Boulder CO (2020).

Invited Keynote Speaker, *All polluted waters are alike; but clean waters are clean in their own way*. Session on Freshwater Assessment, International Diatom Symposium, Berlin, Germany (2018).

Invited co-Convener for Workshop, *Web-based Tools for Diatom Research*, International Diatom Symposium, Berlin, Germany (2018).

Invited Speaker, Special Session on Advancing Consistency in Ecological Assessments, Society for Freshwater Science, Detroit MI (2018).

Invited Speaker, *Eliminating analyst bias in diatom assessment*. Special Session on advancing consistency in ecological assessments. Society for Freshwater Science, Raleigh NC (2017).

Invited Speaker, The story of *Didymosphenia geminata* and the signal and the noise in diatom ecology. Iowa State University Seminar Series, Ames IA (2017).

Invited Speaker, Iowa: the origin of diatom species. Iowa State University Geology Department Seminar, Ames IA (2017).

Invited Organizer for Workshop, *Web-based diatom reference sites*, International Diatom Symposium, Québec City, Canada (2016).

Invited Mentor for the Phycological Research Consortium, Milford IA. The mission of the PRC is to provide a professional and collaborative network for phycologists in academic and private sectors (2015).

Invited Speaker, Spaulding, S.A. Moving forward: research and management needs. *Didymosphenia* Conference, Providence, RI (2013).

Guest lecturer and field leader for *Winter Ecology* course, University of Colorado Mountain Research Station (2004-2018).

Invited Speaker, *High elevation lakes in Grand Teton NP: sentinels of environmental change*. Geology Department Seminar Series, Brigham Young University, Provo UT (2013).

Invited Speaker, *High elevation lakes in Grand Teton NP: sentinels of environmental change*. Biology Department Seminar Series, Utah Valley University, Orem UT (2013).

Invited Speaker for AMK Ranch Seminar Series, *High elevation lakes in Grand Teton NP: sentinels of environmental change*. University of Wyoming / National Park Service Field Station, Moose, WY (2012).

Invited Speaker for Workshop, Developing a Bioclimatic Habitat Profile for *Didymosphenia geminata* in Chile, Puerto Montt, Chile (2012).

Guest Lecturer for Applied Ecology, Civil Engineering Department, University of Colorado *Didymosphenia geminata: a diatomic mess or a normal situation?* (2012).

Invited Speaker for American Geophysical Union, Fall Meeting, San Francisco CA, *Approaches for identifying change in the abundance and historical distribution of a freshwater diatom* (2011).

Invited Speaker for special session on nitrogen biogeochemistry, American Chemical Society, Invited Presenter, Denver CO. *Response of sensitive freshwater ecosystems to reactive nitrogen deposition in western North America* (2011).

Invited Speaker for the New York Department of Environmental Conservation for the NY statewide invasive species conference to present, *Didymosphenia geminata: From rare trophy to aquatic affliction* (2011).

Invited Speaker for the National Water Quality Monitoring Council to present, *Developing an online guide to the freshwater diatoms of the United States: scope, process and initial steps*. Pensacola FL (2011).

Invited Speaker for USGS Water Science Day, University of Colorado, Boulder CO to present, *The role of iron in blooms of Didymosphenia geminata* (2010).

Invited Field Expert and Speaker to the Chilean Research Institute, Centro de investigacion en ecosistemas de la Patagonia (CIEP), Coyhaique, Chile (2010).

Invited Workshop Developer for North American Benthological Society one day course, *Introduction to the freshwater diatom genera: learning to “see” diatoms*. North American Benthological Society Annual Meeting, Santa Fe NM (2010).

Invited Speaker for Special Session on *Didymosphenia geminata*, American Society of Limnology and Oceanography Annual Meeting, Santa Fe NM (2010).

PROFESSIONAL ACTIVITIES

- Invited diatom ecological expert to advise the Southern California Coastal Water Research program on development of a Biological Condition Gradient tool for assessing streams and rivers across the state of California (2016-2017).
- Team leader for the Department of Interior International Assistance Program (ITAP) in Wadi Rum, Jordan. Coordinated DOI and National Park Service staff to provide technical assistance to managers in Wadi Rum Protected Area. Participated in discussions with managers, local guides and staff to 1) Develop a visitor permit system, 2) Design an information center including a search and rescue cache, 3) Outline training programs for desert first aid and technical rescue (2014).
- Mentor for the Promoting Geoscience Research, Education & Success (PROGRESS) program. Provided mentorship to Rebecca Gross and became involved in community activities. <http://geosciencewomen.org/> (2015-2016).
- Collaborator, National Science Foundation project, McMurdo Dry Valleys Long-Term Ecological Research site. Advise students and collaborate on diatom related projects.
- Organized EPA funded workshop on taxonomy for graduate students and early career taxonomists, held at the Academy of Natural Sciences of Drexel University. The workshop focused on the genus *Craticula*, and resulted in taxon pages posted to the Diatoms of the US online flora (2015).
- Organized EPA funded workshop on taxonomy for graduate students and early career taxonomists, held at the Academy of Natural Sciences of Drexel University. The workshop focused on the genus *Fragilaria*, and resulted in taxon pages posted to the Diatoms of the US online flora (2015).
- Presented *Jordan past and present: a personal story of international assistance* for the INSTAAR Graduate Student Seminar (2015).
- Organized EPA funded workshop on taxonomic consistency in federal, state and tribal biological assessment programs. Invited the Editorial Review Board for Diatoms of the US, web developers and programmers, EPA staff and advisors for 5day workshop hosted at INSTAAR, Boulder CO. The workshop resulted in funding expert content for Diatoms of the US at \$50K per year for 5 years (2014).
- Project leader for a national website/database for freshwater diatoms of the United States. Coordinated support and funding from EPA and USGS to develop the system and funding for contributors to project a tool for consistent diatom taxonomy and accurate biodiversity measures (westerndiatoms.colorado.edu/).
- Invited diatom taxonomic expert for the Taxonomic Fair, Joint Aquatic Sciences Meeting, Portland OR (2014).
- Co-organized panel discussion and workshop, *Taxonomic Consistency for Aquatic Organisms*, for the National Water Quality Monitoring Council annual meeting, Portland OR (2012). As a result of the workshop, a working group was formed to develop recommended standards for consistency.

- Featured in Science News of the Week, (2011) A slimy invader blooms in the rivers of Patagonia, Science 331: 18.
- Invited presenter for North American Benthological Society Workshop, *Introduction to the freshwater diatom genera: learning to “see” diatoms*. NABS Annual Meeting, Santa Fe NM (2010).
- Project leader for an update and expansion for the NSF funded web database for the McMurdo Dry Valleys Long Term Ecological Research Program, *Antarctic Freshwater Diatoms* (huey.colorado.edu/diatoms/about/index.php). The site includes continental Antarctic sites as well as subantarctic islands. I coordinated efforts by undergraduate students and international collaborators for the update (2010).
- Invited contributor to major book volumes, *The Diatoms: Applications for the Environmental and Earth Sciences*, 2nd Edition, E.F. Stoermer and J.P. Smol, (eds), Cambridge University Press (2010), *The Diatoms: Applications for the Environmental and Earth Sciences*, E.F. Stoermer and J.P. Smol, (eds), Cambridge University Press (1998), *Freshwater Algae of North America*, R. Sheath and J. Wehr (eds), Academic Press (2002), and *Natural History of Madagascar* Goodman, S. and Benstead, J. (eds), University of Chicago Press. (2003).
- Project leader for a NSF funded web database for the McMurdo Dry Valleys Long Term Ecological Research Program, *Antarctic Freshwater Diatoms* (huey.colorado.edu/diatoms/about/index.php). The site incorporates diatom taxonomy, nomenclature, reference images, maps, access to samples, and species count data. (2004-2005).
- Played a primary role in obtaining a scanning electron microscope (SEM) for the California Academy of Sciences Research Division. I secured \$140,000 in NSF funding, evaluated and selected a state of the art SEM, supervised installation of the instrument, trained research staff, and hired a SEM operator (1998-2001).
- Coordinated a diverse team of undergraduate students, database specialists, web designers, and scientists to produce and update the California Academy of Sciences Diatom Collection website. The website (www.calacademy.org/research/diatoms/) was featured in the journal *Science* Netwatch (2001 Vol. 293).
- Member of the California Academy of Sciences Gulf of Guinea Expedition. Participated in fieldwork on the equatorial islands of São Tomé and Príncipe as part of an Academy project to compare island distributions among different taxonomic groups (2001).
- Facilitated major acquisitions to the California Academy of Sciences Diatom Collection from J.P. Bradbury (US Geological Survey), B. Thiers (New York Botanical Garden), and D. Davis, (New Mexico Natural Resources Agency) (1998-2001).

PROFESSIONAL SERVICE

- Ongoing service as a peer reviewer of manuscripts for scientific journals (Antarctic Science, Aquatic Invasions, Bulletin of the Natural History Museum (London), Limnology and Oceanography, Journal of Ecology, Nature Geoscience, Diatom Research, Bibliotheca Diatomologica, Journal of Phycology, Arctic, Alpine and Antarctic Research, Antarctic Science, Phycological Research, Phycologia, European Journal of Phycology, Polish Botanical Journal, Journal of Paleolimnology, Journal of the North American Benthological Society, Cryptogamie Algologie, Phytotaxa, PLOS One, Sedimentary Research, Nova Hedwigia) and for scientific proposals (National Science Foundation, American Association for the Advancement of Science, European Science Foundation, US EPA, Canadian NERC).
- Invited field scientist for US Geological Survey / Grand Canyon Youth river trip on the Colorado River. I initiated a survey of the invasive diatom *Didymosphenia geminata* on the Colorado River below Glen Canyon dam, involving group of indigenous youth on a 16-day trip. As a result of my work, Navajo, Hopi, and Pueblo teens explored invertebrate and algal food webs (2021).
- Developed a collaborative relationship with Professor Fernando Agudelo-Silva who teaches at College of Marin, a community college serving underrepresented students. Dr. Agudelo-Silva reached out to me through diatoms.org, and we initiated a survey of diatoms in coastal streams near his college. I processed his algal samples, produced a voucher flora, identified species, and then presented the results to his students (2021).
- Vice President, International Society for Diatom Research (2021-present)
- Chair, National Ecological Observatory Network (NEON) Taxonomic Technical Working Group (2020-2021)
- Guest Editor for Special Volume of Ecological Indicators (2019-2020).
- Served as the lead of the International Society for Diatom Research Core Team for revision of the ISDR website (2019-2020).
- Member of Center for Water, Science and Technology (CWEST) and the CWEST Executive Committee (2019-2020).
- Organized an all-day workshop at the Society for Freshwater Science annual meeting, Preparation for Taxonomic Certification, followed by administration of the Level 1 Genus Certification Exam (2019).
- Served as an invited diatom expert for the Society for Freshwater Science Taxonomy Fair, SFS Annual Meeting, Salt Lake City, UT (2020).
- Serve as a member of the Diatom Taxonomic Certification Committee (2018-present). Worked with a group of diatomists to develop the rationale and plan for a series of qualifying exams to be administrated by the Society for Freshwater Science.
- Founding member of the Southwest Chapter, Society for Freshwater Science (2019).
- Organized Taxon Workshops at the Academy of Natural Sciences of Drexel University. The workshop funded by the EPA Office of Science and Technology, with the purpose of bringing young taxonomists together to work in a national herbarium and learn the process of investigating species distributions and verification of historical records (2016-2019).

- Served on review committee of the Diatom Collection, Frank and Ruth Patrick New Species File, Academy of Natural Sciences of Drexel University (2018).
- Served to provide a formal scientific review of field and laboratory protocols for Big Cypress National Park, Florida (2018).
- Served on the INSTAAR Executive Committee subgroup to review, revise and finalize the institute By-Laws (2018).
- Organized and hosted a workshop, Methods for Developing a Voucher Flora, at INSTAAR to train diatomists on establishing consistent taxonomic protocols for national surveys (2018).
- Serve on the National Ecological Observatory Network (NEON) Aquatic Technical Working Group (2011-2016, 2018-2020).
- Interviewed for podcast for *Nautilus* magazine by Bishop Sand (2018) <https://soundcloud.com/user-506589138/why-do-taxonomists-write-the-meanest-obituaries>
- Editor, book volume in Iconographia Diatomologica series on Diatoms of Antarctica, Koeltz Scientific Books (2016).
- Elected to the Council for the International Diatom Society (2016-2022).
- Associate Editor, Diatom Research (2016-2017).
- Interviewed for pilot podcast for The Nerd Heard by Ryan Vachon (2016) <https://itunes.apple.com/us/podcast/the-nerd-heard/id1171387279?mt=2>
- Interviewed for public radio station KGNU, Science Friday program by Beth Bennett (2016).
- Hosted USGS / EPA workshop, Biological Indicator Models, at INSTAAR (March 2016).
- Organized Taxon Workshops at the Academy of Natural Sciences of Drexel University. Two workshops were funded by the EPA Office of Science and Technology, with the purpose of bringing young taxonomists together to work in a national herbarium and learn the process of investigating species distributions and verification of historical records (2015).
- Associate Editor for special volume dedicated to the biology and ecology of *Didymosphenia* for the journal Diatom Research (2014).
- Serve as the Chair and member of the Editorial Review Board for the national website/database for freshwater diatoms of the United States (2010-present).
- Serve as a member of the Executive Committee, INSTAAR (2010-present).
- Served on review committee of the Diatom Collection, Frank and Ruth Patrick New Species File, Academy of Natural Sciences of Drexel University (2013).
- Served on the International *Didymosphenia* Conference Committee, Providence, RI (2013).
- Led Discovery Hikes and Microscope Sessions involving graduate students in communicating aquatic biodiversity to the public for the National Geographic / Rocky Mountain National Park BioBlitz (2012).
- Served on the Scientific Programme Committee, International Diatom Symposium, Ghent, Belgium (2012).

- Lead organizer and moderator for Special Panel Discussion on Taxonomy in Water Quality Programs, National Water Quality Monitoring Council Annual Meeting, Portland OR (2012).
- Served on the National Science Foundation Steering Committee for Deep Field Camps, Transantarctic Mountains (2011-2012).
- Served on the Editorial Board for the Journal of Phycology (2010-2012).
- Served as the Chair and member of the Research Faculty Ad Hoc Committee, INSTAAR (2009-2010).
- Served as a member of the Scientific Advisory Board to the State of California Water Quality Diatom project (2010).
- Served as a member of the USGS Fort Collins Science Center Scientific Advisory Board. The board is tasked with providing guidance to the center director on issues related to promoting scientific accomplishments by USGS scientists (2010).
- Co-organizer for the USGS Fort Collins Science Center Seminar Series. With support from the Scientific Advisory Board, we invited speakers, scheduled talks, and publicized topics for the academic and agency community (2010).
- Co-editor for special volume of the Proceedings of the Academy of Natural Sciences of Philadelphia. Invited contributed papers for a peer-reviewed volume dedicated to Charles Reimer (2010).
- Established the \$10,000 endowed student fellowship (Reimer Scholarship) at Iowa Lakeside Laboratory using funds from profits of the North American Diatom Symposium. The scholarship will be awarded to a student in the *Ecology and Systematics of Diatoms* course each year, based on merit.
- Co-organizer for the 20th North American Diatom Symposium, Iowa Lakeside Laboratory, Milford Iowa. Obtained commercial and private sponsorship, planned scientific agenda, invited plenary speakers, and awarded student travel stipends (2009).
- Lead organizer for the INSTAAR Seminar Series, University of Colorado. Invited speakers, scheduled talks, and publicized topics for the institute, academic and agency community (2008-2009).
- Provide information to and consult with professionals in academic institutions and government agencies, including the Academy of Natural Sciences of Philadelphia, US Forest Service, US Environmental Protection Agency, US Geological Survey, and National Park Service. (on-going).
- Invited guest lecturer for university courses on stream assessment, limnology and algal ecology (University of Colorado, Colorado School of Mines, CU Mountain Research Station 2004-present).
- Co-organizer for special session at the International Society for Theoretical Limnology (SIL) Meeting and International Workshop on *Didymosphenia*, Montréal Canada. Served as co-editor, with Max Bothwell for meeting proceedings volume published by Oceans and Environment Canada (2007).
- Co-organizer for special session at the American Society of Limnology and Oceanography (ASLO) Meeting, Santa Fe NM (2007).
- Served on Biosecurity New Zealand Technical Advisory Group. Provided expert advice on the response and research program to address the invasion of *Didymosphenia geminata* in New Zealand (2004-2007).

- Lead organizer for a special session at the Western Division American Fisheries Society Annual Meeting. Developed relationship with the Federation of Fly Fishers and other non-profit organizations to secure funding to host a *Didymosphenia geminata* Symposium with invited international speakers (2006).
- Collaborated with EPA, USGS, and volunteer staff to plan and present World Water Monitoring Day. The public open house and discussion was well attended, and included participation by Robbie Roberts, EPA Regional Administrator (2005).
- Organized and presented a Periphyton Workshop, on request from state agencies. The workshop involved 3-day training for state and federal staff on the use of periphyton in monitoring and assessment programs at the University of Colorado Mountain Research Station. Biologists from Colorado, Utah, and Wyoming attended (2005).
- Member of the New Zealand Government Biosecurity Technical Advisory Group. Served as an expert on the diatom *Didymosphenia geminata* and its expansion in biogeographical range and ecological tolerance. (2004 – 2007)
- Member of the Board of Directors, Boulder Creek Watershed Initiative, a non-profit organization dedicated to informing the public about scientific issues that concern communities in the local watershed. Served as writer and editor of the BCWI Newsletter (2003-2005).
- Lead organizer for the 15th North American Diatom Symposium, Pingree Park, Colorado State University. Obtained commercial and private sponsorship, planned scientific agenda, invited plenary speakers, and awarded student travel stipends (1999).
- Initiated the Hanna Student Fellowship at the California Academy of Sciences Diatom Collection, an annual scholarship offered to students working in diatom taxonomy, systematics, ecology, and micropaleontology. The fellowship supports expenses for graduate students to travel to utilize high resolution light and electron microscopes, consult original references, and learn curatorial techniques. (1997-2001).
- Co-chaired special session, Antarctic Dry Valley Ecosystems, American Geophysical Union, Annual Fall Meeting, San Francisco CA (1996).
- Co-organized special session, Life in Extreme Environments, American Society of Limnology and Oceanography Annual Meeting, Reno NV (1995).
- Co-organizer of Women in Science discussion group, a monthly gathering of women with advanced degrees in botany, computer science, ecology, geochemistry, geology and molecular biology (1990-1999).

GRANT PROPOSALS

Spaulding, S.A., 2021. Cyanobacteria monitoring collaborative. General Dynamics Information Technology. **Award of \$60,000.**

Spaulding, S.A. 2020. Condition of Colorado streams and rivers inferred by diatom multimetric indices. Great Lakes Environmental Center. **Award of \$21,000.**

Monteleone, K. et al. 2020. NFRFT-2020-00098 – Our Submerged Past: Ancient colonizers and their responses to rapid sea-level rise at the end of the late Pleistocene. New Frontiers and Research Grant, Canada, declined (2020).

Spaulding, S.A., Anderson, S. and McKnight, D.M. 2020. Ecological status of Lagerman Reservoir. Proposal to Boulder County Open Space. **Award of \$13,000.**

Lee, S.S., Spaulding, S.A., Stevenson, R.J., Edlund, M.B., Heinlein, J., Burge, D. and Minerovic, A. 2020. Diatom Taxonomic Certification Program certification levels 2-3. Proposal to the Society for Freshwater Science Long-Range Planning Committee **Award of \$8,000.**

Lee, S.S., Spaulding, S.A., Stevenson, R.J., Edlund, M.B., Heinlein, J., Burge, D. and Minerovic, A. 2018. Diatom Taxonomic Certification Program image database" genus exam" and design prototypes for certification levels 1-3. Proposal to the Society for Freshwater Science Long-Range Planning Committee. **Award of \$8,000.**

Spaulding, S.A. Regional voucher flora for northeastern lakes. **Award of \$87,000** from US EPA Region 1 (2017).

Richardson, D., Arscott, D.B., Kan, J., Kunza, L. and Spaulding, S.A. NSF DEB Ecosystem Studies Preproposal, High algal biomass in oligotrophic streams: Using *Didymosphenia geminata* (Dg) to elucidate the effect of alternate stable states on ecosystem function, declined (2016).

McKnight, D.M. and Spaulding, S.A. Algal assessment in rivers and streams. **Award of \$980,800** from US Geological Survey (2015).

Spaulding, S.A. Developing experts for the Diatoms of the United States, Workshop for students and analysts. **Award of \$10,000** from EPA Office of Science and Technology (2015).

Richardson, D., Arscott, D.B., Kan, J., Kunza, L. and Spaulding, S.A. NSF DEB Ecosystem Studies Preproposal, High algal biomass in oligotrophic streams: Using *Didymosphenia geminata* (Dg) to elucidate the effect of alternate stable states on ecosystem function, declined (2015).

Spaulding, S.A. Experimental determination of the role of iron on the growth of *Didymosphenia geminata* in the Kootenai River. **Award of \$3,000** from South Dakota School of Mines and Technology (2015).

Spaulding, S.A. Developing experts for the Diatoms of the United States, Workshop for students and analysts. **Award of \$6,000** from EPA Office of Science and Technology (2015).

Spaulding, S.A., Kociolek, J.P., Potapova, M. and Edlund, M.B. Collaborative Proposal: Discovering and Documenting Diversity of the Freshwater Diatoms of the United States, NSF DEB Proposal request of \$378,000 declined (2013).

Spaulding, S.A., Kociolek, J.P., Potapova, M. and Edlund, M.B. Discovering and Documenting Diversity of the Freshwater Diatoms of the United States. Preproposal to NSF DEB, invited for full submission (2013).

Spaulding, S.A. and Larson, D. Climate change in the alpine zone: A continuous, multi-proxy record of Holocene glacier activity and environmental change at Grand Teton National Park. **Award of \$5,000** from University of Wyoming/National Park Service Field Station (2012).

Kociolek, J.P., Spaulding, S.A., Potapova, M. and Edlund, M.B. Discovering Diversity of the Freshwater Diatoms of the United States. Preproposal to NSF, DEB (2012).

Sundareshwar, P.V. et al. Local sustainability in the face of species invasion – four countries impacted by the freshwater diatom – *Didymosphenia geminata*. Preproposal to NSF, PIRE (2011).

Spaulding, S.A., Baron, J. and Wolfe, A. Effects of atmospheric deposition of inorganic nitrogen on high elevation lakes. **Additional award of \$15,000** from National Park Service (2011-2012).

Spaulding, S.A., Baron, J. and Wolfe, A. Field Support: effects of atmospheric deposition of inorganic nitrogen on high elevation lakes. **Award of \$5,000** from University of Wyoming-National Park Service Research Station (2011).

Sundareshwar, P.V., Druschel, G., Spaulding, S.A. and Pillsbury, R. Collaborative Research: Biogeochemical processes within algal mats of oligotrophic systems. Proposal request of \$1.2 M from NSF (2012-2014).

Spaulding, S.A., Schweiger, W. and Bunch, F. *Didymosphenia geminata* at the Great Sand Dunes? Survey and development of monitoring and management strategies for a nuisance alga. Proposal request of \$10,000 to National Park Service.

Spaulding, S.A. and McKnight, D.M. Experimental determination of the role of Fe the growth of *Didymosphenia geminata* in the Kootenai River, Montana, downstream from Libby Dam. **Award of \$25,000** from US Army Corps of Engineers (2010).

Miller, G., Spaulding, S.A., Neff, J., Anderson, S. and McKnight, D. Acquisition of liquid chromatography and sample preparation instrumentation for enhanced reconstruction of Quaternary environmental change. **Award of \$203,444** from NSF.

Nemergut, D., Spaulding, S.A. and McKnight, D. Collaborative Research: Stream ecosystem "harshness" and microbial endemism in the McMurdo Dry Valleys. **Award of \$495,308** from NSF (2009-2012).

Spaulding, S.A., Baron, J. and Wolfe, A. Effects of atmospheric deposition of inorganic nitrogen on high elevation lakes. **Award of \$100,000** from National Park Service (2010-2012)

Spaulding, S.A., O'Ney, S., Stone, J.R. and Theriot, E. Historical trends and modern invasions: distinguishing *Didymosphenia* populations in the Rocky Mountains of the western US. **Award of \$193,500** from National Park Service (2010-2012).

Catton, K., Omur-Ozbek, P. and Spaulding, S.A. IDR: The effect of stratification and predator-prey interactions on the production and transport of geosmin in reservoirs during algal blooms. Proposal request of \$499,701 to NSF.

McKnight, D., Crimaldi, J., Spaulding, S.A. and Pitlick, J. Understanding the hydrologic factors affecting the growth of *Didymosphenia geminata* in rivers and the potential to use environmental flood releases to control future growth. Request of \$366,650 to NSF.

Kociolek et al. A diatom flora of the continental United States. Proposal request of \$1,500,000 submitted to NSF Biological Surveys and Inventories Program (2008)

Spaulding, S.A. Phase II - Populating the web-based identification guide and ecological resource for diatoms. Proposal request of \$227,000 to EPA Office of Water (2008)

Spaulding, S.A., O'Ney, S. and Hermann, K. Visual impacts of stalk forming diatoms in Grand Teton National Park. **Award of \$14,500** from University of Wyoming-National Park Service Research Station (2007)

Spaulding, S.A. Taxonomic consistency in biological assessment: developing a web-based identification guide and ecological resource for diatoms of western North America. **Award of \$189,000** from EPA Office of Research and Development (2007)

Shuttlesworth, J., Spaulding, S.A. and Edlund, M.B. Integrating monitoring and research of Dickinson County Lakes. **Award of \$15,000** from Okoboji Protective Association (2005)

Shuttlesworth, J., Spaulding, S.A. and Edlund, M.B. Seeing the Unseen: Capping Phase I of **Lakeside's Center for Diatom Ecology and Systematics**. **Award of \$25,000 from the University of Okoboji Foundation** (2005)

Spaulding, S.A. A Diatom Web Flora: Dickinson County and Beyond. Proposal request of \$5,000 to adapt a database developed with NSF LTER funds to Iowa. **Award of \$5,000** from the Friends of Lakeside Lab (2005).

Meyer, H. and Spaulding, S.A. Discovering a remarkable record: biodiversity and evolution of diatoms of Florissant National Monument. **Award of \$20,000** from the National Park Service (2002).

Spaulding, S.A. and Krstic, S. Evolution and biodiversity of diatoms in an ancient tectonic basin, Lake Ohrid, Macedonia. **Award of \$4,000** American Association for the Advancement of Science, Travel Grant (2002).

Spaulding, S.A. and McKnight D.M. Freshwater diatoms of the McMurdo Dry Valleys: synthesis of taxonomy, distribution, and ecology. **Award of \$14,500**, Long-Term Ecological Research (LTER) Program, Supplemental Grant (4/2002).

Pulawski, W., S.A. Spaulding, T. Gosliner and J.P. Kociolek. A scanning electron microscope for the California Academy of Sciences. **Award of \$140,000**, NSF Multi-users of Biological Equipment Program (1999).

AWARDS AND HONORS

- US Geological Survey Achievement Award (2007-2016, 2019-2020)
- EPA Ecosystems Protection Program, Region 8, Greater Kudu Nomination (2007)
- US Geological Survey STAR Award for Outstanding Technical Assistance and Outreach (2006)
- Jessup Fellowship, Academy of Natural Sciences of Philadelphia (1995).
- US Geological Survey Achievement Award (1992).
- MacBride Scholarship, Iowa Lakeside Laboratory, University of Iowa (1990).
- E.R. Reed Scholarship in Limnology, Colorado State University (1988).
- Ecological Studies Research Grant, Colorado State University (1988).

PROFESSIONAL AFFILIATIONS

- Society for Freshwater Science, member (2016-present)
- International Society of Diatom Research, Vice President (2021), Member Advisory Council (2008, 2016, 2018-2020), Editorial Board (2007-2012), Associate Editor (2013, 2016, 2017)
- Phycological Society of America, Associate Editor Journal of Phycology (2010-2011)
- American Association for the Advancement of Science (2015-2017, 2019-)
- Association for the Sciences of Limnology and Oceanography (2019-)
- International Phycological Society (2014-2016)
- International Biogeography Society (2018-)

POST DOCTORAL SUPERVISION

Nicholas Schulte, INSTAAR Postdoctoral Fellow, Determination of diatom species loss and changes in water quality across the northern United States over the past 100 years. (2021-2022).

Megan Otu, INSTAAR Postdoctoral Fellow, Effects of atmospheric deposition of inorganic nitrogen on high elevation lakes (2010-2011).

FULBRIGHT SCHOLAR SUPERVISION

Elena Jovanovska, Visiting Fulbright Fellowship Scholar from Skopje, Macedonia, Stable isotopic records in a 7,000 year sediment record from Grand Teton NP: $\delta^{15}\text{N}$ in diatom frustules (2013-2014).

STUDENT ADVISORY COMMITTEES

- Anderson, Sarah, M.S. Student, Civil Engineering Department, University of Colorado. (2019-2021).
- Walker, Bethany, M.S. student, University of Colorado, Denver. (2018-2019).
- Nicholas Schulte, Ph.D. student, Environmental Studies Department, University of Colorado. (2016-2020).
- Meredith Tyree, M.S. student, Environmental Studies Department, University of Colorado. Development of models for assessment of southeast streams of the US (2015-2017).
- Whitney Beck, Ph.D. student, Graduate Degree Program in Ecology, Colorado State University. Understanding reference condition in streams (2015-2019).
- Isabella Oleksy, Ph.D. student, Graduate Degree Program in Ecology, Colorado State University. Recent environmental change in chlorophytes of Loch Vale, RMNP. (2015-2019).
- Tyler Kohler, Ph.D., Environmental Studies Department, University of Colorado. Diatoms in Harsh Stream Environments (2012-2015).
- Jaime Haueter, M.S., Department of Atmospheric and Environmental Sciences, South Dakota School of Mines and Technology. Geochemistry of montane streams and diatom interactions (2014-2016).
- Ian Bishop, M.S. Environmental Studies Department, University of Colorado. Population dynamics of *Didymosphenia geminata* (2012-2014).
- Aneliya Sakaeva, M.S. Environmental Studies Department, University of Colorado. Biogeography of diatoms in Antarctic ponds (2012-2014).
- Lee Stanish, Ph.D. Environmental Studies Department, University of Colorado. Ecology and molecular signatures of Antarctic diatoms. (2008-2011).
- James Cullis, Ph.D. Department of Civil Engineering, University of Colorado, Flood releases and shear stress to control growth of *Didymosphenia geminata* (2009-2011).
- Daniel A. James, Ph.D. Wildlife and Fisheries Sciences, South Dakota State University. *Didymosphenia geminata* impacts on fisheries resources (2009-2011)
- Mary Ellen Benson, Ph.D. University of Colorado. Interpretation of Eocene lacustrine history based on freshwater diatoms in the Florissant Formation. (2005-2011).
- Aimee McLaughlin, M.S. Environmental Studies Department, University of Colorado. Spectral responses of organic matter in montane streams. (2009).
- Tizsa Bell, M.S. Environmental Studies Department, University of Colorado. Response of algae to recent environmental change in high elevation lakes (2008-2009).
- Jessica Black, Ph.D., University of Colorado. Paleoclimatic reconstruction of Iceland. (2005-2007) Jessica went on to become postdoctoral fellow at University of Arkansas.
- Nadezhda Slavchova, Ph.D. Portland State University. Assessment of diatoms in streams of the western US. (2004-2006)

- Elizabeth Ruck, M.A., San Francisco State University, Taxonomy and phylogeny of the genus *Surirella* (Bacillariophyceae) (2000-2002). Completed doctorate at University of Texas.

STUDENT MENTORING

- Anna Shampain, served as a research mentor for M.S. project on paleolimnology for graduate student at Colorado State University (2021-present).
- Connor Ellerson, served as a research mentor for undergraduate in Environmental Engineering, Special studies of the diatom *Amphora delphinea* var. *minor* (2021-present).
- Dr. Somayyeh Kheiri, I have served as a long-term mentor and friend to a former student, Somayyeh. She is a Professor at the Research Institute of Forests and Rangelands, Tehran, Iran. We communicate regularly by email and skype to discuss diatoms, research, the Lut Desert, and life. Currently, I am assisting her with job applications and CV writing (2012-present).
- Maggie Anderson, served as a research mentor for graduate program in Environmental Engineering, Ecological status of Lagerman Reservoir, Boulder County, Colorado (2019-2020).
- Gabriela Fernandez, served as research mentor as part of the Research Experiences in Solid Earth Sciences for Students (RESESS) program on the project, Investigation of Nebraska during the late Miocene through a freshwater diatomite (2018).
- Zachary Little, served as research mentor as part of the Research Experiences in Solid Earth Sciences for Students (RESESS) program on the project, Automated Diatom Analysis Applied to Traditional Light Microscopy: A Proof-of-Concept Study (2017).
- Mentored group of students (Chris Dowdy, Sam Trappen, Dalton Reith) at Florida Polytechnic University, in collaboration with Dr. M. Horton. Provided advice on the project, Nanotechnological innovation using diatoms for solar cell application. (2015-2016).
- Rebecca Gross, Undergraduate Student, University of Colorado, mentorship through the PROGRESS program (2015-2016).
- Hayley Templar, M.S. Student, University of Wisconsin, working on bacterial contamination of drinking water sources (2015-2016).
- Genevieve Gaffigan, Undergraduate EBio, Volunteer intern, working on winter seasonal dynamics of diatoms (2015).
- Josh Darling, Undergraduate Environmental Sciences, Served on Senior Honor's Thesis Committee on project on nutrient enrichment of algal mats in variable flow streams (2014-2015).
- Drew Meyers, Undergraduate EBio, I mentored Drew on variety of lab and field activities (2014-2015).
- Danielle Pite, Laboratory Technician, Project on iron and phosphorus adsorption by algal stalks (2012).
- Danielle Pite, Praxis Internship, major in Chemistry, Smith College MA (2011).
- Violeta Yeni Garcia, University of Northern Colorado, NSF Ph.D. Research Fellowship Awarded in Science and Science Education (2010).

- Sara Fairchild, Environmental Studies Program Internship (2009), University of Colorado, Historical record of diatoms in Lake Vanda, Antarctica.
- Anna Hermann, Research Seminar Student, Boulder High School (2007-2008), majored in Public Health, Tulane University LA
- Kelly Lane, Research Seminar Student, Boulder High School (2007-2008), majored in Biochemistry and Journalism, University of Colorado
- Danielle Pite, Research Seminar Student, Boulder High School (2007-2008), majored in Chemistry, Smith College MA
- Matt Mayernick, National Science Foundation, Research Experience for Undergraduates (REU) Program, University of Colorado. Physiological adaptations in diatoms in extreme environments of the Antarctic Dry Valleys (2003). BA in Biophysics.
- Brenda Moraska, Ph.D. Candidate, Colorado State University, concerning project design, algal identification, and technical implementation of the influence of atmospheric nitrate on algal production (1999-2000).
- Erin Van Matre, M.S. Student, University of Colorado, project design, algal identification, and technical implementation of the temporal and spatial dynamics of Antarctic phytoplankton (1999-2000).
- Rhea Esposito, Undergraduate Research Experience, Oberlin College, research techniques in freshwater ecology (1999, 2001).
- Summer Waters, M.S. student, University of Colorado, Paleolimnology of an Alpine Lake in Colorado (1998).
- David Wong, Undergraduate Intern, California Academy of Sciences, Development of Guide to Freshwater Diatom Genera (1997-1998).