

Stephen Plont

M.S. Student, Virginia Tech
Department of Biological Sciences
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Research Statement

I am interested in understanding the spatial and temporal variability of ecosystem processes, their influence on the transport and transformation of carbon and other nutrients throughout stream networks, and how water quality is influenced by environmental change at the ecosystem scale.

Education

- 2017-present **M.S. Biological Sciences**, Virginia Tech, Advisor: Dr. Erin R. Hotchkiss
Project Title: “*Moving Beyond the Stream Reach: Linking Energy Flow and Nutrient Cycling at Stream Confluence Control Points.*”
Course Participation: “*Environmental Sensors: Designing, Building, and Deploying in the Field*” (Flathead Lake Biological Station, Montana)
Overall GPA: 4.00
- 2012-2017 **B.A. Chemistry**, Michigan State University
B.S. Environmental Geosciences, Michigan State University
Minor: Environmental and Sustainability Studies
Overall GPA: 3.56
GRE Scores (November 2015): 153 Verbal, 161 Quantitative, 4.0 Writing

Research Experience

- 2018 **Graduate Research Assistant**, *Rivers and the carbon cycle: A mechanistic basis for dissolved organic carbon removal*, Virginia Tech, Blacksburg, VA. PIs: Erin Hotchkiss (Virginia Tech), Robert Hall (Montana), & Michelle Baker (Utah State). Funded by National Science Foundation Division of Environmental Biology.
- 2016 **Undergraduate Researcher**, *Influence of stream intermittency and flow recession on dissolved organic carbon dynamics at the stream-groundwater interface*, Michigan State University, East Lansing, MI. Supervisor: Jay Zarnetske.
- 2016 **Research Technician**, *Ecological Functions of Surface Water-Groundwater Interfaces Across Variable Stream Flow Conditions*, H. J. Andrews Experimental Forest, Blue River, OR. PIs: Jay Zarnetske (Michigan State) and Adam Ward (Indiana). Funded by The Leverhulme Trust.
- 2015 **Undergraduate Researcher**, *Using mesocosms to assess controls of flocculent sediments on organic carbon dynamics at the stream-groundwater interface*, Michigan State University, East Lansing, MI. Supervisor: Jay Zarnetske.

Publications (* = undergraduate mentee)

Published

- 2018 JA Lee-Cullin, Zarnetske, JP, Ruhala, SS, & **Plont, S.** “*Toward measuring biogeochemistry within the stream-groundwater interface at the watershed scale: An initial assessment of two spatial sampling strategies.*” *Limnology & Oceanography: Methods*
- 2017 SS Ruhala, Zarnetske, JP, Long, DT, Lee-Cullin, JA, **Plont, S.**, & Wiewiora, ER. “*Exploring dissolved organic carbon cycling at the stream-groundwater interface across a third-order, lowland stream network.*” *Biogeochemistry* 137:1–22.

In Review

- 2018 BW Abbott, Bishop, KH, Zarnetske, JP, Minaudo, C, Chapin, FS, Krause, S, Hannah, DM, Conner, LG, Ellison, D, Godsey, S, **Plont, S.**, Marcais, J, Kolbe, T, Huebner, A, Frei, RJ, Hampton, TB, Gu, S, Buhman, M, Ursache, O, Chapin, M, Henderson, KD, & Pinay, G. “*Human domination of the global water cycle excluded from depictions and perceptions.*” In Review to *Nature Geosciences*.

In Preparation

- S Plont,** Zarnetske, JP, Ward AS, & Schmadel, N. “*Seasonal flow recession and stream intermittency influence organic carbon dynamics in a montane, headwater stream.*” In Prep. Target Journal: *Journal of Geophysical Research: Biogeosciences*. Submission by January 2019.
- S Plont,** O'Donnell, BM, Gallagher, MT*, & Hotchkiss, ER. “*Linking Energy Flow and Nutrient Cycling in Streams.*” In Prep. Target Journal: *Freshwater Science*. Submission by December 2018.
- AS Ward, Zarnetske, JP, Baranov, V, Blaen, PJ, Brekenfeld, N, Derelle, R, Drummond, JD, Fleckenstein, J, Graham, E, Hannah, DM, Marman, C, Hixson, J, Knapp, JA, Krause, S, Lewandowski, J, Li, A, Marti, E, Miller, M, Milner, AM, Neil, K, Orsini, L, Packman, AI, **Plont, S.**, Reynolds, S, Roche, K, Royer, T, Schmadel, NM, Segura, C, Stegen, J, Wisnoski, NI, & Wondzell, SM. “*Co-located contemporaneous mapping of morphological, hydrological, chemical, and biological conditions in a 5th order mountain stream network, Oregon, USA.*” In Prep. Target Journal: *Earth Systems Science Data*. Submission by November 2018.
- AS Ward, Wondzell, SM, Zarnetske, JP, Schmadel, NM, Herzog, S, Baranov, V, Blaen, PJ, Brekenfeld, N, Derelle, R, Drummond, JD, Fleckenstein, J, Graham, E, Hannah, DM, Marman, C, Hixson, J, Knapp, JA, Krause, S, Lewandowski, J, Li, A, Marti, E, Miller, M, Milner, AM, Neil, K, Orsini, L, Packman, AI, **Plont, S.**, Reynolds, S, Roche, K, Royer, T, Segura, C, Stegen, J, & Wisnoski, NI. “*Spatial and temporal relationships between hydrologic forcing, geologic setting, and river corridor exchange in a mountain stream network*” In Prep. Target Journal: *Hydrology and Earth System Science*. Submission by November 2018.

Presentations (* = undergraduate mentee)

- 2019 **S Plont**, Miller, C*, & Hotchkiss, ER. “*Moving Beyond the Stream Reach: Confluences as Biogeochemical Control Points.*” Society for Freshwater Science Meeting. Salt Lake City, UT.
- 2019 M Castillo*, **Plont, S**, O’Donnell, BM, & Hotchkiss, ER. “*Solute-Specific Dissolved Organic Carbon Uptake by Stream Microbes*” Society for Freshwater Science Meeting. Salt Lake City, UT.
- 2019 ER Hotchkiss, **Plont, S**, O’Donnell, BM, Gallagher, MT*, & Bretz, KR. “*Integrating diel patterns in dissolved oxygen, carbon dioxide, and methane for an improved understanding of respiration regimes in streams.*” Society for Freshwater Science Meeting. Salt Lake City, UT.
- 2019 KH Bishop, Abbott, BW, Zarnetske, JP, Minaudo, C, Chapin, FS, Krause, S, Hannah, DM, Conner, LG, Ellison, D, Godsey, S, **Plont, S**, Marcais, J, Kolbe, T, Huebner, A, Frei, RJ, Hampton, TB, Gu, S, Buhman, M, Ursache, O, Chapin, M, Henderson, KD, & Pinay, G. “*A Water Cycle for the Anthropocene.*” European Geophysical Union Annual Meeting. Vienna, Austria.
- 2019 **S Plont**, O’Donnell, BM, Gallagher, MT*, & Hotchkiss, ER. “*Linking Organic Carbon and Nitrogen Spiraling in Streams.*” Virginia Tech Department of Biological Sciences Research Day. Blacksburg, VA.
- 2018 DM Hannah, Abbott, BW, Bishop, KH, Zarnetske, JP, Minaudo, C, Chapin, FS, Krause, S, Conner, LG, Ellison, D, Godsey, S, **Plont, S**, Marcais, J, Kolbe, T, Huebner, A, Frei, RJ, Hampton, TB, Gu, S, Buhman, M, Ursache, O, Chapin, M, Henderson, KD, & Pinay, G. “*A Water Cycle for the Anthropocene.*” American Geophysical Union Meeting. Washington, DC.
- 2018 AS Ward, Harman, CJ, Schmadel, N, Kurz, M, Blaen, P, Wondzell, SM, Drummond, J, Hannah, DM, Knapp, J, Krause, S, Li, A, Marti, E, Miller, M, Milner, A, Neil, K, **Plont, S**, Roche, K, Packman, AI, Wisnoski, N, & Zarnetske, JP. “*How do evapotranspiration-driven discharge fluctuations alter reach-scale ecosystem function?*” American Geophysical Union Meeting. Washington, DC.
- 2018 AS Ward, Herzog, S, Wondzell, SM, Schmadel, N, Blaen, P, Drummond, J, Hannah, DM, Harman, CJ, Knapp, J, Krause, S, Kurz, M, Li, A, Marti, E, Miller, M, Milner, A, Neil, K, **Plont, S**, Roche, K, Packman, AI, Wisnoski, N, & Zarnetske, JP. “*Spatial and temporal relationships between hydrologic forcing, geologic setting, and river corridor exchange in a mountain stream network.*” American Geophysical Union Meeting. Washington, DC.
- 2018 AS Ward, Herzog, S, Wondzell, SM, Schmadel, N, Blaen, P, Drummond, J, Hannah, DM, Harman, CJ, Knapp, J, Krause, S, Kurz, M, Li, A, Marti, E, Miller, M, Milner, A, Neil, K, **Plont, S**, Roche, K, Packman, AI, Wisnoski, N, & Zarnetske, JP. “*How do hydrologic*

CURRICULUM VITAE (Updated 31 January 2019)

- forcing and geologic setting control river corridor exchange in a 5th order mountain stream network?*” Geological Society of America Annual Meeting. Indianapolis, IN.
- 2018 **S Plont**, O'Donnell, BM, Gallagher, MT*, & Hotchkiss, ER. “*Linking Energy Flow and Nutrient Cycling in Streams.*” Society for Freshwater Science Meeting. Detroit, MI.
- 2018 ER Hotchkiss, Hall, RO, Baker, MA, & **Plont, S**. “*Simulating interactive effects of primary production and terrestrial organic matter subsidies on stream organic carbon spiraling.*” Society for Freshwater Science Meeting. Detroit, MI.
- 2017 BW Abbott, Bishop, K, Zarnetske, JP, Minaudo, C, Chapin III, FS, **Plont, S**, Marçais, J, Ellison, D, Chowdhury, SR, Kolbe, T, Orsache, O, Hampton, T, Gu, S, Chapin, M, Krause, S, Henderson, KD, Hannah, D, & Pinay, G. “*Global water cycle diagrams exclude human influence and over-represent water security.*” American Geophysical Union Meeting. New Orleans, LA.
- 2017 **S Plont**, Zarnetske, JP, Ward, AS, & Schmadel, N. “*From continuous to discontinuous: Spatial stream flow intermittency dominates carbon quantity and quality in a headwater mountain stream.*” HydroEco Meeting. 2017. Birmingham, United Kingdom.
- 2017 **S Plont**, Zarnetske, JP, Ward, AS, & Schmadel, N. “*Flow Recession and Stream Intermittency Influence Organic Carbon Chemistry in a Headwater Mountain Stream.*” Society for Freshwater Science Meeting. Raleigh, NC.
- 2017 **S Plont**, Zarnetske, JP, Ward, AS, & Schmadel, N. “*From “Wet” to “Dry”: How Do Flow Recession and Stream Intermittency Affect Organic Carbon Dynamics in Headwater Mountain Streams?*” University Undergraduate Research and Arts Forum. Lansing, MI.
- 2017 **S Plont**, Zarnetske, JP, Ward, AS, & Schmadel, N. “*From “Wet” to “Dry”: How Do Flow Recession and Stream Intermittency Affect Organic Carbon Dynamics in Headwater Mountain Streams?*” Michigan Environmental Laboratory Association Annual Meeting. East Lansing, MI. (**Invited Presenter**)
- 2016 **S Plont**, Zarnetske, JP, Lee-Cullin, JA, Ruhala, SS, & Wiewiora, ER. “*Using Mesocosms to Assess Controls of Flocculent Organic Rich Sediments on Organic Carbon and Nitrate Chemistry at the Stream-Groundwater Interface.*” Kellogg Biological Station All Scientist Meeting. Hickory Corners, MI.
- 2016 SS Ruhala, Zarnetske, JP, Lee-Cullin, JA, **Plont, S**, & Wiewiora, ER. “*Dissolved Organic Carbon Conditions Across the Stream- Groundwater Interface of a River Network.*” Kellogg Biological Station All Scientist Meeting. 2016. Hickory Corners, Michigan.
- 2016 JA Lee-Cullin, Zarnetske, JP, Ruhala, SS, **Plont, S**, & Wiewiora, ER. “*Stream Network Structure and Spatial Measurement Scales Influence Dissolved Organic Carbon Characterizations Across a Watershed.*” Kellogg Biological Station All Scientist Meeting. Hickory Corners, Michigan.

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- 2016 JP Zarnetske, Lee-Cullin, JA, Ruhala, SS, **Plont, S**, & Wiewiora, ER. “*How Should We Collect Biogeochemical Data in the Stream-Groundwater Interface at the Watershed Scale?*” American Geophysical Union Meeting. 2016. San Francisco, CA.
- 2016 **S Plont**, Zarnetske, JP, Lee-Cullin, JA, Ruhala, SS, & Wiewiora, ER. “*Using Mesocosms to Assess Controls of Flocculent Organic Rich Sediments on Organic Carbon and Nitrate Chemistry at the Stream-Groundwater Interface.*” Society for Freshwater Science Meeting. Sacramento, CA.
- 2016 SS Ruhala, Zarnetske, JP, Lee-Cullin, JA, **Plont, S**, & Wiewiora, ER. “*Dissolved Organic Carbon Conditions Across the Stream- Groundwater Interface of a Third-Order River Network.*” Society for Freshwater Science Meeting. Sacramento, CA.
- 2016 JA Lee-Cullin, Zarnetske, JP, Ruhala, SS, **Plont, S**, & Wiewiora, ER. “*Stream Network Structure and Spatial Measurement Scales Influence DOC Characterizations Across a Watershed.*” Society for Freshwater Science Meeting. Sacramento, CA.
- 2016 **S Plont**, Zarnetske, JP, Lee-Cullin, JA, Ruhala, SS, & Wiewiora, ER. “*What is this Muck? Flocculent Sediments and Controls over Carbon Chemistry at the Stream-Groundwater Interface.*” Fate of the Earth Symposium. 2016. East Lansing, MI.
- 2016 **S Plont**, Zarnetske, JP, Lee-Cullin, JA, Ruhala, SS, & Wiewiora, ER. “*What is this Muck? Flocculent Sediments and Controls over Carbon Chemistry at the Stream-Groundwater Interface.*” University Undergraduate Research and Arts Forum. 2016. East Lansing, MI.
- 2014 **S Plont**, Narayan, R, Thorp, L, & Mohammed, AJ. “*Greening the Spartan Green & White: A Collaborative Zero-Waste Initiative.*” Michigan Department of Environmental Quality Green Chemistry Conference. 2014. East Lansing, MI.

Teaching

- Spring 2019 Instructor, BIOL 1116: Principles of Biology Laboratory II, Virginia Tech
- Fall 2017 Instructor, BIOL 1115: Principles of Biology Laboratory I, Virginia Tech
- Fall 2015 Teaching Assistant, NSC 192: Environmental Issues Seminar, MSU
- Fall 2014 Teaching Assistant, NSC 192: Environmental Issues Seminar, MSU
- Fall 2014 Learning Assistant ISP 203B: Natural Hazards and the Environment, MSU
- 2012-2015 Chemistry/STEM Tutor and Undergraduate Advisor through the Residential Initiative on the Study of the Environment (RISE), MSU

Grants

Submitted

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- 2018 National Science Foundation Graduate Research Fellowship, “Moving Beyond the Stream Reach: Assessing the Role of Confluences as Control Points of Ecosystem Function and Water Quality in Freshwater Networks”

Funded

- 2018 Society for Freshwater Science, General Endowment Award, “Linking Energy Flow and Nutrient Cycling in Streams”, Funded Amount: \$1000
- 2014 MSU Office of Campus Sustainability, “Be Spartan Green” Student Research Grant, “Bailey Hall Rooftop Bees Collaborative Grant”, Funded Amount: \$5000

Honors

- 2018 Virginia Tech Graduate Student Assembly Travel Fund Program Award (\$200)
- 2018 Flathead Lake Biological Station Mary Elrod Ferguson Memorial in Honor of Dr. Morton J. Elrod Scholarship (\$1470)
- 2018 Society for Freshwater Science Instars Graduate Mentor Scholarship (\$125)
- 2017 Society for Freshwater Science Instars Fellowship (\$500)
- 2017 Michigan Environmental Laboratory Association Bryce McHale Scholarship (\$1000)
- 2017 Society for Freshwater Science Undergraduate Travel Award (\$800)
- 2017 Michigan Department of Environmental Quality No Spills Scholarship (\$800)
- 2016 MSU College of Natural Science Undergraduate Research Scholarship (\$1000)
- 2015 MSU College of Natural Science Undergraduate Research Scholarship (\$1000)
- 2015 MSU Department of Geological Sciences B.T. Sandefur Scholarship (\$1000)
- 2015 MSU Office of Campus Sustainability Achievement Award for Outstanding Student Research Project

Service

Ongoing Service Engagement

- 2016-Present **Member**, Society for Freshwater Science Student Resource Committee
2018-present: Chair of Undergraduate Travel and Presentation Award committee, Member of Student-Mentor Mixer committee
2017-2018: Member of Merchandise and Volunteer Event committees
- 2017-present **Member**, Virginia Tech Biological Science Graduate Student Association
2018-present: Co-chair of Social committee
2017-2018: Member of Merchandise committee

Service Participation

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- 2018 Volunteer for Virginia Tech Science Festival at Stream Team “Build a Stream” booth
- 2018 Graduate Mentor, Society for Freshwater Science Instars Program
The Instars Fellowship Program provides networking and peer mentoring opportunities to undergraduates underrepresented in freshwater ecology
- 2018 Lab tours and research presentation to members of Virginia Tech’s *Ut Proxim* Society.
- 2017 Participated in Stroubles Creek restoration trip (Blacksburg, VA) with Biological Science Graduate Student Association
- 2017 Participated in American Institute of Biological Sciences’ Congressional Visits Day, Office of State Delegate Nick Rush (R-VA)

Professional Affiliations

Academic Affiliations

- 2019-Present Fellow, Interfaces for Global Change Program, Virginia Tech
- 2016-Present Member, Stream Team/Ecosystem Research Group, Department of Biological Sciences, Virginia Tech
- 2016-Present Member, Cross-Boundary Biogeochemistry Group. Virginia Tech

Societal Memberships

- 2015-Present Society for Freshwater Science
- 2018-Present American Association for the Advancement of Science

Students Mentored (*primary mentor, all undergraduates co-mentored in Hotchkiss Lab)

Caitlin Miller*, Biological Sciences Undergraduate Research Experience & Undergraduate Field Study (Spring 2018-Spring 2019), Virginia Tech

Project Title: *“Stream confluence mixing zones as heterogeneous ecosystem control points for dissolved organic matter processing.”*

Melissa Costillo*, Multicultural Academic Opportunities Program Fellow (Summer 2018), Salt Lake Community College

Project Title: *“How do different organic matter sources influence carbon metabolism in streams?”*

Quentin Pitts*, Biological Sciences Undergraduate Research Experience & Undergraduate Field Study (Fall 2017-Spring 2018), Virginia Tech

Project Title: *“How does stream salinization alter organic matter dynamics?”*

Cameron Braswell, Biological Sciences Undergraduate Field Study (Spring 2019), Virginia Tech

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Jack Monroe, Biological Sciences Undergraduate Field Study (Fall 2018), Virginia Tech

Hank Liu, Biological Sciences Undergraduate Field Study (Spring 2018), Virginia Tech

Sumaiya Rahman, Biological Sciences Undergraduate Field Study (Fall 2017), Virginia Tech

Jonathan Cordle, Biological Sciences Undergraduate Field Study (Fall 2017), Virginia Tech