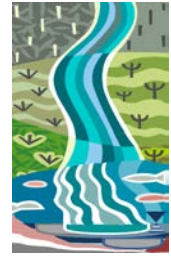


Jay P. Zarnetske, Ph.D.

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RESEARCH TOPICS

Hydrologic processes of the Earth's Critical Zone: Hydrogeology; Groundwater – surface water interactions; Catchment nutrient and carbon fluxes; Climate change impacts on Arctic hydrology and biogeochemistry; Water quality and resources; Hydroecology – coupling of hydrology, biogeochemistry, and aquatic ecosystems

EDUCATION

Ph.D. Water Resources Science (Ecosystem Informatics minor) <i>Oregon State University (Corvallis, OR)</i>	2011
M.S. Watershed Science <i>Utah State University (Logan, UT)</i>	2006
B.A. Geology <i>Colby College (Waterville, ME)</i> <i>School for Field Studies, Centre for Rainforest Studies (Australia)</i>	2000 1999

WORK AND RESEARCH EXPERIENCE

Associate Professor – Department of Earth and Environmental Sciences <i>Michigan State University (East Lansing, MI)</i>	2020- Present
Assistant Professor – Department of Earth and Environmental Sciences <i>Michigan State University (East Lansing, MI)</i>	2013- 2020
Donnelley Postdoctoral Fellow – School of Forestry & Environmental Studies <i>Yale University (New Haven, CT)</i>	2011-2013
Graduate Fellow – NSF IGERT: Ecosystem Informatics Graduate Research Assistant – College of Earth, Ocean, and Atmospheric Sciences & Water Resources Graduate Program <i>Oregon State University (Corvallis, OR)</i>	2006-2011
Visiting Scientist – Catchment Processes Group (6-month term) <i>National Institute for Water & Atmospheric Research (New Zealand)</i>	2010
Graduate Research Assistant – College of Natural Resources <i>Utah State University (Logan, UT)</i>	2003-2006
Hydrogeologist <i>CDM Smith (Headquarters: Cambridge, MA)</i>	2000-2003
Visiting Scholar – Dept. of Civil & Environmental Engineering (6 month term) <i>New Jersey Institute of Technology (Newark, NJ)</i>	2000

SCHOLARLY PEER-REVIEWED PUBLICATIONS

SUMMARY (July 2020): 47 published; 5 in review/revision; 1644 citations; h-index = 19

°°Zarnetske lab student/post doc author, **award, 2nd or 3rd author position typically means project PI

47. °°Shogren, A, **JP Zarnetske**, BW Abbott, Frances Iannucci, and William B. Bowden (2020) We cannot shrug off the shoulder seasons: Addressing knowledge and data gaps in an Arctic Headwater. *Environmental Research Letters*, <https://doi.org/10.1088/1748-9326/ab9d3c>
46. Arora, B, MA Briggs, **JP Zarnetske**, J Stegen, J Gomez-Valez, D Dwivedi, and C Steefel (*in press*) Hot Spots and Hot Moments in the Critical Zone: Identification of and Incorporation into Reactive Transport Models. *Springer-Nature*.
45. °°Hampton, TB, **JP Zarnetske**, MA Briggs, F MahmoodPoor Dehkordy, K Singha, FD Day-Lewis, JW Harvey, S Roy Chowdhury, and JW Lane (2020) Experimental Shifts of Hydrologic Residence Time in a Sandy Urban Stream Sediment-Water Interface Alter Nitrate Removal and Nitrous Oxide Fluxes. *Biogeochemistry*, <https://doi.org/10.1007/s10533-020-00674-7>
44. °°Roy Chowdhury, S, **JP Zarnetske**, MS Phanikumar, MA Briggs, FD Day-Lewis, K Singha (2020). Formation criteria for hyporheic anoxic microzones: Assessing interactions of hydraulics, nutrients and biofilms. *Water Resources Research*, <https://doi.org/10.1029/2019WR025971>
43. Comer-Warner, S, J Knapp, P Blaen, M Klaar, F Shelley, **JP Zarnetske**, °°J Lee-Cullin, S Folegot, M Kurz, J Lewandowski, J Harvey, A Ward, C Mendoza-Lera, S Ullah, T Datry, N Kettridge, D Goody, J Drummond, E Martí, A Milner, D Hannah, S Krause (2020) The method controls the story - sampling method impacts on the detection of pore-water nitrogen concentrations in streambeds. *Science of the Total Environment*, 709, <https://doi.org/10.1016/j.scitotenv.2019.136075>
42. °°Shogren, A, **JP Zarnetske**, °°BW Abbott, F Iannucci, R Frei, NA Griffin, and WB Bowden (2019) Revealing biogeochemical signatures of Arctic landscapes with river chemistry. *Scientific Reports*, 9(1): 12894, DOI: 10.1038/s41598-019-49296-6.
41. Ward, AS, M Kurz, N Schmadel, J Knapp, P Blaen, C Harman, J Drummond, D Hannah, S Krause, A Li, E Marti, A Milner, K Neil, M Miller, S Plont, A Packman, N Wisnoski, S Wondzell, and **JP Zarnetske**. (2019) Solute transport and transformation in an intermittent, headwater mountain stream with diurnal discharge fluctuations. *Water*. 11(11), 2208; <https://doi.org/10.3390/w11112208>.
40. Ward, AS, **JP Zarnetske**, V Baranov, PJ Blaen, N Brekenfeld, R Chu, R Derelle, J Drummond, JH Fleckenstein, V Garayburu-Caruso, E Graham, D Hannah, CJ Harman, S Herzog, J Hixson, JLA Knapp, S Krause, MJ Kurz, J Lewandowski, A Li, E Martí, M Miller, AM Milner, K Neil, L Orsini, AI Packman, °°S Plont, L Renteria, K Roche, T Royer, NM Schmadel, C Segura, J Stegen, J Toyoda, J Wells, NI Wisnoski, and SM Wondzell. (2019) Co-located contemporaneous mapping of morphological, hydrological, chemical, and biological conditions in a 5th order mountain stream network, Oregon, USA. *Earth System Science Data*, 11, 1567–1581, <https://doi.org/10.5194/essd-11-1567-2019>.

39. Ward, AS, S Wondzell, N Schmadel, S Herzog, **JP Zarnetske**, et al. (2019) Spatial and temporal variation in river corridor exchange across a 5th order mountain stream network. *Hydrology and Earth System Sciences*. <https://doi.org/10.5194/hess-2019-108>
38. °Abbott, BA, K Bishop, **JP Zarnetske**, DM Hannah, RJ Frei, C Minaudo, FS Chapin III, S Krause, L Conner, D Ellison, SE Godsey, S Plont, J Marçais, T Kolbe, A Huebner, T Hampton, S Gu, M Buhman, SS Sayedi, O Ursache, M Chapin, KD Henderson, G Pinay (2019) A water cycle for the Anthropocene. *Hydrological Processes* DOI: 10.1002/hyp.13544
37. °Abbott, BA, K Bishop, **JP Zarnetske**, C Minaudo, FS Chapin III, S Krause, DM Hannah, L Conner, D Ellison, SE Godsey, °S Plont, J Marçais, T Kolbe, A Huebner, R Frei, °TB Hampton, S Gu, M Buhman, O Ursache, M Chapin, KD Henderson, G Pinay (2019) Human domination of the global water cycle excluded from depictions and perceptions. *Nature Geoscience*. 12(7): 533-540. 10.1038/s41561-019-0374-y
- *Extensive press coverage in news outlets, including an interview on the nationally syndicated Michigan Public Radio show “Stateside.” Cover image and article for journal. Web of Science Highly Cited Paper (paper received enough citations to place it in the top 1% of Environmental/Ecology fields based on a highly cited threshold for the field and publication year***
36. MahmoodPoor Dehkordy, F, MA Briggs, FD Day-Lewis, K Singha, °TB Hampton, **JP Zarnetske**, C Scruggs, AC Bagtzoglou (2019). Analysis of multi-scale preferential flow processes in an urban streambed, *Journal of Hydrology*. <https://doi.org/10.1016/j.jhydrol.2019.03.022>
35. Kelleher, C, AS Ward, JLA Knapp, PJ Blaen, MJ Kurz, JD Drummond, **JP Zarnetske**, DM Hannah, C Mendoza-Lera, NM Schmadel, T Detry, J Lewandowski, AM Milner, S Krause (2019) Exploring Tracer Information and Model Framework Trade-offs to Improve Understanding of Stream Transient Storage Processes. *Water Resources Research*, 55, 3481– 3501. <https://doi.org/10.1029/2018WR023585>
34. °Hampton, TB, **JP Zarnetske**, MA Briggs, K Singha, JW Harvey, FD Day-Lewis, F MahmoodPoor Dehkordy, and JW Lane (2019) Residence time controls the fate of nitrogen in flow-through lakebed sediments. *JGR-Biogeosciences*, 124. <https://doi.org/10.1029/2018JG004741>
33. ****Zarnetske, JP**, M Bouda, °BW Abbott, J Saiers, and PA Raymond (2018) Generality of hydrologic transport limitation of watershed organic carbon flux across ecoregions of the United States. *Geophysical Research Letters*, 45. <https://doi.org/10.1029/2018GL080005>
- *AGU featured article and University feature in MSU Today**
32. °Lee-Cullin, JA, **JP Zarnetske**, °SS Ruhala, and °S Plont (2018) Toward measuring biogeochemistry within the stream-groundwater interface at the network scale: an initial assessment of two spatial sampling strategies. *Limnology and Oceanography: Methods*, 16: 722-733. doi:10.1002/lom3.10277
31. Briggs, MA, FD Day-Lewis, F MahmoodPoor Dehkordy, °TB Hampton, **JP Zarnetske**, CR Scruggs, K Singha, JW Harvey, J Lane. (2018) Direct observations of hydrologic exchange occurring with less-mobile porosity in sandy lakebed sediments. *Water Resources Research*. doi:10.1029/2018WR022823.

30. Blaen, PJ, MJ Kurz, JD Drummond, J Knapp, C Mendoza-Lera, NM Schmadel, MJ Klaar, A Jäger, S Folegot, °°J Lee-Cullin, AS Ward, **JP Zarnetske**, T Datry, AM Milner, J Lewandowski, and S Krause (2018) Linking function with form: hydrologic and geomorphic influences on reach-scale metabolism in a lowland forested stream. *Ecohydrology*. 2018:e1952. <https://doi.org/10.1002/eco.1952>.
29. **°°Abbott BW, G Gruau, **JP Zarnetske**, F Moatar, L Barbe, Z Thomas, O Fovet, T Kolbe, S Gu, AC Pierson-Wickmann, P Davy, G Pinay. (2018) Unexpected structure and synchrony of water quality in headwater stream networks. *Ecology Letters*. doi: 10.1111/ele.12897
- *Extensive press coverage in news outlets, including an interview on the nationally syndicated Michigan Radio “The Environment Report.” Cover image and article for Ecology Letters. Web of Science Highly Cited Paper (paper received enough citations to place it in the top 1% of Environmental/Ecology fields based on a highly cited threshold for the field and publication year)***
28. °°Ruhala SS, **JP Zarnetske**, DT Long, °°JA Lee-Cullin, °°S Plont, and °°ER Wiewiora. (2017) Exploring dissolved organic carbon cycling at the stream-groundwater interface across a third-order, lowland stream network. *Biogeochemistry*, doi.org/10.1007/s10533-017-0404-z.
27. **Pavelsky, TM, and **JP Zarnetske** (2017) Declining aufeis in Arctic Alaska reflects a changing hydrologic cycle. *Geophys. Res. Lett.*, 44, doi:10.1002/2016GL072397.
- *Extensive press coverage in news outlets, including PBS NewsHour, Scientific American, and Nature Climate Change. Selected as an American Geophysical Union featured article for 2017. Cover image and article for Geophysical Research Letters.***
26. °°Kurz MJ, JD Drummond, E Martí, **JP Zarnetske**, °°JA Lee-Cullin, MJ Klaar, S Folegot, T Keller, AS Ward, JH Fleckenstein, T Datry, DM Hannah, and S Krause (2017) Impacts of water level on metabolism and transient storage in vegetated lowland rivers - insights from a mesocosm study. *J. Geophys. Res.* 10.1002/2016JG003695.
25. °°Baranov, V, D Milosevic, MJ Kurz, **JP Zarnetske**, F Sabater, E Martí, A Robertson, °°T Brandt, A Sorolla, J Lewandowski, and S Krause (2017) Helophyte impacts on the response of hyporheic invertebrate communities to inundation events in intermittent streams. *Ecohydrology*. 10.1002/eco.1857.
24. Folegot, S, °°JA Lee-Cullin, J Drummond, DM Hannah, T Keller, M Klaar, MJ Kurz, E Martí, **JP Zarnetske**, and S Krause. (2017) Low flow controls on stream thermal dynamics, *Limnologica*. <https://doi.org/10.1016/j.limno.2017.08.003>.
23. °°Ruhala, S, and **JP Zarnetske**. (2016) Using in-situ optical sensors to study dissolved organic carbon dynamics of streams and watersheds: A review. *Science of the Total Environment*. <http://dx.doi.org/10.1016/j.scitotenv.2016.09.113>.
22. Schmadel, N, A Ward, M Kurz, **JP Zarnetske**, D Hannah, T Blume, M Vieweg, P Blaen, C. Schmidt, J Knapp, M Klaar, P Romeijn, T Datry, T Keller, S Folegot, A Marruedo Arricibita, S Krause. (2016) Stream solute tracer timescales changing with discharge and reach length confound process interpretation, *Water Resour. Res.*, 52, doi:10.1002/2015WR018062.

21. Briggs, MA, FD Day-Lewis, **JP Zarnetske**, and JW Harvey. (2015) A physical explanation for the development of redox microzones in hyporheic flow. *Geophys. Res. Lett.*, 42, doi: 10.1002/2015GL064200.
20. **Zarnetske, JP**, and PL Zarnetske (2015) Strategies for creating a conspicuous, effective, and memorable poster presentation. *GSA Today*, 25(5), doi: 10.1130/GSATG228GW.1.
19. **Zarnetske, JP**, R Haggerty, and SM Wondzell (2015) Coupling multi-scale observations to evaluate hyporheic nitrate removal at the reach scale. *Freshwater Science*, 34, doi: 10.1086/680011.
18. Roley, SS, JR Griffiths, PS Levi, CJ Patrick, S Sadro, and **JP Zarnetske*** (2014) Taking the pulse of the ecosystem: progress in quantifying aquatic ecosystem health. *Limnology and Oceanography*. doi: 10.4319/ecodas.2014.978-0-9845591-4-5.101.
*co-author equal contribution; listed alphabetical after corresponding author.
17. Mazza, R, S Wondzell, **JP Zarnetske**. (2014) The stream subsurface: nitrogen cycling and the cleansing function of hyporheic zones. *Science Findings* 166. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. pp 6.
*author equal contribution; listed alphabetical after corresponding author.
16. °°Yoon, HD, D Cox, D Albert, N Mori, H Smith, and **JP Zarnetske**. (2013) Ecological modeling of emergent vegetation for sustaining wetlands in high wave energy coastal environments. *Coastal Structures*, 1 & 2: 992-1001.
15. Ward, AS, MN Gooseff, TJ Voltz, M Fitzgerald, K Singha, and **JP Zarnetske** (2013) How does rapidly changing discharge during storm events affect transient storage and channel water balance in a headwater mountain stream? *Water Resour. Res.*, 49, doi:10.1002/wrcr.20434.
14. **Zarnetske, JP**, R Haggerty, SM Wondzell, V Bokil, and R González-Pinzón. (2012) Coupled transport and reaction kinetics control the nitrate source-sink function of hyporheic zones. *Water Resour. Res.*, 48, W11508, doi:10.1029/2012WR011894.
13. **Zarnetske, JP**, R Haggerty, SM Wondzell, and MA Baker. (2011) Labile dissolved organic carbon supply controls hyporheic denitrification. *J. Geophys. Res.*, 116, G04036, doi:10.1029/2011JG001730.
12. ****Zarnetske, JP**, R Haggerty, SM Wondzell, and MA Baker. (2011) Dynamics of nitrate production and removal as a function of residence time in the hyporheic zone. *J. Geophys. Res.*, 116, G01025, doi:10.1029/2010JG001356.
Web of Science Highly Cited Paper (paper received enough citations to place it in the top 1% of Geoscience field based on a highly cited threshold for the field and publication year); 2011 Editor's Choice, AGU Eos Research Spotlight; A Top Downloaded JGR Article
11. Argerich, A, R Haggerty, M Eugènia, S Francesc, and **JP Zarnetske**. (2011) Quantification of metabolically active transient storage (MATS) in two reaches with contrasting transient storage and ecosystem respiration. *J. Geophys. Res.*, 116, G03034, doi: 10.1029/2010JG001379.
10. Brosten, TR, JH Bradford, JP McNamara, MG Gooseff, **JP Zarnetske**, WB Bowden, and ME Johnson. (2009) Estimating 3D variation in active-layer thickness beneath arctic streams using ground-penetrating radar. *J. of Hydrology*, 373(304): 479-486, doi:10.1016/j.jhydrol.2009.05.011

9. Brosten, TR, JH Bradford, JP McNamara, MG Gooseff, **JP Zarnetske**, WB Bowden, and ME Johnson. (2009) Multi-offset GPR methods for hyporheic zone investigations. *Near Surface Geophysics*. 7(4): 247-257, doi: 10.3997/1873-0604.2008034.
8. **Zarnetske, JP**, MN Gooseff, WB Bowden, MJ Greenwald, JP McNamara, JH Bradford, and TR Brosten. (2008) Influence of morphology and permafrost dynamics on hyporheic exchange in arctic headwater streams under warming climate conditions, *Geophys. Res. Lett.*, 35, L02501, doi:10.1029/2007GL032049.
7. Crook, N, A Binley, R Knight, DA Robinson, **JP Zarnetske**, and R Haggerty. (2008) Electrical resistivity imaging of the architecture of substream sediments. *Water Resour. Res.*, 44, W00D13, doi:10.1029/2008WR006968.
6. Gooseff, MN, RA Payn, **JP Zarnetske**, WB Bowden, JP McNamara, and JH Bradford. (2008) Comparison of in-channel mobile-immobile zone exchange during instantaneous and constant-rate stream tracer additions: Implications for design and interpretation of non-conservative tracer experiments. *J. of Hydrology*, 357: 112-124, doi:10.1016/j.jhydrol.2008.05.006.
5. Payn, RA, MN Gooseff, DA Benson, OA Cirpka, **JP Zarnetske**, WB Bowden, JP McNamara, and JH Bradford. (2008) Comparison of instantaneous and constant-rate stream tracer experiments through non-parametric analysis of residence time distributions, *Water Resour. Res.*, 44, W06404, doi:10.1029/2007WR006274.
4. Greenwald, MJ, WB Bowden, MN Gooseff, **JP Zarnetske**, JP McNamara, JH Bradford, and TR Brosten (2008) Hyporheic exchange and water chemistry of two arctic tundra streams of contrasting geomorphology, *J. Geophys. Res.*, 113, G02029, doi:10.1029/2007JG000549.
3. Bowden, WB, MJ Greenwald, MN Gooseff, **JP Zarnetske**, JP McNamara, J Bradford, and T Brosten (2008) Carbon, nitrogen, and phosphorus interactions in the hyporheic zones of arctic streams draining areas of continuous permafrost, eds. DL Kane, and KM Hinkel, *Ninth International Conference on Permafrost*, Institute of Northern Engineering, 165-170.
2. **Zarnetske, JP**, MN Gooseff, WB Bowden, TR Brosten, JH Bradford, and JP McNamara. (2007) Transient storage as a function of geomorphology, discharge, and permafrost active layer conditions in Arctic tundra streams, *Water Resour. Res.*, 43, W07410, doi:10.1029/2005WR004816.
1. Brosten, TR, JH Bradford, JP McNamara, **JP Zarnetske**, MG Gooseff, and WB Bowden. (2006) Profiles of temporal thaw depths beneath two arctic stream types using ground-penetrating radar. *Permafrost Periglac. Process.*, 17: 341–355. doi: 10.1002/ppp.566.

SCHOLARLY THESES, COMMENTARIES, & EDUCATIONAL PRODUCTS

7. °°Shogren, A, and **JP Zarnetske** (2019) Streams as sensors: Arctic watersheds as indicators of change. *Data Nugget Program*, <http://datanuggets.org/about-nuggets-2/>
6. °°Shogren, A, **JP Zarnetske**, F Iannucci, A Medvedeff, W Bowden, and A Rec (2019) Nutrient Limitation. *Data Nugget Program*. <http://datanuggets.org/about-nuggets-2/>

5. **Zarnetske JP.** (2011) Hydrophiles: Bringing students, faculty, and the public together to form a hydrocommunity. *WRGP Newsletter*. 1, 1-2.
4. **Zarnetske JP.** (2011) Dissertation: Hydrological and biogeochemical dynamics of nitrate production and removal at the stream – ground water interface. Oregon State University, Corvallis, OR, pp. 173.
3. **Zarnetske JP.** (2006) Thesis: Headwater hyporheic zones in a warming arctic climate: An assessment of hyporheic dynamics across distinct geomorphic and permafrost conditions. Utah State University, Logan, UT, pp. 138.
2. **Zarnetske JP.** (2000) Thesis: Sound attenuation in an artificial rock fracture: A study of *in situ* remediation technology enhancement. Colby College, Waterville, ME, pp. 66.
1. **Zarnetske JP.** (1999) Thesis: Performance of a mixed-species tree plantation in North Queensland, Australia. School for Field Studies, Centre for Rainforest Studies, Queensland, Australia, pp. 28.

ACADEMIC RESEARCH GRANTS & FELLOWSHIPS

CAREER SUMMARY

TOTAL AWARDS = \$2.70M

ZARNETSKES LAB DIRECTLY AWARDED = \$1.36M

TOTAL NUMBER OF AWARDS = 12

- | | |
|---|---------------|
| 10. National Science Foundation, ARCSS, MSU-PI (\$1,362,000; 477,298 to Zarnetske) | 2019-
2022 |
| <i>“COLLABORATIVE RESEARCH: Constraining fate and function of permafrost nutrients with direct multi-scale observations: Streams networks as indicators of watershed processes”</i> | |
| 9. National Science Foundation, EAR-CAREER, Sole-PI (\$470,000 to Zarnetske) | 2019-
2024 |
| <i>“CAREER: Towards Forecasting Watershed Organic Carbon Fluxes across Flow Regimes and Ecoregions”</i> | |
| 8. Detroit Science Gallery, Depth Exposition, MSU-PI (\$3,000 to Zarnetske) | 2019 |
| <i>“Hidden Waters” Art Exhibit</i> | |
| 7. National Science Foundation, EAR-Hydrological Sciences, MSU-PI (\$532,113; \$239,033 to Zarnetske) | 2015-
2019 |
| <i>“Collaborative Research: Unlocking the transient storage blackbox: Revealing the role of less-mobile porosity in hyporheic denitrification and greenhouse gas production”</i> | |
| 6. Leverhulme Trust, United Kingdom, MSU-PI (\$182,306; \$26,000 to Zarnetske) | 2014-
2017 |
| <i>“Where rivers, groundwater and disciplines meet: a hyporheic research network”</i> | |

5. Yale Institute for Biospheric Studies, Gaylord Donnelly Postdoctoral Fellowship Grant, sole-PI (\$104,000 to Zarnetske) 2011-2013
“Flow Regime Controls on River Nitrogen and Carbon Export Under Past, Present, and Future Climate Conditions”
4. NSF in cooperation with New Zealand National Institute for Water and Atmospheric Research, Inc., IGERT Research Grant, sole-PI (\$13,000 to Zarnetske) 2010-2011
“Identifying Environmental Flows and Groundwater – Surface Water Connectivity in a Strongly Gaining Stream Environment”
3. Society of Freshwater Sciences, Graduate Research Grant, sole-PI (\$1,000 to Zarnetske) 2010-2011
“Isotope Tracing to Illuminate Mechanisms and Improve Modeling of Surface-Groundwater Exchange Controls on Stream Nitrogen”
2. United States Geological Survey, Water Science Center Grant, sole-PI (\$10,000 to Zarnetske) 2008-2010
“Groundwater - Surface Water Exchange Controls Nitrogen Export from Headwater Streams in Oregon, USA”
1. Geological Society of America, Graduate Research Grant, sole-PI (\$1,930 to Zarnetske) 2009-2010
“Toward Robust Estimates of Stream – Groundwater Exchange: Innovative Hyporheic Geophysics and Transport Modeling of a Key Nutrient

FUNDED INTERNAL GRANTS AT MSU
(AWARDED SINCE 2014: TOTAL = \$26,298)

2. Visiting Scholars to Advance Science Grants, MSU ESPP Program, MSU-PI (\$1,936) 2015
“Revealing the biogeochemical and ecological importance of flocculent sediments in shallow aquatic ecosystems”
1. MSU Teaching and Learning Environment, MSU-PI (\$24,387) 2014-2015
“Red Cedar River Groundwater Monitoring & Demonstration Site”

COMPETITIVE STUDENT/POSTDOC GRANTS, FELLOWSHIPS, AWARDS IN LAB AT MSU
(AWARDED SINCE 2014: TOTAL = \$492,066)

23. Grose, Amelia MSU CNS PhD Fellowship (2020) \$67,000
22. Weidner, Caroline, MSU CNS PhD Fellowship (2020) \$67,000
21. Grose, Amelia, MSU CNS Early Start Fellowship (2020) \$6,000
20. Weidner, Caroline, MSU CNS Early Start Fellowship (2020) \$6,000
19. Shogren, Ariel, NSF Postdoctoral Research Fellowship in Biology (2019) \$138,000
18. Haines, Emma, Cary Ecosystem Institute FEE Scholarship (2019) \$1,000
17. Lee-Cullin, Joseph, ESPP Summer Research Fellowship (2019) \$7,000
16. Hampton, Tyler, KBS LTER Summer Research Fellowship, (0.25-year fellowship and research expenses) (2017) \$10,000

15. Hampton, Tyler, Geological Society of America Graduate Research Grant (2017)	\$1,426
14. Plont, Stephen. Michigan Environmental Laboratory Association Scholarship (2017)	\$1,000
13. Plont, Stephen. INSTARR Award, Society of Freshwater Sciences (2017)	\$1,000
12. Hampton, Tyler. Endowment Award, Society of Freshwater Sciences (2017)	\$1,000
11. Roy Chowdhury, Sinchan, Instrument Discovery Grant, CUAHSI (2017)	\$1,000
10. Ruhala, Sydney, Best Student Presentation, Society of Freshwater Sciences, (2016)	\$750
9. Wiewiora, Evan, Lyman Briggs CNS Undergraduate Research Scholarship, (2016)	\$1,000
8. Ruhala, Sydney, KBS LTER Summer Research Fellowship, (0.25-year fellowship and research expenses)	\$10,000
7. Roy Chowdhury, Sinchan, CNS ESPP Fellowship (2016)	\$57,000
6. Plont, Stephen, CNS Undergraduate Research Scholarship (2016)	\$1,000
5. Plont, Stephen, CNS Undergraduate Research Scholarship (2015)	\$1,000
4. Ruhala, Sydney, National Science Foundation Graduate Research Fellowship	HONORABLE MENTION
3. Ruhala, Sydney, Geological Society of America Graduate Research Grant (2015)	\$1,890
2. Lee-Cullin, Joseph, Michigan State University Enrichment Fellowship (2014)	\$106,000
1. Ruhala, Sydney, Michigan State University College of Natural Science Early Start Fellowship (2014)	\$6,000

COMPETITIVE FELLOWSHIPS AND AWARDS TO ZARNETSKA

14. NSF Early CAREER Award	2019
13. Donnelley Environmental Postdoctoral Fellowship, Yale University	2011-2013
12. NSF Graduate Fellow: IGERT - Ecosystem Informatics	2008-2011
11. Water Resources Travel Award, Oregon State Univ.	2011
10. Biennial Travel Award, CUAHSI	2010
9. Kenneth Williamson Water Prize, Oregon State Univ.	2009
8. Water Resources Travel Award, Oregon State Univ.	2009
7. American Association for the Advancement of Science Travel Award	2009
6. Water Resources Alumni Prize, Oregon State Univ.	2008
5. Denny Tower Equipment Award, Oregon State Univ.	2008
4. Outstanding Performance Recognition Award, CDM, Inc.	2003
3. Team Outstanding Performance Recognition Award, CDM, Inc.	2002
2. Geology Alumni Award, Colby College	2000
1. Edith Craig Reynolds Fellowship, New York State	1996

HONORS AND RECOGNITION

SCHOLARLY HONORS

24. Highly Cited Paper Distinction (*top 1% of in Geosciences/Multidisciplinary*), Thomson Reuters Web of Science (*Abbott et al., 2019 Nature Geoscience*) 2020
23. Highly Cited Paper Distinction (*top 1% of in Environment/Ecology field*), Thomson Reuters Web of Science (*Abbott et al., 2018 Ecology Letters*) 2019
22. NSF CAREER Award 2019
21. *Teacher-Scholar Award, College of Natural Science, MSU* 2016
20. *Outstanding Faculty Award, Associated Students of MSU*
19. *Excellence in Reviewing, Editor's Citation, Freshwater Science* 2015
18. Highly Cited Paper Distinction (*top 1% of in Geosciences field*), Thomson Reuters Web of Science (*Zarnetske et al., 2011 JGR-B*) 2014
17. *Excellence in Reviewing, Editor's Citation, Freshwater Science* 2014
16. *Research Highlight Award, U.S. Forest Service* 2014
15. *Eco-DAS X Early Career Fellow*, joint NSF, NASA, & NOAA program 2012
14. *New York Academy of Science: Blavatnik Postdoctoral Award*, Yale nominee 2012
13. *Universities Council on Water Resources Outstanding Dissertation Award in Water Resources*, nominee 2011
12. *Featured Researcher*, National Science Foundation IGERT Program 2011
11. *Editor's Choice and Eos Research Spotlight* feature for research published in *Journal of Geophysical Research* (*Zarnetske et al., 2011 JGR-B*) 2011
10. *Endowment Award, Society of Freshwater Sciences* 2010
 - recognizes excellence among student members based on research merit
9. *University Club Foundation Graduate Award*, Finalist 2010
 - one of top nine graduate students in Oregon
8. *Kenneth Williamson Water Award*, Oregon State University 2009
 - for academic excellence and leadership in water research
7. *Outstanding Student Paper Award in Hydrology*, American Geophysical Union 2009
6. *Excellence in Science Award*, American Assoc. for the Advancement of Science 2009
5. *Best Presentation Award*, Annual Water Resources Graduate Program Meeting 2009
4. *Outstanding Student Paper Award in Hydrology*, American Geophysical Union 2008
3. *Best Presentation Award*, Annual Water Resources Graduate Program Meeting 2008
2. *Geology Alumni Award*, Colby College 2000
 - for overall academic achievement, development, and research
1. *Distinction in Geology Curriculum*, Colby College 2000

SERVICE HONORS

4. *Water Resources Alumni Prize*, Oregon State University 2008
 - for leadership and service in the water-community and cofounding a graduate mentorship program

3. *Outstanding Performance Recognition Award*, CDM, Inc. 2003
 - highest CDM recognition award for an individual employee
2. *Team Outstanding Performance Recognition Award*, CDM, Inc. 2002
 - for team leadership role in ExxonMobil Corporation Remediation Project
1. *Edith Craig Reynolds Award*, State of New York 1996
 - for highest standard of citizenship demonstrated in high school

TEACHING & ADVISING EXPERIENCE

Michigan State University

Lead Instructor, *Michigan State University (East Lansing, MI)* 2013-...
Hydrogeology (GLG 411, 40-60 students annually) 2015-...
Watershed Hydrology (GLG 498; now GLG 813, 8-25 students annually)

Advisor Roles, *Michigan State University (East Lansing, MI)*

- **Postdoctoral Advisor** (3 current; 1 previous)
 - Chao Song
 - Tanner Williamson
 - Ariel Shogren (now NSF Postdoctoral Fellow in lab)
 - Ben Abbott (now faculty at Bingham Young University)
- **Graduate Advisor/Advisory Chair** (3 current; 4 previous):
 - Amelia Grose, PhD student, GLG and ESPP
 - Caroline Weidner, PhD student, GLG
 - Emma Haines, MS student, GLG
 - Joseph Lee-Cullin, PhD, GLG (2019; now faculty at Albion College)
 - Sinchan Roy Chowdhury, MS, GLG (2019; now PhD IIT-KGP)
 - Tyler Hampton, MS, GLG (2018; now PhD at Univ. of Waterloo)
 - Sydney Ruhala, MS, GLG (2017; now Geologist, State of MI)
- **Graduate Committee Member** (3 current; 3 previous):
 - Luwen Wan, PhD student, GLG
 - Brent Heerspink, MS student, GLG
 - Dustin Kincaid, PhD candidate, Integrative Biology (2019)
 - Travis Dahl, PhD student, GLG (2019)
 - Cheng-Hua Liu, PhD student, PSMS (2018)
 - Mary Sobuda, MS student, GLG (2017)
 - Samuel Smidt, PhD student, GLG (2017)
- **Undergraduate Research Advisor** (2 current; 10 previous):
 - Megan Duda, ENE
 - Sam Cairns, GLG
 - Hunter Stanke, GLG & FOR (2019)
 - Chenxi Li, MMG (2019)
 - Elizabeth Tripp, GLG (2018)
 - Rachel Geiger, REU Western Washington University (2018)
 - Stephen Plont, GLG (2017)
 - Evan Wiewiora, GLG (2017)
 - Christian Poelstra, GLG (2016)

- Mark Schorrt, GLG (2016)
- Abraham Downer, GLG (2015)
- Ryen Keenan, GLG (2015)
- **External Dissertation Examiner:**
 - Andrew McCluskey, Univ. of Melbourne (Australia) (2016)

Prior to Michigan State University

Graduate Teaching Instructor, Oregon State University (Corvallis, OR)	
Introductory Geology,	2007
<i>The Solid Earth</i> (GEO101, 3 sections, 86 students)	
Introductory Earth Surface Processes & Hydrology,	2007
<i>The Surface of the Earth</i> (GEO102, 3 sections, 81 students)	
Guest Lecturer, Yale University (New Haven, CT)	
<i>Water Resources and Environmental Change</i> (FES 367, undergrad level)	2012-2013
Guest Lecturer, Oregon State University (Corvallis, OR)	
Hydrogeology (GEO487, undergrad level)	2009-2010
<i>Ecosystem Informatics Colloquium</i> (GEO507, graduate level)	2009-2010
<i>Geoscience Communication & Professionalism</i> (GEO518, graduate level)	2009-2010
<i>Computational Methods in Env. Science</i> (GEO499, undergrad level)	2010
Guest Lecturer, Utah State University (Logan, UT)	
<i>Hillslope and Landscape Geomorphology</i> (AWER6160, graduate level)	2005

Mentoring and Pedagogy Training/Course

- Co-founder of the *Water Resource Graduate Mentoring Program*
 - Served as mentor to 21 graduate student protégés
 - Peer Skills Instructor and Mentor for Junior Staff, CDM
 - Organizer: Student Profession Development Workshop, CUAHSI, Inc.
 - Pedagogy Coursework:
- | | |
|---|-----------|
| <i>Online Instruction Readiness for Educational Excellence</i> (MSU; 40h; 2020) | 2009-2011 |
| <i>STEM Teaching Essentials</i> (MSU monthly workshops; >80h since 2014) | 2001-2003 |
| <i>The Future Professoriate</i> (OSU FE607) | 2012 |
| <i>Success in the College Classroom</i> (OSU MB699) | 2008- |
| <i>Scientific Teaching and Laboratory Design</i> (OSU Z599) | present |
| <i>Discovering Your Teaching Philosophy</i> (OSU CTL) | |
| <i>Preparing Future Science Faculty: Teaching Your Course</i> (Yale CTL) | |
| <i>Teaching Quantitative Reasoning</i> (Yale CTL) | |

PROFESSIONAL SERVICE, LEADERSHIP, AND OUTREACH

EXTERNAL SERVICE

Scholarly Journal Reviewer (selected):

- | | |
|---------------------------------------|--|
| - <i>Nature Communications</i> | - <i>Proceedings of National Academy of Sciences</i> |
| - <i>Water Resources Research</i> | - <i>Earth-Science Reviews</i> |
| - <i>Geophysical Research Letters</i> | - <i>J. of Geophysical Research – Biogeosciences</i> |

-Hydrological Processes
 -J. of Hydrology
 -Hydrology and Earth System Sciences
 -Freshwater Science
 -Biogeochemistry
 -J. of Environmental Quality
 -Advances in Water Resources
 -Science of the Total Environment
 -Global Biogeochemical Cycles

-J. of Applied Ecology
 -International Conference on Permafrost
 -Ecological Engineering
 -Environmental Science and Technology
 -Water Research
 -Biogeosciences
 -The FEBS Journal
 -Limnology & Oceanography

Grant Proposal Reviewer (selected):

NSF - Division of Earth Sciences,
 Hydrologic Sciences

External reviewer: 2011, 2012, 2013, 2014,
 2015, 2016, 2017, 2018, 2019, 2020

NSF – Office of Polar Programs
 Arctic Natural Sciences &
 Navigating New Arctic programs

External reviewer: 2013, 2014, 2015, 2016,
 2017, 2018
 Panelist: 2017, 2018

USGS & NIWR Competitive Grants Program
 Swiss National Science Foundation

External reviewer: 2015
 External reviewer: 2015, 2016

Executive and Committee Leadership:

- CUAHSI, Inc.,
 - Board of Directors (elected) 2020-2022
 - Delegate for MSU 2015-...
 - Membership Committee, Chair 2020-...
- Society for Freshwater Sciences
 - Annual Meeting Planning Committee: Program Co-Chair 2016-2018
- University chapter of the American Water Resources Association and American Institute of Hydrology (*Hydrophiles*), OSU
 - President (elected) 2009-2011
 - Vice President (elected) 2007-2009
- Coalition of Graduate Employees, OSU
 - Bargaining Team Chair 2007-2009
 - bargained to secure improved health care, pay, and work conditions
- Department of Watershed Sciences, USU
 - Graduate Student Representative 2004-2006
- College of Natural Resources, USU
 - Graduate Student Senate Representative 2004-2006

Scholarly Society Service:

- DOE Open & Integrated Watershed Science Initiative fellow 2019
- AGU Annual Meeting - Hydrology Session Convener and OSPA judge 2016-2019
- Computational Methods in Water Resources International Meeting - Convener 2018
- AGU Annual Meeting - Hydrology Session Lead Organizer and OSPA judge 2015
- Joint Aquatic Science Meeting (ASLO, SFS, WSA) Special Session Organizer 2014
- AGU Annual Meeting - Hydrology Session, convener and OSPA judge 2013
- AGU Annual Meeting - Hydrology Session, convener and OSPA judge 2012

- AGU Annual Meeting - Hydrology Session, convener and OSPA judge 2011
- CUAHSI Biennial Meeting – Professional Development Workshop, organizer 2010
- AGU Annual Meeting - Biogeosciences Session, convener and OSPA judge 2007-2009
- NABS/ASLO Annual Meeting - Special Session, convener 2009
- Spring Water Seminar Series, convener, OSU 2005-2006
- Annual Ecosystem Informatics Symposium, organizer, OSU 2006-2007
- Ecology Center Seminar, convener, USU 2002-2003

Outreach Activities:

- Detroit Science Gallery: Depth Exposition “Hidden Waters” 2019
- MSU Science Festival Expo Developer and Presenter 2017-...
(participants >10,000/year)
- DaVinci Days Festival Volunteer, Geoscience Booth 2007-2011
(participants >1000/year)
- Stream restoration events with Corvallis middle and high school students 2006-2010
- NSF Office of Polar Programs TREC outreach participant from Arctic 2003-2004
- *Sites Alive* scientist communicator - web education service 1999-2001

INTERNAL MSU SERVICE

Executive and Committee Service:

- Department Committees
 - *Graduate Affairs Committee* 2013-...
 - *Diversity, Equity, Inclusion, and Justice Committee* 2019-...
 - *Chair Review Committee* 2015-2016
 - *Faculty Search Committee (Quantitative Geoscientist)* 2015-2016
 - *American Geophysical Union Exhibitor Booth Coordinator* 2014-2018
- University Committees
 - *Graduate Curriculum: Water Graduate Program* 2015-...

SCHOLARLY AFFILIATIONS

NSF Long-term Ecological Research (LTER) Network Sites:

- Arctic LTER, Participant, Toolik Arctic Research Station, North Slope, AK, USA
- KBS LTER, Participant, Kellogg Biological Station, Hickory Corners, MI, USA
- Andrews LTER, Researcher, H.J. Andrews Experimental Forest, Blue River, OR, USA

Scholarly Organization Memberships & Affiliations:

- American Geophysical Union (AGU)
- Soc. of Freshwater Sciences (SFS)
- American Society for Limnology and Oceanography (ASLO)
- US Permafrost Association (USPA)
- Geological Society of America (GSA)
- Ecological Society of America (ESA)
- American Water Resources Association (AWRA)
- Permafrost Carbon Network (PCN)

- Hyporheic Network (HN)

SELECTED PROFESSIONAL PRESENTATIONS (°° student/post doc, ** award received)

INVITED PRESENTATIONS

48. *Zarnetske, JP. (2020) AEESP Symposium, College of Eng., MSU *COVID-19 canceled
47. *Zarnetske, JP. (2020) Office of Research and Innovation, MSU *COVID-19 canceled
46. Zarnetske, JP. (2020) Western Michigan University
45. Zarnetske, JP. (2019) Indiana University, O'Neill School
44. Zarnetske, JP. (2019) Oregon State University, Earth, Ocean, & Atmospheric Sciences
43. Zarnetske, JP. (2019a&b) Two seminars at University of Wisconsin, Geosciences
42. Zarnetske, JP. (2018) Colby College, Waterville, ME
41. Zarnetske, JP. (2018) Great Lakes Bioenergy Research Center, KBS, MI
40. Zarnetske, JP. (2018a&b) Two seminars at Luxembourg Inst. of Sci. & Tech., Luxembourg
39. Zarnetske, JP. (2018) Arctic LTER All Scientist Meeting, Woods Hole, MA
38. Zarnetske, JP. (2017) Env Sci & Policy Program Colloquia, Michigan State University
37. Zarnetske, JP. (2017) Gordon Research Conference: Catchment Sciences, Lewiston, ME
36. Zarnetske, JP. (2017) HydroEco International Conference, Birmingham, United Kingdom
35. Zarnetske, JP. (2017) Arctic LTER All Scientist Meeting, Woods Hole, MA
34. Zarnetske, JP. (2017) International Association for Great Lakes Research, Detroit, MI
33. Zarnetske, JP. (2017) OSUR, Rennes, France
32. Zarnetske, JP. (2016) Indiana University, SPEA
31. Zarnetske, JP. (2016) Arctic LTER/Toolik Field Station, North Slope, AK
30. Zarnetske, JP. (2016) University of Michigan, Smith Lecture.
29. Kurz, M, S Krause, **JP Zarnetske, et al.** (2016) European Geophysical Union Annual Meeting, Vienna, Austria.
28. Zarnetske, JP. (2015) University of Notre Dame.
27. Zarnetske, JP. (2015) École normale supérieure de Rennes, Rennes, France.
26. Zarnetske, JP. (2015) Université de Rennes, Rennes, France.
25. Krause, S, AS Ward, **JP Zarnetske, et al.** (2015) HydroEco'2015 5th International Multidisciplinary Conference on Hydrology and Ecology, Vienna, Austria.
24. Zarnetske, JP. (2015) Michigan State University, Plant, Soil and Microbial Sciences.
23. Zarnetske, JP. (2015) Ohio State University.
22. Zarnetske, JP. (2014) University of Michigan.
21. Zarnetske, JP. (2014) Eco-DAS Symposium, Portland, OR.
20. Zarnetske, JP. (2014) European Geophysical Union Annual Meeting, Vienna, Austria.
19. Zarnetske, JP. (2014) Joint Aquatic Sciences Meeting, Portland, OR.
18. Zarnetske, JP. (2013) Kellogg Biological Station, Michigan State University.
17. Zarnetske, JP. (2013) Michigan State University.
16. Zarnetske, JP. (2013) University of New Mexico.
15. Zarnetske, JP. (2013) University of Washington – Seattle.
14. Zarnetske, JP. (2013) University of North Carolina – Chapel Hill.

13. **Zarnetske, JP.** (2013) Montana State University.
12. **Zarnetske, JP.** (2013) Colorado State University.
11. **Zarnetske, JP.** (2013) University of Rhode Island.
10. **Zarnetske, JP.** (2013) Portland State University.
9. **Zarnetske, JP.** (2013) University of Washington - Tacoma.
8. **Zarnetske, JP.** (2012) Eco-DAS X Symposium, Honolulu, HI.
7. **Zarnetske, JP.** (2012) Institute for Biospheric Studies, Yale University, New Haven, CT.
6. **Zarnetske, JP.** (2012) University of California – Berkeley.
5. **Zarnetske, JP.** (2011) AGU Fall Meeting, San Francisco, CA.
4. **Zarnetske, JP.** (2010) AGU Fall Meeting, San Francisco, CA.
3. **Zarnetske, JP.** (2010) University of Canterbury, Christchurch, New Zealand.
2. **Zarnetske, JP.** (2010) Nation Institute of Watershed and Atmospheric Research, Christchurch, New Zealand.
1. **Zarnetske, JP.** (2009) IGERT Ecosystem Informatics Symposium, Corvallis, OR.

SCHOLARLY TALKS

Over 115 scholarly talks and/or poster presentations.