

Literature

Thursday, Sept 17. Fundamentals of watershed science

1. Borman and Likens. (1967). Nutrient Cycling. Science. Vol. 155 no. 3761 pp. 424-429.
2. Laudon, H., Leach, J.A., Tiwari, T., Buffam, I., Wallin, M.B., Lupon, A., Berggren, M., Bishop, K., Larson, J., Sponseller, R.A. (2026). Variable scale domains reconcile continuous and patchy carbon dynamics in river networks, *Nature Water*, *Nat Water* (2026). <https://doi.org/10.1038/s44221-026-00675-0>.
3. Kozii, N., Haahti, K., Tor-ngern, P., Chi, J., Hasselquist, E. M., Laudon, H., Launiainen, S., Oren, R., Peichl, M., Wallerman, J., and Hasselquist, N. J.: Partitioning growing season water balance within a forested boreal catchment using sap flux, eddy covariance, and a process-based model, *Hydrol. Earth Syst. Sci.*, 24, 2999–3014, <https://doi.org/10.5194/hess-24-2999-2020>, 2020.
4. Karlsen, R.H., Seibert, J., Grabs, T., Laudon, H., Blomkvist, P. and Bishop, K. (2016) The assumption of uniform specific discharge: unsafe at any time? *Hydrological Processes* 30(21), 3978-3988.
5. Leach, J. A., W. Lidberg, L. Kuglerov, A. Peralta-Tapia, A. Ågren, and H. Laudon (2017), Evaluating topography-based predictions of shallow lateral groundwater discharge zones for a boreal lake-stream system, *Water Resour. Res.*, 53 , 5420–5437, [doi:10.1002/2016WR019804](https://doi.org/10.1002/2016WR019804).

Friday, Sept 18 Riparian biogeochemistry and ecology

1. Ledesma, José LJ, et al. "Towards an Improved Conceptualization of Riparian Zones in Boreal Forest Headwaters." *Ecosystems* (2017): 1-19.
2. Campeau, A., Bishop, K., Amvrosiadi, N., Billett, M. F., Garnett, M. H., ... & Wallin, M. B. (2019). Current forest carbon fixation fuels stream CO₂ emissions. *Nature communications*, 10(1), 1876.
3. Kuglerová, L., Dynesius, M., Laudon, H., & Jansson, R. (2016). Relationships between plant assemblages and water flow across a boreal forest landscape: A comparison of liverworts, mosses, and vascular plants. *Ecosystems*, 19(1), 170–184. <https://doi.org/10.1007/s10021-015-9927-0>
4. Ploum SW, Leach JA, Laudon H and Kuglerová L (2021) Groundwater, Soil, and Vegetation Interactions at Discrete Riparian Inflow Points (DRIPs) and Implications for Boreal Streams. *Front. Water* 3:669007. doi: 10.3389/frwa.2021.669007
5. Tiegs, S et al. (2019) Global patterns and drivers of ecosystem functioning in rivers and riparian zones. *Science Advances* 5 (1), eaav0486.

Saturday, Sept 19 Wetlands

1. Nilsson, M., Sagerfors, J., Buffam, I., Laudon, H., Eriksson, T. Grelle, A., Klemedtsson, L. Weslien, P. and Linderöth, A. (2008). A. Complete carbon budgets for two years of a boreal oligotrophic minerogenic mire. *Global Change Biology*, 14, 1–16, doi: 10.1111/j.1365-2486.2008.01654.x.
2. Laudon, H., Mosquera, V., Eklöf, K., Järveoja, J., Karimi, S., Krasnova, A., Peichl, M. (2023). Consequences of Rewetting and Ditch Cleaning on Hydrology, Water Quality and Greenhouse Gas Balance in a Drained Northern Landscape. *Scientific Reports*. 13, 20218. <https://doi.org/10.1038/s41598-023-47528-4>
3. Leach, J. A., Larsson, A., Wallin, M. B., Nilsson, M.B. and Laudon, H. (2016), Twelve year interannual and seasonal variability of stream carbon export from a boreal peatland catchment, *J. Geophys. Res. Biogeosci.*, 121, 1851–1866, doi:10.1002/2016JG003357.
4. Peichl, M., Sagerfors, J., Lindroth, A., Buffam, I., Grelle, A., Klemedtsson, L., Laudon, H. and Nilsson, M.B. (2013). Energy exchange and water budget partitioning in a boreal minerogenic mire. *Journal of Geophysical Research-Biogeoscience*, 118, 1-13 DOI: 10.1029/2012JG002073.
5. Lidman, F., Köhler, S., Mörtz, C.M., Laudon, H., (2014). Metal transport in the boreal landscape - the role of wetlands and the affinity for organic matter. *Environmental Science & Technology*. 48, 3783-3790.

Sunday, Sept 20 Forestry in the boreal region and water quality

1. Lucas, R. W., R. A. Sponseller, M. J. Gundale, J. Stendahl, J. Fridman, P. Hogberg and H. Laudon (2016). "Long-term declines in stream and river inorganic nitrogen (N) export correspond to forest change." *Ecological Applications* 26(2): 545-556.
2. Nieminen, M., M. Palviainen, S. Sarkkola, A. Laurén, H. Marttila, and L. Finér. 2018. A synthesis of the impacts of ditch network maintenance on the quantity and quality of runoff from drained boreal peatland forests. *Ambio* 47:523-534.
3. Kritzberg, E. S., Hasselquist, E. M., Škerlep, M., Löfgren, S., Olsson, O., Stadmark, J., . . . Laudon, H. (2020). Browning of freshwaters: Consequences to ecosystem services, underlying drivers, and potential mitigation measures. *Ambio*, 49(2), 375-390. doi:10.1007/s13280-019-01227-5
4. L. Kuglerová, E.M. Hasselquist, R.A. Sponseller, T. Muotka, G. Hallsby, H. Laudon (2020). Multiple stressors in small streams in the forestry context of Fennoscandia: the effects in time and space *Sci. Total Environ.*, 756 (2021), p. 143521, 10.1016/j.scitotenv.2020.143521
5. E.M. Hasselquist, L. Kuglerová, J. Sjögren, J. Hjalten, E. Ring, R.A. Sponseller, E. Andersson, J. Lundström, I. Mancheva, A. Nordin, H. Laudon (2021). Moving towards multi-layered, mixed-species forests in riparian buffers will enhance their long-term function in boreal landscapes. *For. Ecol. Manage.*, 493 (2021), Article 119254

Monday, Sept 21 Aquatic processes

1. Myrstener, M., M. Fork, D. Hauptmann, P. Isles, R. Burrows, A-K Bergström, and R.A. Sponseller. 2022. Resolving the drivers of algal nutrient limitation from boreal to Arctic lakes and streams. *Ecosystems* 25, 1682–1699.
2. Puts, I. C., J. Ask, M.B. Siewert, R.A. Sponseller, D.O. Hessen, and A.K. Bergström. 2022. Landscape determinants of pelagic and benthic primary production in northern lakes. *Global Change Biology* 28 (23), 7063-7077.
3. Vachon, D., R.A. Sponseller, J. Karlsson. 2021. Integrating carbon emission, accumulation, and transport in inland waters to understand their role in the global carbon cycle. *Global Change Biology*, 27:719-727. DOI: 10.1111/gcb.15448
4. Lupon, A., H. Laudon, B. Denfeld, J. Leach, J. Karlsson, and R.A. Sponseller. 2019. Groundwater inflows strongly control patterns and sources of greenhouse gas emissions in a streams. *Limnology & Oceanography*. doi: 10.1002/lno.11134.
5. Gomez-Gener, L., Lupon, A., Laudon, H., and Sponseller, R.A. (2020). Drought-induced biogeochemical shifts in high latitude streams. *Nature Communications*, 11, p. 1795, 10.1038/s41467-020-15496-2

Tuesday, Sept 22 Scaling in ecology and biogeochemistry

1. Strayer, D. L., H. A. Ewing, and S. Bigelow. 2003. What Kind of Spatial and Temporal Details Are Required in Models of Heterogeneous Systems? *Oikos*, 102(3), 654-662.
2. Bernhardt, E. S., J. R. Blaszczak, C. D. Ficken, M. L. Fork, K. E. Kaiser, and E. C. Seybold. 2017. Control points in ecosystems: Moving beyond the hot spot hot moment concept. *Ecosystems* 20: 665–682. doi:10.1007/s10021-016-0103-y.
3. Buffam, I., H. Laudon, J. Seibert, C.-M. Mörtz, and K. Bishop. 2008. Spatial Heterogeneity of the Spring Flood Acid Pulse in a Boreal Stream Network. *Science of the Total Environment*, 407, 708-722. doi:10.1016/j.scitotenv.2008.1010.1006.
4. Tiwari, T., I. Buffam, R. A. Sponseller, and H. Laudon. 2017. Inferring Scale-Dependent Processes Influencing Stream Water Biogeochemistry from Headwater to Sea. *Limnology and Oceanography*, 62, S58-S70. doi:10.1002/lno.10738
5. Ala-aho, P. Tetzlaff, D. Laudon, H., McNamara, J. and Soulsby, C. (2017) Using isotopes to constrain water flux and age estimates in snow-influenced catchments using the STARR (Spatially distributed Tracer-Aided Rainfall-Runoff) model. *Hydrology and Earth System Science*. DOI: 10.5194/hess-2017-106.
6. Smith, A. Tetzlaff, D. Kleine, L. Maneta, M.P. and Soulsby, C. (2021) Quantifying the effects of land-use and model scale on water partitioning and water ages using tracer-aided ecohydrological models *Hydrology and Earth System Science*. doi.org/10.5194/hess-25-22391-2021.

Wednesday, Sept 23 The Krycklan symposium – No reading assignment