

CURRICULUM VITAE for RACHEL L. MALISON

15 July 2024

Flathead Lake Biological Station
Ecology & Evolution Program, Division of Biological Sciences
The University of Montana
Address: 32125 Bio Station Lane, Polson, MT 59860
Phone: (406) 872-4518, Fax: (406) 872-4554, Cell: (406) 260-7048
Email: rachel.malison@umontana.edu, wilkrach@gmail.com
Website: www.rlmalison.com, twitter @rlmalison
ORCID ID: 0000-0001-6803-8230

EDUCATION

Ph.D., Systems Ecology, 2013. The Flathead Lake Biological Station, Department of Biological Sciences, The University of Montana, Missoula, Montana. Advisor: J.A. Stanford

M.S., Biology, 2008. Department of Biological Sciences, Idaho State University, Pocatello, Idaho. Advisor: C.V. Baxter

B.A., Biology, 2004. Department of Biological Sciences, The University of Montana, Missoula, Montana. Davidson Honors College Graduate.

PROFESSIONAL EXPERIENCE

Assistant Research Professor

The Flathead Lake Biological Station (FLBS) / Ecology & Evolution Program, University of Montana (2021-Present). I conduct freshwater research and also continue to run the MMW program at FLBS.

Program Leader of Monitoring Montana Waters (MMW)

The Flathead Lake Biological Station (FLBS), University of Montana (2020-Present). I lead a program that increases the capacity for water quality monitoring efforts in Montana by providing scientific, technical and financial support to citizen-led water monitoring groups.

Postdoctoral Scholar

The Flathead Lake Biological Station (FLBS), University of Montana (2017-2021). My postdoctoral position was part of a Dimensions of Biodiversity NSF Grant studying the vulnerability of stoneflies in river floodplains.

Marie Curie Fellow and Research Ecologist

Norwegian Institute for Nature Research (2014–2017). I researched the influence of Eurasian beavers on juvenile Atlantic salmon and trout in rivers near Trondheim, Norway.

Graduate Research Assistant

The Flathead Lake Biological Station, University of Montana (2008-2013). Research for my PhD dissertation was conducted in the Yukon Delta National Wildlife Refuge in partnership with the US Fish & Wildlife Service. Research focused on the influence of beavers on juvenile Pacific salmon populations in a large river floodplain.

Graduate Research Assistant

Department of Biological Sciences, Idaho State University (2005-2008). Research for my MS was conducted in the Frank Church Wilderness and focused on the effects of wildfire on stream-riparian linkages.

Undergraduate Research Field Assistant

The Flathead Lake Biological Station, University of Montana (2004). Research and monitoring data collection was conducted on the Kitlope River, BC as part of the Salmonid Research Observatory Network.

TEACHING EXPERIENCE

The University of Montana (2022). Instructor, MOLLI (Osher Lifelong Learning Institute). Course: Stream and Floodplain Ecology.

Salish Kootenai College (2023, 2022, 2021, 2020). Guest Lecturer. Course: Aquatic Field Ecology with Georgia Smies

The University of Montana (2022, 2021, 2019, 2018). Guest Lecturer, Flathead Lake Biological Station. Course: Conservation Ecology.

The University of Montana (2023, 2022, 2021). Guest Lecturer, Flathead Lake Biological Station. Course: Microbial Ecology.

The University of Montana (2017). Guest Lecturer, Flathead Lake Biological Station. Course: Drone Remote Sensing.

The University of Montana (2013). Co-instructor, Flathead Lake Biological Station. Course: Field Ecology.

The University of Montana (2012). Graduate Teaching Assistant, Flathead Lake Biological Station. Course: Field Ecology

The Glacier Institute, Montana (2012). Field Instructor, Course: Middle Fork River Ecology by Raft

PUBLICATIONS

Peer-reviewed publications:

24. Stanford, J.A., A.G. DeVecchia, J.J. Giersch, and **R.L. Malison**. 2024. Amphibitic stoneflies (Plecoptera) are integrators of ecosystem processes in alluvial aquifers of gravel-bed river floodplains. *WIREs Water*, e1720. <https://doi.org/10.1002/wat2.1720>
23. Shah, A.A., S. Hotaling, A. Lapsansky, **R.L. Malison**, J.H. Birrell, T. Keeley, J.J. Giersch, L.M. Tronstad, and H.A. Woods. 2023. Warming undermines emergence success in a threatened alpine stonefly: a multi-trait perspective on vulnerability to climate change. *Functional Ecology*. <https://doi.org/10.1111/1364-2435.14284>
22. Ritter M. N., S. Jordan, B. Hand, **R.L. Malison**, S. Lower, G. Luikart, and J.A. Stanford. 2022. Population structure of obligate groundwater crustaceans (*Stygobromus* sp.) in alluvial aquifers. *Hydrobiologia*. <https://doi.org/10.1007/s10750-022-05096-0>.
21. Frakes, J.I., **R.L. Malison**, M.J. Sydor, and H.A. Woods. 2022. Exposure to copper increases hypoxia sensitivity and decreases upper thermal tolerance of giant salmonfly nymphs (*Pteronarcys californica*). *Journal of Insect Physiology*. <https://doi.org/10.1016/j.jinsphys.2022.104455>
20. **Malison, R.L.**, J.I. Frakes, A.L. Andreas, P.R. Keller, E. Hamant, A.A. Shah, and H.A. Woods. 2022. Physiological plasticity of salmonfly (*Pteronarcys californica*) respiratory phenotypes in response to changes in temperature and oxygen. *Journal of Experimental Biology*, jeb.244253, <https://doi.org/10.1242/jeb.244253>.
19. Sergeant, C.J., E.K. Sexton, J.W. Moore, A.R. Westwood, S.A. Nagorski, J.L. Ebersole, D.M. Chambers, S.L. O'Neal, **R.L. Malison**, F.R. Hauer, D.C. Whited, J. Weitz, J. Caldwell, M. Capito, M. Connor, C.A. Frissell, G. Knox, E.D. Lowery, R. Macnair, V. Marlatt, J. McIntyre, M.V. McPhee, and N.

- Skuce. 2022. Risks of mining to salmonid-bearing watersheds. *Science Advances*, 8(26), eabn0929.
18. **Malison, R.L.**, B.K. Hand, E. Winter, J.G. Giersch, S. Amish, D. Whited, J.A. Stanford, and G. Luikart. 2022. Landscape connectivity and genetic structure in a mainstem and a tributary stonefly (Plecoptera) species using a novel reference genome. *Journal of Heredity*, esac025, <https://doi.org/10.1093/jhered/esac025>.
 17. Jager, H.I., J.W. Long, **R.L. Malison**, B.P. Murphy, A. Rust, L. G.M. Silva, R. Sollmann, Z.L. Steel, M.D. Bowen, J. Dunham, J. Ebersole, R. Flitcroft. 2021. Resilience of terrestrial and aquatic fauna to historical and future wildfire regimes in western North America. *Ecology and Evolution*, 00, 1-26, <https://doi.org/10.1002/ece3.8026>.
 16. South, E.J., R.K. Skinner, R.E. DeWalt, M.A. Davis, K.P. Johnson, V.A. Teslenko, J.J. Lee, **R.L. Malison**, J.M. Hwang, Y.J. Bae, L.W. Myers. 2021. A new family of stoneflies (Insecta: Plecoptera), Kathroperlidae, fam. n., with a molecular phylogenomic analysis of the Paraperlinae (Plecoptera: Chloroperlidae). *Insect Systematics and Diversity*, 5(4), 1-27. 10.1093/isd/ixab014.
 15. Schweizer, R., N. Saarman, K. Ramstad, B. Forester, J. Kelley, B.K. Hand, **R.L. Malison**, A. Ackiss, M. Watsa, T. Nelson, A. Beja-Pereira, R. Waples, W. Chris Funk, and G. Luikart. 2021. Big data in conservation genomics: boosting skills, hedging bets, and staying current in the field. *Journal of Heredity*, esab019, <https://doi.org/10.1093/jhered/esab019>.
 14. **Malison, R.L.**, B.K. Ellis, A.G. DelVecchia, H.N. Jacobson, B.K. Hand, G. Luikart, H.A. Woods, M. Gamboa, K. Watanabe, and J.A. Stanford. 2020. Remarkable anoxia tolerance by stoneflies from a floodplain aquifer. *Bulletin of the Ecological Society of America*, 101(4):e01767. 10.1002/bes2.1767
 13. **Malison, R.L.**, A. DelVecchia, A. Woods, B.K. Hand, G. Luikart, and J.A. Stanford. 2020. Tolerance of aquifer stoneflies to repeated hypoxia exposure and oxygen dynamics in an alluvial aquifer. *Journal of Experimental Biology*, <https://doi.org/10.1242/jeb.225623>
 12. **Malison, R.L.**, B.K. Ellis, A.G. DelVecchia, H.N. Jacobson, B.K. Hand, G. Luikart, H.A. Woods, M. Gamboa, K. Watanabe, and J.A. Stanford. 2020. Remarkable anoxia tolerance by stoneflies from a floodplain aquifer. *Ecology* 101(10):e03127. 10.1002/ecy.3127
 11. Sexton, E.K., C.J. Sergeant, A.R. Westwood, J.W. Moore, A.R. Westwood, D.V. Chambers, M.V. McPhee, S.G. Nagorski, Sarah L. O'Neal, J. Weitz, A. Berchtold, M. Capito, C.A. Frissell, J. Hamblen, F.R. Hauer, L. Jones, G. Knox, R. Macnair, **R.L. Malison**, V. Marlatt, J. McIntye, N. Skuce, and D. Whited. 2020. Canada's mines pose transboundary risks. *Science* 368 (6489), 376-377. 10.1126/science.abb8819.
 10. **Malison, R.L.** and D.J. Halley. 2020. Ecology and movement of juvenile salmonids in beaver-influenced and beaver-free tributaries in the Trøndelag province of Norway. *Ecology of Freshwater Fish* 29 (4): 623-639, <https://onlinelibrary.wiley.com/doi/10.1111/eff.12539>
 9. Jordan, S., B.K. Hand, S. Hotaling, A. DelVecchia, **R. Malison**, C. Nissley, G. Luikart and J.A. Stanford. 2019. Genomic data reveal similar genetic differentiation in aquifer species with different dispersal capabilities and life histories. *Biological Journal of the Linnean Society*, <https://doi.org/10.1093/biolinnean/blz173>
 8. **Malison, R. L.**, K.V. Kuzishchin and J.A. Stanford. 2016. Do beaver dams reduce habitat connectivity and salmon productivity in expansive river floodplains? *PeerJ* 4:e2403, <https://doi.org/10.7717/peerj.2403>
 7. **Malison, R. L.**, L. Eby, and J.A. Stanford. 2015. Juvenile salmonid growth, survival, and production in a large river floodplain modified by beavers (*Castor canadensis*). *Canadian Journal of Fisheries and Aquatic Sciences* 72 (11): 1639-1651, 10.1139/cjfas-2015.0147.
 6. Jackson, B.K., S.M.P. Sullivan, C.V. Baxter and **R.L. Malison**. 2015. Stream Riparian Ecosystems. Chapter 5 in Nature's Phoenix: The Ecological Importance of Mixed Severity Fire, D.A. DellaSala and C. Hanson, eds. Elsevier.

5. **Malison, R.L.**, M.S. Lorang, D.C. Whited, and J.A. Stanford. 2014. Beavers (*Castor canadensis*) influence habitat for juvenile salmon in a large Alaskan river floodplain. *Freshwater Biology* **59** (6):1229-1246.
4. Jackson, B. K., S.M.P. Sullivan, and **R.L. Malison**. 2012. Wildfire severity mediates fluxes of plant material and terrestrial invertebrates to mountain streams. *Forest Ecology and Management* **278**:27-34.
3. **Malison, R.L.** and C.V. Baxter. 2010. The fire pulse: wildfire stimulates flux of aquatic prey to terrestrial habitats driving increases in riparian consumers. *Canadian Journal of Fisheries and Aquatic Sciences* **67**(3): 570-579.
2. **Malison, R.L.**, J. Benjamin, and C.V. Baxter. 2010. Measuring adult insect emergence from streams: the influence of trap placement and a comparison with benthic sampling. *Journal of the North American Benthological Society* **29**(2): 647-656.
1. **Malison, R.L.** and C.V. Baxter. 2010. Effects of wildfire of varying severity on benthic stream insect assemblages and emergence. *Journal of the North American Benthological Society* **29**(4): 1324-1338.

Selected publications in review and in prep:

Malison, R.L., H.A. Woods, J.I. Frakes, J. Cotter, H. Dole, B.K. Hand, G. Luikart and J.A. Stanford. In prep. River floodplains provide refugia for aquifer taxa that are more sensitive to warming temperatures. *Target Journal: Global Change Biology*

Dissertation and Thesis:

- Malison, R.L.** 2013. Ecology of juvenile salmon in large floodplain rivers: The influence of habitat modification by beavers (*Castor canadensis*) on salmon growth and production. Ph.D. Dissertation, The University of Montana, Missoula, MT.
- Malison, R.L.** 2008. Effects of wildfire on aquatic insect assemblages, emerging adult insects, and riparian consumers in a wilderness watershed. M.S. Thesis, Idaho State University, Pocatello, ID.

REPORTS (non-refereed)

- Malison, R.L., T. Bansak, J.A. Stanford, and D. Gillikin (2012). Addressing AYK's Hypothesis #1: Change in suitability or productivity of freshwater habitat used for spawning and rearing is an important contributor to the decline of AYK-region Chinook salmon stocks. Prepared for the Chinook Salmon Synthesis Workshop of the AYK Chinook Salmon Workshop Arctic, Yukon Kuskokwim Sustainable Salmon Initiative, Anchorage, AK, May 2-3, 2012.
- Malison, R.L., J.A. Stanford, and S.L. O'Neal (2008). Population Status and Ecology of Brown Trout: Rio Grande, Tierra Del Fuego, Argentina, 2008 Season. Prepared for Nervous Waters of Argentina and Estancia Maria Behety.

PUBLISHED DATASETS

Malison, R., Whited, D. Gillikin, & Shaftel, R. (2024). Spatial and temporal thermal trends of the lower Kuskokwim and Aniak Rivers, AK, USA [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.11039718>

PAPERS PRESENTED

Primary presenter:

Malison, R.L., A.G. DelVecchia, J.G. Giersch, J.A. Stanford (2024). Aquifer stoneflies are integrators of ecosystem processes in alluvial aquifers. Montana Aquatic Research Colloquium, Apr 12, Polson, MT, USA.

- Malison, R.L., D. Whited, R. Shaftel, D. Gillikin (2024). Mapping spatial and temporal thermal trends of the Kuskokwim and Aniak Rivers. Virtual meeting of the Southwest Alaska Interagency Meeting, 8 Apr.
- Malison, R.L. (2024). The influence of beavers on fish with case studies from Alaska and Norway. Invited presentation to the University of Alaska Fairbanks Fisheries Seminar, Virtual presentations, 22 Mar.
- Malison, R.L. (2024). Beaver and fish interactions. Invited presentation at the Virtual Wallowa Implementation Team Meeting, 7 Mar.
- Malison, R.L. (2024). Beaver and fish interactions. Invited presentation at the Arctic Beaver Observatory Network Conference, 27 Feb, Fairbanks, AK.
- Malison, R.L. (2023). Reducing toxics in the upper Columbia River Basin of Montana through a Pesticide Stewardship Partnership Program (PSPP). Montana chapter of the American Water Resources Association Annual Meeting, 11 Oct, Missoula, MT.
- Malison, R.L. (2023). Beavers and fish: What does the science tell us about challenges and opportunities for beaver reintroduction? Invited presentation at the UK Beaver Conference: Restoring Beavers to the British Landscape, 18 April, Exeter, United Kingdom.
- Malison, R.L. (2023). A North American Perspective on Beaver Restoration. Invited presentation at the UK Beaver Conference: Restoring Beavers to the British Landscape, 18 April, Exeter, United Kingdom.
- Malison, R.L., D. Whited, and D. Gillikin (2023). Mapping spatial and temporal thermal trends of the Kuskokwim and Aniak Rivers. Southwest Alaska Interagency Virtual Annual Meeting, 4 April.
- Malison, R.L. (2022). Filling data gaps through volunteer-led water quality monitoring supported by Monitoring Montana Waters. Kootenai Basin Science Forum, 25 Oct, Helena, MT, USA.
- Stanford, J.A., R.L. Malison, A.G. DelVecchia (2022). Ecology of Groundwater (Amphibitic) Stoneflies. 2022 XVIth International Conference on Ephemeroptera and XXst International Symposium on Plecoptera – Virtual Conference hosted by University of Illinois, 27 July.
- Malison, R.L., J. Giersch, T. Cosart, S. Hotaling, J. Kelley, H.A. Woods, C. Muhlfeld, J.A. Stanford, G. Luikart, B.K. Hand (2022). Local adaptation, gene flow, physiological tolerance, and population vulnerability to climate variation among stoneflies in mountaintop environments. Joint Aquatic Sciences Meeting (JASM), 19 May, Grand Rapids, MI, USA.
- Malison, R.L., B. Hand, J.A. Stanford, G. Luikart (2022). Adaptations of aquifer stoneflies in alluvial river floodplains. Montana Aquatic Research Colloquium (MARC), Apr 9, Polson, MT, USA.
- Malison, R.L., H.E. Harris, M. Schenk, B.K. Jackson, S.M.P. Sullivan, C.V. Baxter (2022). Resilience of linked stream-riparian systems to high-severity wildfire in Idaho's Salmon River basin. Oregon chapter of the American Fisheries Society Virtual Annual Meeting, Mar 2. Invited presentation in the special session on "Fire, Fish, and Aquatic Systems."
- Malison, R. L., J.I. Frakes, A.L. Andreas, P.R. Keller, E. Hamant, A.A. Shah, and H.A. Woods (2021). Physiological plasticity of salmonfly (*Pteronarcys californica*) respiratory phenotypes in response to climate-driven changes in stream temperature and oxygen. Montana chapter of the American Water Resources Association Virtual Annual Meeting, Oct 7.
- Malison, R.L (2021). River ecology and floodplain biodiversity: a multidisciplinary approach to understanding effects of climate warming. Flathead Lake Biological Stations 2021 Data & Donuts Seminar Series, Jun 28, Polson, MT, USA.
- Malison, R.L, H.A. Woods, B.K. Hand, G. Luikart, and J.A. Stanford (2021). Aquifer stoneflies may be less vulnerable to climate change than benthic stoneflies in alluvial river floodplains. Society for Freshwater Science Virtual Annual Meeting, May 24-27.
- Malison, R.L., D. Whited, and D. Gillikin (2021). Mapping the spatial and temporal trends of the Kuskokwim and Aniak Rivers. Southwest Alaska Interagency Virtual Annual Meeting, May 12.
- Malison, R.L. (2021). Adaptations of aquifer stoneflies in alluvial river floodplains. University of Montana Ecology and Evolution Seminar Series, Apr 7.

- Malison, R.L., S. Hotaling, J. Kelley, H.A. Woods, J.G. Giersch, C. Muhlfeld, J.A. Stanford, G. Luikart, and B.K. Hand (2021). Tolerance of alpine stoneflies to climate change. Northwest Climate Conference Virtual Annual Meeting, Apr 6.
- Malison, R.L. (2021). Adaptations of aquifer stoneflies in alluvial river floodplains. University of Montana Systems Ecology Seminar Series, Feb 18.
- Malison, R.L. and E. K. Sexton (2020). Launching Monitoring Montana Waters (MMW): A Flathead Lake Biological Station initiative to increase local capacity for watershed monitoring. Montana Chapter of the American Water Resources Association Virtual Annual Meeting, Oct 9.
- Malison, R.L., A. DelVecchia, A. Woods, B.K. Hand, G. Luikart, and J.A. Stanford (2020). Tolerance of aquifer stoneflies to repeated hypoxia exposure and oxygen dynamics in an alluvial aquifer. Poster presented at: ESA Virtual Annual Meeting, Aug 3-6.
- Malison, R.L. (2020). Ecology of river floodplains and adaptations of their hidden groundwater stoneflies. Flathead Lake Biological Stations 2020 Data & Donuts Virtual Seminar Series, Jul 13, Polson, MT, USA.
- Malison, R.L. (2019). From beavers to climate change: investigating factors influencing stream communities. Invited presentation at the Bucknell University Biology Seminar, Nov 21, Lewisburg, PA, USA.
- Malison, R.L., H.E. Harris, M. Schenk, B.K. Jackson, S.M.P. Sullivan, G.W. Minshall, C.V. Baxter (2019). Resilience of linked stream-riparian organisms to high-severity wildfire in Idaho's Salmon River basin. National joint meeting of the American Fisheries Society and The Wildlife Society, Sep 29 –Oct 3, Reno, NV, USA. Invited presentation in the special session on "Fire Resilience: Can Fish, Wildlife, and Humans Adapt to Shifts in Wildfire Disturbance?"
- Malison, R.L., H.N. Jacobson, A.G. DelVecchia, B.K. Hand, M. Gamboa, B.K. Ellis, G. Luikart, and J.A. Stanford (2019). Aquifer stoneflies (Plecoptera) are tolerant of anoxia and hypoxia compared to benthic species. Society for Freshwater Science, May 19-23, Salt Lake City, UT, USA.
- Malison, R.L., B. Hand, J.A. Stanford, G. Luikart (2019). Adaptation of groundwater stoneflies to alluvial aquifers. Montana Aquatic Research Colloquium (MARC), Apr 12-14, Polson, MT, USA.
- Malison, R.L. and J.A. Stanford (2018). The influence of beavers on juvenile salmon ecology: Do beavers negatively impact freshwater habitat for Chinook? Annual meeting of the Western Division of the American Fisheries Society, May 21-24, Anchorage, Alaska. Invited presentation in the special session on "Understanding the drivers of Chinook salmon decline in Western Alaska and exploring new approaches to sustainable salmon management and stakeholder engagement.
- Hand, B.K., Malison, R.L., DelVecchia, A., J.A. Stanford, and G. Luikart (2018). Predicting Biodiversity Vulnerability to Climate Change: Integrating Phylogenetics, Genomic, and Functional Diversity in River Floodplains. UNVEIL, June 2, Polson, MT, USA.
- Malison, R.L., B.K. Hand, G. Luikart, J.A. Stanford, and A.G. DelVecchia (2017). Predicting biodiversity vulnerability to climate change: Integrating phylogenetic, genomic, and functional diversity in river floodplains. MARC, Apr 7, Polson, MT, USA.
- Malison, R.L. (2017). Eurasian beavers influence the ecology of juvenile Atlantic salmon and sea trout at small spatial scales but are unlikely to negatively impact salmon and trout populations in Norway. Norwegian Institute for Nature Research Akvatisk lunsjeseminar, Jan 18, Trondheim, Norway.
- Malison, R.L. (2017). Do Eurasian beavers negatively impact Atlantic salmon and sea trout populations in Norway? Norwegian Ecological Society Meeting, Jan 13, Oslo, Norway.
- Malison, R.L. (2015). Eurasian beavers impact the movement of Atlantic salmon and sea trout in Norway. Advances in the Population Ecology of Stream Salmonids IV, May 25, Girona, Spain.
- Malison, R.L. (2015). The impact of Eurasian beavers on Atlantic salmon and sea trout in Norway. The State of the Beaver Conference, Feb 19, Canyonville, OR, USA.

- Malison, R.L. (2014). The influence of beavers (*Castor canadensis*) on river floodplain habitat and juvenile Pacific salmon in the Kwethluk River, AK. Norwegian Institute for Nature Research Akvatisk lunsjeseminar, May 7, Trondheim, Norway.
- Malison, R.L. (2013). The influence of beavers on river floodplain habitat and juvenile Pacific salmon in the Kwethluk River, AK. Beaver-Salmonid Working Group Annual Meeting, October 25, via Skype to Scotland.
- Malison, R.L. and J.A. Stanford (2013). The influence of beavers on aquatic habitats, macroinvertebrates, and juvenile salmon ecology in a large Alaskan river floodplain. Society for Freshwater Science National Meeting, May 23, Jacksonville, FL, USA.
- Malison, R.L. and J.A. Stanford (2013). The influence of beavers on river floodplain habitat and juvenile salmon ecology in the Kwethluk River, AK. The State of the Beaver Conference, Jan 24, Canyonville, OR, USA.
- Malison, R.L. and J.A. Stanford (2012). Juvenile salmon habitat use, growth, and production in a large Alaskan river floodplain dominated by beavers. American Fisheries Society National Meeting, August 21, Minneapolis, MN, USA.
- Malison, R.L. and J.A. Stanford (2012). Juvenile salmon habitat use, growth, and movement in a large Alaskan river floodplain dominated by beavers (*Castor canadensis*). International Society for River Science Web-based Meeting, June 10-24, Online: <http://riverscience.wordpress.com/>
- Malison, R.L. and J.A. Stanford (2012). Juvenile salmon habitat use, growth, and production in a large Alaskan river floodplain dominated by beavers (*Castor canadensis*). Society for Freshwater Science National Meeting, May 23, Louisville, KY, USA.
- Malison, R.L. (2012). Juvenile salmon ecology, habitat use, and growth in the Kwethluk River. Kuskokwim Area Interagency Fisheries Meeting, March 28, Anchorage, AK, USA.
- Malison, R.L. (2012). Beavers (*Castor canadensis*) in a floodplain riverscape: The influence of an ecosystem engineer on floodplain habitat and juvenile salmon. Organismal Biology and Ecology Seminar, February 22, The University of Montana, Missoula, MT, USA.
- Malison, R.L. and J.A. Stanford (2012). Juvenile salmon ecology, habitat use and growth in a large Alaskan river floodplain dominated by beavers (*Castor canadensis*). American Fisheries Society, February 9, Helena, MT, USA.
- Malison, R.L. (2011). Distribution, abundance, and growth of juvenile salmon in a large floodplain river modified by beavers (*Castor Canadensis*). Organismal Biology and Ecology Seminar, February 2, The University of Montana, Missoula, MT, USA.
- Malison, R.L. and J.A. Stanford (2010). Salmonid ecology in a large floodplain river with beavers. Graduate Student and Faculty Research Conference, April 24, The University of Montana, Missoula, MT, USA.
- Malison, R.L. (2010). Salmonid ecology in a large floodplain river with beavers (*Castor Canadensis*). Student chapter of the American Fisheries Society, April 22, The University of Montana, Missoula, MT, USA.
- Malison, R.L. (2010). Salmonid ecology in large floodplain rivers with and without beavers (*Castor Canadensis*). Organismal Biology and Ecology Proposal Seminar, March 10, The University of Montana, Missoula, MT, USA.
- Malison, R.L., J. Chaffin, and J. A. Stanford (2009). Use of beaver ponds by salmonids in western Alaska. North American Benthological Society, May 21, Grand Rapids, Michigan, USA.
- Malison, R.L. and C.V. Baxter (2008). Streams affected by wildfire of varying severity differ in aquatic insect assemblage structure and emergence. North American Benthological Society, May 25-30, Salt Lake City, Utah, USA.
- Malison, R.L. (2008). Effects of wildfire on aquatic insect assemblages, emerging adult insects, and riparian consumers in a wilderness watershed. Department of Biological Sciences Thesis Defense, February 19, Idaho State University, Pocatello, USA.

- Malison, R.L. and C.V. Baxter (2008). Comparison of Benthic and Emergent Insect Community Composition Affected by Wildfires of Varying Burn Severities. American Fisheries Society, February 7, Post Falls, Idaho, USA
- Malison, R.L. and C.V. Baxter (2007). The “fire pulse:” Effects of wildfire on periphyton, benthos, insect emergence, and riparian predators in a wilderness watershed. Intermountain Conference on the Environment, Idaho State University, Pocatello, Idaho, USA. September 18-19, 2007.
- Wilkinson, R.L. and C.V. Baxter (2007). The “fire pulse:” Effects of wildfire on periphyton, benthos, insect emergence, and riparian predators in a wilderness watershed. North American Benthological Society, June 5, Columbia, South Carolina, USA.
- Wilkinson, R.L. and C.V. Baxter (2007). Aquatic-terrestrial connectivity in a wilderness watershed: Do emerging insects and riparian predators increase following wildfire? American Fisheries Society, February 22, Boise, Idaho, USA.
- Wilkinson, R.L. and C.V. Baxter (2006). Aquatic-terrestrial connectivity in a wilderness watershed: Do emerging insects and riparian predators increase following wildfire? North American Benthological Society, June 8, Anchorage, Alaska, USA.
- Wilkinson, R.L. (2006). Aquatic-terrestrial connectivity in a wilderness watershed: Do emerging stream insects fuel riparian food webs following wildfire? Departmental of Biological Sciences Proposal Seminar, February 2, Idaho State University, Pocatello, ID, USA.
- Wilkinson, R.L. (2004). Galapagos Film Festival, Missoula, Montana. Presentation of documentary film, “Conservation of the Diving Dragons.”

Co-authored presentations:

- Fillion, M.E., B.P. Colman, and R.L. Malison (2024). A bug’s life without beavers: How beaver dam analogs influence linked aquatic-terrestrial communities in headwater streams. Montana Aquatic Research Colloquium, Polson, MT, USA.
- Housman, J. and R.L. Malison (2024). Introducing our new Pesticide Stewardship Partnership Program. Montana Aquatic Research Colloquium, Polson, MT, USA.
- Fillion, M., B.P. Colman, and R.L. Malison (2023). The effect of BDAs on macroinvertebrate communities in headwater streams. Montana chapter of the American Water Resources Association Annual Meeting, Oct 12, Missoula, MT.
- Glass, J. and R.L. Malison (2023). Year three of Monitoring Montana Waters. Montana chapter of the American Water Resources Association Annual Meeting, Oct 11, Missoula, MT.
- Kirk, C. and R.L. Malison (2022). Year two of Monitoring Montana Waters (MMW): About us and how to get involved. Montana chapter of the American Water Resources Association Annual Meeting, Oct 13-14, Butte, Montana, USA.
- Shah, A., S. Hotaling, A. Lapsansky, R.L. Malison, J. Giersch, D. Finn, L. Tronstad, H.A. Woods (2022). How vulnerable are high-elevation stoneflies to climate change? It depends on which traits you measure. Joint Aquatic Sciences Meeting (JASM), 19 May, Grand Rapids, MI, USA.
- Martin, K. and R.L. Malison (2021). One year of MMW: Flathead Lake Biological Station’s Monitoring Montana Waters Program. Montana chapter of the American Water Resources Association Virtual Annual Meeting, Oct 21.
- Frakes, J.I., R.L. Malison, A.L. Andreas, P.R. Keller, E. Hamant, A.A. Shah, and H.A. Woods (2021). Plasticity in thermal and respiratory phenotypes of salmonflies (*Pteronarcys californica*) in response to temperature, oxygen and flow. Society for Freshwater Science Virtual Annual Meeting, May 24-27.
- Jackson, B., M. Sullivan, and R.L. Wilkinson (2007). Impacts of wildfire on riparian plant communities and stream food webs in a wilderness setting. Ecological Society of America, August 5-10, San Jose, California, USA.

- Baxter, C.V., R.L. Wilkinson, P. Della Croce, J.H. Braatne, G.W. Minshall, and C.E. Torgersen. (2007). Pattern and process in a Central Idaho wilderness riverscape: land-water linkages and the fire pulse. Invited presentation at Symposium “Landscapes to Riverscapes: Bridging the Gaps Between Research and Management of Stream Taxa and Their Ecosystems,” University of Idaho, Moscow, Idaho. May 15-16, 2007.
- Beck, J., R.L. Wilkinson, and C.V. Baxter. (2005). Burned areas are visited by more bats than unburned areas. North American Symposium On Bat Research, October 21, Sacramento, California, USA.
- Beck, J., R.L. Wilkinson, and C.V. Baxter. (2005). Burned areas are visited by more bats than unburned areas. Intermountain Conference on the Environment, September 13, Idaho State University, Pocatello, ID, USA.

OTHER PRESENTATIONS

- Malison, R.L. (2024) Introducing our new Pesticide Stewardship Partnership Program. 86th Annual Cherry Growers’ Meeting, Yellow Bay, MT, USA.
- Malison, R.L. (2024). Monitoring Montana Waters (MMW): A program that supports volunteer water quality monitoring to protect our waters. Science on Tap, Bigfork, MT. 4 Apr.
- Malison, R.L. (2024). River ecology research on the Three Forks of the Flathead River. Invited presentation to the Flathead National Forest Spring Agency Manager Meeting, Hungry Horse, MT, 11 Mar.
- Malison, R.L. (2024). My path in aquatic ecology. Invited presentation to Mr. Poser’s Freshman Science Class at Hobson Public School. 31, Jan. Hobson, MT.
- Malison, R.L. (2024). Monitoring Montana Waters (MMW): Supporting volunteers to monitor water quality. Invited presentation at the Hot Chili, Cold Beer and Clean Water event sponsored by the Central Montana Resource Council. 30, Jan. Lewistown, MT.

GRADUATE STUDENTS

Jacob McArtor	M.S. student (co-chair)	2024-present	<i>University of Montana</i>
Michelle Fillion	M.S. student (co-chair)	2021-2024	<i>University of Montana</i>
Taylor Gold Quiros	Ph.D. student (committee)	2023-present	<i>University of Montana</i>
Eric Lyons	Ph.D. student (committee)	2023-present	<i>University of Montana</i>
Megan Ritter	M.S. Student (committee)	2018-2019	<i>Bucknell University</i>

GRANTS RECEIVED

- Ecotoxicology studies of biofilm and aquatic insect tolerance to pesticides. 2024-2025. PI R.L. Malison. UM University Grant Program. 2024-2025. \$18,740.
- Reducing Toxics in the Upper Columbia through a new Pesticide Stewardship Partnership Program (PSPP). 2023-2028. EPA Columbia River Basin Restoration Funding Assistance Program – Toxic Reduction Lead. PI: R.L. Malison. \$6,635,202 + \$2,212,030 match = \$8,847,232 Project Total.
- Patterns in metal concentrations in streams and impacts on benthic macroinvertebrates following wildfire. 2023-2026. W.A. Franke Fresh Water Conservation Initiative. PI: R.L. Malison, co-PI: B. Colman. \$94,965.
- Investigating adaptations of aquifer stoneflies. 2022-2023. University of Montana UGP Seed Grant. PI: R.L. Malison. \$14,997.
- Mapping the spatial and temporal thermal trends of the lower Kuskokwim and Aniak Rivers. 2021-2023. Southwest Salmon Partnership NFHP Proposal. PI: D. Whited, co-PIs: R.L. Malison and D. Gillikin. \$77,783.

Research Contract to peer review evidence of interactions between beavers and fish and fisheries in England and Wales. 2021. Devon Wildlife Trust, England. PI: R.L. Malison. \$1,336.

Conserving biota by conserving water: the effects of beaver dam analogs on aquatic insect communities in headwater streams. 2020-2023. W.A. Franke Fresh Water Conservation Initiative. PI: B. Colman, co-PIs: R.L. Malison and L. Eby. \$39,444.

Mapping the spatial and temporal thermal trends of the Kuskokwim and Aniak Rivers. 2020-2023. Alaska Sustainable Salmon Fund. PI: D. Whited, co-PIs: R.L. Malison, and D. Gillikin. \$93,769.

Alpine stonefly physiology and local adaptation: How can we manage for imperiled species at high elevations? 2019-2020. Department of the Interior Northwest Climate Adaptation Science Center Research Fellowship. PI: B. Hand, co-PI: R.L. Malison. \$53,139.

Effects of changing stream temperatures on Montana stonefly communities. 2019-2020. Montana Water Center Faculty Seed Grant. PI: H.A. Woods, co-PI: R.L. Malison. \$15,000.

Monitoring of spawning salmon and sea trout in Gråelva, Stjørdal. 2015. Fylkesmannen I Nord-Trøndelag. PI: R.L. Malison. \$2,800.

Do beavers negatively impact the Atlantic salmon and sea trout resource? 2014-2016. Marie Curie International Incoming Fellowship (IIF), European Union. PI: R.L. Malison. \$332,672.

Dr. Robert L. Gilbertson Scholarship, UM. Spr. '13, Spr. & Fall '12, Spr. & Fall '11, Fall '10. R.L. Malison. \$2600.

Montana Institute on Ecosystems PhD Fellowship. Spring 2012. R.L. Malison. \$8700.

MT NSF EPSCoR Large River Ecosystem Fellowship. Spring 2011. R.L. Malison and J.A. Stanford. \$6800.

UM, Bierman Research Endowment. Fall 2009 and Spring 2010. R.L. Malison. \$2950.

ISU, Department of Biological Sciences. '08, '07, Spr. & Fall '06 & '05. R.L. Malison and C.V. Baxter. \$500.

ISU, Graduate Student Research and Scholarship Committee. Dissemination Grant. Fall 2006. R.L. Wilkinson and C.V. Baxter. \$500.

ISU, Biological Graduate Student Association. 2006 & 2007. R.L. Wilkinson and C.V. Baxter. \$200.

ISU, Office of Research. 2006. R.L. Wilkinson and C.V. Baxter. \$150.

ISU, Graduate Student Research and Scholarship Committee. Research Grant. Fall 2006. R.L. Wilkinson and C.V. Baxter. \$1000.

GRANTS IN REVIEW/PENDING

Collaborative Research: Linking hydrology, biogeochemistry, and biology to investigate spatiotemporal complexity of understudied alpine fields. PI: R.L. Malison, co PIs A. DelVecchia (UNC), T. Pavelsky (UNC), M. Gooseff (CU), A. Huryn (UA). National Science Foundation. 2026-2029. \$989,766 requested, total collaborative proposal request of \$2,569,387 [in review]

Assessing contaminants and risks to biota in the Upper Columbia River Basin through monitoring, lab studies, and pathways to terrestrial consumers. PI: R.L. Malison, co PIs B. Colman, M. Fylling, T.S. Schmidt [USGS], and B. Balmer [USFWS]. EPA Columbia River Basin Restoration Funding Assistance Program – Science and Monitoring Competition. 2024-2029. \$2,999,379 + \$998,277 = \$3,997,656 Project Total requested [in review]

GRANTS DECLINED

Collaborative Research: The microbial basis of animal production in a large river alluvial aquifer food web. PI R. Hall with CoPIs R.L. Malison, M. Church and A.G. DelVecchia at UNC. National Science Foundation. 2024-2026. \$1,492,134 requested [declined]

Advancing conservation of aquatic invertebrate biodiversity through monitoring and effect studies of pesticides in Montana's rivers. PI: R.L. Malison, co-PI T.S. Schmidt [USGS]. 2023-2026. National Science Foundation. \$1,556,394 requested by UM (additional \$441,617 for conservation partner for total of \$1,998,011) [declined]

The effects of beaver dam analogs on macroinvertebrate communities in intermountain Montana

headwater streams. PI: R.L. Malison, Co-PI: Michelle Fillion. 2022-2023. Northwest Climate Adaptation Science Center Graduate Fellowship Application. \$37,721 requested [declined]

Collaborative Research: Aufeis fields – Ecological resilience of novel groundwater-dependent ecosystems in the arctic cryosphere. PI: R.L. Malison with lead institution PI A. Huryn [U Alabama], PI M. Gooseff [Colorado], PI A. DelVecchia [UNC]. 2023-2026. National Science Foundation. \$854,769 requested by UM [declined]

Collaborative Research: How vulnerable are aquatic insects to climate change? The ecological and evolutionary physiology of an endangered high-elevation stonefly. PI A. Shah [Michigan State] with coPIs H.A. Woods, B. Tobalske, R.L. Malison, Z. Cheviron, and S. Kirkton [Union College] and S. Hotaling [Utah State University]. 2023-2026. National Science Foundation. \$615,670 requested by UM [declined].

Biogeochemical basis of animal production in a large river alluvial aquifer food web. PI R. Hall with CoPIs R.L. Malison and M. Church. National Science Foundation. 2020-2023. \$1,025,959 requested [declined]

PROFESSIONAL SERVICE

Invited Reviewer (2011-Present). *Ecology, Ecosystems, Environmental Entomology, Freshwater Biology, Journal of Freshwater Ecology, Journal of Applied Ecology, Journal of Arid Environments, Marine and Freshwater Research, Annales Zoologici Fennici, Transactions of the American Fisheries Society, Punjab University Journal of Zoology, Forest Ecology and Management, Ecology of Freshwater Fish, Science of the Total Environment, Environmental Biology of Fishes, Freshwater Science, Ecosphere, Canadian Journal of Fisheries and Aquatic Sciences, Food webs, Philosophical Transactions of the Royal Society B., Oikos.*

Grant Proposal Reviewer. (2017) National Science Foundation – Arctic Natural Sciences.

AFS Chapter Secretary (2005-2006). ISU Portneuf River Student Chapter.

UNIVERSITY SERVICE

Committee Member (2020-2022). Drollinger-Dial Travel Award Committee, Ecology & Evolution Program, DBS, The University of Montana.

Committee Member (2017-2019). Graduate and Postdoctoral Programs Committee, Flathead Lake Biological Station, The University of Montana.

Committee Member (2017-2019). Undergraduate Programs Committee, Flathead Lake Biological Station, The University of Montana.

Committee Member (2005-2007). Biology Graduate Student Association, Department of Biological Sciences, Idaho State University, Treasurer (2005-2006).

SYNERGISTIC ACTIVITIES AND OUTREACH

Mentorship of young scientists (2017 – present) – Mentored undergraduates, recent graduates, graduate students and volunteers that have taken part in my research program. 2017: Supervised 4 volunteers (Kriddie Whitmore, Garrett Frandson, Megan Ritter, Wesley Sigl) and 1 intern (Hailey Jacobson). 2018: Supervised 4 volunteers (Erin Lee, Melanie McMillan, Hailey Jacobson, Taylir Schrock), 3 interns (Brenna Previlige, Faith Breen, Eliza Keksi), and 2 employees (Kridde Whitmore, Wesley Sigl). 2019: Supervised 3 volunteers (Haley Dole, Dan Harvey, Lexi DeLisle), 1 employee (Julia Cotter), and 2 interns (Clara Monkowski, Grant Marshall). 2020:

Supervised 1 intern (Jazzelle Elias). 2021: Supervised 2 interns (Lillian Krach and Brianna Maxwell), 1 employee (Emily Winter), and 1 Big Sky Watershed Corps (BSWC) Member (Keaton Martin). 2022: Supervised 2 Native American interns (Brianna Maxwell and Kaycee Kimmel), 3 summer interns (Kenzye Spears, Grace Hauer and Aspen Jaeger), 2 employees (James Frakes and Emily Winter) and 1 BSWC Member (Claire Kirk). 2023: Supervised 1 Native American intern (Kaycee Kimmel), 1 academic year intern (Aspen Jaeger), 1 BSWC Member (Jared Glass), and 4 summer interns (Anna Brown, Chester Wooldridge, Kilynn Groen, and Tristenne Cranford). 2024: Supervised 1 Research Coordinator (Janelle Housman), 2 BSWC Members (Brianna Elizondo, Jared Glass). Summary (2017 – present): 11 volunteers, 17 interns, 6 employees, 4 Big Sky Watershed Corps Members.

Pesticide Stewardship Partnership Program Development (2024-2028). Led and designed the PSCP collaborative network for the Upper Columbia River Basin of Montana, including in-person collaborator and stakeholder meetings at FLBS (Feb 21-23, 2024).

Participation in workshops, symposia, panels (2023, 2022). Fall Watershed Tour with MT Watershed Coordination Council (Sep 2022), Columbia River Basin Toxics Reduction Working Group Meetings (biannual), Water Quality Rotunda in Helena, MT (Mar 2023).

Presenter (2024). Presented FLBS update the North Fork Interlocal meeting (GNP).

Co-organized a Volunteer Monitoring Training event for volunteer watershed groups (2023). Co-sponsored by MWW, MT-DEQ and MSU-Extension Water quality. 10-12 May.

Presenter (2023). Presented about river ecology research and stoneflies to Glacier Raft Company guides (July 2023), Bigfork Residents (August 2023), Lake County Conservation District Conservation Speaker Series (Sep 2023).

FLBS Research Cruise Presenter (2023, 2022). Presented about Monitoring Montana Waters on the research cruise.

Presenter (2022). Online water quality monitoring presentation for MWCC Luncheon (Jan 2022), *University of Montana Freshman Experience (2022)* for incoming UM freshman to learn about aquatic ecology and water quality monitoring.

Co-organized Montana Aquatic Research Colloquium (MARC 2022) for graduate students, postdocs, faculty and water professionals in Montana.

Member of the Flathead Basin Commission Technical Committee (2022 – 2023) – provide scientific advice for watershed and water quality issues.

Presenter (2021). Presented about river floodplain ecology, juvenile salmon and macroinvertebrates to the Orutsararmiut Native Council Science and Culture (virtually) in Bethel, AK.

Presenter (2020). Presented about the Flathead Lake Biological Station and river ecology research to the Bigfork Rotary Club (20 May) and about research on river floodplains and stoneflies at the “Science Quenchers” event held by the Whitefish Lake Institute (17 Jan).

Salmonids Focal Group Lead for “Advancing Scientific Knowledge of Mining Impacts on Salmonid-Bearing Watersheds” (Oct 23-27 2019) – engaged a diverse network of science and policy experts to address mining impacts on salmonids.

Member of the Transboundary Rivers Scientific Advisory Committee (2019 – 2021) – provide advice on transboundary research between Alaska and Canada on the effects of mining on freshwater systems.

Co-organized International genetics course (ConGen 2019 & 2020) on Population Genetic Data Analysis for graduate students, postdocs, and faculty in Montana. Class website: (<http://www.umt.edu/sell/cps/congen/>).

Presenter (2019). Presented to the North Fork of the Flathead River Landowners Association group about stoneflies and floodplain ecology.

Presenter (2019). Science on Tap - Flathead, presentation of “Ecology of river floodplains and their hidden groundwater stoneflies” to the local community.

Presenter (2018). Presented to the Kalispell chapter of Trout Unlimited about Floodplain Ecology.

Lecturer (2017 and 2018). Led field educational days for different groups (FLBS interns and middle school students) on the Nyack floodplain, MT, to teach students about river and floodplain ecology.

Presenter (2023, 2022, 2019, 2018, 2017, 2013, 2012, 2008). Taught adults and children about aquatic insects and river/floodplain ecology at the annual Flathead Biological Station Open House.

Presenter (2013). Guest lecture to 7-8th graders for a Montana Junior High School career day.

Presenter (2009, 2010). USFWS Yukon Delta National Wildlife Refuge Science Camp. Annually taught native students about river ecology on the Kwethluk River.

Montana Science Fair Judge (2003, 2004, 2012, 2018). Judged biological science projects for the Montana Science Fair.

Committee Member (1998-2008). Rocky Mountain Elk Foundation, Selkirk Crest and Southeast Idaho Chapter Committees, Idaho. Main duties include assisting with preparation and operation of annual banquets to raise funds for conservation.

Guest Presenter (2006). Pocatello Greenway Riverfest, Idaho. Volunteered with the ISU Stream Ecology Center, teaching children and adults about stream ecology.

Community Environmental Fair Presenter (2006-2007). Pocatello, Idaho. Volunteered with the ISU Stream Ecology Center to teach children and adults about stream ecology and aquatic insects living in the Portneuf River.

Classroom Instructor and Festival Assistant (2003). Clark Fork Watershed Festival, Community Watershed Education Experience, University of Montana, Missoula, Montana. Participated in a semester-long community watershed class, conducted classroom visits with 6th graders, and served as a guide for the Watershed Festival on May 1st, 2003.

HONORS AND HONOR SOCIETIES

Department of the Interior Northwest Climate Adaptation Science Center Fellow (2019-2020)
Marie Curie International Incoming Fellow (2014-2016)
Montana Institute on Ecosystems Fellow (2012)
American Fisheries Society – EOS Travel Award (2012)
Society for Freshwater Science Endowment Award (2012)
American Fisheries Society Finalist for Best Student Paper (2012)
North American Benthological Society Presidents Award (2007)

PROFESSIONAL AFFILIATIONS

American Fisheries Society
Ecological Society of America
Society for Freshwater Science
Rotary Club of Bigfork (Secretary 2021 – Present)