

# Bryan M. Maitland, Ph.D.

Curriculum Vitae

29 Dec 2022

Center for Limnology  
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Nationality: US Citizen

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## EDUCATION:

- 2020 **PhD, Ecology.** Program in Ecology, Dept. of Zoology and Physiology, University of Wyoming.  
Committee: Dr. Frank J. Rahel (advisor), Dr. Bob Hall, Dr. Annika Walters, Dr. Merav Ben-David, Dr. Katie Wagner, Dr. Daniel Laughlin
- 2015 **MSc, Conservation Biology.** Department of Renewable Resources, University of Alberta.  
Committee: Dr. Mark Poesch (co-advisor), Dr. Axel Anderson (co-advisor)
- 2011 **BS, Conservation Biology.** Department of Environmental Biology and Forestry, State University of New York, College of Environmental Science and Forestry.  
Mentors: Dr. Charlie Hall, Dr. Don Stewart

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## WORK EXPERIENCE:

- 2022-present **UW-EPA Postdoctoral Fellow.** Mentors: Drs. Olaf Jensen and Joel Hoffman.
- 2020-2022 **Wisconsin Water Resources Science-Policy Postdoctoral Fellow.** Co-appointed by University of Wisconsin-Madison & Wisconsin Department of Natural Resources.  
Mentors: Drs. Alex Latzka and Jen Hauxwell.
- 2015-2020 **Graduate Research Assistant.** Department of Zoology and Physiology, University of Wyoming, field sites: Wyoming.
- 2013-2015 **Graduate Research Assistant.** Department of Renewable Resources, University of Alberta, field sites: northern Alberta, Banff/Jasper National Parks
- 2011-2013 **Fisheries Technician.** USGS Great Lakes Science Center, field sites: northern Lake Michigan, Sleeping Bear Dunes National Lakeshore.
- 2010-2011 **Research Technician.** SUNY—ESF Thousand Island Biological Research Station, field sites: Upper St. Lawrence River Seaway.

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## PEER-REVIEWED PUBLICATIONS: (citations = 269, h-index = 8; source: Google Scholar)

### Published

19. **Maitland, B.M.,** Latzka, A.L. 2022. Shifting climate conditions affect recruitment in Midwestern stream trout, but depend on seasonal and spatial context. *Ecosphere* 13(12): e4308.

18. Medinski, N.A., **Maitland, B.M.**, Jardine, T.D., Drake, D.A.R., Poesch, M.S. 2022. Industrial disturbance induces isotopic niche shifts in an endangered and a non-native fish species. *Canadian Journal of Fisheries and Aquatic Sciences* 79(8): 1321-1334.
17. Feiner, Z., Embke, H., Latzka, A.L., **Maitland, B.M.**, Sass, G., Schlitz, A., Trudeau, A., Dassow, C., Mitro, M., Homola, J., Isserman, D. 2022. RAD considerations for climate change adaptation in fisheries: the Wisconsin experience. *Fisheries Management and Ecology* 29(4): 346-363.
16. Lapides, D.A., **Maitland, B.M.**, Zipper, S.C., Latzka, A.W. 2022. Environmental flows approaches to stream depletion management--a literature review. *Journal of Hydrology* 607: 127447.
15. Kirk, M.A., **Maitland, B.M.**, Hickerson, B.T., Walters, A.W., Rahel, F.J. 2022. Climatic drivers and ecological impact of a rapid range expansion by non-native smallmouth bass in a Wyoming river. *Biological Invasions* 24: 1311-1326.
14. Voter, C.B., Guerrero-Bolano, F.J., Latzka, A.W., **Maitland, B.M.**, Hauxwell, J. 2021. Adaptable university-agency early-career fellowship program creates win-win-win for Wisconsin's Waters. Special issue in *Journal of Contemporary Water Research and Education* 178(1): 139-154.
13. **Maitland, B.M.**, Martínez del Rio, C., Rahel, F.J. 2021. Effects of temperature on <sup>13</sup>C and <sup>15</sup>N incorporation rates and discrimination factors in two North American fishes. *Canadian Journal of Fisheries and Aquatic Science* 78(12): 1833-1840.
12. **Maitland, B.M.**, Rahel, F.J. 2020. Non-lethal fin sampling of North American freshwater fishes for food-web studies using stable isotopes. *North American Journal of Fisheries Management* 41(2):410-420.
11. Kirk, M.A., **Maitland, B.M.**, Rahel, F.J. 2019. Spatial scale, reservoirs and nonnative species influence the homogenization & differentiation of Great Plains—Rocky Mountain fish faunas. *Hydrobiologia* 847: 3743-3757.
10. **Maitland, B.M.**, O'Malley, B.P., Stewart, D.J. 2019. Subsurface water piping prevents meromixis in a deep volcanic crater lake (Dominica, W.I.). *Hydrobiologia* 839: 119-130.
9. Hickerson, B.H., **Maitland, B.M.**, Walters, A.W. 2019. Effects of multiple non-native predatory fish on an imperiled cyprinid, Hornyhead Chub (*Nocomis biguttus*). *Transactions of the American Fisheries Society* 148 (6): 1132-1145.
8. Alston, J.M., **Maitland, B.M.**, Brito, B.T., Ford, A.T., Hays, B., Jesmer, B.R., Molina, F.J., Goheen, J.R. 2019. Reciprocity in restoration ecology: when might large carnivore reintroductions restore ecosystems? *Biological Conservation* 234: 82-89.
7. Walker, R.H., **Maitland, B.M.**, LaSharr, T.N., Rosin, M., Ben-David, M. 2018. Fate of juvenile salmonids stranded in flood pools: implications for nutrient transfers. *Aquatic Sciences* 80: 1-10.
6. Craig, L., Olden, J., Arthington, A., Entekin, S., Hawkins, C., Kelly, J., Kennedy, T., **Maitland, B.M.**, Rosi-Marshall, E., Roy, A., Strayer, D., Tank, J., West, A., Wooten, M. 2017. Challenges, opportunities, and trade-offs associated with multiple threats in freshwater ecosystems. *Elementa: Science of the Anthropocene* 5:72.
5. Pandit, S.N., **Maitland, B.M.**, Pandit, L.K., Poesch, M., Ender, E.V. 2017. Climate change risks, extinction debt, and conservation implications for an endangered freshwater fish: Carmine Shiner (*Notropis percobromus*). *Science of the Total Environment*. 598: 1-11.
4. **Maitland, B.M.**, Poesch, M., Anderson, A.E. 2016. Prioritizing culvert removals to restore habitat for at-risk salmonids in the boreal forest. *Fisheries Management and Ecology*. 23: 489-502.
3. **Maitland, B.M.**, Poesch, M., Anderson, A.E., Pandit, S.N. 2016. Stream crossings drive changes in fish assemblages in an industrializing boreal watershed. *Freshwater Biology* 61: 1-18.

2. **Maitland, B.M.**, Cooke, S.J., Poesch, M. 2015. Finding the path to success: advice for early career researchers. *Fisheries*. 40(8): 399-403.
1. O'Malley, B.P., **Maitland, B.M.** 2014. Observations on the freshwater zooplankton of Dominica, West Indies, including records from the former Matthieu landslide-dam Lake. *Pan-American Journal of Aquatic Science*. 9(3): 228-233.

In review/revision

1. **Maitland, B.M.** & Rahel, F.J. (*In revision*) Food web expansion and trophic redundancy across the Rocky Mountain—Great Plains ecotone. *Ecology*.

In preparation

3. **Maitland, B.M.**, Jensen, O., Hoffman, J., Bunnell, D., Keppeller, F. Body size, trophic position, and the coupling of different energy pathways in Lake Michigan. Target: *Ecosphere*.
2. Ward, N.K., Lynch, A.J., Beever, E.A., Bouska, K., Embke, H., Kocic, J., Limpinsel, D., Magee, M.R., **Maitland, B.M.**, Morton, J.M., Muelbauer, J.D., Oliver, D.C., Rantala, H.M., Sass, G.G., Schultz, A., Thompson, L.M., Wilkening, J. Using the Resist-Accept-Direct (RAD) Framework to Reimagine Large River Management. Target: *Fisheries Management and Ecology*.
2. **Maitland, B.M.**, Walker, R.H., Kirkeeing, C., Compton, R., Gale, S., Rahel, F.J., Cook, C. Food web response to tiger muskellunge biocontrol in a Western US reservoir. Target: *North American Journal of Fisheries Management*.
1. Barrus, N.T., **Maitland, B.M.**, Rahel, F.J. Identifying optimal baselines for stable isotope studies of stream food webs. Target: *Freshwater Biology*.

**TECHNICAL REPORTS:**

2. Mitro, M., Fiener, Z., Latzka, A.L., Barta, Embke, H., Homola, J., Isserman, D., Lyons, J., **Maitland, B.M.**, Sass, G., Shaw, S., Shultz, A., Tsyehaye, I., Vander Zanden, J. 2021. *Wisconsin Initiative on Climate Change Impacts: Fisheries Working Group Report*. Nelson Institute for Environmental Studies, University of Wisconsin-Madison, WI Department of Natural Resources, Madison, WI.
1. Roseman, E.F., Riley, S.C., Farha, S.A., **Maitland, B.M.**, Tucker, T.R., Provo, S.A., McLean, M.W. 2013. Status and Trends of the Lake Huron Offshore Demersal Fish Community, 1976-2012. *Report to the Great Lakes Fishery Commission Lake Huron Committee Meeting*, Duluth, Minnesota, U.S. Geological Survey, Great Lakes Science Center, Ann Arbor, Michigan.

**COMPETITIVE FUNDING:**

- |      |   |
|------|---|
| 2022 | \$37,800. EPA-UW Postdoctoral Fellowship, UW-Madison Center for Limnology & US EPA.   |
| 2021 | \$100,833. Wisconsin Water Resources Science-Policy Postdoctoral Fellowship, UW-Madison Aquatic Sciences Center & WI Department of Natural Resources. |

- 2020 \$19,866. Novel Outreach and Education Grant, Biodiversity Institute. "Seeing the unseen: using video and in-stream sampling to make underwater landscapes and their biodiversity accessible and understandable to non-STEM audiences through the visual arts." Co-PI Drs. Rahel & Frye.
- 2020 \$1,000. CO-WY American Fisheries Society Small Grant. Food web response to Tiger Muskellunge biocontrol in a Wyoming Reservoir: a multi-year perspective. PI
- 2019 \$22,000. Menken's Graduate Fellowship, University of Wyoming. Food web expansion and diet specialization along longitudinal stream gradients. PI
- 2019 \$1,000. CO-WY American Fisheries Society Small Grant. "Validating fin tissue as a non-lethal proxy to muscle tissue for stable isotope analysis in Wyoming Fishes." PI
- 2018 \$6,000. Ecology Grant. Biodiversity Institute, University of Wyoming. "Refining the use of stable isotopes in aquatic ecology: assimilation and discrimination of C and N in prairie stream fishes." PI
- 2017 \$4,000. Berry Research Grant. Biodiversity Institute, University of Wyoming. "Applying the isotopic niche to identify factors that influence the diversity of fish assemblages in Rocky Mountain rivers." PI
- 2015 \$25,207. Research Grant. Biodiversity Institute, University of Wyoming. "Factors that influence the diversity of fish assemblages in Rocky Mountain-Great Plains streams: a food web approach." Co-PI w Dr. Frank Rahel.

#### Invited, not awarded

- 2021 \$400,000. USGS MW CASC. Climate change and groundwater pumping impacts on Wisconsin trout fisheries. Co-PI with Dr. Olaf Jensen. (SOI invited).

#### AWARDS:

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|------|---------|---|
| 2021 | \$6,000 | Travel Award to AFS 2021, Baltimore. Wisconsin Chapter AFS                      |
| 2020 | \$1,000 | Conservation Research Grant. North American Native Fish Association             |
| 2019 | \$2,500 | Dean's Graduate Scholar Award, University of Wyoming College of Arts & Sciences |
| 2018 | \$2,500 | Eugene Maughan Graduate Scholarship, Western Division AFS                       |
| 2018 | \$6,016 | Hank Gardner Physiology Graduate Scholarship, University of Wyoming             |
| 2017 | \$500   | Clemens-Rigler Student Travel Grant, 2017 CCFFR conference, Edmonton, AB, CAN   |
| 2017 | \$400   | Board of Visitors Award, University of Wyoming College of Arts & Sciences       |
| 2017 | \$4,350 | Dennis Anderson Fisheries Award, University of Wyoming                          |
| 2017 | \$900   | William Trachtenberg Scholarship, Sustainable Fisheries Foundation              |
| 2017 | \$6,200 | Vern Bressler Fisheries Award, University of Wyoming                            |
| 2015 | \$200   | Excellence in Fisheries at a Canadian Institution, AFS CARS                     |
| 2015 | \$600   | Clemens-Rigler Student Travel Grant, 2017 CCFFR conference, Yellowknife, NWT    |

#### INVITED PRESENTATIONS:

- 2022 Climate change, extreme weather, and stream trout in Wisconsin. Invited plenary. Wisconsin Trout Unlimited. 15 September.

- 2021 Tackling Wisconsin's water challenges through UW Water Science-Policy Fellowships and agency partnerships, Invited Plenary Session, Wisconsin Water Week, 16 March.
- 2021 Research advances and priorities panel discussion, Wisconsin Chapter American Fisheries Society annual meeting, virtual event, 16 February.
- 2017 Stream Culverts & Fish: The Good, the Bad & the Ugly. Invited seminar, Pinedale Science Café
- 2016 Culverts as culprits: how road crossings affect fish. Invited seminar, Laramie Science Café

## SCIENTIFIC PRESENTATIONS:

*Lead author:* (#best paper award)

- 21. **Maitland, B.M.** and Latzka, A. 2022. Shifting climate conditions affect recruitment in Midwestern stream trout, but depend on seasonal and spatial context. JASM Meeting, Grand Rapids, MI.
- 20. **Maitland, B.M.** and Latzka, A. 2021. Long-term trends of Midwestern stream trout populations in a changing climate, and the effects of seasonal weather. AFS Annual Meeting, Baltimore, MD.
- 19. **Maitland, B.M.** Latzka, A., Mitro, M., Frater, P. 2021. Untangling the effects of hydrologic change on trout in Wisconsin streams. 2021 Wisconsin Water Week Conference. Virtual.
- #18. **Maitland B.M.**, Latzka, A., Frater, P., and Mitro, M. 2021. Long-term trout trends in Wisconsin and the role of hydrologic change. Wisconsin Chapter of AFS Annual Meeting. Virtual.
- 17. **Maitland B.M.**, Fetzer, W., Collins, S., and Rahel F.J. 2020. Non-lethal approaches for obtaining stable isotope data for diet studies of North American fishes. CO/WY AFS. Laramie, WY.
- 16. **Maitland B.M.** and Rahel F.J. 2019. Non-lethal sampling of North American native non-game fishes for stable isotope analysis in food webs studies. Joint Meeting of the Wildlife and American Fisheries Society. Reno, NV.
- 15. **Maitland B.M.**, Rahel F.J. 2018. Stream food web expansion in response to changing environmental conditions. CO/WY AFS Chapter Annual Meeting. Laramie, WY.
- #14. **Maitland B.M.**, Rahel F.J. 2018. (Poster) Niche partitioning in fish assemblages along longitudinal stream gradients. Canadian Conference for Freshwater Fisheries Research. Edmonton, AB, CAN.
- 13. **Maitland B.M.**, Rahel F.J. 2017. Isotopic niches and the longitudinal gradient in Rocky Mountain-Great Plains streams. Society for Freshwater Science Annual Meeting. Raleigh, NC.
- 12. **Maitland B.M.**, Rahel F.J. 2017. Exploring isotopic niches in Rocky Mountain Great Plains stream fish. Zoology & Physiology Brown Bag Lecture Series. Laramie, WY.
- 11. **Maitland B.M.** 2017. Culverts & steam fish: the good, the bad, and the ugly. Pinedale Science Café, *invited speaker*. Pinedale, WY.
- 10. **Maitland B.M.**, Walker R.H., LaSharr T.N., Rosin M., Ben-David M. 2017. The fate of juvenile salmonids stranded in flood ponds: implications for nutrient transfers. CO/WY AFS chapter Annual Meeting. Grand Junction, CO.
- #9. **Maitland B.M.**, Walker R.H., LaSharr T.N., Rosin M., Ben-David M. 2017. Juvenile salmonids stranded in flood ponds of Alaska. U Wyoming Program in Ecology Symposium. Laramie, WY.
- 8. **Maitland, B.M.**, Poesch, M.S., Anderson, A.E. 2016. Culverts in the boreal forest: impacts and restoration methods for native freshwater fishes. Society for Freshwater Science Annual Meeting, Rivers at Risk special symposia. Sacramento, CA.
- 7. **Maitland, B.M.**, Poesch, M.S., Anderson, A.E. 2016. Culverts in forested watersheds: impacts and restoration methods for native freshwater fishes. CO/WYAFS Annual Meeting. Laramie, WY.
- 6. **Maitland, B.M.**, Poesch, M.S., Anderson, A.E. 2014. Stream Crossing Impacts on Freshwater Fish Communities and in-Stream Habitat in West-Central Alberta: Implications for Management and Conservation. American Fisheries Society Meeting, Roads and Rivers Symposium. Quebec
- 5. **Maitland, B.M.**, Poesch, M.S., Anderson, A.E. 2014. Stream crossing assessment procedures as a tool for mitigating impacts on freshwater fish. CMI Resource Roads Conference. Nelson, BC.

4. **Maitland, B.M.**, Poesch, M.S., Anderson, A.E. 2014. Stream crossing impacts on freshwater fish and instream habitat in Alberta. Canadian Conference for Fisheries Research. Yellowknife, NWT.
3. **Maitland, B.M.**, O'Malley, B.P., O'Brien, T.P., Armenio, P.M., Watson, N.M., Roseman, E.F. 2014. Zooplankton community dynamics in a northern Lake Huron embayment: The influence of water temperature and larval fish abundance. Conference on Great Lakes Research. Hamilton, ON.
2. **Maitland, B.M.**, Poesch, M.S., Anderson, A.E. 2014. Stream crossing impacts on freshwater fishes: implications for management. Forest Industry Lecture Series. Edmonton, AB, Canada.
1. **Maitland, B.M.**, S.A. Farha, R.W. Darnton, K.R. Smith, and S.C. Riley. 2012 Avian botulism environmental sampling in Sleeping Bear Dunes National Lakeshore. GLRI Project no. 73 and 91 USGS/NPS Meeting. Empire, MI.

*Co-author:*

- Ward, N.K., Lynch, A.J., Beever, E.A., Bouska, K., Embke, H., Kocic, J., Limpinsel, D., Magee, M.R., **Maitland, B.M.**, Morton, J.M., Muelbauer, J.D., Oliver, D.C., Rantala, H.M., Sass, G.G., Schultz, A., Thompson, L.M., Wilkening, J. 2022. Using the Resist-Accept-Direct (RAD) Framework to Reimagine Large River Management. AFS Annual Meeting. Spokane, WA.
- Lapides, D., **Maitland B.M.**, and Pruitt, A. 2021. Assessing approaches to quantify hydrological alteration on Wisconsin's streams. American Water Resources Association, Wisconsin section Annual Meeting. Virtual.
- Barrus, N., **Maitland, B.M.**, and F.J. Rahel. 2019. Identification of an ideal baseline organism for stream food web studies. Joint Meeting of the Wildlife and American Fisheries Society. Reno, NV.
- Daniels S.E., Fitzpatrick T.A., **Maitland B.M.** 2015. Idiosyncratic resource use by Laramie raccoons: are trash pandas, *trash* pandas? Stable Isotope Ecology Symposium. Laramie, WY.
- Annear A.A., **Maitland B.M.**, Rahel F.J. 2016. Stable isotope quantification of resource use by crayfish in the Laramie River to inform lotic food web analyses. CO/WY AFS Annual Meeting. Laramie, WY.
- Hirshfield F., Anderson A.E., **Maitland B.M.**, Wagner, M., Zaichkowsky, M., Mottishaw, C. 2014. Integrating science and management to improve sustainability of forested watersheds in Northwestern Canada. Society for American Foresters National Convention and IUFRO World Congress. Salt Lake City, UT.
- Discenza JD, BP **O'Malley**, BM Maitland, and D Fernando. 2011. Analyzing the genetic variation in American Hart's tongue fern. Spotlight on Student's Research. SUNY-ESF, Syracuse, NY.

## PROFESSIONAL SERVICE:

**Journal Referee (n = 25 from 2016-2022; ~3.6 per year):** *Oecologia*, *Freshwater Biology*, *Freshwater Science*, *Frontiers in Ecology and Evolution*, *Hydrobiologia*, *Journal of Ecology*, *Fisheries Research*, *Environmental Biology of Fishes*, *Restoration Ecology*, *PeerJ*, *River Research and Applications*, *Diversity and Distributions*, *Transportation Research: Part D*.

**Code Review:** USGS CreelCAT code review.

## Working groups

- Member, Fisheries Working Group, *Wisconsin Initiative on Climate Change Impacts*, Nelson Institute for Environmental Studies and Wisconsin DNR (2021-2022)
- Member, *Trout Species Team*, Wisconsin Department of Natural Resources (2020-2022)
- Member, *Freshwater Working Group*, Society for Conservation Biology (since 2015)
- President, *UWyo Student Chapter*, American Fisheries Society (2016-2017)

- Ex Comm member, *CO-WY State Chapter*, American Fisheries Society (2016-2018)

### Society memberships

- American Fisheries Society – National (since 2010), Western Division (since 2015), North Central Division (since 2020), Wisconsin Chapter (since 2020), CO-WY Chapter (2015-2020), University of Wyoming Student Subunit (2015-2020), Canadian Aquatic Resource Section (2013-2015), New York Chapter (2010-2011), SUNY:ESF Student Unit (2010-2011)
- Ecological Society of America – National (since 2015)
- Society for Conservation Biology – National (since 2010)
- Society for Freshwater Science (since 2016)
- Galápagos Conservancy (since 2019)
- Association for the Science of Limnology & Oceanography (2016-2019)
- International Association of Great Lakes Research (2010-2016)

### DEPARTMENTAL/UNIVERSITY SERVICE

2022-2023	Field Operation Facilitation and Boat Committee, Center for Limnology, UW-Madison
2016-2020	Social Media Coordinator, Program in Ecology, University of Wyoming
2019	Member, faculty search committee, Dept. Zoology & Physiology, U Wyoming
2017-2018	Student representative, University of Wyoming Graduate Council
2016-2017	President, Program in Ecology, University of Wyoming
2015-2020	Student representative to faculty, Zoology & Physiology, University of Wyoming

### TEACHING EXPERIENCE

#### Classroom instruction

- Instructor, *Programing with R*, Annual Meeting of the WI AFS, online (spring 2021)
- Instructor, *Aquatic ecology*, Wyoming Naturalists Program, Biodiversity Inst. (spring 2021)
- Instructor, *Ichthyology*, University of Wyoming (spring 2020)
- Instructor, *Mixing models in R workshop*, Stable Isotope Ecology (fall 2018)
- TA, *Ichthyology*, University of Wyoming (springs of 2016-2020)
- TA, *Fisheries Management*, University of Wyoming (fall 2015)
- TA, *Fisheries and Wildlife Management*, University of Alberta (fall 2015)

#### Guest lectures

2020	<i>Aquatic Ecology</i> . General Ecology, Life Sciences Program, University of Wyoming
2018-2020	<i>Application of stable isotope ecology to fisheries management</i> . Fisheries Management, Dept. Zoology & Physiology, University of Wyoming

#### Undergraduate mentees

2018-2020	Nathan Barrus
2019-2020	Russell Brubaker
2018-2019	Reilly Davis
2017	Brynn Hirschman
2017	Austin Jacobson

2016	Shaun Helsper
2016-2017	Travis Allison
2016	Andrew Annear
2015	Jake Werner

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## SPECIALIZED SKILLS & TRAININGS

**Project Management:** University, state, and federal agency collaborations, hiring and training of personnel, budgeting and supplies management, data management and analysis, protocol development, land-owner contacts, and site selection.

### Leadership Training

2021	Equity and Inclusion Workshop (3 workshops over 3 months), EQT By Design via WI Sea Grant
2008	Leave No Trace Master Educator, Center for Outdoor Ethics, NOLS
2007	Environmental Ethics. University of Utah and NOLS
2007	Group Leadership Skills. University of Utah and NOLS

### Software Competency

- Operating systems: MacOS, Windows OS
- Programming languages: R, Python, JAGS, C++, SQL, VisualBasic, HTML
- Relational database management: Oracle, MS SQL Server, PostgreSQL, SQLite, MS Access
- Geographic Information Systems: QGIS, ESRI ArcMap
- GPS systems/navigation software.

### Field and Lab Skills

- >17 years of field experience in diverse regions (Caribbean, Adirondacks, Great Lakes, North Canadian Boreal Forest, Northern/Southern Rocky Mountain backcountry, Pacific Northwest).
- Broad basic and applied background in natural history, especially freshwater fishes, benthic invertebrates, aquatic birds, trees, and fungi)
- Piloting (150+ days) and trailering small vessels (to 40')
- Trap nets, gill nets, fyke nets, seines, set lines, trawling, benthic dredges, boat, raft, and backpack electrofishing, fish tagging (visible implant (VIE), coded wire, PIT, T-bar/dart floy tags), gastric lavage, tissue biopsy, benthic invertebrate collections, plankton tows, sediment coring systems, environmental and water quality data collection
- Flight experience (Bell and Robinson helicopters, Banff AB)
- Molecular techniques (DNA extraction, PCR)
- Fishing, backcountry travel, orienteering (map, compass, GPS and Trimble)
- Light machinery operation, small power equipment repair, minor electrical repair, handiwork

### Certifications

2020	Advanced CPR, American Red Cross
2014	Wilderness Advanced First Aid, Raven Rescue, Wilderness Medical Associated International
2018	Avalanche Safety Level 1, National Ski Patrol
2013	Electrofishing certificate, Alberta Provincial Standard
2013	ATV Training Certificate, Canada Safety Counsel
2012	MOCC Federal motor boat operator, US Department of Interior

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## COMMUNITY SERVICE AND OUTREACH



2016-2020 Science outreach and stream ecology field trips, Laramie High School  
 2016-2019 Group leader, Wyoming Bio-Blitz, Biodiversity Institute, University of Wyoming  
 2016-2018 Big Brother, Big Brothers Big Sisters of Wyoming  
 2017 Habitat restoration project, Girl Scouts of America  
 2016-2017 Science judge, Wyoming State Science Fair

## POPULAR MEDIA

“Stuck in a rut in Anaconda? Crash a cutthroat spawning party!” [Featured article, The Tributary.](#)

## PRE-DOCTORAL RESEARCH & FIELD EXPERIENCE

2015-2020 **Ph.D. Student.** University of Wyoming. Experience with formulating and designing a research program; laboratory diet-switch experiments; building and maintaining partnerships with agency and non-governmental organizations; providing technical leadership, advisory, planning and reviewing services for undergraduate students; preparing and publishing results and findings in high impact journals; mentoring undergraduate students. Became proficient in statistical software R, including mastery of mixed-effects and generalized mixed models, and data management.

2013-2015 **M.Sc. Student.** University of Alberta. Surveyed 66 remote stream sites in the Alberta’s Northern Boreal Forest. Experience with backpack electrofishing, habitat surveys, public relations, industry relations, and road crossing inspections. Became proficient in ArcGIS, linear and non-linear modeling, and multivariate statistics.

2014 **Research Technician.** Upper Athabasca River Oil Sands Project. Served as boat electrofishing pilot (Smith-Root GPP, 20 ft.) for fish community surveys and sample collections on the upper Athabasca River near Fort McMurray, Alberta.

2013-2014 **Research Technician.** Aquatics Division, Parks Canada, Banff, AB, CAN. Experience traveling in helicopters, developing logistics for field work over mountainous terrain, and collecting limnological data from high elevation lakes in Banff National Park.

2011-2013 **Fisheries Research Technician.** USGS Great Lakes Science Center, Ann Arbor, MI. Conducted research investigating the proliferation of botulinum toxin (type E) in the Great Lakes. Fieldwork consisted of extended deployments (~2-3 weeks/mo.) to Leland, MI, where data were collected in offshore waters near Sleeping Bear Dunes National Lakeshore. Extensively piloted 30’ research vessel for sample collection and SCUBA support. Managed three crew members as field supervisor. Deployed gill nets, set lines, plankton tows, and benthic dredges. Maintained, serviced, and deployed multi-parameter datalogging sondes.

2011 **Laboratory Assistant.** Conservation Genetics Lab, SUNY—ESF. Experience extracting and amplifying DNA samples, and running gel electrophoresis.

- 2010                    **Laboratory Assistant.** Aquatic Ecology Lab, SUNY—ESF. Experience sorting benthic samples and identifying invertebrates to family.
- 2009-2010           **Research Technician.** SUNY—ESF Thousand Island Biological Research Station, Clayton, NY. Daily navigation and sampling high traffic reaches of the St. Lawrence River. Continued ongoing muskellunge monitoring program, including trap-netting for genetic samples, gastric lavage, aging and reproductive stage assessment, and seining YOY for recruitment index. Assessed fish communities via trap-netting, seining, and boat electrofishing. Maintained four research vessels (12-19'), vehicles, ATVs, sampling equipment, and field station. Assisted NYDEC with gillnet survey on Lake Ontario aboard the R/V Seth Green (46').
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## LANGUAGES

English (native)  
Spanish (conversational)