

ACADEMIC
APPOINTMENTS

University of North Dakota, Grand Forks

August 2026 - Present

Department of Biology

Assistant Professor of Freshwater Ecology

University of Alaska, Fairbanks

January 2024 - August 2025 (0.25 FTE); September 2025 - August 2026 (1.0 FTE)

Institute of Arctic Biology

Postdoctoral Research Associate,

Project: *Assessing long-term trends in SW Alaskan lake water quality under climate change*

Supervisor: Jeffrey D. Muehlbauer

University of Wyoming, Laramie

December 2022 - December 2023 (1.0 FTE); January 2024 - August 2025 (0.75 FTE)

Dept. Zoology and Physiology

Postdoctoral Research Associate,

Project: *NSF-EPSCoR Track II Highly Predictive, Explanatory Models to*

Harness the Life Science Data Revolution

Supervisor: Sarah M. Collins[†]

EDUCATION

University of Idaho, Moscow

Dept. Fish and Wildlife Sciences

Ph.D., Water Resources Science and Management, 2022.

Dissertation: *Building a Food Web Portfolio: Hydrologic Heterogeneity Creates*

Food Web Diversity on a Glacial Meltwater Landscape

Advisors: J. Ryan Bellmore and Christopher C. Caudill

M.S., Fisheries Science, 2017.

Thesis: *Resource Subsidies from Spawning Pacific Lamprey: Spatial Dynamics*

of Carcass Fate and Entry into Stream Food Webs

Advisor: Christopher C. Caudill

Statistics Certificate

University of Montana, Missoula

B.S., *with honors*, Wildland Restoration (Aquatic), 2013.

B.A., *with honors*, Environmental Studies, 2013.

Minor *Wilderness Studies*

PUBLICATIONS

- [12] **Dunkle, M.R.**, M. Bruneaux, A. López-Sepulcure, B. Kohler, R. F. de Lima, E. Bachmeister, F. Akamagwura, S. A. Thomas, and S. M. Collins. "Guppy Introduction Alters Food Web Structures in Tropical Streams: Changes to nutrient flow pathways and uptake rates after a decade of establishment" (2026*). In Prep. (draft manuscript in review with co-authors).
- [11] **Dunkle, M.R.**, K. Bartz, P. Gabriel, and J. Muehlbauer. "Leveraging Monitoring Data to Model Trends in Lake Water Quality in SW Alaska". *Alaska Park Science* (2025). Accepted.
- [10] **Dunkle, M.R.**, J. R. Bellmore, J. B. Fellman, E. W. Hood, and C. C. Caudill. "Loss of meltwater from glaciers and snowpack may increase synchrony of river habitats and resources in mountain watersheds". *Ecology* 106.4 (2025), e70023.
- [9] M. Gutgesell, H. Harris, **Dunkle, M.R.**, J. Fellman, and J. R. Bellmore. "Watershed hydrologic heterogeneity enhances metacommunity stability through spatial portfolio effects". *Oikos* (2025). In Review.
- [8] A. M. Carter, H. E. Lowman, J. R. Blaszcak, C. L. Torrens, C. C. Barbosa, M. DeSiervo, **Dunkle, M. R.**, S. M. Collins, I. Oleksy, L. R. Katona, and R. O. Hall. "Exceptions to the heterotrophic rule: prevalence and drivers of autotrophy in streams and rivers". *Ecosystems* (2024).
- [7] **Dunkle, M.R.**, J. R. Bellmore, J. B. Fellman, and C. C. Caudill. "Glaciers, snow, and rain: Water source influences invertebrate community structure and secondary production across a hydrologically diverse subarctic landscape". *Limnology and Oceanography* 69.2 (2024), pp. 232–245.
- [6] H. E. Lowman, M. M. DeSiervo, R. O. Hall Jr, ..., **Dunkle, M.R.**, ..., et al. "Collaborative consortia can boost postdoctoral workforce development". *Proceedings of the National Academy of Sciences* 121.28 (2024), e2401812121.
- [5] J. B. Fellman, J. R. Bellmore, C. Johnson, **Dunkle, M.R.**, and E. Hood. "Glacier runoff influences biogeochemistry and resource availability in coastal temperate rainforest streams: Implications for juvenile salmon growth". *Limnology and Oceanography* 68.1 (2023), pp. 70–83.
- [4] J. R. Bellmore, J. B. Fellman, E. Hood, **Dunkle, M.R.**, and R. T. Edwards. "A melting cryosphere constrains fish growth by synchronizing the seasonal phenology of river food webs". *Global Change Biology* 28.16 (2022), pp. 4807–4818.
- [3] **Dunkle, M.R.**, R. A. Dunbeck, and C. C. Caudill. "Fish carcasses alter subyearling Chinook salmon dispersal behavior and density but not growth in experimental mesocosms". *Ecosphere* 12.12 (2021), e03856.
- [2] **Dunkle, M.R.**, R. T. Lampman, A. D. Jackson, and C. C. Caudill. "Factors affecting the fate of Pacific lamprey carcasses and resource transport to riparian and stream macrohabitats". *Freshwater Biology* 65.8 (2020), pp. 1429–1439.
- [1] A. Wicks-Arshack, **Dunkle, M.R.**, S. Matsaw, and C. Caudill. "An ecological, cultural and legal review of Pacific lamprey in the Columbia River Basin". *Idaho Law Review* 54 (2018), pp. 45–91.

AWARDS

University of Idaho Excellence Award: Outstanding Graduate Research Activity (2022)
Outstanding Graduate Student Award, Graduate and Professional Student Association (2022)
Outstanding Graduate Student, Water Resources Program (2022)
Best Graduate Student Presentation, Alaska Chapter AFS Meeting (2022)
Outstanding Overall M.S. Student, College of Natural Resources (2017)
Outstanding Graduate Student, Fisheries Science Program (2017)

TEACHING **Dept. Zoology and Physiology, University of Wyoming, Laramie**

ECOL5620 Advanced Approaches in Aquatic Ecology (*Co-Instructor*), Spring 2023

Dept. Fish and Wildlife Sciences, University of Idaho, Moscow

FOR 221 Principles of Ecology (*TA*), Spring 2019
FISH 550 Freshwater Invertebrate Ecology (*TA*), Winter 2019
FISH 481 Ichthyology Laboratory (*Instructor*), Spring 2016

Guest Lectures

U. Alaska: Aquatic Food Web Ecology, Readings in Stream Ecology, Climate Impacts in Alaska
U. Wyoming: Limnology
U. Idaho: Invertebrate Zoology, Climate Change Impacts on Fish and Wildlife

MENTORSHIP **University of Idaho**

- Mentored two Indigenous students with Columbia River Intertribal Fish Commission Teaching Rising American Indian Leaders (TRAILS) summer interns
- Managed 6 undergraduates conducting lab processing of invertebrates
- Supervised undergraduate student thesis project in Ecology and Conservation Biology leading to co-authorship on a manuscript

University of Wyoming

- Mentorship and co-authorship of manuscript with graduate students developed out of special topics course
- Informal mentorship of graduate students in lab group

University of Alaska

- Mentored undergraduate student in field and lab work leading to co-authorship on manuscript
- Informal mentorship of graduate students in lab group

SELECT ORAL PRESENTATIONS

([§]Undergraduate Mentee)

- [13] **Dunkle, M.R.** "From Landscapes to Fish Growth: Mechanisms of Change in Freshwater Food Webs". *Invited Seminar, University of North Dakota*. Grand Forks, ND, 2026.
- [12] **Dunkle, M.R.** "From Landscapes to Fish Growth: Mechanisms of Change in Freshwater Food Webs". *Invited Seminar, Central Washington University*. Ellensburg, WA, 2026.
- [11] **Dunkle, M.R.,** P. Gabriel, S. Textor, K. Bartz, and J. Muehlbauer. "Landscape Drivers of Lake Thermal Structure in Southwest Alaska's National Parks". *Annual Meeting of the Society for Freshwater Science*. Spokane, WA, 2026.
- [10] **Dunkle, M.R.** "Landscape Heterogeneity and the Portfolio of Salmon Food Webs in Southeast Alaska". *Invited Seminar, College of Fisheries and Ocean Science, University of Alaska Fairbanks*. Fairbanks, AK, 2025.
- [9] **Dunkle, M.R.** "Landscape Heterogeneity and the Portfolio of Salmon Food Webs Under Climate Change". *Invited Seminar, School of Aquatic and Fishery Sciences, University of Washington*. Seattle, WA, 2025.
- [8] **Dunkle, M.R.,** M. Bruneaux, F. Akamagwura, A. López-Sepulcur, S. Thomas, and S. Collins. "Quantitative Food Web Analysis Reveals Eco- Evolutionary Feedbacks in Trinidadian Guppies". *Annual Meeting of the Society for Freshwater Science*. San Juan, PR, 2025.
- [7] **Dunkle, M.R.,** J. Bellmore, J. Fellman, E. Hood, and C. Caudill. "Loss of Meltwater From Glaciers and Snowpack Will Increase Synchrony of River Habitats and Resources in Southeast Alaska". *Annual Meeting of the Alaska Chapter of the American Fisheries Society*. Seward, AK, 2024.
- [6] **Dunkle, Matthew R.,** K. Bartz, S. M. Collins, P. Gabriel, S. Textor, and J. D. Muehlbauer. "Understanding Climate Change Impacts on Subarctic Lakes: Insights From Long-Term Monitoring in Katmai and Lake Clark National Parks, Southwest Alaska". *Annual Meeting of the Associated Sciences of Limnology and Oceanography*. Global Aquatic Ecosystems Society. Madison, WI, 2024.
- [5] **Dunkle, M.R.,** J. Bellmore, J. Fellman, and C. Caudill. "Seasonal Variation in Physicochemical Conditions and Impact on Stream Food Webs in Complex Alaskan Riverscapes". *Annual Meeting of the Society for Freshwater Science*. Brisbane, Australia, 2023.
- [4] **Dunkle, M.R.,** J. Bellmore, J. Fellman, E. Hood, and C. Caudill. "Riverscape Seasonal Regimes Create Distinct Food Web Phenologies in Meltwater and Non-Meltwater Streams Near the Juneau Icefield, Alaska". *Joint Aquatic Sciences Meeting*. Grand Rapids, Michigan, 2022.
- [3] R. [§]Dunbeck, **Dunkle, M.R.,** and C. Caudill. "Movement Response of Juvenile Chinook Salmon (*O. Tshawytscha*) to Carcasses of Rainbow Trout (*O. Mykiss*) and Pacific Lamprey (*E. Tridentatus*)". *Annual Meeting of the Western Division of the American Fisheries Society*. Anchorage, AK, 2018.
- [2] **Dunkle, M.R.,** J. Bellmore, J. Fellman, E. Hood, and C. Caudill. "Glaciers and Salmon in Southeast Alaska: Does Landscape Complexity and Mobility Influence Energy Pathways to Aquatic Consumers?" *Annual Meeting of the Western Division of the American Fisheries Society*. Anchorage, AK, 2018.
- [1] **Dunkle, M.R.** and C. Caudill. "Can a Specifically-Timed Resource Lessen Early Life-History Density Dependence? Exploring the Response of Juvenile Salmon to a Historic Marine-Derived Nutrient Subsidy". *Annual Meeting of the Ecological Society of America*. Portland, OR, 2017.

GRANTS

\$295,000. Co-Investigator, The Potential Impacts of Climate Change on River Food Webs and Salmon Productivity in Southeast Alaska. USGS Alaska Climate Adaptation Science Center Grant. J. Ryan Bellmore, PI (2019-2022)

\$85,000 NSF Integrative Graduate Education and Research Traineeship Award (IGERT): *Adaptation to Change in Water Resources: Science to Inform Decision-making Across Disciplines, Cultures and Scales* (2017-2019)

\$1500 Clearwater Flycasters Association Graduate Student Research Award (2016)

\$1500 Kelly Creek Flycasters Association Conservation Research Award (2016)

\$2000 UM Provost's Student Enrichment Study Abroad Grant (2012-2013)

\$500 UM Study Abroad Program Grant (2012-2013)

\$2000 USDA Climate Change Studies Small Grant (2011-2012)

\$2500 NSF EPSCoR Undergraduate Research Grant (2011-2012)

\$500 UM Division of Biological Sciences Research Grant (2011-2012)

\$500 UM Provost's Student Enrichment Travel Grant (2011)

MEMBERSHIPS
AND SERVICE**Society Memberships**

- American Fisheries Society (AFS)
- Society for Freshwater Science (SFS)
- Associated Sciences of Limnology and Oceanography (ASLO)
- Ecological Society of America (ESA)

Reviewer

Global Change Biology, Journal of Animal Ecology, Ecology of Freshwater Fish,
Canadian Journal of Fisheries and Aquatic Science, Inland Waters, Aquatic Sciences