

## AIMEE H. FULLERTON

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### EDUCATION

Ph.D., University of Washington  
M.S., University of Notre Dame  
B.S., Ohio State University

### PROFESSIONAL EXPERIENCE

*Research Fisheries Scientist*. 2002 to present. Ecosystem Analysis Program, Fish Ecology Division, Northwest Fisheries Science Center, NOAA Fisheries, Seattle, WA

*Aquatic Biologist*. 1998 to 2002. Nongame and Endangered Wildlife Program, North Carolina Wildlife Resources Commission, Raleigh, NC

**RESEARCH INTERESTS:** My research interests include thermal diversity in streams and the effect of climate change on Pacific salmon and aquatic systems; the spatial structure of aquatic populations, especially those living in stream networks; the relationship between spatiotemporal scale and ecological patterns and processes; the influence of nonindigenous species on native aquatic fauna; and ways that science can contribute to improved decision-making.

**RECENT PUBLICATIONS** For a full list, see [Google Scholar](#) and [ORCID](#) (0000-0002-5581-3434).

Yan, H., N. Sun, **A.H. Fullerton**, and M.J. Baerwalde. 2021, in press. Implications of changing climate for stream temperature and fish growth potential in a snow-influenced watershed. *Environmental Research Letters*.

Armstrong, J., **A.H. Fullerton**, J.L. Ebersole, J.R. Bellmore, C. Jordan, I. Arismendi, and B. Penaluna. 2021. The significance of warm habitat to the growth regime of coldwater fishes. *Nature Climate Change*.  
<https://dx.doi.org/10.1038/s41558-021-00994-y>.

Marsha, A., E.A. Steel, and **A.H. Fullerton**. 2021. Modeling thermal metrics of importance for fish by species and life stage. *Freshwater Science*. <https://doi.org/10.1086/713038>.

Torgersen, C. E., **A.H. Fullerton**, Z. Johnson, F. Mejia, A. Gendaszek, A. Shirk, S.Y. Lee, R. Rautu, A. Ege, J. Casola, and C. Raymond. 2021. Stream temperature handbook: a primer on data and models. <https://cig.uw.edu/our-work/decision-support/stream-temperature-handbook/>.

Hawkins, B. L., **A. H. Fullerton**, B. L. Sanderson, and E. A. Steel. 2020. Individual-based simulations suggest mixed impacts of warmer temperatures and a non-native predator on Chinook salmon. *Ecosphere* 11:e03218,  
<https://doi.org/10.1002/ecs2.3218>.

Lee, S.Y., **A.H. Fullerton**, N. Sun, and C. E. Torgersen. 2020. Projecting spatiotemporally explicit effects of climate change on stream temperature: a model comparison and implications for coldwater fishes. *Journal of Hydrology* 588: 125066, <https://doi.org/10.1016/j.jhydrol.2020.125066>.

McGill, L.M., E.A. Steel, J.R. Brooks, R.T. Edwards, and **A.H. Fullerton**. 2020. Elevation and spatial structure explain most surface-water isotopic variation across five Pacific Coast basins. *Journal of Hydrology* 583: 124610,  
<https://doi.org/10.1016/j.jhydrol.2020.124610>.

Mejia, F. H., C. E. Torgersen, E. K. Berntsen, J. R. Maroney, J. M. Connor, **A. H. Fullerton**, J. L. Ebersole, and M. S. Lorang. 2020. Longitudinal, lateral, vertical and temporal thermal heterogeneity in a large impounded river: implications for cold-water refuges. *Remote Sensing* 12(9): 1386, <https://doi.org/10.3390/rs12091386>.

Steel, E.A., A. Marsha, **A.H. Fullerton**, J.D. Olden, N.K. Larkin, S.Y. Lee, and A. Ferguson. 2019. Thermal landscapes in a changing climate: biological implications of water temperature patterns in an extreme year. *Canadian Journal of Fisheries and Aquatic Sciences*, <https://doi.org/10.1139/cjfas-2018-0244>.

**Fullerton, A.H.**, C.E. Torgersen, J.J. Lawler, E.A. Steel, J.L. Ebersole, and S.Y. Lee. 2018. Longitudinal thermal heterogeneity in rivers and refugia for coldwater species: effects of scale and climate change. *Aquatic Sciences* 80: 1-15.

Marsha, A., E.A. Steel, **A.H. Fullerton**, and C. Sowder. 2018. Monitoring riverine thermal regimes on stream networks: insights into spatial sampling designs from the Snoqualmie River, WA. *Ecological Indicators* 84:11-26.

**Fullerton, A.H.**, B.J. Burke, J.J. Lawler, C.E. Torgersen, J.L. Ebersole, and S.G. Leibowitz. 2017. Simulated juvenile salmon growth and phenology respond to altered thermal regimes and stream network shape. *Ecosphere* 8(12):e02052.

A.H. Fullerton, updated March 2021

- Steel, E.A., T.J. Beechie, C.E. Torgersen, and **A.H. Fullerton**. 2017. Envisioning, quantifying, and managing thermal regimes on river networks. *BioScience* 67: 506-522.
- Fullerton, A.H.**, S. Anzalone, P. Moran, D. Van Doornik, T. Copeland, and R. Zabel. 2016. Setting spatial conservation priorities despite incomplete data for characterizing metapopulations. *Ecological Applications* 26:2560-2580.
- Fullerton, A.H.**, C.E. Torgersen, J.J. Lawler, R.N. Faux, E.A. Steel, T.J. Beechie, J.L. Ebersole and S.G. Leibowitz. 2015. Rethinking the longitudinal stream temperature paradigm: region-wide comparison of thermal infrared imagery reveals unexpected complexity of river temperatures. *Hydrological Processes* 29: 4719-4737.
- Steel, E.A., A. Tillotson, D.A. Larsen, **A.H. Fullerton**, K.P. Denton, and B.R. Beckman. 2012. Beyond the mean: The role of variability in predicting ecological effects of stream temperature on salmon. *Ecosphere* 3(11):104.
- Fullerton, A.H.**, S.T. Lindley, G.R. Pess, B.E. Feist, E.A. Steel, and P. McElhany. 2011. Human influence on the spatial structure of threatened Pacific salmon metapopulations. *Conservation Biology* 25:932-944.
- Fullerton, A.H.**, K.M. Burnett, E.A. Steel, R.L. Flitcroft, G.R. Pess, B.E. Feist, C.E. Torgerson, D.J. Miller, and B.L. Sanderson. 2010. Hydrological connectivity for riverine fishes: measurement challenges and research opportunities. *Freshwater Biology* 55:2215-2237.
- Fullerton, A.H.**, A. Steel, Y. Caras, and I. Lange. 2010. Effects of spatial pattern and economic uncertainties on freshwater habitat restoration planning: a simulation exercise. *Restoration Ecology* 18(S2):354-369.
- Fullerton, A.H.**, D. Jensen, A. Steel, D. Miller, and P. McElhany. 2010. How certain are salmon recovery forecasts? A watershed-scale sensitivity analysis. *Environmental Modeling & Assessment* 15:13-26.
- Fullerton, A.H.**, A. Steel, Y. Caras, M. Sheer, P. Olson, and J. Kaje. 2009. Putting watershed restoration in context: Alternative future scenarios influence management outcomes. *Ecological Applications* 19(1):218-235.
- Jensen, D., A. Steel, **A. Fullerton**, and G. Pess. 2009. Impact of fine sediment on egg-to-fry survival of Pacific salmon: A meta-analysis of published studies. *Reviews in Fisheries Science* 17(3):348-359.
- Steel, E.A., T.J. Beechie, M. Ruckelshaus, **A.H. Fullerton**, P. McElhany, and P. Roni. 2009. Mind the gap: Uncertainty and model communication between managers and scientists. H. Michael, C. Steward, and E. Knudsen, eds. *American Fisheries Society Symposium* 71:357-372.
- Steel, E. A., **A. H. Fullerton**, Y. Caras M. B. Sheer, P. Olson, D. Jensen, J. Burke, M. Maher, and P. McElhany. 2008. A spatially explicit decision support system for watershed-scale management of salmon. *Ecology and Society* 13:2.
- Beechie, T., E. Buhle, M. Ruckelshaus, **A. Fullerton**, and L. Holsinger. 2006. Hydrologic regime and the conservation of salmon life history diversity. *Biological Conservation* 130(4):560-572.

## RECENT SERVICE

NWFSC Internal Grants Program Director FY22-23 and review panel FY17-19; Seattle University Environmental Science Program Advisory Board; Washington State Instream Flows Science Panel; SESYNC Coldwater refuges workshop participant; Co-hosted a workshop on Pacific salmon bioenergetics modeling; Co-chaired special session on climate and biological connectivity at AWRA conference; Guest lectured at local universities; Peer review for journals quarterly; NWFSC research visioning and planning process; NOAA Western Regional (Climate) Action Plan Implementation Team; Snoqualmie Science Coordination and Advisory Team; Ad hoc advisory for natural resource managers on coldwater resources; NSF-sponsored Resiliency Coordination Network's Spatial Analysis Workgroup; Technical Advisory Team on riparian science for WDFW; Mentored Hollings Scholar, interns, volunteers, and graduate students.

## RECENT FUNDED PROJECTS

Impacts of climate change on coldwater habitat, and implications for native salmonid populations: An assessment and resilience plan. Snoqualmie Indian Tribe.

Workshop: Scaling up from individual-based models of organismal physiology to populations and ecosystem management. California State University.

Competing water use in the face of climate change: integrated analysis to support water resource planning for extreme events. NOAA, PNNL.

Handbook: Using data and models to assess impacts and adapt to climate change. Focus: current and future stream temperatures. Northwest Climate Adaptation Science Center.

Elwha floodplain and fisheries monitoring support. Elwha-Sklallam Tribe.

Monitoring paired air and stream temperature in Puget Sound watersheds, WA. NWFSC, USFS.

Incorporating spatial heterogeneity in temperature into climate vulnerability assessments for coastal Pacific streams. North Pacific Landscape Conservation Cooperative.

A.H. Fullerton, updated March 2021