Mark D. Scheuerell

Curriculum vitae

Contact

School of Aquatic and Fishery Sciences
University of Washington
PO Box 355020
Seattle, WA 98195-5020

206.543.5997 (tel)
206.221.6931 (fax)
scheuerl@uw.edu
https://fish.uw.edu/faculty/mark-scheuerell

Education

Ph.D., Zoology, University of Washington (2002)

M.S., Fishery and Aquatic Science, Cornell University (1995)

B.S., Zoology, University of Wisconsin (1991)

Professional experience

Assistant Unit Leader - Fish
USGS Washington Cooperative Fish and Wildlife Research Unit — 2019 - present

Associate Professor
School of Aquatic and Fishery Sciences, University of Washington — 2019 - present

Research Fisheries Biologist
Northwest Fisheries Science Center, NOAA Fisheries — 2003 - 2019

Affiliate Associate Professor
School of Aquatic and Fishery Sciences, University of Washington — 2016 - 2019

Affiliate Assistant Professor
School of Aquatic and Fishery Sciences, University of Washington — 2007 - 2016

Post-doctoral Fellow
National Research Council, National Academies of Sciences — 2002 - 2003

Fellowships

National Research Council Postdoctoral Research Associateship (2003)

Ford Foundation Fellowship in Environmental Science (2002)

National Science Foundation Graduate Research Training Grant in Mathematical Biology (1999)

Electric Power Research Institute Fellowship in Fish Population Biology (1994)

Awards & Honors

Presidential Early Career Award for Scientists and Engineers, White House Office of Science and Technology Policy, Washington, District of Columbia (2006)

Best Student Presentation, American Fisheries Society, Alaska Chapter Annual Meeting, Girdwood, Alaska (2002)

Best Student Presentation, Ecological Society of America Annual Meeting, Aquatic Section, Madison, Wisconsin (2001)

Ingrith Deyrup-Olsen Award for Distinguished Teaching Assistant, Department of Zoology, University of Washington, Seattle, Washington (2000)

Richard C. Snyder Award for Vertebrate Zoology Research, Department of Zoology, University of Washington, Seattle, Washington (1999)

Publications

Authors in italics were students or post-docs at the time the research was completed.

[*In review*]

Magel CL, **Scheuerell MD**, Buhle ER, Lewis DJ, Weeber M, Hacker SD. In review. Estuary and upland habitats are equally important for the production of threatened Oregon Coast coho salmon populations.

[*In press or published*]

68. *Webster A*, Douglas T, Harms TK, Regier P, **Scheuerell MD**. 2022. Multi-scale temporal patterns in stream biogeochemistry indicate linked permafrost and ecological dynamics of boreal catchments. Ecosystems 25:1189–1206

67. *Arnold L*, **Scheuerell MD**, Busch Isaksen T. 2022. Mortality associated with extreme heat in Washington State: the historical and projected public health burden. Atmosphere 13:1392

66. Jankowski K, Houser JN, **Scheuerell MD**, Smits AP. 2021. Warmer winters increase phytoplankton biomass in a large floodplain river. Journal of Geophysical Research: Biogeosciences 126:e2020JG006135

65. *McGowan DW*, Branch TA, Haught S, **Scheuerell MD**. 2021. Multi-decadal shifts in the distribution and timing of Pacific herring (*Clupea pallasii*) spawning in Prince William Sound, Alaska. Canadian Journal of Fisheries and Aquatic Sciences 78:1611-1627

64. *DeFilippo LB*, *Buehrens TW*, **Scheuerell MD**, Kendall NW, Schindler DE. 2021. Improving short-term recruitment forecasts for coho salmon using a spatiotemporal integrated population model. Fisheries Research 242:106014

63. **Scheuerell MD**, Ruff CP, Anderson JH, Beamer EM. 2021. An integrated population model for estimating the relative effects of natural and anthropogenic factors on a threatened population of steelhead trout. Journal of Applied Ecology 58:114-124

62. *Siple MC*, Essington TE, Barnett LAK, **Scheuerell MD**. 2020. Limited evidence for sardine and anchovy asynchrony: re-examining an old story. Proceedings of the Royal Society B 287:20192781

61. *Smits AP*, *Ruffing CM*, Royer TV, Appling AP, *Griffiths NA*, *Bellmore R*, **Scheuerell MD**, Harms TK, Jones J. 2019. Detecting signals of large-scale climate phenomena on river flows and nitrogen, phosphorus, and silica loads in the Mississippi-Atchafalaya River basin. Geophysical Research Letters 46:3791-3801

60. Hampton SE, **Scheuerell MD**, Church MJ, Melack JM. 2019. Long-term perspectives in aquatic research. Limnology and Oceanography 64(S1):S2-S10

59. Thorson JT, **Scheuerell MD**, Olden JD, Schindler DE. 2018. Spatial heterogeneity contributes more to

portfolio effects than species differences in bottom-associated marine fishes. Proceedings of the Royal Society B 285:20180915

58. Ward EJ, *Oken K*, Rose KA, Sable S, Watkins K, Holmes EE, **Scheuerell MD**. 2018. Applying spatiotemporal models to monitoring data to quantify fish responses to the Deepwater Horizon oil spill in the Gulf of Mexico. Environmental Monitoring and Assessment 190:530

57. *Bal G*, **Scheuerell MD**, Ward EJ. 2018. Characterizing the strength of density dependence in at-risk species through Bayesian model averaging. Ecological Modelling 381:1-9

56. *Freshwater C*, Burke BJ, **Scheuerell MD**, Grant SCH, Trudel M, Juanes F. 2018. Coherent population dynamics associated with sockeye salmon juvenile life history strategies. Canadian Journal of Fisheries and Aquatic Sciences 75:1346–1356

55. Ardón M, Helton AM, **Scheuerell MD**, Bernhardt ES. 2017. Fertilizer legacies meet saltwater incursion: challenges and constraints for coastal plain wetland restoration. Elementa: Science of the Anthropocene 5:41

54. *Honea JM*, McClure MM, Jorgensen JC, **Scheuerell MD**. 2016. Assessing the vulnerability of freshwater life stages of Chinook salmon to climate change. Climate Research 71:127-137

53. *Goertler PAL*, **Scheuerell MD**, Simenstad CA, Bottom DL. 2016. Estimating common growth patterns in juvenile Chinook salmon (Oncorhynchus tshawytscha) from diverse genetic stocks and a large spatial extent. PLoS ONE 11:e0162121

52. *Thorson JT, Ianelli JN, Larsen EA, Ries L **Scheuerell MD**, Szuwalski CS, Zipkin EF. 2016. Joint dynamic species distribution models: a tool for community ordination and spatiotemporal monitoring. Global Ecology and Biogeography 25:1144–1158

51. *Ohlberger J*, **Scheuerell MD**, Schindler DE. 2016. Population coherence and environmental impacts across spatial scales: a case study of Chinook salmon. Ecosphere 7:e01333

50. Jorgensen JC, Ward EJ, **Scheuerell MD**, Zabel RW. 2016. Assessing spatial covariance among time series of abundance. Ecology and Evolution 6:2472–2485

49. **Scheuerell MD**. 2016. An explicit solution for calculating optimum spawning stock size from Ricker's stock recruitment model. PeerJ 4:e1623

48. Thorson JT, **Scheuerell MD**, Shelton AO, See K, Skaug H, Kristensen K. 2015. Spatial factor analysis: a new tool for estimating joint species distributions and correlations in species range. Methods in Ecology and Evolution 6:627-637

47. **Scheuerell MD**, Buhle ER, Semmens BX, Ford MJ, Cooney T, Carmichael RW. 2015. Analyzing large-scale conservation interventions with Bayesian hierarchical models: A case study of supplementing threatened Pacific salmon. Ecology and Evolution 5:2115–2125

46. *Lisi PJ*, Schindler DE, *Cline TJ*, **Scheuerell MD**, Walsh PB. 2015. Topography and snowmelt control stream thermal sensitivity to air temperature. Geophysical Research Letters 42:3380-3388

45. Thorson JT, **Scheuerell MD**, Semmens BX, Pattengill-Semmens C. 2014. Demographic modeling of citizen science data informs habitat preferences and population dynamics of recovering fishes. Ecology 95:3251-3258

44. *Francis TB*, *Wolkovich EM*, **Scheuerell MD**, Katz SL, Holmes EE, Hampton SE. 2014. Shifting regimes and changing interactions in the Lake Washington, U.S.A., plankton community from 1962–1994. PLoS ONE 9(10):e110363

43. *Griffiths JR*, Schindler DE, *Armstrong JB*, **Scheuerell MD**, Whited DC, Clarke RA, Hilborn R, Holt

*All junior authors listed in alphabetical order.

CA, Lindley ST, Stanford JA, Volk EC. 2014. Performance of salmon fishery portfolios across western North America. Journal of Applied Ecology 51:1554–1563

42. Williams JG, Smith SG, Fryer J, **Scheuerell MD**, Muir WD, Flagg TA, Zabel RW, Ferguson JW, Casillas E. 2014. Influence of ocean and freshwater conditions on Columbia River sockeye salmon adult return rates. Fisheries Oceanography 23:210–224

41. *Stachura MM*, Mantua NJ, **Scheuerell MD**. 2014. Oceanographic influences on spatio-temporal patterns in North Pacific salmon abundance. Canadian Journal of Fisheries and Aquatic Sciences 71:226-235

40. *Thorson JT*, **Scheuerell MD**, Buhle ER, Copeland T. 2014. Spatial diversity buffers temporal variability in early juvenile survival for an endangered Pacific salmon. Journal of Animal Ecology 83:157–167

39. Hampton SE, Holmes EE, *Scheef LP*, **Scheuerell MD**, Katz SL, *Pendleton DE*, Ward EJ. 2013. Quantifying effects of abiotic and biotic drivers on community dynamics with multivariate autoregressive (MAR) models. Ecology 94:2663–2669

38. *Holsman KK*, **Scheuerell MD**, *Buhle ER*, Emmett R. 2012. Interacting effects of translocation, artificial propagation, and environmental conditions on the marine survival of Chinook salmon from the Columbia River, Washington, U.S.A. Conservation Biology 26:912-922

37. *Francis TB*, **Scheuerell MD**, Brodeur R, Levin PS, Ruzicka JJ, Tolimieri N, Peterson WT. 2012. Climate shifts the interaction web of a marine plankton community. Global Change Biology 18:2498–2508

36. *Scheef LP*, *Pendleton DE*, Hampton SE, Katz SL, Holmes EE, **Scheuerell MD**, Johns DG. 2012. Assessing marine plankton community structure from long-term monitoring data with multivariate autoregressive (MAR) models: a comparison of fixed station versus spatially distributed sampling data. Limnology and Oceanography: Methods 10:54-64

35. Crozier LG, **Scheuerell MD**, Zabel RW. 2011. Using time series analysis to characterize evolutionary and plastic responses to environmental change: a case study of a shift toward earlier migration date in sockeye salmon. The American Naturalist 178:755-773

34. *Francis TB*, Schindler DE, Holtgrieve G, *Larson E*, **Scheuerell MD**, Semmens BX, Ward EJ. 2011. Habitat structure and energetic support for zooplankton in temperate lakes. Ecology Letters 14:364-372

33. **Scheuerell MD**, Zabel RW, Sandford BP. 2009. Relating juvenile migration timing and survival to adulthood in two species of threatened Pacific salmon (Oncorhynchus spp.). Journal of Applied Ecology 46:983–990

32. *Buhle ER*, *Holsman KK*, **Scheuerell MD**, Albaugh A. 2009. Using an unplanned experiment to evaluate the effects of hatcheries and environmental variation on threatened populations of wild salmon. Biological Conservation 142:2449–2455

31. *Rich HB*, Quinn TP, **Scheuerell MD**, Schindler DE. 2009. Climate and intra-specific competition control the growth and life history of juvenile sockeye salmon (Oncorhynchus nerka) in Iliamna Lake, Alaska. Canadian Journal of Fisheries and Aquatic Sciences 66:238-246

30. Anguilletta MJ, Steel EA, Bartz KK, Kingsolver JG, **Scheuerell MD**, Beckman BR, Crozier LG. 2008. Big dams and salmon evolution: changes in thermal regimes and their potential evolutionary consequences. Evolutionary Applications 1:286-299

29. Waples RS, Zabel RW, **Scheuerell MD**, Sanderson BL. 2008. Evolutionary responses by native species to major anthropogenic changes to their ecosystems: Pacific salmon in the Columbia River hydropower system. Molecular Ecology 17:84-96

28. **Scheuerell MD**, *Moore JW*, Schindler DE, Harvey CJ. 2007. Varying effects of anadromous sockeye salmon on the trophic ecology of two species of resident salmonids in southwest Alaska. Freshwater Biology 52:1944-1956

27. Hampton SE, **Scheuerell MD**, Schindler DE. 2006. Coalescence in the Lake Washington story: interaction strengths in a planktonic food web. Limnology and Oceanography 51:2042-2051

26. **Scheuerell MD**, Hilborn R, Ruckelshaus MH, Bartz KK, Lagueux KM, Hass AD, Rawson K. 2006. The Shiraz model: a tool for incorporating anthropogenic effects and fish-habitat relationships in conservation planning. Canadian Journal of Fisheries and Aquatic Sciences 63:1596-1607

25. Bartz KK, Lagueux KM, **Scheuerell MD**, Beechie TJ, Ruckelshaus MH. 2006. Translating restoration scenarios into habitat conditions: an initial step in evaluating recovery strategies for Chinook salmon (Oncorhynchus tshawytscha). Canadian Journal of Fisheries and Aquatic Sciences 63:1578-1595

24. Zabel RW, **Scheuerell MD**, McClure MM, Williams JG. 2006. The interplay between climate variability and density dependence in the population viability of Chinook salmon. Conservation Biology 20:190-200

23. *Scheuerell JM*, Schindler DE, **Scheuerell MD**, Fresh KL, Litt AH, Shepherd JA, Sibley T. 2005. Temporal dynamics in foraging behavior of a pelagic predator. Canadian Journal of Fisheries and Aquatic Sciences 62:2494-2501

22. **Scheuerell MD**, Williams JG. 2005. Forecasting climate-induced changes in the survival of Snake River spring/summer Chinook salmon. Fisheries Oceanography 14:448-457

21. **Scheuerell MD**. 2005. The influence of juvenile size on the age at maturity of individually-marked wild Chinook salmon. Transactions of the American Fisheries Society 134:999-1004

20. *Romare P*, Schindler DE, **Scheuerell MD**, *Scheuerell JM*, Litt AH, Shepherd JH. 2005. Variation in spatial and temporal gradients in zooplankton spring development: the effect of climatic factors. Freshwater Biology 50:1007-1021

19. **Scheuerell MD**, Levin PS, Zabel RW, Williams JG, Sanderson BL. 2005. A new perspective on the importance of marine-derived nutrients to threatened stocks of Pacific salmon (Oncorhynchus sp.). Canadian Journal of Fisheries and Aquatic Sciences 62:961-964

18. Schindler DE, Rogers DE, **Scheuerell MD**, Abrey CA. 2005. Effects of changing climate on zooplankton and juvenile sockeye salmon growth in southwestern Alaska. Ecology 86:198-209

17. **Scheuerell MD**. 2004. Quantifying aggregation and association in three dimensional landscapes. Ecology 85:2332-2340

16. Beauchamp DA, Sergeant CJ, Mazur MM, *Scheuerell JM*, Schindler DE, **Scheuerell MD**, Fresh KL, Seiler DE, Quinn TP. 2004. Spatial-temporal dynamics of early feeding demand and food supply by sockeye salmon fry in Lake Washington. Transactions of the American Fisheries Society 133:1014-1032

15. **Scheuerell MD**, Schindler DE. 2004. Changes in the spatial distribution of fishes in lakes along a residential development gradient. Ecosystems 7:98-106

14. *Moore JW*, Schindler DE, **Scheuerell MD**. 2004. Disturbance of freshwater habitats by anadromous salmon in Alaska. Oecologia 139:298-308

13. [†]Hilborn R, *Branch TA*, *Ernst B*, *Magnusson A*, *Minte-Vera CV*, **Scheuerell MD**, Valero JL. 2003. State of the world's fisheries. Annual Review of Environment and Resources 23:359-399

12. **Scheuerell MD**, Schindler DE. 2003. Diel vertical migration by juvenile sockeye salmon: empirical evidence for the antipredation window. Ecology 84:1713-1720

[†]All junior authors listed in alphabetical order.

11. Schindler DE, **Scheuerell MD**, *Moore JW*, Gende SM, *Francis TB*, *Palen WJ*. 2003. Pacific salmon and the ecology of coastal ecosystems. Frontiers in Ecology and the Environment 1:31-37

10. *Moore JW*, Schindler DE, **Scheuerell MD**, *Smith D*, Frodge J. 2003. Lake eutrophication at the urban fringe. Ambio 32:13-18

9. **Scheuerell MD**, Schindler DE, Litt AH, Edmondson WT. 2002. Environmental and algal forcing of Daphnia production dynamics. Limnology and Oceanography 47:1477-1485

8. Schindler DE, **Scheuerell MD**. 2002. Habitat coupling in lake ecosystems. Oikos 98:177-189

7. Rudstam LG, Van de Valk A, **Scheuerell MD**. 2002. Comparison of acoustic and standard estimates of larval fish abundance in Oneida Lake, New York. Fisheries Research 57:145-154

6. Delany MF, Lockley TC, Pranty B, **Scheuerell MD**. 2000. Stomach contents of two nestling Florida Grasshopper Sparrows. Florida Field Naturalist 28:75-77

5. Perkins DW, Vickery PD, Dean TF, **Scheuerell MD**. 1998. Nesting records and reproductive success of Florida Grasshopper Sparrows (Ammodramus savannarum floridanus). Florida Field Naturalist 26:7-17.

4. Pranty B, **Scheuerell MD**. 1997. First summer record of the Henslow's Sparrow in Florida. Florida Field Naturalist 25:64-66

3. Mills EL, **Scheuerell MD**, Carlton JT, Strayer DL. 1997. Biological invasions in the Hudson River: an inventory and historical analysis. Bulletin of the New York State Museum 57:1-51

2. Mills EL, Strayer DL, **Scheuerell MD**, Carlton JT. 1996. Exotic species in the Hudson River basin: a history of invasions and introductions. Estuaries 19:814-823

1. *He X*, [‡]**Scheurell MD**, *Soranno PA*, *Wright RA*. 1994. Recurrent response patterns of a zooplankton community to whole-lake fish manipulation. Freshwater Biology 32:61-72

Book chapters

Scheuerell MD, Hilborn R. 2009. Estimating the freshwater component of essential fish habitat for Pacific salmon (*Oncorhynchus* spp.) with the Shiraz model. Pages 187-202 in Knudsen EE, Michael H (Eds.). *Pacific Salmon Environmental and Life History Models: Advancing Science for Sustainable Salmon in the Future*. American Fisheries Society Symposium 71. Bethesda, Maryland.

Fresh KL, Graeber W, Bartz KK, Davies JR, **Scheuerell MD**, Haas A, Ruckelshaus MH, Sanderson BL. 2009. Incorporating spatial structure and diversity into recovery planning for anadromous Pacific salmonids. Pages 403-428 in Knudsen EE, Michael H (Eds.). *Pacific Salmon Environmental and Life History Models: Advancing Science for Sustainable Salmon in the Future*. American Fisheries Society Symposium 71. Bethesda, Maryland.

Dini ML, Soranno PA, **Scheuerell MD**, Carpenter SR. 1993. Effects of predators and food supply on diel vertical migration of Daphnia. Pages 153-171 in Carpenter SR, Kitchell JF (Eds.) *The Trophic Cascade in Lakes*. Cambridge University Press, Cambridge, England.

Other publications

Holmes EE, Ward EJ, **Scheuerell MD**. 2020. Analysis of multivariate time-series using the MARSS package, Version 3.10.12. http://cran.r-project.org/web/packages/MARSS/vignettes/UserGuide.pdf.

Buhle ER, **Scheuerell MD**, Cooney TD, Ford MJ, Zabel RW, Thorson JT. 2018. Using Integrated Pop-

[‡]"Scheuerell" misspelled in final printing.

ulation Models to Evaluate Fishery and Environmental Impacts on Pacific Salmon Viability. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-140.

Schindler D, Krueger C, Bisson P, Bradford M, Clark B, Conitz J, Howard K, Jones M, Murphy J, Myers K, **Scheuerell M**, Volk E, Winton J. 2013. Arctic-Yukon-Kuskokwim Chinook Salmon Research Action Plan: Evidence of Decline of Chinook Salmon Populations and Recommendations for Future Research. Prepared for the AYK Sustainable Salmon Initiative, Anchorage, Alaska. v + 70 p.

Stout HA, Lawson PW, Bottom DL, Cooney TD, Ford MJ, Jordan CE, Kope RG, Kruzic LM, Pess GR, Reeves GH, **Scheuerell MD**, Wainwright TC, Waples RS, Ward E, Weitkamp LA, Williams JG, Williams TH. 2012. Scientific conclusions of the status review for Oregon coast coho salmon (*Oncorhynchus kisutch*). U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-118.

Peterman RM, Marmorek D, Beckman B, Bradford M, Mantua N, Riddell BE, **Scheuerell M**, Staley M, Wieckowski K, Winton JR, Wood CC. 2010. Synthesis of evidence from a workshop on the decline of Fraser River sockeye. June 15-17, 2010. Report to the Pacific Salmon Commission, Vancouver, British Columbia. 158 p.

Scheuerell MD. 2005. Mapping the status of Pacific salmon [book review]. Trends in Ecology & Evolution 20:290-291

Williams JG, Smith SG, Zabel RW, Muir WD, **Scheuerell MD**, Sandford BP, Marsh DM, McNatt R, Achord S. 2005. Effects of the Federal Columbia River Power System on salmonid populations. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-63.

Technical products

Holmes EE, Ward EJ, **Scheuerell MD**, Willis K. 2020. MARSS: Multivariate Autoregressive State-Space Modeling. R Package Version 3.10.12 https://cran.r-project.org/web/packages/MARSS/index.html

Ward EJ, **Scheuerell MD**, Holmes EE. 2018. atsar: Applied Time Series Analysis in R: an introduction to time series analysis for ecological and fisheries data with Stan. R Package Version 1.0.1 https://doi.org/10.5281/zenodo.1158021

Scheuerell MD. 2017. muti - An R package for computing mutual information. R Package Version 1.0.0 https://doi.org/10.5281/zenodo.439391

Invited presentations

Quantitative approaches for improved management and conservation of aquatic resources. School of Aquatic and Fishery Sciences, University of Washington, February 7, 2019, Seattle, Washington

Improved understanding of fisheries and ecosystems from noisy and disparate data. College of Fisheries and Ocean Sciences, University of Alaska Fairbanks, September 26, 2018, Fairbanks, Alaska

The development and application of new tools in quantitative ecology. Western Society of Naturalists Meeting, November 17, 2017, Pasadena, California

Estimating density-dependent population dynamics in a variable environment with imperfect data. Department of Fisheries and Wildlife, Oregon State University, May 1, 2017, Corvallis, Oregon

Analyzing large-scale conservation interventions with Bayesian hierarchical models: A case study of supplementing threatened Pacific salmon. American Fisheries Society Meeting, August 19, 2015, Portland, Oregon

Analyzing temporal dynamics of Pacific salmon and their ecosystems. Simon Fraser University, October 27, 2011, Burnaby, British Columbia

Great minds do not think alike: a diversity of collaborators aids in analyses of marine communities. Salish Sea Ecosystem Conference, October 25, 2011, Vancouver, British Columbia

Analyzing large-scale ecosystem experiments with Bayesian state-space models: a case study of hatcheries and Pacific salmon. American Society of Limnology and Oceanography Meeting, June 10, 2010, Santa Fe, New Mexico

An integrated approach to assessing vulnerability of Pacific salmon stocks to climate change. American Fisheries Society Annual Meeting, September 13, 2010, Pittsburgh, Pennsylvania

Evaluating large-scale effects of hatchery supplementation on threatened spring/summer Chinook salmon from the Snake River basin, USA. State of the Salmon 2010 Conference on Ecological Interactions between Wild and Hatchery Salmon, May 5, 2010, Portland, Oregon

Using stable isotopes to inform river restoration science. Western Division of the American Fisheries Society Annual Meeting, May 7, 2008, Portland, Oregon

Forecasting climate-induced shifts in the marine survival of salmon. P/ICES Conference on New Frontiers in Marine Science, June 28, 2007, Baltimore, Maryland

A sea change in the conservation of Pacific salmon: addressing climate variation and human impacts in an uncertain future. School of Aquatic and Fisheries Sciences, University of Washington, November 30, 2006, Seattle, Washington

Potential impacts of agriculture and habitat modification on Pacific Salmon. Environmental Studies Planning Unit, The Evergreen State College, November 17, 2005, Olympia, Washington

Interactive effects of climate change and human activities on the population dynamics of Pacific salmon. Department of Fisheries and Wildlife, University of Idaho, October 11, 2005, Moscow, Idaho

Estimating essential fish habitat for Pacific salmon with the Shiraz model. American Fisheries Society Annual Meeting, September 14, 2005, Anchorage, Alaska

Anthropogenic causes of a state shift in a large river ecosystem: Chinook salmon and the Snake River basin Department of Watershed Sciences, Utah State University, February 2, 2005, Logan, Utah

Tipping the scales: balancing natural and human impacts on lakes. American Society of Limnology and Oceanography DIALOG V Symposium, October 20, 2003, Bermuda Biological Station for Research

A model framework for relating life-history, freshwater habitat, and the ocean environment to Pacific salmon production and capacity. American Fisheries Society Alaska Chapter Annual Meeting, October 22, 2002, Girdwood, Alaska

Impacts of lakeshore residential development on the spatial distribution and energy sources of fishes. American Society of Limnology and Oceanography Aquatic Sciences Meeting, June 13, 2002, Victoria, British Columbia

External support

US National Park Service ($202k) 2022-2025. Estimating the natural range of abundance of pink salmon in the Indian River, Sitka National Historical Park. (sole PI)

Washington Department of Fish and Wildlife ($100k) 2022-2023. Toxics in mussels monitoring program design. (sole PI)

US Fish and Wildlife Service ($145k) 2021-2023. Evaluating the relative effects of top-down and bottom-up factors on declines in Lake Sammamish kokanee salmon. (sole PI)

NOAA Fisheries ($135k) 2020-2023. Habitat function of shellfish aquaculture ecosystems: developing new

technology to understand species use of nearshore habitats. (sole PI)

NOAA National Oceanographic Partnership Program ($199k) 2020-2023. Advancing sustainable shellfish aquaculture through machine learning and automated data collection on fish communities (Co-PI with Sanderson, Ferris)

Pacific Salmon Commission Southern Boundary Restoration and Enhancement Fund ($104k) 2019-2020. Improving preseason forecasts for U.S. coho salmon management units by accounting for spatially structured temporal variation in age-at-maturity (Co-PI with Schindler, Zimmerman)

North Pacific Research Board ($82k) 2017-2018. Retrospective analysis of long-term census data to identify factors affecting survival and life history strategies of coho salmon (Collaborator with Tallmon, Vulstek)

NOAA Fisheries And The Environment (FATE) Program ($147k) 2015-2016. Improving salmon population forecasts by combining environmental drivers, variable age composition, and spatial structure into hierarchical models (PI with Thorson)

Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative ($340k) 2013-2014. Multivariate analysis of factors affecting AYK Chinook salmon (co-PI with Hilborn, Schindler, Mantua)

NSF-NOAA Comparative Analysis of Marine Ecosystem Organization (CAMEO) Program ($347k) 2009-2010. New statistical tools for analyzing community dynamics with applications to marine zooplankton (co-PI with Hampton, Holmes, Ward, Katz)

BPA FCRPS Biological Implementation Program ($299k) 2007-2009. Evaluating density-dependent effects of hatchery production on wild salmon (sole PI)

BPA FCRPS Biological Implementation Program ($297k) 2007-2009. Evaluating the effects of estuarine and ocean arrival timing on salmon survival from an ecosystem perspective (sole PI)

NOAA Fisheries And The Environment (FATE) Program ($118k) 2006-2007. Developing quantitative tools to forecast the effects of climate variability on the population dynamics of Pacific salmon (PI with Zabel, Mantua)

Society membership

Ecological Society of America

Secretary, Aquatic Ecology Section (2008-2009)

Association for the Sciences of Limnology and Oceanography

American Fisheries Society

Chair, Committee for the Mercer Patriarche *N Am J Fish Manag* Best Paper Award (2006)

Editorial responsibilities

Associate Editor, *Limnology and Oceanography Letters* (2016-present)

Guest Editor, *Ecological Applications* (2009-present)

Special Issue Editor, *Limnology and Oceanography* (2017-2018)

Associate Editor, *Ecological Research* (2007-2017)

Outstanding Reviewer, *Canadian Journal of Fisheries and Aquatic Sciences* (2017)

Manuscript reviewer for

Behavioural Ecology · Canadian Journal of Fisheries and Aquatic Sciences · Canadian Journal of Zoology · Conservation Biology · Ecography · Ecological Applications · Ecological Mod-

elling · Ecology · Ecology and Society · Ecology Letters · Ecosphere · Ecosystems · Environmental Biology of Fishes · Fisheries Oceanography · Freshwater Biology · Frontiers in Ecology and the Environment · Global Change Biology · Journal of Animal Ecology · Journal of Applied Ecology · Journal of Bioeconomics · Limnology and Oceanography · North American Journal of Fisheries Management · Oecologia · Oikos · PLoS Biology · PLoS ONE · Proceedings of the National Academy of Sciences · Transactions of the American Fisheries Society · Trends in Ecology and Evolution

National & International service

Member, U.S. Geological Survey Cooperative Research Units Diversity, Equity, and Inclusion Committee (2020-present)

Member, Analytic and Review Team, Bull Trout Status Assessment, U.S. Fish and Wildlife Service (2020-present)

Mentor, EcologyPlus Program from NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science) (2018-2019)

Mentor, Ecological Society of America Early Career Ecologist Mentorship Program (2017)

Mentor, Stream Resilience Research Coordination Network, Working Group 2 - Time Series Analysis (2015-2016)

Analyst, U.S. Departments of Commerce and Justice, Deepwater Horizon Natural Resource Damage Assessment (2014-2015)

Member, Chinook Salmon Expert Panel, Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative (2011-2012)

Member, Expert Advisory Panel, Pacific Salmon Commission Bilateral Scientific Workshop to Examine the Decline in Fraser River Sockeye (2010)

Member, Biological Review Team, National Marine Fisheries Service Risk Assessment of Oregon Coast Coho Salmon (2009-2010)

University of Washington service

College committees

College of the Environment, Academic Grievance Committee (2020-present)

School committees

School of Aquatic and Fishery Sciences, Students Exploring Aquatic Sciences (2020-present)

School of Aquatic and Fishery Sciences, Curriculum Committee (2020-present)

School of Aquatic and Fishery Sciences, Recruitment, Admission, and Scholarship Committee (2019-2020)

School of Environmental and Forestry Sciences, Human Dimensions of Wildlife Faculty Search Committee (2020-present)

Quantitative Ecology and Resource Management, Qualifying Exam Committee (2020)

General service

Future Rivers Advisory Committee (2020-present)

Fish and Wildlife Ecology Seminar Series, co-organizer (2020–present)

Graduate School Academic Grievance Panel (2020)

Grant reviewer for Royalty Research Fund (2019, 2020)

Teaching experience

Introduction to Environmental Data Science
Instructor, University of Washington 2021 - present

Analysis of Ecological and Environmental Data
Instructor, University of Washington 2020 - present

Applied Time Series Analysis in Fisheries and Environmental Sciences
Co-Instructor, University of Washington 2013 - present

Applied Time Series Analyses for Ecologists
Visiting Instructor, Stockholm University 2014

Theory and Application of Stable Isotopes in Ecology
Visiting Instructor, University of Washington 2005 - 2007

Limnology; *Vertebrate Zoology*; *Comparative Vertebrate Anatomy*
Teaching Assistant, University of Washington 1997 - 2000

Trainees

Post-doctoral

Guillaume Bal (2012-2013, co-advised with EJ Ward)

Daniel Pendleton (2010-2012, co-advised with EE Holmes)

Jim Thorson (2011, co-advised with EE Holmes & EJ Ward)

Daniel Pendleton (2010-2012, co-advised with EE Holmes)

Jim Thorson (2011, co-advised with EE Holmes & EJ Ward)

Kirstin Holsman (2007-2010)

Eric Buhle (2007-2009)

M.S. students

Kelly Mistry, Univ Washington (2020-present)

Markus Min, Univ Washington (2020-present)

Undergraduate students

Kerrianne McCarthy, Univ Washington (2019-2020, Undergraduate Capstone Program)

Christina Murphy, Oregon St Univ (2007, NOAA Ernest F. Hollings Undergraduate Scholarship Program)