CURRICULUM VITAE—SEPTEMBER 28, 2022

GORDON WILLIAM HOLTGRIEVE, PH.D.

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EDUCATION

Ph.D. **University of Washington**, Zoology, December 2009
Dissertation title: *Linking Species to Ecosystems: Effects of Spawning Salmon on Aquatic Ecosystem Function in Bristol Bay, Alaska.* Major advisor: Dr. Daniel Schindler

M.S. **Stanford University**, Earth Systems Program, June 2001
Thesis title: *Distribution and Abundance of Native and Non-Native Fishes in San Francisquito Creek, California.* Major advisor: Dr. Carol Boggs

B.S. **Stanford University**, Earth Systems Program, June 1999

POSITIONS HELD

Chair, University of Washington, College of the Environment, Elected Faculty Council, September 2021–present.

Associate Professor, University of Washington, College of the Environment, School of Aquatic & Fishery Sciences, September 2019–present

Director, University of Washington Future Rivers NRT program, September 2019–present

Director, University of Washington Facility for Compound-Specific Isotope Analysis of Environmental Samples, October 2015–present

H. Mason Keeler Associate Professor, University of Washington, College of the Environment, School of Aquatic & Fishery Sciences, July 2018–June 2021

Assistant Professor, University of Washington, College of the Environment, School of Aquatic & Fishery Sciences, September 2013–2019

Post-doctoral Research Associate, University of Washington, School of Aquatic & Fishery Sciences, 2010–2013

Adjunct Teaching Faculty, University of Washington, School of Aquatic & Fishery Sciences, Autumn 2011

Graduate Assistant, University of Washington, Department of Biology, 2003–2009

Research Scientist, Hawai'i Ecosystems Projects, Stanford University, 2000–2003

Adjunct Teaching Faculty, Las Positas Community College, Spring 2002

Research Scientist, Center for Conservation Biology, Stanford University, 1998–2000

Research Scientist, Chinook Salmon Captive Broodstock Program, California Academy of Sciences, 1996–1998

RESEARCH GRANTS AND CONTRACTS

Since 2013, I have been PI or co-PI on thirteen funded research grants & projects with a total of nearly $8M in funding. Of this, approximately $6.5M was funding to the University of Washington from external sources and $2.5M was specific to my lab (including outgoing subcontracts). I also secured $419K of internal UW funds in order to establish a new compound-specific stable isotope facility and a

$3M NSF-NRT award to establish a freshwater sciences graduate training program at the UW.

Competitive Research Awards († = pending, * = active grant, • = completed)

* *Title:* Wonders of the Mekong: UW Acoustics. *Funding:* $546,121. *Funding program:* University of Nevada-Reno (USAID prime). PI: J. Horne, Co-PI: **G. Holtgrieve**. 2019–2022.
* *Title:* Training a scientifically innovative, communication savvy STEM workforce for sustaining food-energy-water services in large and transboundary river ecosystems. *Funding:* $3M. *Funding program:* National Science Foundation NRT. PI: **G. Holtgrieve,** Co-PIs: M Balaniska, D. Butman, F. Hossain, C. Wood. 2019–2023.
* *Title:* Linking current and future hydrologic change to hydropower, human nutrition, and livelihoods in the Lower Mekong Basin. *Funding:* $2.5M ($1.25M to UW). *Funding program:* National Science Foundation Innovations at the Nexus of Food, Energy and Water Systems, (modeling track). PIs: J. Sabo; co-PIs: **G. Holtgrieve (UW Lead)**, M. Hanemann, S. Myint, J. Sefair. 2017–2020.
- *Title:* Reconstructing a century of coastal productivity and predator trophic dynamics using compound-specific stable isotopes from archival bone specimens. *Funding:* $288,425 ($192,261 new funding, $96,130 in UW match). *Funding program:* Washington Sea Grant. **PI: G. Holtgrieve**; co-PIs E. Ward and C. Harvey. 2017.
- *Title:* Defining Stream Biomes to Better Understand and Forecast Stream Ecosystem Change (StreamPulse). *Funding:* $1.9M ($244K to UW). *Funding program:* National Science Foundation Macrosystems Program. PI: E. Bernhardt. **G. Holtgrieve is a sub-awardee and collaborator** on this multi-investigator research project, but was brought in after initial writing of the proposal. 2017–2019.
- *Title:* Reconstructing a century of coastal productivity and predator trophic dynamics using compound-specific stable isotopes from archival bone specimens. *Funding:* $288,425 ($192,261 new funding, $96,130 in UW match). *Funding program:* Washington Sea Grant. **PI: G. Holtgrieve**; co-PIs E. Ward and C. Harvey. 2017.
- *Title:* Building a strontium isotope baseline of the Kuskokwim River able to reconstruct the production patterns and life histories of Chinook salmon at fine spatial scales. *Funding:* $221K ($55K to Holtgrieve). *Funding program:* Arctic-Yukon-Kuskokwin Sustainable Salmon Initiative. PI: D. Schindler; **co-PIs**: L. Coggins, D. Fernandez, **G. Holtgrieve**, C. Zimmerman. 2017–2018.
- *Title:* Preliminary exploration of using compound-specific stable isotopes from archival bone specimens to understand marine food webs. *Funding:* $25,000. *Funding program:* National Oceanographic and Atmospheric Administration. **PI: G. Holtgrieve**; co-PI E. Ward. 2017.
- *Title:* Migration in the Mekong: Understanding Fish Movement to Facilitate Mitigation of Hydropower Development and Climate Change. *Funding:* $212K. *Funding program:* Conservation International (MacArthur Foundation prime). **PI: G. Holtgrieve**. 2015–2017.
- *Title:* Systematic Fisheries Monitoring and Integrated Science for the Lower Mekong Basin, Phase II. *Funding:* $715K. *Funding program:* Margaret A. Cargill Foundation. **PI: G. Holtgrieve.** 2015–2018.
- *Title:* A Media-savvy International Research Program for Solving Freshwater Challenges of Asia. *Funding:* $16K. *Funding program:* University of Washington Global Innovation Fund. PI: F. Hossain; **co-PIs: G. Holtgrieve** and R. Garza. 2017.
- *Title:* River FEWs: Workshop to Explore the Nexus Between Food, Energy and Water (FEW) in a Large International River System. *Funding:* $98K. *Funding program:* National Science Foundation Food, Energy and Water Systems Program. **PI: G. Holtgrieve**; co-PI: J. Felkner. 2015–2016.
- *Title:* Enabling Systematic Fisheries Monitoring and Integrated Science for the Lower Mekong Basin. *Funding:* $220K. *Funding program:* Margaret A. Cargill Foundation. **PI: G. Holtgrieve.** 2014.

- *Title:* Food Webs of the Tonle Sap Lake: Establishing Ecological Resource Flows that Support Biodiversity, Fisheries, and People. *Funding:* $350K. *Funding program:* John D. & Catherine T. MacArthur Foundation. **PI: G. Holtgrieve**; co-PIs J. Richey, J. Sabo, D. Schindler. 2012–2015.
- *Title:* Sources and Sinks of Nitrate in Puget Sound Rivers. *Funding:* $40K. *Funding program:* University of Washington Royalty Research Fund. **PI: G. Holtgrieve.** 2013–2014.
- *Title:* Deciphering the Energetic Base for the World's Largest Freshwater Fishery. *Funding:* $14K. *Funding program:* National Geographic Society/Waitts Foundation. **PI: G. Holtgrieve**. 2010–2012.

Non-competitive Funding

Funding to Establish UW Facility for Compound-Specific Stable Isotope Analysis of Environmental Samples. $419K with contributions from UW College of the Environment, Aquatic and Fishery Sciences, Oceanography, Quaternary Research Center, Civil & Environmental Engineering, and individual faculty. **PI: G. Holtgrieve**; co-PIs: P. Quay, J. Sachs. 2015.

BIBLIOGRAPHY OF PUBLICATIONS

Authorship or co-authorship of research journal articles reflects meaningful intellectual contribution to that work including one or more of the following components: designed research, performed research, application of specific methodological or analytic tools, data analysis, writing and/or critical editing. Order of authorship typically reflects my relative contribution to the work. For papers of which I am the first author, my contribution typically includes all of the above components. Symbols indicate research that was conducted within in my laboratory by undergraduate students (§), graduate students (*) or post-doctoral fellows (†). (°) indicates authors contributed equally.

Peer-reviewed journals (n = 56)

Deng, Q, JL Sabo, **GW Holtgrieve**, PB Ngor, J Holway. (in press) Fish migration traits filtered responses to hydrologic variation in a flood pulse fishery system. *Journal of Applied Ecology*.

Feddern, ML*, **GW Holtgrieve**, and EJ Ward. (In press) Delayed trophic response of a marine predator to ocean condition and prey availability during the past century. *Ecology.*

Cheng, Y., B Nijssen, **GW Holtgrieve**, and JD Olden. (2022) Modeling the freshwater ecological response to changes in flow and thermal regimes influenced by reservoir dynamics. *Journal of Hydrology*, 608: 127591. DOI: 10.1016/j.jhydrol.2022.127591.

Feddern, ML*, EJ Ward, AJ Warlick, and **GW Holtgrieve**. (2022) Recent divergent changes in Alaskan pinniped trophic position using compound specific stable isotope analysis. *Marine Ecology Progress Series*, 688:153-166. DOI: 10.3354/meps14014.

Holtgrieve, GW and ME Arias. (2022) Optimizing Amazonian dams for nature. *Science*, 375(6582):714-715. DOI: 10.1126/science.abn8311.

Miller, BL*, **GW Holtgrieve**, ME Arias, S Uy, P Chheng. (2022) Coupled CH_4 production and oxidation support CO_2 supersaturation in a tropical flood pulse lake (Tonle Sap Lake, Cambodia). *PNAS*, 119 (8) e2107667119; https://doi.org/10.1073/pnas.2107667119.

Ahmad, SK, F Hossain, **GW Holtgrieve**, T Pavelsky, S Galleli. (2021) Predicting the likely thermal impact of current and future dams around the world? *Earth's Future*, 9, e2020EF001916. DOI: 10.1029/2020EF001916.

Marcaida III, M, Y Farhat, E-N Muth, C Cheythyrith, L Hok, **GW Holtgrieve**, F Hossain, R Neumann, and S-H Kim. (2021) A spatio-temporal analysis of rice production in Tonle Sap floodplains in response to changing hydrology and climate. *Agricultural Water Management*, 258:107183. DOI: 10.1016/j.agwat.2021.107183

Stiling, R*, **GW Holtgrieve**, JD Olden. (2021) Population structure and habitat availability determine resource use by Rainbow Trout in high elevation lakes. *Freshwater Science*. https://doi.org/10.1086/716184.

Jankowski, KJ, FH Mejia, JR Blaszczak, and **GW Holtgrieve**. (2021) Aquatic ecosystem metabolism as a tool in environmental management. *WIREs Water*, e1521. https://doi.org/10.1002/wat2.1521

Feddern, ML*, **GW Holtgrieve**, EJ Ward. (2021) Stable isotope signatures in historic harbor seal bone link food web-assimilated carbon and nitrogen resources to a century of environmental change. *Global Change Biology*. DOI: 10.1111/gcb.15551.

Welicky, RL, T Rolfe, K Leazer, K Maslenikov, L Tornabene, **GW Holtgrieve**, CL Wood. (2020) Fluid-preserved fishes are one solution for assessing historical change in fish trophic level. *Ecology and Evolution*. https://doi.org/10.1002/ece3.7061.

Gauthier, J., I. Gregory-Eaves, L. Bunting, P.R. Leavitt, T. Tran, L. Godbout, B.P. Finney, D.E. Schindler, G. Chen, **G.W. Holtgrieve**, M. Shapley, and D.T. Selbie. (2020) Ecological dynamics of a peri-urban lake: A multi-proxy paleolimnological study of Cultus Lake (British Columbia) over the past ~200 years. *Journal of Paleolimnology*. doi: 10.1007/s10933-020-00147-9

Daly, K, S Ahmad, M Bonnema, C Beveridge, F Hossain, B Nijssen, and **GW Holtgrieve**. (2020) Recent warming of the Tonle Sap Lake, Cambodia: Implications for one of the world's most productive inland fisheries. *Lakes & Reservoirs: Science, Policy and Management for Sustainable Use*. doi: 10.1111/lre.12317

Bonnema, M, F Hossain, B Nijssen, and **GW Holtgrieve**. (2020) Hydropower's hidden transformation of rivers in the Mekong. *Environmental Research Letters*. 15: 044017. doi:10.1088/1748-9326/ab763d.

Alma, L, KE Kram, **GW Holtgrieve**, A Barbarino, C Fiamengo, J Padilla-Gamino. (2020) Ocean acidification and warming effects on the physiology, skeletal properties, and microbiome of the purple-hinge rock scallop. *Comparative Biochemistry and Physiology - Part A: Molecular & Integrative Physiology*, 240:110579. doi: 10.1016/j.cbpa.2019.110579

Arostegui, MC, DW Schindler, and **GW Holtgrieve**. (2019) Does lipid-correction introduce biases into isotopic mixing models? Implications for diet reconstruction studies. *Oecologia*. 191(4):745-755. doi: 10.1007/s00442-019-04525-7

Feddern, ML*, **GW Holtgrieve**, J Hart, S Perakis, H Ro§, and T Quinn. (2019) Riparian soil nitrogen cycling and isotopic enrichment in response to a long-term salmon carcass manipulation experiment. *Ecosphere*, 10(11):e02958. doi:1 0.1002/ecs2.2958

McCreesh, R.K., K. Fox-Dobbs, P. Wimberger, K. Woodruff, **G.W. Holtgrieve**, T. Pool†. (2019) Reintroduced beavers rapidly influence the storage and biogeochemistry of sediments in headwater streams (Methow River, WA). *Northwest Science*. 93(2), doi:10.3955/046.093.0203.

Sabo, JL°, **GW Holtgrieve**°, A Ruhi°, ME Arias, PB Ngor, V Elliott, TA Räsänen, and N So. (2019) Response to Williams and Halls Technical Comment on Sabo et al. "Designing river flows to improve food security futures in the Lower Mekong Basin." *Science*. 364 (6444), eaav9887 doi: 10.1126/science.aav9887

Pool, TK†, Elliott, V, **Holtgrieve, GW**, et al. (2019) Fish assemblage composition within the floodplain habitat mosaic of a tropical lake (Tonle Sap, Cambodia). *Freshwater Biol*ogy 64: 2026–2036. doi: 10.1111/fwb.13391.

Miller, BL*, H Chen, Y He, W Li, X Yuan, and **GW Holtgrieve**. (2019) Magnitudes and drivers of greenhouse gas fluxes in floodplain ponds during drawdown and inundation by the Three Gorges Reservoir. Journal of Geophysical Research: Biogeosciences 124: 2499–2517. doi: 10.1029/2018JG004701.

Arias, M.E., **G.W. Holtgrieve**, B.N. Peng, T.D. Thang, and T. Piman. (2019) Maintaining Perspective of Ongoing Environmental Change in the Mekong Floodplains. *Current Opinion in Environmental Sustainability*. 37:1-7, doi: 10.1016/j.cosust.2019.01.002

Bogard, MJ, C Kuhn, SE Johnston, RG Striegl, **GW Holtgrieve**, RGM Spencer, M Dornblaser, KP Wickland and DE Butman. (2019) Negligible cycling of terrestrial carbon in many lakes of the arid circumpolar landscape. *Nature Geosciences*. 12(3): 180–185, doi: 10.1038/s41561-019-0299-5.

McMeans, BC, T. Kadoya, **GW Holtgrieve**, S. Lek, K. Heng, K Winemiller, V. Elliott, TK Pool†, N Rooney, and KS McCann. (2019) Consumer trophic positions respond variably to seasonally fluctuating environments. *Ecology*. 100(2):e02570. doi: 10.1002/ecy.2570

Beig, C., K.S. McCann, N. Rooney, **G.W. Holtgrieve**, B.C. McMeans, E. Fraser, and KC Krishna. (2018) Linking humans to food webs: A foundation for the classification of global fisheries. *Frontiers in Ecology and the Environment*. 61(7): 412-420, doi: 10.1002/fee.193.

Holtgrieve, GW, M.E. Arias, A. Ruhi, V. Elliott, N. So, B.N. Peng, T.A. Räsänen, and J.L. Sabo. (2018) Response to J. G. Williams Technical Comment on Sabo et al. "Designing river flows to improve food security futures in the Lower Mekong Basin." *Science* 361 (6398). doi: 10.1126/science.aat1477.

Brett, MT, **GW Holtgrieve**, and DE Schindler. (2018) An assessment of assumptions and uncertainty in deuterium-based estimates of trophic interactions in aquatic ecosystems. *Ecology* 99(5):1073-1088, doi: 10.1002/ecy.2211.

Taipale, SJ, KK Kahilainen, **GW Holtgrieve**, and E Peltomaa. (2018) Simulated eutrophication and browning alters zooplankton nutritional quality and determines juvenile fish growth and survival. *Ecology and Evolution*, 8(5): 2671-2687, doi: 10.1002/ece3.3832.

Vlah, M*, **GW Holtgrieve**, and S Sadro. (2018) Low levels of allochthony in consumers across a diversity of high elevation lake types. *Ecosystems*, 21: 1101 doi: /10.1007/s10021-017-0206-0.

Sabo, J.L., A. Ruhi, **G.W. Holtgrieve**, V. Elliot, M.E. Arias, B.N. Peng, T.A. Räsänen, and N. So. (2017) Designing river flows that improve food security futures in the Lower Mekong Basin. *Science* 358 (6368). doi: 10.1126/science.aao1053. 12 published pages. **This paper was the featured cover article and the subject of a co-published *Perspectives* article by Poff and Olden.**

Smits, A., D.E. Schindler, **G.W. Holtgrieve**, K. Jankowski, and D.W. French. (2017) Watershed geomorphology interacts with precipitation to influence the magnitude and source of CO_2 emissions from Alaskan streams. *Journal of Geophysical Research: Biogeosciences* doi: 10.1002/2017JG003792.

Pool, TK†, **GW Holtgrieve**, V Elliott, K McCann, B McMeans, N Rooney, A Smits, P Thach, M Cooperman, S Clark, P Chheng, and C Samoa. (2017) Seasonal increases in fish trophic niche plasticity within a flood-pulse river ecosystem (Tonle Sap Lake, Cambodia). *Ecosphere* 8(7): e01881. doi: 10.1002/ecs2.1881.

Schindler, DE, K Jankowski, ZT A'Mar, and **GW Holtgrieve**. (2017) Two-stage metabolism inferred from diel oxygen dynamics in aquatic ecosystems. *Ecosphere* 8(6): e01867. doi: 10.1002/ecs2.1867.

Holtgrieve, GW, DE Schindler, and K Jankowski. Comment on Demars et al. 2015, "Stream metabolism and the open diel oxygen method: principles, practice, and perspectives." *Limnology and Oceanography: Methods.* doi: 10.1002/lom3.10075.

McCann, KS, G Gellner, BC McMeans, **GW Holtgrieve**, N Rooney, L Hannah, M Cooperman, N. So, and C Ward. (2015) Food webs and the sustainability of indiscriminate fisheries. *Canadian Journal of Fisheries and Aquatic Sciences* 73(4): 656–665, doi: 10.1139/cjfas-2015-0044.

Galloway, AWE, MT Brett, **GW Holtgrieve**, EJ Ward, AP Ballantyne, CW Burns, MJ Kainz, DC Müller-Navarra, J Persson, JL Ravet, U Strandberg, SJ Taipale, and G Alhgren. (2015) A fatty acid based Bayesian algorithm for inferring diet in aquatic consumers. *PLoS ONE 10(6):* e0129723. doi: 10.1371/journal.pone.0129723.

Galloway, AWE, ME Eisenlord, MN Dethier, **GW Holtgrieve**, and MT Brett. (2014) Quantitative estimates of resource utilization by an herbivorous isopod using a Bayesian fatty acid mixing model. *Marine Ecology Progress Series*. 507: 219–232.

Sadro, S, **GW Holtgrieve**, CT Solomon, and G Koch. (2014) Intra-diel patterns in ecosystem respiration revealed using continuous oxygen data from lakes around the globe. *Limnology & Oceanography* 59 (5): 1666–1678.

Arias, ME, TA Cochrane, M Kummu, J Koponon, H Lauri, **GW Holtgrieve**, and T Piman. (2014) Impacts of hydropower and climate change on drivers of ecological productivity of Southeast Asia's most important wetland. *Ecological Modeling* 272: 252–263, doi: 0.1016/j.ecolmodel.2013.10.015.

Schmitz, OJ, PR Raymond, JA Estes, WA Kurz, **GW Holtgrieve**, ME Ritchie, DE Schindler, AC Spivak, RW Wilson, MA Bradford, V Christensen, L Deegan, V Smetacek, MJ Vanni, and CC Wilmers. (2013) Animating the carbon cycle. *Ecosystems* 17(2): 344–359. doi: 10.1007/s10021-013-9715-7.

Holtgrieve, GW, ME Arias, KN Irvine, D Lamberts, EJ Ward, M Kummu, J Koponen, J Sarkkula, and JE Richey. (2013) Ecosystem metabolism and support of freshwater capture fisheries in the Tonle Sap Lake, Cambodia. *PLoS ONE*, 8(8): e71395. doi:10.1371/journal.pone.0071395.

Rogers, LA, DE Schindler, PJ Lisi, **GW Holtgrieve**, PR Leavitt, L Bunting, BP Finney, DT Selbie, G Chen, I Gregory-Eaves, MJ Lisac, and PB Walsh. (2013) Centennial-scale fluctuations and regional complexity characterize Pacific salmon population dynamics over the last five centuries. *Proceedings of the National Academy of Sciences*, 110(5): 1750–1755.

Cooperman, MS, N So, M Arias, T Cochrane, V Elliott, T Hand, L Hannah, **GW Holtgrieve**, L Kaufman, A Koening, J Koponen, V Kum, KS McCann, PB McIntyre, B Min, C Ou, N Rooney, K Rose, JL Sabo, and KO Winemiller. (2012) A watershed moment for the Mekong: New regulations may boost sustainability of the world's largest inland fishery. *Cambodian Journal of Natural History*, 2012, 100–106.

Jankowski, K, DE Schindler, and **GW Holtgrieve**. (2012) Assessing non-point source nitrogen loading and nitrogen fixation in lakes using $\delta^{15}N$ and nutrient stoichiometry. *Limnology & Oceanography*. 57(3): 671–683 [doi: 10.4319/lo.2012.57.3.06710].

Holtgrieve, GW, DE Schindler, WO Hobbs, PR Leavitt, EJ Ward, L Bunting, G Chen, BP Finney, I Gregory-Eaves, S Holmgren, MJ Lisac, PJ Lisi, K Nydick, LA Rogers, JE Saros, DT Selbie, MD Shapley, PB Walsh, and AP Wolfe (2011) A coherent signature of anthropogenic nitrogen deposition to remote watersheds of the Northern Hemisphere. *Science* 334: 1545–1548. **This paper was the subject of a co-published *Perspectives* article by J. J. Elser, rated "Must Read" on Faculty of 1000 Ecology, and carried by over 20 news outlets including the Vancouver Sun, the Atlantic Wire, Scientific American, and the BBC World (radio interview). Cited 144 times.**

Irvine, KN, JE Richey, **GW Holtgrieve**, J Sarkkula, and M Sampson. (2011) Spatial and temporal variability of turbidity, dissolved oxygen, conductivity, temperature, and fluorescence in the lower Mekong River-Tonle Sap system identified using continuous monitoring. *International Journal of River Basin Management* 9(2): 151–168.

Ruff, CP, DE Schindler, J Armstrong, K Bentley, G Brooks, **GW Holtgrieve**, M McGlauflin, J Seeb, and C Torgersen. (2011) Temperature-associated population diversity in salmon confers benefits to mobile consumers. *Ecology* 92(11): 2073–2084.

Francis, TB, DE Schindler, **GW Holtgrieve**, E Larson, MD Scheuerell, BX Semmens, and EJ Ward. (2011) Habitat heterogeneity and energetic support for zooplankton in temperate lakes. *Ecology Letters* 14: 364–372.

Holtgrieve, GW and DE Schindler. (2011) Marine-derived nutrients, bioturbation, and ecosystem metabolism: reconsidering the role of salmon in streams. *Ecology* 92 (2): 373–385.

Alin, SR, MFFL Rasera, CI Salimon, JE Richey, **GW Holtgrieve**, AV Krusche, and A Snidvongs. (2011) Physical controls on carbon dioxide transfer velocity and flux in low-gradient river systems and implications for regional carbon budgets. *Journal of Geophysical Research*, 116, G01009, doi:10.1029/2010JG001398.

Holtgrieve, GW, DE Schindler, C Gowell*, CP Ruff, and PJ Lisi. (2010) Stream geomorphology regulates the effects of ecosystem engineering and nutrient enrichment by Pacific salmon on periphyton. *Freshwater Biology* 55 (12): 2598–2611.

Holtgrieve, GW, DE Schindler, TA Branch, and ZT A'Mar. (2010) Simultaneous quantification of aquatic ecosystem metabolism and re-aeration using a Bayesian statistical model of oxygen dynamics. *Limnology and Oceanography* 55 (3): 1047–1063.

Baker, MR, DE Schindler, **GW Holtgrieve**, and VL St. Louis. (2009) Bioaccumulation and transport of contaminants: migrating sockeye salmon as vectors of mercury. *Environmental Science & Technology* 43 (23): 8840–8846.

Moore, JW, DE Schindler, JL Carter, J Fox, J Griffiths, and **GW Holtgrieve**. (2007) Biotic control of stream fluxes: spawning salmon drive nutrient and matter export. *Ecology* 88 (5): 1278–1291.

Holtgrieve, GW, PK Jewett, and PA Matson. (2006) Variations in soil N cycling and trace gas emissions in wet tropical forests. *Oecologia* 146: 584–594.

Editor reviewed

Sabo, JL, A Ruhi, **GW Holtgrieve**, V Elliott, ME Arias, PB Ngor, and N. So. (2017) Assessing hydrologic drivers of fisheries and forecasting future catches. *Catch and Culture* 22(2): 24–27.

Kavanaugh, MT, **GW Holtgrieve**, H Baulch, JR Brum, ML Cuvelier, CT Filstrup, KJ Nickols, and GE Small. (2013) A salty divide within ASLO? *ASLO Bulletin* 22(2): 34–37.

Carey, CC, PC Hanson, DA Bruesewitz, **GW Holtgrieve**, EL Kara, KC Rose, RL Smyth, and KC Weathers. (2012) Organized Oral Session 43. Novel Applications of High-Frequency Sensor Data in Aquatic Ecosystems: Discoveries from GLEON, the Global Lake Ecological Observatory Network. *Bulletin of the Ecological Society of America*. 93: 100–105. doi: 10.1890/0012-9623-93.1.100.

In review or revision

Welicky, RL, Feddern, ML, Rolfe, T, Leazer, K, Moosmiller, A, Fiorenza, E, Maslenikov, K, Tornabene, L, **Holtgrieve, GW**, Wood, CL. Reconstructing trophic position over the past century for five Puget Sound fish species. *Marine Ecology Progress Series.*

Stiling, RR, JD Olden, S Boulêtreau, J Cucherousset, **GW Holtgrieve**. Estimating the effects of environmental context and morphological traits on habitat coupling in freshwater lakes. *Oecologia*.

In preparation

Miller, BL*, **GW Holtgrieve**, S Chhuoy, and P Chheng. High methanogenic fixation of carbon in a tropical flood-pulse lake food web (Tonle Sap Lake, Cambodia). Planned submission to *Limnology & Oceanography Letters.*

Miller, BL*, TK Pool†, MJ Vlah*, and **GW Holtgrieve**. Primary production and respiration along a flood hysteresis within large tropical rivers—Re-conceptualizing the Flood-pulse Concept. *Bioscience*.

Other works

Sabo, JL, A Ruhi, **GW Holtgrieve**, V Elliott, and M Arias. (2016) Final Report: Data-driven models for assessing hydrologic drivers of Lower Mekong River fisheries and forecasting future catches. *Mekong River Commission Technical Report*. 88 published pages.

Holtgrieve, GW and AE Launer. (2000) *Fishes and Amphibians of the San Francisquito Creek and Matadero Creek Watersheds, Stanford University: Report on 1998 & 1999 Field Activities*. Center for Conservation Biology, Stanford, CA, 2000. 89 pages.

Holtgrieve, GW (2006) Species account: Sudden oak death. *In* Boersma, PD, SH Reichard, and A van Buren (editors), *Invasive Species in the Pacific Northwest*. Univ. of Washington Press, Seattle, WA. 11 published pages.

Holtgrieve, GW (2000) *Fishes of San Francisquito Creek*. Jasper Ridge Biological Preserve Docent Manual, Stanford, CA. 16 pages.

Holtgrieve, DG and **GW Holtgrieve**. (1995) *Physical Stream Survey of Butte Creek, Butte County, CA.* Technical report for the Nature Conservancy and California State University, Chico, CA. 41 pages.

GRADUATE STUDENT AND POST-DOCTORAL TRAINING

Graduate Students (committee chair)

Student	Degree	Dates	Thesis Topic	Status
N. Grace Henry	M.S.	Fall 2022	TBD	Active
Kelly Neal	M.S.	Fall 2022	TBD	Active
Shorna, Sabikunnahar	Ph.D.	Fall 2020–present	Physical and biological dynamics of heavy metal contaminants in fishes of the Cambodian Mekong.	Active
Elmstrom, Elizabeth	M.S.	Fall 2017–present	Triple isotopic estimates of nitrate sources and sinks across hydrologically and physically variable Puget Sound rivers.	Active
McGill, Lilian	Ph.D.	Summer 2017–Summer 2022	Within and among catchment variation in isotopic ratios of water in the Pacific Northwest.	Completed
Feddern, Megan	Ph.D.	Fall 2016–Fall 2021	Applied ecosystem chemistry: linking biogeochemical and physiological processes to ecological interactions.	Completed
Stiling, Rebeka (co-advised with J. Olden)	M.S.	Fall 2017–Fall 2021	Fish resource use and habitat coupling in lake ecosystems.	Completed
Miller, Benjamin	Ph.D.	Fall 2014–Winter 2020	Carbon and nutrient dynamics on floodplains of the Yangtze and Mekong watersheds.	Completed
Vlah, Michael	M.S.	Fall 2014–Spring 2017	Landscape controls on temperature regimes and allochthonous subsidies in rivers and lakes in the Puget Sound region, Washington State.	Completed

Post-Doctoral Fellows

Thomas K. Pool (2014–2018). Dr. Pool investigated landscape and seasonal factors driving the structure of the aquatic food web in the Tonle Sap Lake, Cambodia, with a focus on fish and fisheries.

Graduate students on whose committees I have served as a member.

Student	Degree	Dates	Committee Chair	Status
Doran, Nicole	M.S.	2022–present	M. Scheuerell	Active
Jameson, Emily	M.S.	2021–present	J. Olden	Active

Diallo, Jessica	M.S.	2020–present	J. Olden	Active
McMonagle, Helena	M.S.	2020–present	T. Essington	Active
O'Neal, Sarah	Ph.D.	2016–present	D. Schindler	Active
Stern, Jennifer	M.S.	2016–present	K. Laidre	Active
Farhat, Yasmine	Ph.D.	2017–2022	R. Neumann	Completed
Alma, Lindsay	Ph.D.	2016–2022	J. Padilla-Gamiño	Completed
Belisario D'Araujo Couto, Thiago	Ph.D.	2016–2020	J. Olden	Completed
Rogosch, Jane S.	Ph.D.	2016–2019	J. Olden	Completed
Moriarty, Pamela E.	Ph.D.	2015–2018	T. Essington	Completed
Chen, William	M.S.	2015–2017	J. Olden	Completed
Fritschie, Keith	M.S.	2014–2015	J. Olden	Completed
Jankowski, KathiJo	Ph.D.	2009–2014	D. Schindler	Completed
Smits, Adrianne	Ph.D.	2013–2016	D. Schindler	Completed

Graduate students on whose committees I have served as a graduate student representative (GSR).

Student	Degree	Dates	Committee Chair	Status
Dawson, Hannah	Ph.D.	2019–present	J. Young (Oceanography)	Active
Shi, Yue	Ph.D.	2014–2019	S. Wasser (Biology)	Completed
Sonessa, Mergia	Ph.D.	2014–2018	J. Richey (Civil & Environmental Engineering)	Completed
Gagne-Maynard, William	M.S.	2013–2015	J. Richey (Oceanography)	Completed
Tan, Amanda	Ph.D.	2013–2014	J. Richey (Civil & Environmental Engineering)	Completed

UNDERGRADUATE TEACHING

Courses taught within my research specialization area

FISH 101 Water & Society—The objective of this course is to provide an understanding of the complex relationships among human societies, water resources, and aquatic ecosystems. We accomplished this by exploring coupled human and natural systems and their dependence on fresh water. Topics of interest include global change, ecosystem services, fisheries, water pollution, urbanization, land use, climate

change, watershed and river basin management, water technology, stakeholder processes, and water policy. Relevant examples are drawn from the United States and from around the world.

FISH/ESRM 447: Watershed Ecology& Management—This course is an investigation of stream and river ecosystems from a watershed perspective and most closely reflects my research interests and expertise. The emphasis is on learning the fundamental ecological processes affecting the structure and function of flowing aquatic ecosystems. While the course initially focuses on "natural" ecosystems, we also use case studies to explore human interactions with rivers and approaches to river management. Multiple theoretical concepts of riverine ecosystems are introduced and used to underpin our examination of case studies. Specific topics include river/stream hydrology, geomorphology, biogeochemical cycles, food webs, restoration, and global change. Enrollment is between 40-50 students, both graduate and undergraduate, from a wide spectrum of disciplines and majors. I am the primary instructor for this course.

FISH/ESRM 448AB: Watershed Ecology& Management Lab—This course is paired with FISH/ESRM 447 and offers students the opportunity to get hands-on experience with issues in watershed ecology and management. Field trips engage students with employing field research methods, introduce them to regional species identification, and introduce them to management of rivers in both western and eastern Washington watersheds, where they meet conservation scientists, hydropower professionals, and others watershed groups and stakeholders. Enrollment is between 10-15 students. I am the primary instructor for this course.

FISH 511: Theory and Application of Stable Isotopes in Ecology—Stable isotopes are a powerful, and now common, tool used in ecological investigation. This course explores the theory underlying the use of different stable isotopes to explore and quantify mechanisms driving patterns and processes in a variety of ecosystems. We discuss applications of stable isotope approaches to i) estimate sources of organic matter and energy to consumers and ecosystems, ii) estimate sources of natural and anthropogenic nutrients to ecosystems, iii) identify migratory patterns of mobile animals, iv) estimate primary production rates by autotrophs, v) reconstruct trophic linkages in food webs, vi) identify hydrologic sources to aquatic ecosystems, and a variety of other applications that are common in ecology.

FISH 513A: Puget Sound Conservation Science: Bridging science, policy, and management—This seminar class considers the interplay between science, policy, and management in Puget Sound Region with a focus on conservation, management, and recovery issues faced by state and federal agencies. Students and senior research scientists from Washington Department of Fish & Wildlife (WDFW) engage in group discussion about local aquatic science and real-world applications of scientific research for policy and management decision making.

<u>Other courses</u>

FISH 290: Scientific Writing and Communication—This class is designed to teach undergraduate science students in the School of Aquatic and Fishery Sciences to gather published and unpublished sources of information and bring them to bear on scientific questions, critically read scientific writing, access electronic sources of information (e.g., internet searches, library databases, and public information and data), learn the structure and functions of different components of scientific papers to effectively communicate scientific findings, learn techniques for effective communication of scientific information in oral and poster presentations, become familiar with using "new media" (Twitter, Wikipedia, blogs, etc.) for communicating findings to colleagues and the general public, and understand the ethical boundaries associated with scientific communication.

QSCI 381B: Introduction to Probability and Statistics—The class is designed to teach undergraduate natural science students basic probability and inferential statistics. The course has three main sections: data summarization, probability theory, and testing hypotheses. The class emphasizes fundamental principles of data and statistics, presented in lecture and lab format, and reinforced by a combination of homework, computer lab exercises, and exams. Enrollment is typically 90-100 students. I am currently the primary instructor for the autumn quarter.

FISH 552: Introduction to R programming—This course provides an introduction to the statistical computing language R for graduate students with no prior background in R or programming. By the end of this course, students are able to write R scripts that read, store, and manipulate data; perform basic statistical analyses; produce basic graphics; and fit simple linear models. Basic programming concepts such as structured and object-oriented programming, conditionals, and debugging are also discussed.

FISH 553: Advanced R programming for natural scientists—The second half of this paired course, FISH 553 goes more into depth on good programming practices, creating functions and loops, non-linear functions, likelihood methods, confidence intervals, and resampling techniques.