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Professional Preparation

University of Wisconsin	Limnology	Pos. D., 2006
Colorado State University	Ecology	Ph.D., 2004
University of Toronto	Zoology	M.Sc., 2000
University of Toronto	Zoology	B.Sc., 1998

Professional Appointments

Professor	Univ. Washington	2016 - present
Guest Professor	Swedish Univ of Agricultural Sciences	2020 - present
Senior Scientist	Conservation Science Partners	2019 - present
Adjunct Professor	Griffith University	2006 - present
Co-director, Center for Creative Conservation	Univ. Washington	2015 - 2018
Associate Professor	Univ. Washington	2011 - 2016
Assistant Professor	Univ. Washington	2006 - 2011

Teaching Experience

Water and Society (FISH 101, Undergraduate), Univ. Washington (2010-2019)

Water, the bloodstream of the biosphere, determines the sustainability of living systems. Despite the abundance of water on the Earth, the small proportion that is fresh is coming under increasing pressure as human populations increase and climate warms. The objective of this course is to provide an understanding of the complex relationships between human societies, water resources, and aquatic ecosystems. This is accomplished 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 will be drawn from the United States and from around the world.

Freshwater Ecology and Conservation (FISH 200, Undergraduate), Univ. Washington (2022-present)

Freshwater ecological integrity and biodiversity remain under immense and growing pressures as a result of a plethora of human-related impacts. This course offers students exposure to the complex relationships between freshwater ecosystems and human societies, including topics associated with freshwater biology, management, and conservation. The first part of the course focuses on establishing key concepts in freshwater ecology, introducing students to the physical, chemical, and biological processes that structure freshwater ecosystems. The second part delves into applied issues involving conservation and management of river, wetland, and lake ecosystems, understand the impacts of human activities such as climate change, land use practices, transporting invasive species, and contributing to nutrient pollution and how this, in turn, impacts human societies. Third, the students gain exposure to management practices that promote short-term benefits and long-term sustainability.

Aquatic Invasion Ecology (FISH 423, Undergraduate), Univ. Washington (2007-present)

The global epidemic of invasive species is rampant, representing a leading threat to national economies, human health, and cause tremendous ecological damage ranging from the extinction of native species to alteration of ecosystem processes. Challenges associated with invasive species are particularly evident in aquatic

environments, whose native aquatic biodiversity is under increasing threat from invasive species, and managers lament the inability to prevent, control or eradicate these invaders. The objective of this course is to advance the student's knowledge regarding the ecology, management and policy of species invasions in freshwater, estuary and marine ecosystems. This is accomplished using lectures and discussions (including outside experts) that examine the invasion process illustrated using global case studies.

Seminar in Freshwater Sustainability (FISH 400, Undergraduate), Univ. Washington (2023-present)

This course offers students exposure to the grand sustainability challenges facing humanity and their interrelation with freshwater ecosystems, including present-day issues associated with water scarcity and security, clean water and social justice, pollution and ecosystem integrity, freshwater biodiversity crisis, water stewardship, renewable energy, sustainable fisheries, water law, and water literacy among the public.

FieldNotes – An undergraduate journal, (CENV 401, Undergraduate), Univ. Washington (2018-present)

FieldNotes is an undergraduate journal that seeks to connect the University of Washington with the greater Puget Sound community by highlighting student-lead research and outreach efforts that tackle critical environmental issues. FieldNotes publishes annually in the Spring quarter, featuring undergraduate research (full-length articles and research communications), community features, interviews, and contains vivid imagery to ensure multi-faceted storytelling which appeals to a broader audience. The intent of FieldNotes is to provide a platform for students to actively learn and engage in science communication and journalism more broadly, learning to write effectively for diverse audiences, including popular articles and science blogs, and to design and curate a journal publication. https://fieldnotesjournal.org

Science Blogging (FISH 507, Graduate), Univ. Washington (2018)

Blogs are everywhere. They have exposed truths and spread rumors, made and lost fortunes, and toppled cabinet members and sparked grassroots movements. Recent years have seen blogs becoming a leading source of online scientific news for both lay audiences and newsmakers. From the reader's perspective, blogs provide information and perspectives that are missing from or that supplement traditional media coverage, as opposed to simply amplifying the agenda of traditional media and have the potential to educate in an entertaining way. Given the value of blogging for science communication, the intention of this course is to help graduate students develop the fundamental skills needed to be successful in the art of blogging.

Research Proposal Writing & Professional Development (FISH 521, Graduate), Univ. Washington (2016-2018)

The intention of this course is to help new graduate students develop the fundamental skills needed to design and craft compelling and effective proposals, whether they be for satisfying departmental thesis and dissertation requirements, or for obtaining research funding. Students will gain experience in reviewing and critiquing proposals of their peers, and in refining their scientific writing skills. Skills include: 1) writing interesting and impactful scientific articles, 2) navigating the peer-review process, 3) preparing and delivering effective scientific presentations, 4) communicating with stakeholders and the public, and 5) developing competitive job applications.

Applied Multivariate Statistics for Ecologists (FISH 560, Graduate), Univ. Washington (2007-2020)

With recent advances in data collection technology and ambitious field research, scientists are increasingly relying upon multivariate statistics to explore and test for patterns in their data. The goal of this course is to explore the multivariate statistical techniques necessary to carry out sophisticated analyses and to critically evaluate scientific papers using these approaches. This is a practical and hands-on course emphasizing the analysis and interpretation of multivariate analysis, covering a variety of approaches used by ecologists. The focus of the course is on the conceptual understanding and practical use of the methods, with the singular hope of de-mystifying the "alphabet soup" of multivariate analysis.

Freshwater Ecology in Dam-impacted Waters (Short-course offered at undergraduate and graduate levels), Hainan University, China (2022-current)

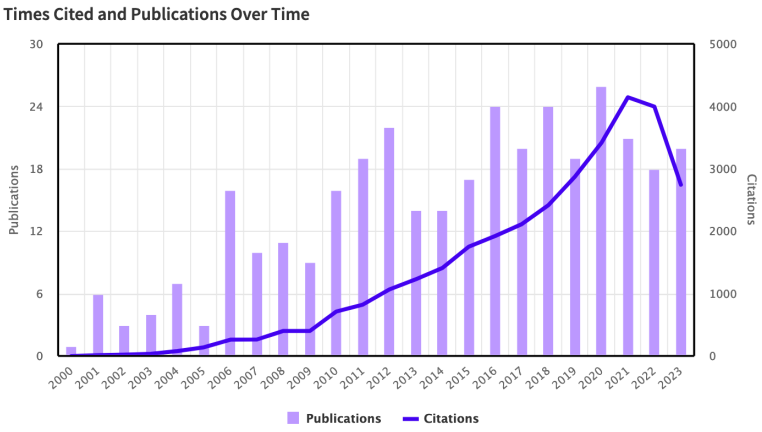
Over the millennia, humans have altered streamflow in riverine systems for myriad reasons including harnessing water for drinking, irrigation and recreation, and providing flood control and hydropower. The

freshwater footprint of humanity stamps the entire globe, with nearly half of major river systems affected by dams. The future construction of dams, particularly in economically developing nations, is an inevitable consequence of human population growth and increasing freshwater and electricity needs in a changing climate. This short course (offered previously over multiple weeks, days, hours) covers the ecology and management of dam-impacted waters. This is accomplished this through a series of small modules that: (1) explore the primary ways that dams influence the environment of freshwater ecosystems; (2) examine current efforts to restore and conserve biodiversity in rivers that have been dammed or subjected to flow diversions, including the mimicking of historical or natural flow and thermal regimes below dams, establishing opportunities to circumvent dams via fish passages, and in some cases even restoring and reconnecting rivers by removing dams; and (3) explore the opportunities and challenges involving human population grow and the drive for future dam development.

Guest lectures in multiple courses across the University of Washington and universities in many other countries on a variety of topics that span community ecology, conservation biology, freshwater sciences, biostatistics, etc.

Course evaluations consistently >4.6 out of 5 across all courses, with positive feedback from students.

Publications (345 publications, 32,224 times cited, h-index = 83)



In press

Chen, K., Midway, S., Peoples, B., Beixin, W., and J.D. Olden. Accepted. Shifting taxonomic and functional community composition of rivers under land use change. *Ecology.*

Gawel, J., Hull, E.A., Stiling, R.B., Barajas, M., Neumann, R.B. and J.D. Olden. Accepted. Littoral sediment arsenic concentrations predict arsenic trophic transfer and human health risk in contaminated lakes. *PLoS One.*

Danet, A., Giam, X., Olden, J.D., and L. Comte. Accepted. Past and recent anthropogenic pressures drive rapid changes in riverine fish communities. *Nature Ecology and Evolution.*

Winkowski, J.J., Olden, J. D., and S. Brown. Accepted. Integrating spatial stream network models and environmental DNA to estimate current and future distributions of don-native smallmouth bass (*Micropterous dolomieu*). *Transactions of the American Fisheries Society.*

Lynch, A.J., DiSanto, A., Olden, J.D., Chu, C., Paukert, C.P., Gundermann, D., Lang, M., and R. Zhang. Accepted. Climate impacts to inland fishes: Shifting research topics over time. *PLoS Climate.*

2023

Seybold, E. C., A. Bergstrom, C. N. Jones, A. J. Burgin, S. Zipper, S. E. Godsey, W. K. Dodds, M. A. Zimmer, M. Shana, T. Datry, R. D. Mazor, M. L. Messager, J. D. Olden, A. Ward, S. Yu, K. E. Kaiser, A. Shogren, and R. H. Walker. 2023. How low can you go ? Widespread challenges in measuring low stream discharge and a path forward. *Limnology and Oceanography Letters*.

Faiad, S. M., M. A. Williams, M. Goodman, S. Sokolow, J. D. Olden, K. Mitchell, R. Andriantsoa, J. P. Gordon Jones, L. Andriamaro, P. Ravoniarimbinina, J. Rasamy, T. Ravelomanana, S. Ravelotafita, R. Ravo, P. Rabinowitz, G. A. De

Leo, and C. L. Wood. 2023. Temperature affects predation of schistosome-competent snails by a novel invader, the marbled crayfish Procambarus virginalis. *PloS one* 18:e0290615.

Messager, M. L., J. D. Olden, J. D. Tonkin, R. Stubbington, J. S. Rogosch, M. H. Busch, C. J. Little, A. W. Walters, C. L. Atkinson, M. Shanafield, S. Yu, K. S. Boersma, D. A. Lytle, R. H. Walker, R. M. Burrows, and T. Datry. 2023. A metasystem approach to designing environmental flows. *BioScience* 0:1–20.

Britton, J. R., A. J. Lynch, H. Bardal, S. J. Bradbeer, J. A. Coetzee, N. E. Coughlan, T. Dalu, E. Tricarico, B. Gallardo, M. Lintermans, F. Lucy, C. Liu, J. D. Olden, R. Raghavan, and E. G. Pritchard. 2023. Preventing and controlling nonnative species invasions to bend the curve of global freshwater biodiversity loss. *Environmental Reviews* 31:310–326.

Kuehne, L. M., C. Dickens, D. Tickner, M. L. Messager, J. D. Olden, G. O'Brien, B. Lehner, and N. Eriyagama. 2023. The future of global river health monitoring. *PLOS Water* 2:e0000101.

Arthington, A. H., D. Tickner, M. E. McClain, M. C. Acreman, E. P. Anderson, S. Babu, C. W. S. Dickens, A. C. Horne, N. Kaushal, W. A. Monk, G. C. O'Brien, J. D. Olden, J. J. Opperman, A. G. Owusu, N. LeRoy Poff, B. D. Richter, S. Salinas-Rodríguez, B. Shamboko-Mbale, R. Tharme, and S. M. Yarnell. 2023. Accelerating environmental flows implementation to bend the curve of global freshwater biodiversity loss. *Environmental Reviews* 27:1–27.

Stiling, R.R., Olden, J.D., Cucherousset, J., Boulêtreau, S. and G.W. Holtgrieve. 2023. Global investigation of lake habitat coupling by fishes. *Oecologia* 202:617-628.

Fricke, R.M., and J.D. Olden. 2023. Technological innovations enhance invasive species management in the Anthropocene. *BioScience* 73: 261-279.

Gido, K.B., Osborne, M.J., Propst, D.L., Turner, T.F., and J.D. Olden. 2023. Megadroughts pose mega-risk to native fishes of the American Southwest. Fisheries 48:204-214.

Xiong, F., Infante, D.M., Olden, J.D., Gao, W., Wang, L., Y. Chen. 2023. River-lake connectivity, wetland, and human stress factors shape fish diversity (alpha and beta) patterns in the middle and lower Yangtze River, China. *Landscape Ecology*.

Chalise, D.R., Sankarasubramanian, A., Olden, J.D., and A. Ruhi. 2023. Spectral signatures of flow regime alteration by dams across the United States. *Earth's Future* 11, e2022EF003078.

Carvajal-Quintero J., Comte L., Giam X., Olden J.D., Brose U., Erős, T., Filipe, A.F., Fortin, M-J., Irving, K., Jacquet, C., Larsen, S., Ruhi, A., Sharma, S., Villalobos, F., and P.A. Tedesco. 2023. Scale of population synchrony confirms macroecological estimates of minimum viable range size. *Ecology Letters* 26: 291-301.

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Morden, R., Horne, A., Nathan, R., Bond, N.R., and J.D. Olden. 2023. Monthly flow indicators can be used to infer daily stream flow behaviour across Australia. *Journal of Hydrology* 617, 129078.

Qu, X., Olden, J.D., Xia, W., Liu, H., Xie, Z, Hughes, R.M., and Y. Chen. 2023. Hydrology and water quality shape macroinvertebrate patterns and facilitate non-native species dispersals in an inter-basin water transfer system *Journal of Environmental Management* 329:117111.

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Couto, T.B.A., Rezende, R.S. de Aquino, P.P.U., Costa-Pereira, R. de Campos, G.L. Occhi, T.V.T., Vitule, J.R.S., Espírito-Santo, H.M.V., Soares, V.F.F. and J.D Olden. 2023. Effects of small hydropower dams on macroinvertebrate and fish assemblages in southern Brazil. *Freshwater Biology* 68: 956-971.

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Mims, M. C., J. C. Drake, J. J. Lawler, and J. D. Olden. 2023. Simulating the response of a threatened amphibian to climate-induced reductions in breeding habitat. *Landscape Ecology* 38:1051–1068.

2022

Sax, D.F., Schlaepfer, M.A., and J.D. Olden. 2022. Valuing the contributions of non-native species to people and nature. *Trends in Ecology and Evolution* 37:1058-1066.

Olden, J.D., Miler, O., and A. Bijaye. 2022. Lake-wide mapping of littoral habitat using underwater videography. Knowl. Manag. Aquat. Ecosyst., 423, https://doi.org/10.1051/kmae/2022018

Olden, J.D., Chen, K., García-Berthou, E., King, A. J., South, J., and Vitule. J.R.S. 2022. Invasive Species in Streams and Rivers. In: Tockner, Klement, Encyclopedia of Inland Waters 2nd edition. vol. 2, pp. 436-452. Oxford: Elsevier.

Hossain, M.A.R. and J.D. Olden. 2022. Global meta-analysis reveals diverse effects of microplastics on freshwater and marine fishes. *Fish and Fisheries* 23:1439-1454.

Krabbenhoft, C.A., Allen, G.H., Lin, P., Godsey, S.E., Allen, D.C., Burrows, R.M., DelVecchia, A.G., Fritz, K.M., Shanafield, M., Burgin, A.J., Zimmer, M.A., Datry, T., Dodds, W.K., Jones, C.N., Mims, M.C., Franklin, C., Hammond, J.C., Zipper, S., Ward, A.S., Costigan, K.H., Beck, H.E., and J.D. Olden. 2022. Assessing placement bias of the global river gauge network. *Nature Sustainability* 5: 586-592.

Morden, R., Horne, A., Bond, N., Nathan, R., and J.D. Olden. 2022. Small artificial impoundments have big implications for hydrology and freshwater biodiversity. *Frontiers in Ecology and the Environment* 20: 141-146.

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Kuehne, L.M., Hicks, M., Wamsley, B. and J.D. Olden. 2022. Twenty-year contrast of non-native parrotfeather distribution and abundance in an unregulated river. *Hydrobiologia* 849: 899-911.

Thurman, L., Gross, J., Mengelt, C., Beever, E., Thompson, L., Schuurman, G., Hoving, C., and J.D. Olden. 2022. Applying assessments of adaptive capacity to inform conservation planning in a changing climate. *Conservation Biology*, 36, 2.

Freeman, M.C., Bestgen, K.R., Carlisle, D., Frimpong, E.A., Franssen, N.R., Gido, K.B., Irwin, E., Kanno, Y., Luce, C., McKay, S.K., Mims, M.C., Olden, J.D., Poff, N.L., Propst, D.L., Rack, L., Roy, A.H., Stowe, E.S., Walters, A., and S.J., Wenger. 2022. Towards improved understanding of streamflow effects on freshwater fishes. *Fisheries* 47: 290-298.

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Comte, L., Olden, J.D., Lischka, S., and B.G. Dickson. 2022. Multi-scale threat assessment of riverine ecosystems in the Colorado River Basin. *Ecological Indicators* 138: 108840.

Golebie, E.J., van Riper, C.J., Arlinghaus, R., Gaddy, M., Jang, S., Kochalski, S., Lu, Y., Olden, J.D., Stedman, R., and C. Suski. 2022. Words matter: a systematic review of communication in non-native aquatic species literature. *Neobiota* 74: 1-28.

Luiz, O.J., Olden, J.D., Kennard, M.J., Crook, D.A., Douglas, M.M., Saunders, T.M., and A.J. King. 2022. Substantial intra-specific trait variation across a hydrological gradient in northern Australian fishes. *Ecosphere* 13: e4169.

Liu, X., Olden, J.D., Wu, R., Ouyang, S., and X. Wu. 2022. Dam construction impacts fish biodiversity in a subtropical river network, China. *Diversity* 14: 476.

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2021

Olden, J.D., Whattam, E., and S.A. Wood. 2021. Online auction marketplaces as a global pathway for aquatic invasive species. *Hydrobiologia* 848: 1967-1979.

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Thompson, B.K., Olden, J.D. and S.J. Converse. 2021. Mechanistic invasive species management models and their application in conservation. *Conservation Science and Practice* 3, e533.

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Larsen, S., Comte, L., Filipe, A.F., Fortin, M-J., Jacquet, C., Ryser, R., Tedesco, P., Brose, U., Erös, T., Giam, X., Irving, K., Ruhi, A., Sharma, S., and J.D. Olden. 2021. The geography of metapopulation synchrony in dendritic river networks. *Ecology Letters* 24: 791-801.

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Tonkin, J.D., Olden, J.D., Merritt, D.M., Reynolds, L.V., Rogosch, J.S., and D.A. Lytle. 2021. Designing flows regimes to support entire ecosystems. *Frontiers in Ecology and the Environment* 19: 326-333.

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Reports

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Non-refereed publications

Schlaepfer, M., Aukema, J.E., Grant, J., Halpern, B., Hoekstra, J., Kareiva, P., Lawler, J., Manolis, J.C., Nelson, C.R., Olden, J.D., Silliman, B., Stephens, S., Wiens, J. and P. Zaradic. 2005. Re-wilding: A bold plan that needs native megafauna. *Nature* 437:951-951.

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Presentations (first author and invited only)

Clicks not bricks: A global assessment of the online trade in ornamental crayfish. 2023. International Conference on Aquatic Invasive Species. . Society for Freshwater Sciences, Brisbane, Australia.

New vision, new life, new hope, for dammed rivers in the Anthropocene. 2023. University of Michigan [*Invited*]

Clicks not bricks: A global assessment of the online trade in ornamental crayfish. 2022. International Conference on Aquatic Invasive Species.

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Biosphere reserves and ecosystem stewardship in the Arctic. European Union Umea Arctic Forum, Umea, Sweden. 2021. [*Keynote*]

More than a meal - Exploring the diverse ways that fish contribute to society. University of Florida. 2021. Virtual. [*Invited*]

Persist-in-place or shift-in-space: How will freshwater fishes fare in a changing climate? Clemson University. 2021. Virtual. [*Invited*]

Sustainable dam planning and operations - Reflects on the application of multi-objective optimization. 2020. International Amazon Dam Network. Virtual. [*Keynote*]

Understanding angler-driven vectors of invasive species transmission using social media and mobile technology. 2020. Washington State Lake Protection Association, WA. [*Virtual*]

Invasive species in hot pursuit of Pacific salmon. 2020. British Columbia INVASIVES conference. Vancouver, Canada [*Invited*]

The changing pulse of rivers: Dam-induced alternation of flow periodicity and synchrony. 2019. Society for Freshwater Sciences, Salt Lake City, USA.

Persist-in-place or shift-in-space: How will freshwater fishes fare in a changing climate? 2019. Australian and New Zealand Freshwater Sciences Societies Congress. Waurn Ponds, Australia [*Keynote*]

Emerging challenges of aquatic invasive species in the Anthropocene. 2019. Deakin University. Melbourne, Australia [*Invited*].

The Pacific Northwest as an emerging beachhead of crayfish invasions. 2019. Oregon Invasive Species Council. Portland, United States. [*Invited*].

Brace yourselves, the rusties (crayfish) are coming. 2019. The River Mile Crayfish Conference. Spokane, United States. [*Invited*].

The River Connectivity Conundrum. 2018. North American Congress for Conservation Biology. Toronto, Canada [*Keynote*]

Persistent and emerging challenges of aquatic invasive species in the Anthropocene. 2018. International Symposium of the Benthological Society of Asia, Nanjing, China [*Keynote*]

Designing flows to resolve human and environmental water needs in a dam-regulated river. 2018. Association for the Sciences of Limnology and Oceanography, Victoria, Canada [*Invited*].

Will freshwater fishes keep pace with climate change? 2018. Universidade Federal do Paraná, Curitiba, Brazil [*Invited*]

The future of dam-impacted rivers in the Anthropocene. 2018. Aquatic Sciences Meeting. Detroit, United States.

Brace yourselves, rusties are coming: Rapid invasion of rusty crayfish in the Columbia River Basin. 2018. Northwest Science Association. Olympia, United States. [*Invited*]

Spread and management of invasive crayfish. 2018. Washington Invasive Species Council. Olympia, United States. [*Invited*]

New vision, new life, new hope, for dammed rivers. 2017. International Society for River Science, Hamilton, New Zealand [*Keynote*]

Confronting persistent myths and enduring realities of invasive species. 2017. University of Wisconsin Annual Ecology Symposium, Madison, Wisconsin [*Keynote*]

New vision, new life, new hope, for dammed rivers. 2017. University of Wisconsin Annual Ecology Symposium, Madison, Wisconsin [*Keynote*]

Hydroecology of Intermittent and Ephemeral Streams: Will landscape connectivity sustain aquatic organisms in a changing climate? 2017. Department of Defense (SERDP & ESTCP), Washington D.C. [*Invited*].

Will freshwater fishes keep pace with climate change? 2016. Species On The Move conference, Hobart, Australia [*Invited*]

Exploring opportunities for addressing multiple threats in freshwater conservation. 2016. Joint Aquatic Sciences Meeting. Sacramento, United States. [*Invited*]

Life on the invasion edge – Smallmouth bass in hot pursuit of Pacific salmon. 2016. University of Idaho [*Invited]*

Will freshwater fishes keep pace with climate change? 2015. H.B.N. Hynes Lecturer. Canadian Rivers Institute, University of New Brunswick, Canada [*Keynote*]

Traits-based approaches and the quest for generality over contingency in freshwater ecology. 2015. Distinguished (Rising Star) Ecologist, Colorado State University, Fort Collins, USA [*Keynote*]

Will freshwater fishes keep pace with climate change? 2015. Distinguished (Rising Star) Ecologist, Colorado State University, Fort Collins, USA [*Keynote*]

The future of fish in dryland rivers. 2015. Brazilian Meeting of Ichthyology. Recife, Brazil [*Keynote*]

Running out of river: Will freshwater fishes keep pace with climate change? 2014. Joint Aquatic Sciences Meeting. Portland, United States. [*Keynote*]

Traits-based approaches and the quest for generality over contingency in ecology. 2014. Ecological Society of America, Sacramento, United States. [*Invited*]

Confirmation bias and rethinking the scientific discourse of non-native species. 2014. Society for Conservation Biology, Missoula, United States. [*Invited*]

Fish out of water: Will freshwater fishes keep pace with climate change? 2013. International Symposium of Riverine Landscape. Yueyang, China. [*Keynote*]

Invasive species: A Janus approach to science, management and policy. 2013. Brazilian Meeting of Ichthyology. Maringa, Brazil [*Invited*]

Invasive species: Beyond taxonomy: A traits-based approach to fish community ecology. 2013. Brazilian Meeting of Ichthyology. Maringa, Brazil [*Invited*]

Emerging vectors of biological invasions in the electronic commerce era. 2012. National Invasive Species Council - Advisory Committee. Portland, OR. [*Invited*]

Invasive crayfish removal. 2012. Western Regional Panel on Aquatic Invasive Species. Portland, OR. [*Invited*]

Invasive species: Envisioning alternative global futures in the New Pangaea. 2012. Portland State University. [*Keynote*]

Climate change and invasive species in hot pursuit of Pacific salmon. 2012. Annual meeting of the Wildlife Society. Portland, OR. [*Invited*]

Invasive species in hot pursuit of Pacific salmon. 2012. Congress of the Iberian Association of Limnology, Guimarães, Portugal. [*Keynote*]

Invasive species: Exonerating crimes to envision a new global future. 2011. University of Washington Dean's Lecture. Seattle, Washington. [*Keynote*]

Invasive species and alternative global futures for freshwater ecosystems. 2011. Fishery Society of the British Isles conference, Bournemouth, UK. [*Keynote*]

Invasive species and alternative global futures for freshwater ecosystems. 2011. Canadian Conference for Fisheries Research, Toronto, Canada. [*Keynote*]

Freshwater protected areas and defining a conservation blueprint for desert fishes. 2011. University of British Columbia, Vancouver, Canada. [*invited*]

Invasive species and alternative global futures for freshwater ecosystems. 2011. Canadian Aquatic Invasive Species Network, Quebec City, Canada. [*Keynote*]

Latent extinction risk of freshwater fishes: a traits-based approach to inform conservation ranking schemes. 2010. Society for Conservation Biology, Edmonton, Alberta. [*invited*]

Freshwaters in the public eye: understanding the role of science and image media in aquatic conservation. 2010. Utah State University. UT (Ecology Center Seminar). [*invited*]

Perceptions and realities of aquatic invasive species. 2010. Utah State University. UT (Ecology Center Seminar). [*invited*]

Species invasions, environmental change and the future biogeography of freshwater fishes. 2009. The 10th International Congress of Ecology. Brisbane, Australia. [*invited*]

The biogeography of nowhere: Species invasions and the fading antiquity of globe fish faunas. 2009. The 10th International Congress of Ecology. Brisbane, Australia. [*invited*]

Turning dreams into reality: challenges to developing flow-ecological relationships to support streamflow management. 2009. North American Benthological Society, Grand Rapids, MI. [*invited*]

Emerging pathways for crayfish invasions in Washington: Recommendations for new regulations. 2008. Washington State Aquatic Nuisance Species Committee, Olympia, WA.

Vulnerability of lake ecosystems to species invasions in Washington. 2008. Washington State Lake Protection Association, WA.

Life history strategies and patterns of fish invasions and extirpations in Lower Colorado River Basin. 2008. Texas State University, San Marcos, TX. [*invited*]

Developing regional environmental flow standards for Washington State. 2008. American Fisheries Society (Western Division), Portland, OR.

Riverine thermal regimes: an integral component of environmental flows. 2007. 3rd International Symposium on Riverine Landscapes (TISORL), Queensland, Australia. [*invited*]

Smart prevention of invasive species in aquatic ecosystems. 2007. Oregon State University, Corvallis, OR. [*invited*]

Smart prevention of invasive species in aquatic ecosystems. 2007. NOAA Northwest Fisheries Science Center, Seattle, WA. [*invited*]

The biogeography of nowhere: Global fish invasions and the re-shuffling of freshwater life. 2006. Macroecological Tools for Global Change Research, Potsdam, Germany. [*invited*]

Life-history strategies predict fish invasions and extirpations in the Colorado River Basin. 2006. Kansas State University, Manhattan, KS. [*invited*]

Global pathways of freshwater fish introductions. 2006. American Fisheries Society, Lake Placid, NY.

Living on the edge: trait synergies and the rarity, extirpation, and extinction of endemic desert fishes. 2005. Ecological Society of America, Quebec, Canada.

Comparative life-history strategies of native and non-native fishes in the Colorado River Basin: Using species traits to understand rates of invasions and extirpations over the past century. 2005. North American Benthological Society, New Orleans, LA. [*invited*]

Biotic homogenization – Patterns, processes and the importance of variety in the spice of human life. 2005. International Biogeography Society, West Virginia, USA. [*invited*]

Spatial recovery of warmwater fish assemblages to multiple disturbance gradients caused by river regulation in the eastern United States. 2005. Griffith University, Brisbane, Australia. [*invited*]

Upstream and downstream recovery of fish assemblages to multiple dam disturbance gradients. 2005. American Fisheries Society, Madison, WI.

Forecasting current and future patterns of biotic homogenization in response to urbanization. 2005. Society for Conservation Biology, New York, NY. [*invited*]

A hierarchical understanding and prediction of fish species distributions in Canada. 2004. Massey University, Palmerston North, New Zealand. [*invited*]

Impacts of altered riverine thermal regimes on warmwater fish assemblages – the establishment of productive tailwater trout fisheries, but at what cost? 2004. American Fisheries Society (Southern Division), Oklahoma City, OK.

A hierarchical understanding and prediction of fish species distributions in Ontario. 2003. Canadian Conference for Fisheries Research, Toronto, Ontario, Canada.

Movement mechanics and behaviour of an herbivorous insect larva across complex benthiscapes. 2002. North American Benthological Society, Pittsburg, PE.

Artificial neural networks and the development of predictive models for temperate fish communities. 2001. Canadian Conference for Fisheries Research, Toronto, Ontario, Canada.

Artificial neural networks: New insight in modeling fish-habitat relationships. 2001. International Association for Great Lakes Research, Trois-Rivere, Ontario, Canada.

The use of regression trees and neural networks to model freshwater fish assemblages. 1999. Ecological Society of America, Spokane, WA

Spatial isolation in drainage lakes: Implications for community ecology of fishes. 1998. American Society of Ichthyologists and Herpetologists, Guelph, Ontario, Canada.

Grants

U.S. Geological Survey. *Anticipating climate-driven spread and impact of multiple interacting invasive species in the Columbia River Basin* (2022-25). Lead PI.	$349,000
Washington Department of Fish and Wildlife. *Ecology of non-native fishes* (2021-23). Lead PI	$36,400
Washington State Department of Ecology. *Testing diver-assisted and autonomous suction harvesting to control Myriophyllum spicatum* (2021-23). Lead PI.	$75,000
CNRS-INEE (France). International Research Project - *Patterns, drivers and consequences of community disassembly in lake ecosystems* (2021-2025). Co-PI.	$50,000
National Science Foundation – Macrosystems Biology. *Scale, Space, and Time: A Unifying Approach to Aquatic Invasions* (2020-2023). Co-PI ($75,000 share)	$783,463
U.S. Geological Survey. *Evaluating species' adaptive capacity in a changing climate: applications to natural-resource management in the northwestern US* (2020-21). Co-PI	$122,410
National Science Foundation. *Intermittent River Research Coordination Network: Integrating Intermittent River Ecology and Hydrology* (2018-2022). Senior personnel	N/A
U.S. Fish and Wildlife Service. *Lateral and longitudinal occupancy of Chehalis floodplain habitats to guide restoration and conservation decision-making* (2019-20). Lead PI	$32,627

Washington State Department of Ecology. *eDNA monitoring for aquatic invasive plants in Washington State* (2017-19). Lead PI	$74,889
CREOi Foundation. Information System and Stakeholder Symposium to Support the Conservation of Olympic mudminnow (*Novumbra hubbsi*) (2018). Lead PI	$20,000
Department of Defense. *Flow-population models for tracking non-stationary changes in riparian and aquatic ecosystems* (2015-2018). Co-PI	$1,630,000
CREOi Foundation. Identify conservation challenges and opportunities for the endemic Olympic mudminnow (*Novumbra hubbsi*). (2017). Lead PI	$20,000
Washington Department of Fish and Wildlife. Engaging volunteers in the whole-lake eradication of invasive red swamp crayfish. (2015-2017). Lead PI	$7,015
Washington State Department of Ecology. *Chehalis River parrotfeather control and assessment* (2015-16). Lead PI	$56,306
U.S. Fish and Wildlife Service. *Assessing aquatic integrity in western United States* (2014-15). Lead-PI	$170,000
Department of Defense. *Population genetics of Hyla wrightorum (Arizona treefrog) on Fort Huachuca, Arizona* (2014-2015). PI *	$17,905
Washington State Department of Ecology. *Does aquatic weed management promote habitat restoration for Olympic mudminnow?* (2013-15). Lead PI	$60,462
Washington Department of Fish and Wildlife. Engaging volunteers in the whole-lake eradication of invasive red swamp crayfish. (2013-15). Lead PI	$8,438
Department of Defense. *Predicting, measuring, and monitoring aquatic invertebrate biodiversity on dryland military bases.* (2012-2016). Co-PI	$1,560,000
Department of Defense. *Hydroecology of intermittent and ephemeral streams: will landscape connectivity sustain aquatic organisms in a changing climate?* (2010-2014). Lead-PI	$1,478,000
U.S. Geological Survey (Aquatic GAP Program). *Conservation planning for fishes in the Upper Colorado River Basin* (2010-2013). Co-PI	$780,000
U.S. Geological Survey (National Fish Habitat Action Plan). *Managing the Nations fish habitat at multiple spatial scales in a rapidly changing climate* (2010-2012). Co-PI	$2,418,000
U.S. Geological Survey (National Fish Habitat Initiative). *Assessing the threats to freshwater fishes in the Lower Colorado River Basin* (2009-2011). Co-PI	$379,000
Oregon Zoo. *Forecasting the potential spread and impacts of invasive crayfish in the northwestern United States* (2009). Co-PI	$4,300
Washington State Department of Ecology. *Prioritizing management efforts for aquatic nuisance species in Washington* (2009-2010). Lead PI	$40,900
U.S. Environmental Protection Agency - STAR Program. *Integrating future climate change and riparian land-use to forecast the effects of stream warming on species invasions and their impacts on native salmonids* (2008-2011). Lead-PI	$587,000
U.S. Geological Survey (Aquatic GAP Program). *Forecasting fish species invasions in the Lower Colorado River Basin* (2007-2010). Lead-PI	$165,000
National Oceanic and Atmospheric Administration. *Non-native species impacts on threatened and endangered salmonids* (2008-2009). Co-PI	$18,000
National Oceanic and Atmospheric Administration. *Developing tools for estimating salmon population benefits of restoring environmental flows to regulated or diverted tributaries* (2008-2009). Co-PI	$87,000
National Oceanic and Atmospheric Administration. *Ecologically sustainable water management in Washington State: Developing flow management tools for watershed planning* (2007-2008). Co-PI	$84,000
The Nature Conservancy David H. Smith Conservation Postdoctoral Fellowship (2004).	$155,000
National Science Foundation – Dissertation Improvement Grant (2004).	$11,600
Natural Sciences and Engineering Research Council of Canada – Graduate Fellowship PGS B (2001).	$38,200
Natural Sciences and Engineering Research Council of Canada – Graduate Fellowship PGS A (1999).	$34,600

Awards

Ecological Society of America – Fellow (2022)
Web of Science Most Highly Cited Researcher recognizing the world's most influential researchers (2022, 2021, 2020, 2019, 2018)
School of Aquatic and Fishery Sciences, Worthington Endowed Professor (2021-present)
American Fisheries Society Fellow (2020)
H.B.N. Hynes Lecturer, Canadian Rivers Institute (2015)
Aldo Leopold Leadership Fellow, Stanford Woods Institute for the Environment (2015-present)
Ecological Society of America – Early Career Fellow (2013)
School of Aquatic and Fishery Sciences, H. Mason Keeler Endowed Professor (2012-2018)
National Geographic Society, Committee for Research and Exploration Award (2014)
American Philosophical Society, Franklin Research Grant Award (2014)
Mohamed bin Zayed Species Conservation Fund Award (2013)
Canadian Conference for Fisheries Research, Stevenson Award (2011)
UW College of the Environment, Outstanding Researcher Award (2010)
Society for Conservation Biology, Early Career Conservationist Award (2010)
American Fisheries Society, Skinner Memorial Award (2004)
Society for Conservation Biology, Annual Student Travel Award (2004)
American Fisheries Society, Jimmie Pigg Memorial Outstanding Student Achievement Award (2004)
American Fisheries Society, Colorado State University Outstanding Contribution Award (2003)
American Museum of Natural History, Theodore Roosevelt Memorial Scholarship (2003)
American Fisheries Society Western Division, William Trachtenberg Scholarship (2003)
Cowpasture River Preservation Association, Janice LaRue Grant (2003)
Canadian Conference for Fisheries Research, Clemens, Rigler Travel Award (2003)
Ocean Journal Research Scholarship (2002)
Colorado State University, Ecology Research Grant (2002)
Transactions of the American Fisheries Society, Robert L. Kendall Best Paper Award (2001)
International Association for Great Lakes Research, Presentation Award Honorable Mention (2001)
University of Toronto, Frederick P. Ide Graduate Award (2001)
Outstanding Teaching Assistant Award, University of Toronto (2000)
Outstanding Teaching Assistant Award, University of Toronto (1999)
University of Toronto, Edna Margaret Robertson Scholarship (1999)
University of Toronto Open Fellowship (1998)

Synergistic Activities

French Centre for the Synthesis and Analysis of Biodiversity (CESAB) Working Group. *Food-webs in the Anthropocene: a stable isotope synthesis to understand the global response of freshwater ecosystems* (2023-present), Participant.
National Science Foundation Graduate Training Program, *Future Rivers* (2020-present), Executive Committee. Future Rivers seeks to develop an innovative, culturally aware STEM trained workforce in the freshwater sciences.
American Fisheries Society, *Climate Change Working Group* (2019-present), Participant.
German Centre for Integrative Biodiversity Research (iDiv) Working Group, *The geography of synchrony in dendritic networks: understanding the causes, dynamics, and consequences across multiple scales* (2019-2022), Lead PI.
USGS Powell Center Working Group, *Synthesizing Multiple Long-Term Datasets to Test Flow Ecology Relationships* (2019-present), Participant.
Australian ARC Discovery Working Group (2018 – present), Member.
Policy Rapid Response Team - Ecological Society of America (2012-present): Working closely with the ESA's Public Affairs Office to identify the potential ecological consequences of proposed federal regulations and legislation, respond quickly to media inquiries, assist ESA with position statements, present ecological research at ESA congressional briefings, and interact with congressional offices.
Science Communication Task Force, Member - College of the Environment, University of Washington (2012-present): Developing the College's position statement on advancing science communication by faculty, staff and graduate students. The task force is charged with changing the culture of science communication in the College by seeking opportunities to better engage in outreach.

Center for Creative Conservation, Co-director – University of Washington (2015-2018): The Center for Creative Conservation is a hybrid think-tank, research group, and collaborative innovation network of diverse partners that develops and implements strategies to ensure ecosystem sustainability in natural and built environments.

Doris Duke Conservation Scholars Program, Steering Committee – University of Washington (2013-2018): This ambitious project seeks to shift the demographic landscape at major conservation institutions to more accurately reflect the multicultural, multiethnic and interdisciplinary society of today and tomorrow.

Freshwater Working Group, Board Member - Society of Conservation Biology (2013-2020): Working group that reports directly to SCB Executive Office on matters related to the biggest pressures and key processes threatening freshwater ecosystems and consequences for human livelihood and health.

National Invasive Species Council – Advisory Committee (2012): Provided expertise regarding emerging vectors of biological invasions in the United States associated with the electronic commerce era.

Freshwaters Illustrated, Board of Directors (2010-2019): Serving on the Board of Directors for this nonprofit organization whose mission is to educate diverse public audiences about the life, study, and conservation of freshwater ecosystems through illustrative science-based efforts, and to provide illustrative resources and services to scientists, educators, and media specialists.

Climate Change and Global Health Joint Initiative Faculty Fellow - University of Washington (2010-present): A trans-disciplinary initiative that focuses on food security and water resources, where 10 faculty fellows collaborate to realize new approaches to water and food security at the intersection of ecosystems and human health.

Principal Investigator, Schools and Science Curricula as Potential Pathways for Aquatic Invasive Species (2010 – present): Project with multiple partners in the U.S and Canada developing tools and products that can help prevent new invasions while maintaining live organisms as a learning tool in the classroom.

National Center for Ecological Analysis and Synthesis, Evaluating responses of freshwater ecosystems to experimental water management. Santa Barbara, CA. (2009-2011): Co-PI for an expert workshop focusing the science, management and policy of large-scale water resource strategies aimed at improving freshwater ecosystem health and meeting human demands for fresh water.

Editor for Ecological Applications (2013-present, Associate), Frontiers in Ecology and the Environment (2010-present), Elementa (2012-2022), Ideas in Ecology and Evolution (2008-2012), Conservation Biology (2010-2012), Global Ecology and Biogeography (2006-2010): Dedicated service to science through editorial excellence to multiple scientific journals.

Hutton Scholar Mentor - American Fisheries Society (2009, 2011, 2012, 2013, 2016, 2018. 2020): Dedicated mentor to high school students seeking experience in the environmental sciences.

David H. Smith Conservation Research Fellowship (2004-2006): The Smith Fellowship Program seeks to develop future world leaders and entrepreneurs who link conservation science and application.

International Congress of Ecology, Symposium Species invasions, environmental change and the future biogeography of freshwater fishes. Brisbane, Australia. 2009. Organizer.

California State Water Resources Control Board. 2011 & 2014. Expert reviewer.

Ecological Society of America, First Millennium Conference – Water-Ecosystem Services, Drought, and Environmental Justice (Workshop). Athens, GA. 2009. Participant.

U.S. Geological Survey and Grand Canyon Monitoring and Research Center – Independent Panel Review, Phoenix, AZ. 2008. Participant.

Canadian Aquatic Invasive Species Network (Workshop) – Environmental niche modeling to match invasion habitats between North America and Europe. Halifax, NS. 2008. Participant.

Regional-scale streamflow-ecology relationships (Workshop), TNC/USGS, Seattle, WA. 2008. Participant.

Instream Flow / Viable Salmonid Population Science (Workshop), Department of Ecology, Seattle, WA. 2008. Participant.

Global Water System Project (Workshop). University of New Hampshire. 2007. Participant.

Northwest Power and Conservation Council, ISAB review. 2007-2008. Ad Hoc member.

National Center for Ecological Analysis and Synthesis (Workshop), Machine Learning for the Environment. Santa Barbara, CA. 2006. Participant.

Upper Gila River Science Forum for the New Mexico Interstate Stream Commission. New Mexico. 2006. Panel Expert.

Environmental Law Institute (Workshop) – Assessing Gaps and Needs for Invasive Species Management in a Changing Climate. Washington, D.C. 2006. Participant.

National Center for Ecological Analysis and Synthesis (Workshop), *Assessing the Future Research Needs for the USGS Aquatic GAP Program*. Santa Barbara, CA. 2006. Participant.
Global River Sustainability Project (Workshop). Estes Park, CO. 2005. Participant.
Global River Sustainability Project (Workshop). Brisbane, Australia. 2004. Participant.

University Service

Mentorship

Graduate Students
- Gio Jacuzzi, MS (2022-present)
- Claire Vaage, MS (2022-present)
- John Winkowski, PhD (2021-present)
- Emily Jameson, MS (2021-present)
- Rachel Fricke, MS (2020-present)
- Jessica Diallo, MS (2020-present)
- Brielle Thompson, MS (2020-present)
- Shelley Johnson, MS (2019-2023)
- Rebeka Stiling, MS (2017-2021)
- Mathias Messenger, MS (2015-2017)
- Jane Fencl, PhD (2015-2019)
- Thiago Couto (2015-2019)
- Erika Rubenson, PhD (2013-2019)
- Will Chen, MS (2014-2017)
- Elliot Koontz, MS (2015-2019)
- Keith Fritschie, MS (2012-2015)
- Laura Twardochleb, MS (2011-2015)
- Meryl Mims, MS (2009-2010), PhD (2011-2015)
- Polly Gibson, MS (2011-2013)
- David Lawrence, PhD (2009-2013)
- Lauren Kuehne, MS (2009-2012)
- Eric Larson, PhD (2008-2011)
- Thomas Pool, PhD (2008-2011)

Post-doctoral Researchers
- Xingli Giam (2014-2016)
- Lise Comte (2014-2018)
- Renata Frederico (2014-2015)
- Ben Stewart-Koster (2011-2013)
- Kristin Jaeger (2010-2012)
- Angela Strecker (2009-2011)
- Cathy Reidy Liermann (2008-2010)

Undergraduate Students
- Phillip Campbell (2008)
- Ben Clemence (2008)
- Chris Biggs (2010)
- Hannah Darrin (2010)
- Kimberly Wood (2011)
- Jeff Thornton (2011)
- Jason Hill (2011)
- Sean Luiz (2011)
- Meghan Rosewood (2013)
- Hannah Fotherby (2013)
- Jessie Hale (2014)
- Beka Stiling (2014)
- Amaryllis Adey (2014)
- Ethen Whattam (2019)
- Rachel Fricke (2019)
- Hannah Kieler (2020)

*selected students with co-authored publications

Research Staff
- Lauren Kuehne (2012-2019)
- Mariana Tamayo (2009-2011)

Committee Member (past and present)

60 graduate students (University of Washington, Rutgers University, Kansas State University)

School and University Committees

University of Washington - Quantitative Ecology and Resource Management Program (2014-present)
College of the Environment - Scholarship & Funding Committee (2019-present)
School of Aquatic and Fishery Sciences - Computing Committee (2018-present)
College of the Environment - Science Communication Advisory Group (2014-2019)
School of Aquatic and Fishery Sciences - Recruiting and Admission School Committee (2008-2018)
School of Aquatic and Fishery Sciences - Young Investigator Seminar Series, Co-organizer (2008)